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Support in the Preparation of the Strategic Environmental  
Assessment (SEA) for the Republic Of Croatia's Transport  
Development Strategy

IPA 2007/HR/16/IPO/002-0215

# STRATEGIC ENVIRONMENTAL IMPACT STUDY FOR TRANSPORT DEVELOPMENT STRATEGY OF REPUBLIC OF CROATIA

June 2014

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<b>Project Reference No:</b>	IPA 2007/HR/16/IPO/002-0215
<b>Contractor</b>	Planet S.A
<b>Title</b>	<b>Strategic study of the Environmental impact of Transport Development Strategy of Republic of Croatia</b>
<b>Project Leader</b>	<b>Demetrios Economides,</b> Chemical Engineer MSc, Team Leader – Environmental expert
<b>Working Team</b>	<b>George Emmanoulopoulos,</b> MSc in transport planning engineering, Transport Expert

#### **Main assessment of on Ecological Network, Annex 1**

<b>Team Leader</b>	<b>Demetrios Economides,</b> Chemical Engineer MSc, Team Leader – Environmental expert
<b>Consultation and information</b>	<b>Ministry of Maritime Affair, Transport and Infrastructure</b>

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## REPUBLIKA HRVATSKA

### MINISTARSTVO ZAŠTITE OKOLIŠA I PRIRODE

10000 Zagreb, Ulica Republike Austrije 14

Tel: 01/ 3717 111 fax: 01/ 3717 149

KLASA: 351-01/13-04/230

URBROJ: 517-06-2-1-1-13-2

Zagreb, 8. studenog 2013.

Ministarstvo zaštite okoliša i prirode na temelju članka 32. stavka 4. Pravilnika o uvjetima za izdavanje suglasnosti pravnim osobama za obavljanje stručnih poslova zaštite okoliša („Narodne novine“, broj 57/10), povodom obavijesti Dimitrios Oikonomidisa sa prebivalištem u Helenskoj Republici, a boravištem na adresi Mrazovićeve 10, Zagreb, Hrvatska, o namjeri zaključenja ugovora, nakon provedenog postupka utvrđivanja ispunjavanja uvjeta za obavljanje stručnih poslova zaštite okoliša, izdaje

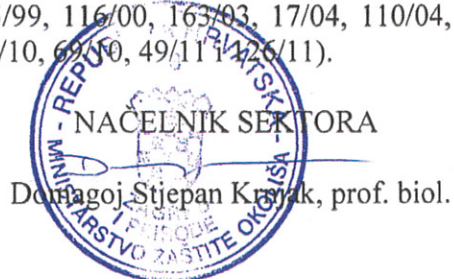
### P O T V R D U

Prihvaća se obavijest Dimitrios Oikonomidisa sa prebivalištem u Helenskoj Republici, a boravištem na adresi Mrazovićeve 10, Zagreb (u daljnjem tekstu: strani ovlaštenik) o namjeri zaključivanja ugovora o obavljanju stručnih poslova zaštite okoliša sukladno Pravilniku o uvjetima za izdavanje suglasnosti pravnim osobama za obavljanje stručnih poslova zaštite okoliša.

Ova se potvrda izdaje na temelju obavijesti stranog ovlaštenika, uz koju su dostavljeni sljedeći dokazi: Potvrda Ministarstva razvoja, konkurentnosti, infrastrukture, transporta i mreža Helenske Republike prema kojoj je Dimitrios Oikonomidis u Helenskoj Republici ovlašten obavljati poslove izrade studije utjecaja na okoliš, kao i ostale srodne poslove iz tog područja.

**Potvrda služi kao prilog dokumentaciji za obavljanje stručnih poslova izrade projekta Potpora u pripremi Strateške procjene utjecaja na okoliš za Strategiju prometnog razvoja RH (IPA2007/HR/16/IPO/002-0215/).**

Upravna pristojba za ovu potvrdu naplaćena je upravnim biljezima u iznosu od 40,00 kuna u skladu s točkom 1. i 4. Tarife upravnih pristojbi, Zakona o upravnim pristojbama („Narodne novine“, brojevi 8/96, 77/96, 131/97, 68/98, 66/99, 145/99, 116/00, 163/03, 17/04, 110/04, 141/04, 150/05, 153/05, 129/06, 117/07, 25/08, 60/08, 20/10, 69/10, 49/11 i 42/11).



Dostaviti:

1. Dimitrios Oikonomidis, Mrazovićeve 10, Zagreb
2. Evidencija, ovdje
3. Spis predmeta, ovdje

P/2139681\*



REPUBLIKA HRVATSKA  
Ministarstvo pomorstva, prometa  
i infrastrukture

KLASA: 303-03/13-01/150  
URBROJ: 530-08-2-3-2-13-25  
Zagreb, 5. studenoga 2013. godine

Na temelju članka 66. stavka 3. Zakona o zaštiti okoliša („Narodne novine“, broj 80/13) i članka 4. stavka 2. Uredbe o strateškoj procjeni utjecaja plana i programa na okoliš („Narodne novine“, broj 64/08), ministar pomorstva, prometa i infrastrukture donosi

## **ODLUKU**

### **o provođenju postupka strateške procjene utjecaja na okoliš za Strategiju prometnog razvoja Republike Hrvatske**

#### **I.**

Donošenjem ove Odluke započinje postupak strateške procjene utjecaja na okoliš za Strategiju prometnog razvoja Republike Hrvatske (u daljnjem tekstu: Strategija). Tijelo nadležno za provođenje postupka strateške procjene Strategije i izradu Strategije je Ministarstvo pomorstva, prometa i infrastrukture (u daljnjem tekstu: Ministarstvo).

#### **II.**

Razvoj prometne infrastrukture u Republici Hrvatskoj neophodan je za ekonomski i socijalni razvoj i promicanje međuregionalne razmjene. To je instrument za regionalni razvoj, olakšavanje protoka roba, kao i pristupa ljudi zapošljavanju, zdravstvenoj zaštiti, obrazovanju i rekreaciji. Hrvatsku presijecaju Pan-europske prometne mreže (koridora Vb, Vc i X) te je uz Jadransko more u povoljnom položaju za razvoj prometne mreže i pripadajućih djelatnosti koje mogu postati pokretači njenog gospodarskog rasta. Kako bi iskoristila prednosti svog zemljopisnog položaja, važno je da Hrvatska razvije prometni sektor i nadogradi dijelove prometne mreže, ne samo u skladu s vlastitim razvojnim potrebama, već i s međunarodnim potrebama, kako bi se integrirala u Trans-europske prometne mreže. Nastavno na navedeno, prethodno iskustvo u okviru proširenja Europske unije pokazuje da je poboljšanje ruralno/regionalnog pristupa i prometne povezanosti, osobito među rubnim područjima, potrebno za ekonomske i socijalne kohezije i ublažavanja regionalnih razlika.

Strategija se izrađuje za plansko razdoblje od 20 godina, a koristit će Ministarstvu kao osnova za utvrđivanje srednjoročnih i dugoročnih ciljeva prometnog razvoja Republike Hrvatske i poravnanje tih ciljeva sa širim EU prometnim strategijama, a okolišna razmatranja moraju biti u potpunosti integrirana u pripremi dokumenta.



### III.

Radnje koje će se provesti u postupku strateške procjene utjecaja Strategije na okoliš provode se sukladno odredbama Zakona o zaštiti okoliša, Uredbe o strateškoj procjeni utjecaja plana i programa na okoliš (u daljnjem tekstu: Uredba) i odredbama posebnih propisa iz područja iz kojega se Strategija donosi, redosljedom provedbe kako je utvrđeno u Prilogu I. ove Odluke.

U okviru strateške procjene utjecaja Strategije na okoliš, provest će se postupak Glavne ocjene prihvatljivosti za ekološku mrežu prema Rješenju Ministarstva zaštite okoliša i prirode (KLASA: UP/I-612-07/13-71/129, URBROJ: 517-07-2-2-13-4, od 31. listopada 2013. godine) sukladno članku 49. Zakona o zaštiti prirode („Narodne novine“, broj 80/13).

### IV.

U postupku strateške procjene prema ovoj Odluci sudjelovat će tijela navedena u Prilogu II. ove Odluke.

### V.

Ministarstvo je o ovoj Odluci dužno informirati javnost sukladno odredbama Zakona o zaštiti okoliša i odredbama Uredbe o informiranju i sudjelovanju javnosti i zainteresirane javnosti u pitanjima zaštite okoliša („Narodne novine“, broj 64/08), kojima se uređuje informiranje javnosti i zainteresirane javnosti u pitanjima zaštite okoliša.

### VI.

Ova Odluka stupa na snagu danom donošenja.

  
dr. sc. Simša Hajdaš Dončić

**PRILOG I. Redoslijed radnji koje će se provesti u postupku strateške procjene utjecaja Strategije prometnog razvitka Republike Hrvatske na okoliš**

Radnje koje se provode u postupku strateške procjene utjecaja Strategije prometnog razvoja Republike Hrvatske na okoliš su:

1. Ministarstvo započinje postupak u roku od osam dana od dana donošenja ove Odluke. Prva radnja u tom postupku je određivanje sadržaja strateške studije. U svrhu određivanja sadržaja strateške studije Ministarstvo će u navedenom roku zatražiti mišljenja tijela nadležnih za pojedine sastavnice okoliša i opterećenja na okoliš (npr. vode, priroda, zrak, more, tlo, krajobraz, kulturno – povijesna baština, buka, otpad itd.) o sadržaju strateške studije (tijelima će se dostaviti Odluka o izradi Strategije i programska polazišta i ciljevi). U svrhu usuglašavanja mišljenja o sadržaju Strateške studije provodi se rasprava u kojoj sudjeluju gore navedena tijela. Ove radnje provode se sukladno odredbama članaka 6. do 9. Uredbe o strateškoj procjeni utjecaja plana i programa na okoliš.
2. U postupku određivanja sadržaja studije Ministarstvo će objaviti na svojoj internetskoj stranici Odluku o izradi Strategije, programska polazišta i ciljeve te informirati javnost o načinu sudjelovanja u postupku strateške procjene a sukladno odredbama članaka 5., 6. i 12 Uredbe o strateškoj procjeni utjecaja plana i programa na okoliš.
3. Nakon pribavljenih mišljenja tijela iz točke 1., Ministarstvo donosi Odluku o obaveznom sadržaju strateške studije sukladno članku 9. stavak 1. Uredbe o strateškoj procjeni utjecaja plana i programa na okoliš te objavljuje Odluku na internetskoj stranici Ministarstva
4. Ministarstvo u roku od 8 dana od donošenja Odluke o sadržaju Strateške studije, istu dostavlja Ovlašteniku koji će izraditi Stratešku studiju (sukladno članku 11. Uredbe o strateškoj procjeni utjecaja plana i programa na okoliš).
5. Nakon što Ovlaštenik izradi Stratešku studiju i nositelj izrade Strategije izradi radni materijal Nacrta prijedloga strategije, sve zajedno dostavlja se na uvid i raspravu Povjerenstvu kojeg imenuje Ministarstvo. Ove radnje obavljaju se prema članku 13. Uredbe o strateškoj procjeni utjecaja plana i programa na okoliš.
6. Postupak imenovanja i rad Povjerenstva propisan je odredbama Pravilnika o povjerenstvu za stratešku procjenu („Narodne novine“, broj 70/08). Nakon što u postupku prema člancima 9. i 10. Pravilnika ocijeni da je Strateška studija cjelovita i stručno utemeljena, Povjerenstvo donosi mišljenje o rezultatima Strateške studije u odnosu na Nacrt prijedloga strategije.
7. Nakon što razmotri mišljenje Povjerenstva Ministarstvo donosi Odluku o upućivanju Strateške studije i Nacrta prijedloga strategije na javnu raspravu sukladno članku 15. Uredbe o strateškoj procjeni utjecaja plana i programa na okoliš.
8. Postupak sudjelovanja javnosti u javnoj raspravi o Strateškoj studiji i Nacrtu prijedloga strategije provodi se prema odredbama članaka 5., 6. i 12. Uredbe o strateškoj procjeni utjecaja plana i programa na okoliš



9. Istodobno s upućivanjem na javnu raspravu, Ministarstvo Stratešku studiju i Nacrt prijedloga strategije dostavlja na mišljenje tijelima nadležnim za pojedine sastavnice okoliša i opterećenja na okoliš.
10. Nakon provedene javne rasprave, a prije upućivanja Nacrta konačnog prijedloga strategije u postupak donošenja, Ministarstvo je dužno prema odredbi članka 18. Uredbe o strateškoj procjeni utjecaja plana i programa na okoliš pribaviti mišljenje Ministarstva zaštite okoliša i prirode o provedenoj strateškoj procjeni.
11. U slučaju ocjene Povjerenstva da bi Strategija mogla prilikom provedbe značajno utjecati na okoliš i/ili zdravlje ljudi druge države, Ministarstvo će o istome obavijestiti Ministarstvo zaštite okoliša i prirode u svrhu pokretanja postupka prema drugoj državi, sukladno odredbama članka 17. Uredbe o strateškoj procjeni utjecaja plana i programa na okoliš.
12. Prije stavljanja u proceduru donošenja pri utvrđivanju Konačnog prijedloga strategije, obvezno se uzimaju u obzir rezultati Strateške procjene, mišljenja tijela i/ili osoba određenih posebnim propisom te se razmatraju primjedbe, prijedlozi i mišljenja javnosti i rezultati prekograničnih konzultacija ako su bile obvezne, koji su dani na Nacrt prijedloga strategije, mišljenje Savjetodavnog stručnog povjerenstva i mišljenje Ministarstva zaštite okoliša i prirode.
13. Nakon donošenja Strategije Ministarstvo izrađuje izvješće o provedenoj strateškoj procjeni i programu praćenja provedbe programa sukladno članicama 19. i 20. Uredbe o strateškoj procjeni utjecaja plana i programa na okoliš.
14. Izvješće o provedenoj strateškoj procjeni i donesenom programu Ministarstvo objavljuje na internetskoj stranici sukladno članku 19. Uredbe o strateškoj procjeni utjecaja plana i programa na okoliš.

## PRILOG II

**Popis tijela koji su prema posebnim propisima dužna sudjelovati u postupku strateške procjene slijedom nadležnosti za pojedinu sastavnicu okoliša odnosno opterećenje radi davanja mišljenja o sadržaju strateške studije i mišljenja na studiju i Naert Strategije**

1. Ministarstvo pomorstva, prometa i infrastrukture
2. Ministarstvo kulture, Uprava za zaštitu kulturne baštine
3. Ministarstvo zaštite okoliša i prirode, Uprava za zaštitu prirode
4. Ministarstvo zaštite okoliša i prirode, Uprava za zaštitu okoliša i održivi razvoj
5. Ministarstvo poljoprivrede, Uprava šumarstva, lovstva i drvne industrije
6. Ministarstvo poljoprivrede, Uprava poljoprivrede i prehrambene industrije
7. Ministarstvo poljoprivrede, Uprava vodnog gospodarstva
8. Ministarstvo turizma
9. Ministarstvo graditeljstva i prostornog uređenja, Uprava za prostorno uređenje
10. Ministarstvo graditeljstva i prostornog uređenja, Uprava za graditeljstvo, stanovanje i komunalno gospodarstvo
11. Ministarstvo zdravlja, Uprava za sanitarnu inspekciju
12. Bjelovarsko-bilogorska županija, Upravni odjel za graditeljstvo i komunalnu infrastrukturu
13. Brodsko-posavska županija, Upravni odjel za komunalno gospodarstvo i zaštitu okoliša
14. Dubrovačko-neretvanska županija, Upravni odjel za prostorno uređenje, gradnju i zaštitu okoliša
15. Grad Zagreb, Gradski ured za energetiku, zaštitu okoliša i održivi razvoj
16. Istarska županija, Upravni odjel za održivi razvoj
17. Karlovačka županija, Upravni odjel za prostorno uređenje, građenje i zaštitu okoliša
18. Koprivničko-križevačka županija, Upravni odjel za prostorno uređenje, gradnju i zaštitu okoliša
19. Krapinsko-zagorska županija, Upravni odjel za prostorno uređenje, gradnju i zaštitu okoliša
20. Ličko-senjska županija, Upravni odjel za graditeljstvo, zaštitu okoliša i prirode te komunalno gospodarstvo
21. Međimurska županija, Upravni odjel za zaštitu okoliša i komunalno gospodarstvo,
22. Osječko-baranjska županija, Upravni odjel za prostorno uređenje, graditeljstvo i zaštitu okoliša
23. Požeško-slavonska županija, Upravni odjel za gospodarstvo i graditeljstvo
24. Primorsko-goranska županija, Upravni odjel za prostorno uređenje, graditeljstvo i zaštitu okoliša
25. Sisačko-moslavačka županija, Upravni odjel za zaštitu okoliša i prirode
26. Splitsko-dalmatinska županija, Upravni odjel za graditeljstvo, komunalne poslove, infrastrukturu i zaštitu okoliša
27. Šibensko-kninska županija, Upravni odjel za zaštitu okoliša i komunalne poslove
28. Varaždinska županija, Upravni odjel za poljoprivredu i zaštitu okoliša
29. Virovitičko-podravska županija, Upravni odjel za prostorno uređenje, graditeljstvo, komunalne poslove i zaštitu okoliša
30. Vukovarsko-srijemska županija, Upravni odjel za prostorno uređenje, gradnju i zaštitu okoliša
31. Zadarska županija, Upravni odjel za prostorno uređenje, zaštitu okoliša i komunalne poslove
32. Zagrebačka županija, Upravni odjel za prostorno uređenje, gradnju i zaštitu okoliša
33. Hrvatska zajednica županija
34. Udruga općina u Republici Hrvatskoj
35. Udruga gradova u Republici Hrvatskoj





**REPUBLIKA HRVATSKA**  
**MINISTARSTVO ZAŠTITE OKOLIŠA**  
**I PRIRODE**

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**KLASA: UP/I-612-07/13-71/129**

**URBROJ: 517-07-2-2-13-4**

**Zagreb, 31. listopada 2013.**

Ministarstvo zaštite okoliša i prirode, Uprava za zaštitu prirode temeljem članka 18. Zakona o ustrojstvu i djelokrugu ministarstava i drugih središnjih tijela državne uprave (Narodne novine, br. 150/2011, 22/2012, 39/2013, 125/2013) i članka 48. stavak 6. Zakona o zaštiti prirode (Narodne novine, broj 80/2013), povodom zahtjeva Ministarstva pomorstva, prometa i infrastrukture, Prisavlje 14, Zagreb, za provedbu Prethodne ocjene prihvatljivosti za ekološku mrežu Strategije prometnog razvoja Republike Hrvatske donosi

**RJEŠENJE**

Ministarstvu pomorstva, prometa i infrastrukture, Prisavlje 14, Zagreb, da za planiranu Strategiju prometnog razvoja Republike Hrvatske, treba provesti Glavnu ocjenu prihvatljivosti za ekološku mrežu.

**Obrazloženje**

Ministarstvo pomorstva, prometa i infrastrukture, Prisavlje 14, Zagreb, kao nositelj izrade Strategije prometnog razvoja Republike Hrvatske, podnijelo je 9. listopada 2013. godine zahtjev za provedbu Prethodne ocjene prihvatljivosti za ekološku mrežu za predmetnu strategiju za koju se temeljem članka 63. stavka 1. podstavak 1. Zakona o zaštiti okoliša (Narodne novine, broj 80/2013) provodi postupak strateške procjene utjecaja na okoliš.

Po zaprimljenom zahtjevu sukladno članku 48. stavak 3. Zakona o zaštiti prirode, Ministarstvo zaštite okoliša i prirode, Uprava za zaštitu prirode zatražila je mišljenje Državnog zavoda za zaštitu prirode o mogućnosti značajnih negativnih utjecaja predmetne strategije na ciljeve očuvanja i cjelovitost područja ekološke mreže. 31. listopada 2013. godine zaprimljeno je traženo mišljenje, KLASA: 612-07/13-29/222, URBROJ: 366-07-2-13-2 od 30. listopada 2013. godine u kojem se navodi da se prethodnom ocjenom ne mogu isključiti značajni utjecaji predmetnog programa na ekološku mrežu.

Razmatrajući zahtjev Ministarstva pomorstva, prometa i infrastrukture, po uvidu u dostavljenu dokumentaciju elaborat „Strategija prometnog razvoja Republike Hrvatske – sažeci sektorskih strategija“ iz kolovoza 2013. godine, izrađenog od strane Ministarstva pomorstva, prometa i infrastrukture, ranije navedeni zahtjev kojim je zatražena provedba postupka Prethodne ocjene prihvatljivosti za ekološku mrežu u kojem su navedeni i osnovni podaci o planiranoj strategiji i Uredbu o ekološkoj mreži (Narodne novine, broj 124/2013) utvrđeno je slijedeće.



Strategija se izrađuje za plansko razdoblje 2014. - 2030. godine, a biti će polazište za utvrđivanje srednjoročnih i dugoročnih ciljeva prometnog razvoja i poravnavanje tih ciljeva sa širim prometnim strategijama.

Provedba projekta izrade Strategije prometnog razvoja Republike Hrvatske planirana je u 3 faze izrade:

U prvoj fazi potpisan ugovor za pripremu "Tehničkog tajništva za organizaciju procesa izrade sektorskih prometnih razvojnih strategija", koje čine polazište za izradu Strategije prometnog razvoja Republike Hrvatske. Angažirani su stručnjaci za rad sa sektorskim radnim grupama koje su bile zadužene za pripremu sektorskih analiza i podloga (sektorskih strategija), a činili su ih stručnjaci iz pojedinih sektora: unutarnji plovni putovi, željeznički promet, zračni promet, pomorstvo, cestovni promet, javna gradska, prigradska i regionalna mobilnost.

Drugu fazu projekta čini spajanje sektorskih prometnih strategija (sektor željeznica, cesta, pomorstva, unutarnjih plovnih putova i zračnog sektora, te javna gradska i prigradska regionalna mobilnost) u nacionalnu strategiju prometnog razvoja Republike Hrvatske. Predviđena je izrada same Strategije prometnog razvoja RH na osnovi prethodno izrađenih sektorskih prometnih razvojnih strategija.

Treća faza projekta obuhvaća izradu nacionalnog Prometnog modela koji će se koristiti za vrijeme trajanja buduće nacionalne prometne strategije. Model će simulirati prometne obrasce u vremenu i prostoru s ciljem predviđanja funkcioniranja prometnog sustava.

Glavne razvojne potrebe i izazovi koji se obrađuju u Strategiji prometnog razvoja Republike Hrvatske su: nekonkurentan željeznički sustav, nezadovoljavajuća sigurnost u prometu, nedovoljna financijska održivost prometnog sustava, mali udio okolišno prihvatljivih vrsta prijevoza (javni prijevoz i nula emisija načina rada), nedovoljno razvijeni tehnički standardi na TEN-T mreži u Hrvatskoj, nedovoljno razvijen intermodalni i multimodalni promet, uključujući i upravljanja prometom, niski kapacitet prihvata robe u glavnim pomorskim lukama i lukama na unutarnjim plovnim putovima u Hrvatskoj, slaba povezanost otoka i dijela regija (nedovoljna dostupnost i povezanost pojedinih regija i otoka) i slabo razvijen pomorski promet.

Osnovni ciljevi izrade Strategije prometnog razvoja su: usklađenje prometnog sektora s prometnim politikama EU, razvoj TEN-T mreže i pristupa na TEN-T mrežu; moderniziranje infrastrukture duž TEN-T mreže s naglaskom na osnovnu mrežu i koridore osnovne mreže, uključujući izgradnju potrebnih čvorišta, razvoj i modernizacija sustava javnog prijevoza, s posebnim naglaskom na željeznički sustav, povećanje sigurnosti u prometu, poboljšanje upravljanja prometom, uključujući razvoj ERTMS-a, RIS-a itd., razvoj modernih i konkurentnih sustava javnog prijevoza, poboljšanje održivosti prometnog sustava, eliminacija uskih grla u teretnom prometu (željeznički, pomorski promet, promet unutarnjim plovnim putovima), poboljšanje sposobnosti i pouzdanost usluga pomorskih luka te identificiranje uskih grla, povezivanje s regijama s niskom razinom povezivanja (udaljenim otocima, Dubrovačka regija), povećana financijska održivost u prometnim sektorima, poboljšanje udjela okolišno prihvatljivih prijevoznih sredstava.

Prostorni obuhvat programa je cijelo administrativno područje Republike Hrvatske.

Slijedom gore navedenog te analizom mogućih utjecaja predmetnog programa odnosno glavnih razvojnih potreba i osnovnih ciljeva Strategije prometnog razvoja Republike Hrvatske na područja ekološke mreže ocijenjeno je da se ne može isključiti mogućnost značajnog negativnog utjecaja na ciljeve očuvanja i cjelovitost područja ekološke mreže te da postoji višestruka vjerojatnost značajnog utjecaja predmetne Strategije tijekom provedbe.

Slijedom provedenog postupka Prethodne ocjene prihvatljivosti za ekološku mrežu planirane Strategije prometnog razvoja Republike Hrvatske, uvažavajući gore navedeno



mišljenje Državnog zavoda za zaštitu prirode, ocijenjeno je da nije moguće isključiti značajan utjecaj predmetne strategije, tijekom provedbe te je stoga riješeno kao u izreci.

Sukladno članku 49. Zakona o zaštiti prirode Glavna ocjena prihvatljivosti za ekološku mrežu provodi se u okviru postupka strateške procjene utjecaja na okoliš.

#### UPUTA O PRAVNOM LIJEKU

Ovo Rješenje je izvršno u upravnom postupku te se protiv njega ne može izjaviti žalba, ali se može pokrenuti upravni spor pred upravnim sudom na području kojeg tužitelj ima prebivalište, odnosno sjedište. Upravni spor pokreće se tužbom koja se podnosi u roku od 30 dana od dana dostave ovog Rješenja.

Tužba se predaje nadležnom upravnom sudu neposredno u pisanom obliku, usmeno na zapisnik ili se šalje poštom, odnosno dostavlja elektronički.



#### Dostaviti:

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2. Državni zavod za zaštitu prirode, Trg Mažuranića 5, Zagreb
3. Ministarstvo zaštite okoliša i prirode, Uprava za zaštitu okoliša i održivi razvoj, ovdje
4. U spis predmeta, ovdje



REPUBLIKA HRVATSKA  
Ministarstvo pomorstva, prometa  
i infrastrukture

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Na temelju članka 87., stavka 1. Zakona o zaštiti okoliša („Narodne novine“, broj 80/13),  
ministar pomorstva, prometa i infrastrukture donosi

#### ODLUKU

o imenovanju Savjetodavnog stručnog povjerenstva za stratešku procjenu utjecaja na  
okoliš za Strategiju prometnog razvoja Republike Hrvatske

#### I.

U savjetodavno stručno povjerenstvo za stratešku procjenu utjecaja na okoliš za Strategiju  
prometnog razvoja Republike Hrvatske imenuju se:

- **Dubravka Đurkan Horvat**, dipl.ing.arh., Uprava za prometnu infrastrukturu i fondove EU, Sektor za fondove EU, Ministarstvo pomorstva, prometa i infrastrukture, predsjednica povjerenstva
- **Ana Barišić**, struč. spec.ing.sec., Uprava za prometnu infrastrukturu i fondove EU, Sektor za fondove EU, Ministarstvo pomorstva, prometa i infrastrukture, tajnica povjerenstva
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- **mr.sc. Ana Kovačević**, Sektor za procjenu okoliša i industrijsko onečišćenje, Odjel za stratešku procjenu utjecaja na okoliš, Uprava za procjenu utjecaja na okoliš i održivo gospodarenje otpadom, Ministarstvo zaštite okoliša i prirode, član
- **dr.sc. Loris Elez**, Odjel za ekološku mrežu, Uprave za zaštitu prirode, Ministarstvo zaštite okoliša i prirode, član
- **Vesna Trbojević**, dipl.ing.građ, Uprava vodnoga gospodarstva, Ministarstvo poljoprivrede, član
- **Ana Mesarić**, dipl.ing.preh.teh, Ministarstvo poljoprivrede, Uprava vodnoga gospodarstva, zamjena člana



- **Željko Cvrtila**, Sektor za standarde u turizmu, Uprava za turističko tržište i međunarodnu suradnju, Ministarstvo turizma, član
- **Vesna Rajković**, Sektor posebnih oblika turizma te poduzetništva u turizmu, Uprava za turističko tržište i međunarodnu suradnju, Ministarstvo turizma, zamjena člana
- **Gordana Kovačević**, dipl.ing.arh., Odjel za kontinentalno područje, Uprava za prostorno uređenje, Ministarstvo graditeljstva i prostornog uređenja
- **Ružica Jurič**, Odjel cesta i sigurnosti prometa na cestama, Uprava cestovnog i željezničkog prometa, Ministarstvo pomorstva prometa i infrastrukture, član
- **Ljiljana Bosak**, Uprava cestovnog i željezničkog prometa, Ministarstvo pomorstva prometa i infrastrukture, član
- **Dubravka Lulić Krivić**, Uprava pomorske i unutarnje plovidbe, brodarstva, luka i pomorskog dobra, Ministarstvo pomorstva, prometa i infrastrukture, član
- **Dalibor Šušnjić**, dipl. arheolog, Ministarstvo kulture
- **mr. sc. Petra Cigić**, dipl.ing., Uprava za sanitarnu inspekciju, član Ministarstvo zdravlja,
- **Valerija Golub**, dipl.san.ing., Uprava za sanitarnu inspekciju, Ministarstvo zdravlja, zamjena člana
- **Snježana Đurišić**, Sektor za sustav prostornog uređenja, Ministarstvo graditeljstva i prostornog uređenja, član
- **Alojz Tomašević**, Hrvatska zajednica županija, član
- **Zlatko Filipović**, Hrvatska zajednica županija, zamjena člana

## II.

Povjerenstvo iz točke I. ove Odluke i zamjenici koji zamjenjuju pojedine članove, odnosno predsjednika Povjerenstva, obavezni su izvršavati zadaće sukladno odredbi Zakona o zaštiti okoliša (80/13) i na svoj rad primjenjivati odredbe Uredbe o strateškoj procjeni utjecaja plana i programa na okoliš (Narodne novine, broj 70/80) te Pravilnika o povjerenstvu za stratešku procjenu (Narodne novine, broj 70/08) na što je obavezan upozoriti tajnik Povjerenstva.

## III.

Ova Odluka stupa na snagu danom donošenja.

  
**MINISTAR**  
**dr. sc. Siniša Hajdaš Dončić**  






REPUBLIKA HRVATSKA  
Ministarstvo pomorstva, prometa  
i infrastrukture

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ministar pomorstva, prometa i infrastrukture donosi

## ODLUKU

### o imenovanju Savjetodavnog stručnog povjerenstva za stratešku procjenu utjecaja na okoliš za Strategiju prometnog razvoja Republike Hrvatske

#### I.

U savjetodavno stručno povjerenstvo za stratešku procjenu utjecaja na okoliš za Strategiju  
prometnog razvoja Republike Hrvatske imenuju se:

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- **Olja Budisavljević**, Uprava za prometnu infrastrukturu i fondove EU, Sektor za fondove EU, Ministarstvo pomorstva, prometa i infrastrukture, član, zamjena predsjednice povjerenstva
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- **Ana Kovačević**, Sektor za procjenu okoliša i industrijsko onečišćenje, Odjel za stratešku procjenu utjecaja na okoliš, Uprava za procjenu utjecaja na okoliš i održivo gospodarenje otpadom, Ministarstvo zaštite okoliša i prirode, član
- **Loris Elez**, Odjel za ekološku mrežu, Uprave za zaštitu prirode, Ministarstvo zaštite okoliša i prirode, član
- **Vesna Trbojević**, Uprava vodnoga gospodarstva, Ministarstvo poljoprivrede, član
- **Ana Mesarić**, Ministarstvo poljoprivrede, Uprava vodnoga gospodarstva, zamjena člana
- **Željko Cvrtila**, Sektor za standarde u turizmu, Uprava za turističko tržište i međunarodnu suradnju, Ministarstvo turizma, član

- **Vesna Rajković**, Sektor posebnih oblika turizma te poduzetništva u turizmu, Uprava za turističko tržište i međunarodnu suradnju, Ministarstvo turizma, zamjena člana
- **Gordana Kovačević**, Odjel za kontinentalno područje, Uprava za prostorno uređenje, Ministarstvo graditeljstva i prostornog uređenja
- **Ružica Jurić**, Odjel cesta i sigurnosti prometa na cestama, Uprava cestovnog i željezničkog prometa, Ministarstvo pomorstva prometa i infrastrukture, član
- **Ljiljana Bosak**, Uprava cestovnog i željezničkog prometa, Ministarstvo pomorstva prometa i infrastrukture, član
- **Dubravka Lulić Krivić**, Uprava pomorske i unutarnje plovidbe, brodarstva, luka i pomorskog dobra, Ministarstvo pomorstva, prometa i infrastrukture, član
- **Dalibor Šušnjić**, Ministarstvo kulture
- **Petra Cigić**, Uprava za sanitarnu inspekciju, član Ministarstvo zdravlja,
- **Valerija Golub**, Uprava za sanitarnu inspekciju, Ministarstvo zdravlja, zamjena člana
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## II.

Povjerenstvo iz točke I. ove Odluke i zamjenici koji zamjenjuju pojedine članove, odnosno predsjednika Povjerenstva, obavezni su izvršavati zadaće sukladno odredbi Zakona o zaštiti okoliša (80/13) i na svoj rad primjenjivati odredbe Uredbe o strateškoj procjeni utjecaja plana i programa na okoliš (Narodne novine, broj 70/80) te Pravilnika o povjerenstvu za stratešku procjenu (Narodne novine, broj 70/08) na što je obavezan upozoriti tajnik Povjerenstva.

## III.

Ova Odluka stupa na snagu danom donošenja, čime se izvan snage stavlja Odluka od 19. veljače 2014. godine (Kl. 303-03/13-01/150, Ur.br. 530-08-2-3-2-14-65)

MINISTAR



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**ANNEX 1:** APPROPRIATE ASSESSMENT ACCORDING TO THE NATURE PROTECTION ACT (OG, 80/2013) AND REGULATIONS ASSESSMENT FOR PLANS, PROGRAMS AND PROJECTS FOR THE ECOLOGICAL NETWORK (OG 124/2013)

## 1. INTRODUCTION AND BACKGROUND

### 1.1. Scope and objectives

The Ministry of Maritime Affairs, Transport and Infrastructure (MMATI) of the Republic of Croatia is currently preparing the 20-year Transport Development Strategy of the Republic of Croatia, aiming at setting the development goals for transport in the country in coherence with the transport policy of the European Union.

The Transport Development Strategy (TDS), as a Strategic Transport Plan of the country, is subject to Strategic Environmental Assessment, according to Environmental Protection Act (Official Gazette 80/13), which is compliant to the SEA Directive 2001/42/EC and the relevant Croatian Regulation on Strategic Environmental Assessment of Plans and Programmes (Official Gazette 64/08)

The present report is the Draft SEA Study, produced in parallel to the TDS Study. The purpose of the report is to identify the likely significant effects of the Transport Development Strategy and to propose mitigation measures to reduce these effects.

### 1.2. The Strategic Environmental Assessment

#### 1.2.1 The SEA process

**Strategic environmental assessment (SEA)** is a systematic, pro-active and participative process that aims at ensuring that environmental aspects are given due consideration in planning and decision making above the project level, frequently referred to as 'strategic action' or 'policies, plans and programmes (PPPs)'. In the European Union, SEA Directive 2001/42/EC, (the 'SEA Directive') lays down the principles, methods and fields of application of SEA.

With respect to strategic actions in the transport sector, SEA is particularly useful in assisting the environmental analysis and assessment in inter-modal approaches. It helps structuring and focusing the environmental analysis on the key environmental benefits and costs of each transport mode, comparing alternative planning and management options in an integrated way and providing decision-makers with the relevant information to take the most sustainable decision.

The SEA process is a sequence of 7 steps, namely:

<b>Screening</b>	Is SEA necessary?
<b>Scoping</b>	<ul style="list-style-type: none"> <li>➤ What are the transport / environmental objectives of the infrastructure plan?</li> <li>➤ Which issues should be discussed in the assessment?</li> <li>➤ Which assessment method is feasible with the available data?</li> </ul>
<b>Environmental Assessment</b>	<ul style="list-style-type: none"> <li>➤ How significant are the impacts?</li> <li>➤ How can these be reduced if necessary?</li> <li>➤ How should these be monitored after decision-making?</li> </ul>

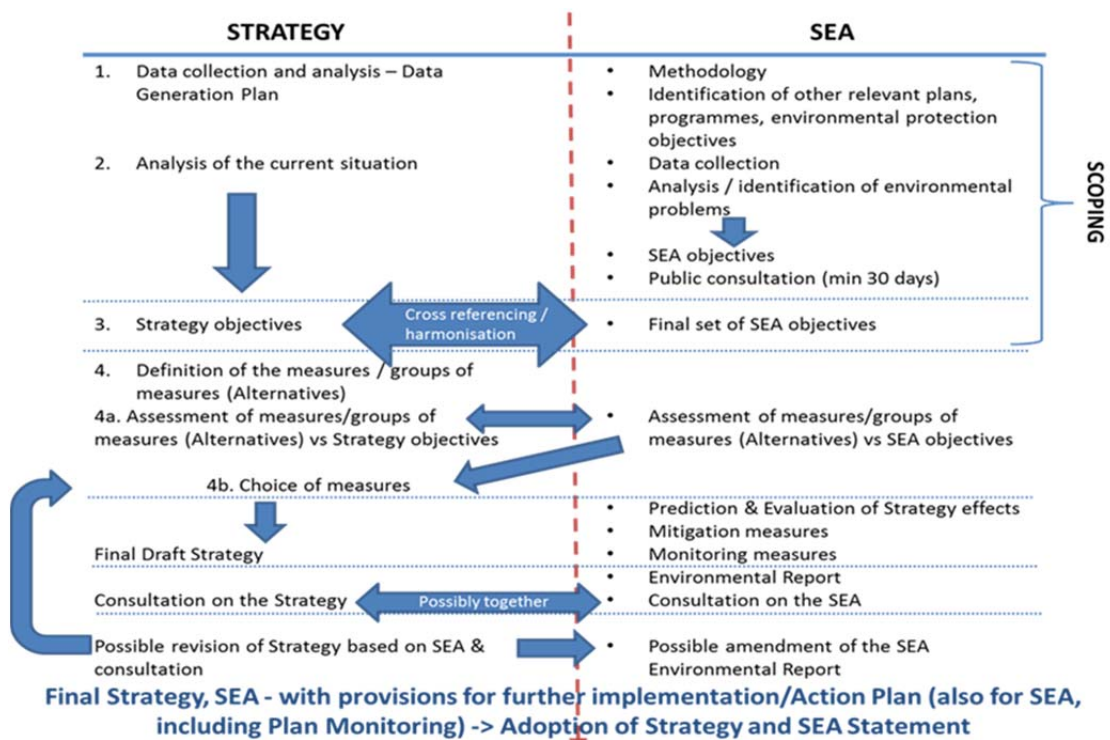


<b>Review</b>	<ul style="list-style-type: none"> <li>➤ Is the report user-friendly and unbiased?</li> <li>➤ Are all the relevant issues, including alternatives, discussed?</li> <li>➤ Are the forecasts and the associated methods presented clearly?</li> </ul>
<b>Implementation and Monitoring</b>	<ul style="list-style-type: none"> <li>➤ Is it clear how the transport infrastructure plan is to be implemented?</li> <li>➤ Are proposals for monitoring set down clearly?</li> <li>➤ Is there a mechanism for correcting any unacceptable aspects of implementation?</li> </ul>
<b>Consultation and Participation</b>	<ul style="list-style-type: none"> <li>➤ Is there any plan for public participation?</li> <li>➤ Is there a procedure to interact with the authorities of another country in case of transboundary corridor?</li> </ul>
<b>Decision Making</b>	<ul style="list-style-type: none"> <li>➤ • Is the SEA integrated into the planning process?</li> <li>➤ • Is the SEA linked with other types of assessment?</li> <li>➤ • Is the SEA fully considered in decision-making?</li> </ul>

Source: *The SEA manual, a sourcebook on Strategic Environmental Assessment of Transport Infrastructure plans and programmes*, European Commission, DG TREN

The procedure of the SEA approach and its relationship with the Transport Strategy Development is summarised as follows:

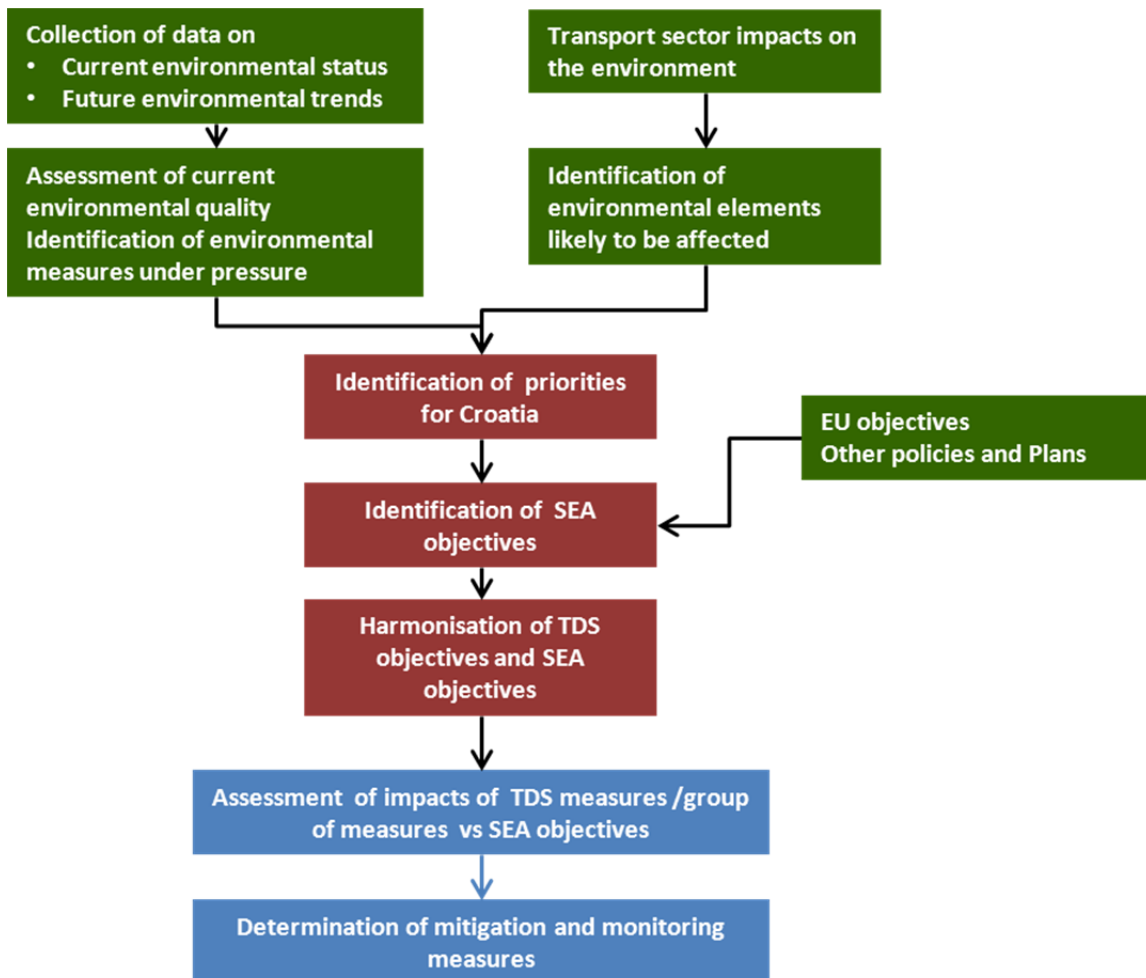
Figure 1-1: Key strategic Decision Making steps and parallel SEA stages.



### 1.2.2 Methodology of the SEA

The approach followed by the SEA team consists of the following stages:

Figure 1-2: SEA methodological steps



At a first stage existing information and data concerning the environmental status and future trends in Croatia are collected (contacts with Ministries and other competent authorities, existing reports and data bases of Croatia, EU and international organisations etc.). The examination of the existing data permits the identification of the environmental elements that are already under pressure or of which the quality should be preserved and /or improved. In parallel, the environmental impacts of transport infrastructure (both during construction and operation phase) lead to the identification of the environmental elements that are likely to be affected by the TDS in Croatia. The combination of the two permits the identification of priorities for the case of Croatia.

Once the priorities have been identified, and taking into account the objectives already set by relevant existing EU and national policies, the specific objectives for the TDS strategic environmental assessment (SEA objectives) are identified. The TDS objectives are assessed in order to identify their compatibility with the SEA objectives.

The impacts of the measures / group of measures of TDS are then assessed according to the SEA objectives, and by the use of the respective indicators. Thus an impact matrix is produced. An indicative impact matrix is presented hereafter. Timing and duration of the effects (short/ medium/ long term and temporary/ permanent) and potential cumulative and transboundary effects are also examined.

**Table 1-1: Impact assessment matrix**

Impact character	Symbols	Explanation
<b>Probability</b>	!!	Very probable
	!	Probable
<b>Scale</b>	--	Large scale negative
	-	Negative
	++	Large scale positive
	+	Positive
	0	Neutral
<b>Frequency / duration</b>	>>	Frequent to constant / Long Term to Permanent
	>	Occasional / Short term
<b>Reversibility</b>	IR	Irreversible
	R	Reversible
<b>Uncertainty (in any of the above cases)</b>	?	Possible impact totally depends on the implementation arrangements

### 1.2.3 Key phases and results

#### **Screening phase**

The screening phase aimed at consultation of the environmental authorities about the need of Strategic Environmental Assessment of the TDS. The screening phase was conducted prior to the commencement of the present assignment by MMATI. The decision on the need of SEA was issued on November 5<sup>th</sup> 2013.

#### **Scoping phase**

The scoping phase was conducted in the period September 2013 – January 2014. The Draft Scoping report was elaborated in September 2013 aiming at:

- Presenting a review of the current state of the environment in the country, as well as the evolution of environmental status without the realisation of the Strategy.



- Determining the environmental elements that are likely to be affected by the Strategy
- Setting up the environmental objectives that will be the basis for the assessment of the Transport Strategy
- Enabling consultation with stakeholders on the scope of the planned SEA work

The Scoping Report was prepared at a draft version, which was subject to comments by MMATI and JASPERS. The draft scoping report was subsequently revised according to the comments to a final draft version for the public consultation.

On November 27th 2013, a workshop was organised by MMATI for all stakeholders. The SEA expert presented the SEA approach and its interrelation with the Strategy, as well as the aims and findings of the scoping report (present state of environment in Croatia and future trends, environmental objectives). The Scoping Report was subject to Public Consultation (during December 2013 till 9/1/2014), the responses of which were used to guide the subsequent stages of the SEA process and the production of the Environmental Report.

### ***Environmental Assessment Phase***

The Environmental Assessment phase started after finalisation of the Scoping phase. The SEA was conducted in parallel with the TDS development and the SEA findings are based on the Draft TDS finalised in April 2014.

Based on the Draft TDS, the potential environmental impacts from the implementation of the Strategy were identified and respective mitigation measures were proposed.

The procedure is ongoing, since the TDS, as well as the SEA will be subject to Public Consultation in June – July 2014 and amended according to the results of the Public Consultation.

The Draft TDS will then be assessed again against SEA objectives.

After the fulfilment of this interactive procedure, the Final SEA Report (presenting how SEA results and public and stakeholders comments were addressed in TDS) will be submitted to the MoENP for positive opinion.

After finalisation of the above procedure, Government Adoption of the TDS will be launched. Expected time frame for the finalisation of the above procedures is September 2014

## **1.3. Compliance with the relative legislation**

### **1.3.1 Legislation on Strategic Environmental Assessment**

The SEA is carried out according to:

- Environmental Protection Act (Official Gazette 80/13)
- The Directive 2001/42/EC on environmental assessment of plans and programmes
- Regulation on strategic environmental assessment of plans and programmes (Official Gazette 64/08)

Table 1-2: Compliance of the SEA study with the SEA legislation

Requirement	Relevant SEA Study chapter
<b>an outline of the contents, main objectives of the plan or programme and relationship with other relevant plans and programmes;</b>	Chapter 2 – The Transport Development Strategy
<b>the relevant aspects of the current state of the environment and the likely evolution thereof without implementation of the plan or programme;</b> <b>the environmental characteristics of areas likely to be significantly affected by the implementation of the plan or programme; – any existing environmental problems which are relevant to the plan or programme including,</b> <b>in particular, those relating to any areas of a particular environmental importance, such as</b> <b>areas designated pursuant to special regulations governing nature protection;</b>	Chapter 3 - Current State of the environment in Croatia
<b>the environmental protection objectives, established upon conclusion of international treaties and agreements, which are relevant to the plan or programme and the way those objectives and any environmental considerations have been taken into account during its preparation;</b>	Chapter 4 - Environmental objectives
<b>the likely significant effects on the environment (secondary, cumulative, synergic, short- and long-term, permanent and temporary, positive and negative), including on issues such as biodiversity, the areas protected pursuant to special regulations, population, human health, fauna, flora, soil, water, air, climatic factors, material assets, cultural heritage, landscape and the interrelationship between the above factors</b>	Chapter 6 – Assessment of the Environmental Impacts of the TDS
<b>the environmental protection measures, including the measures envisaged to prevent, reduce, mitigate, and as fully as possible offset any significant adverse environmental effects of implementing the plan or programme</b>	Chapter 7 – Mitigation of the Environmental Impacts of the TDS
<b>an outline of the considered alternative options, explanation of the most reasonable alternative option of the plan or programme, and a description of how the assessment was carried out including any difficulties (such as technical deficiencies or lack of know-how) encountered in compiling the required information</b>	Chapter 5 – Assessment of alternatives
<b>a description of the envisaged measures concerning monitoring</b>	Chapter 8 – Monitoring Program
<b>The non-technical summary</b>	Attached as a separate document

### **1.3.2 Appropriate Assessment of the ecological network according to the Nature protection Act (Official Gazette 80/13) & the Regulation on Ecological Network (Official Gazette 124/2013).**

According to the Regulation on the assessments for plans, programs and projects for the ecological network (OG 118/2009), the rating of a plan or program consists of:

- ◆ Preliminary assessment of a plan or program,
- ◆ The main assessment of a plan or program with the assessment of suitable alternatives (hereinafter: The main assessment plan and program).

The Regulation foresees that for plans and programs for which the law governing environmental protection prescribed strategic assessment, and for the plans and programs for which is the need of a strategic assessment has been identified the Main assessment plan or program shall be carried out in the framework of the strategic assessment.

The Ministry of Environment and Nature Protection, Nature Protection Department issued a Decision on the obligation to carry out the Appropriate Assessment of the Strategy for the ecological network that must accompany the Study. In line with this decision, the Strategic Environmental Assessment Study includes an Appropriate Assessment

The content of Appropriate Assessment on ecological Network is prescribed in Annex II. Rules on assessing the acceptability of plans, programs and projects for the ecological network (Official Gazette No. 118/2009):

#### **1. Characteristics of the ecological network:**

- Description of the ecological network that implementation of the plan or program may be affected,
- Description of the objectives of preserving the ecological network,
- Cartographic representation of the ecological network in accordance with the appropriate scale cartographic representation of the plan or program.

#### **2. Characteristics of the impact of implementing the plan or program on the ecological network:**

- The probability, duration, frequency, potential impacts of implementing the plan or program on the conservation objectives and integrity of the ecological network,
- The cumulative nature of the impact of implementing the plan or program on the conservation objectives and integrity of the ecological network,
- The size and area of impact of implementing the plan or program on the conservation objectives and integrity of the ecological network.

3: Breakdown of suitable alternatives (alternative solutions) and the impact of alternative solutions to conservation objectives and integrity of the ecological network.



4. Mitigation of adverse effects of implementing the plan or program on the conservation objectives and integrity of the ecological network (mitigation, prevention, reduction of adverse effects of implementing the plan or program)

5 Conclusion on the impact of the plan or program on the ecological network:

- Proposed explanation of the reasons why it was determined that the plan or program has no harmful effect or explanation of the reasons why it was determined that a plan or program may have a detrimental impact on the conservation objectives and integrity of the ecological network
- Explanation of the proposal the most acceptable variant solution implementing the plan or program for the conservation objectives and integrity of the ecological network.

In this framework, an appropriate assessment on ecological network was conducted and it is annexed to the present report.

## 2. THE TRANSPORT DEVELOPMENT STRATEGY (TDS)

The present chapter describes briefly the current situation of the transport sector of Croatia, as well as the philosophy of TDS development, its objectives and components, as they were analysed in the strategic document.

### 2.1. Main characteristics of the Transport sector in Croatia

Although Croatia is a small country in terms of its geographical area, the distances of internal routes are longer than 300 km because of the U-shape of its territory. These characteristics, together with low population density level (75,7 people/square km (2011) and its irregular distribution, make it even more difficult to create a transportation system if compared to other countries with similar geographical area.

Another important factor that should be highlighted is the geographical location. Currently Croatia is a boundary country of EU and a transit country for passengers and goods coming from Western and Central Europe and heading towards the Balkan countries (Serbia, Bosnia and Herzegovina and Montenegro), Greece and Turkey. It is also a Mediterranean country and part of the Danube river region. On one hand, these two geographical factors give an opportunity to develop inland waterway transport from/to north-eastern Europe and for the country to become the entrance gate for maritime freight from other European, African and Asiatic Countries to Northern and Eastern European Countries.

#### 2.1.1 Road transport

The highway network of Croatia in international corridors ( Vb (Mediterranean corridor): Rijeka – Zagreb- Budapest; Vc: Ploče- Sarajevo- Osijek- Budapest; X: Salzburg- Ljubljana- Zagreb- Beograd- Niš- Skopje- Veles-Thessaloniki; Xa: Graz- Maribor- Zagreb) meets the highest quality standards and major part of it has already been built (80%). Nevertheless, there are some sections in construction like for example Corridor Vc, which is to be completed in the following years.

Although the motorway network is highly developed it needs to be noted that a certain number of sections on some motorway routes still need to be completed. State roads as well as roads of county and local importance constitute a significant part of the overall road network and form the basis for linking lower level roads primarily needed for linking cities and villages on interregional, intercounty and county level, whereas local roads have the greatest importance in traffic distribution on the lowest level.

The improvement of interoperability of the highway network is also important. The system of highways has to be homogenous at different layers: user information, toll system and integrated equipment.

Lack of accessibility was detected in some areas, which will be improved by building interchange points with highway network, national road network and also regional and local road networks. This will improve accessibility for passengers and freight and boost economic growth of the area.

Adriatic islands are connected to the main land or to each other with ferry lines that constitute and indirect part of the road system. Roads on islands are key elements for island life, economic survival and possible progress, playing also a very import role for tourism. The most important elements have to be focussed on upgrading the island road network and improving the service and ferries fleet

### 2.1.2 Railway

The Croatian railway network comprises 2.722 km and presents a good ratio of railway kilometres over the population of the country, 1556 people per kilometre, close to countries like Switzerland and higher than other like Czech Republic or Hungary. However the 90% are single lines and only 36% of lines are electrified. Almost 55% of the network is dedicated to those lines that are significant for the international transport.

Facts show that around 38% of the total open track length allow speeds below 60 Km/h, while only 4,1 % of the total is capable to reach speeds of 160 km/h, and 28 % is to reach speeds of 100 km/h. These speeds, together with the distance between stations and traffic control and signalling systems have a direct impact on the transportation capacity of the lines. Due to these speed limits, on distances above 250 km the railways system is currently not competitive comparing to the highway network.

With those speeds, Zagreb can be reached with a one-day round journey only from a small part of the country by rail, thus people without car have considerable problem accessing the capital and central services. Possibility of increasing traffic on Regional and Local lines is clearly limited by its capacity, which is based on allowed speeds, distances between stations and interlocking system.

Freight traffic has a clear international component, connecting Adriatic ports (especially Rijeka) with the continent. Other ports like Ploče are not well connected to the Croatian rail network. The freight railway traffic is predominantly transit, as Adriatic ports serve as an entry-point for international cargo to South East European markets. To increase intermodal maritime-rail traffic a logistic intermodal platforms network has to be developed building up these platforms at ports sites and at the main consumer centres. This is needed to involve the supply chain roots through the Croatian ports competing with other ports in the area.

### 2.1.3 Air transport

Croatia has 9 airports. The air navigation system is well equipped and aligned with European regulatory framework. The subsector demand is above all linked to the tourism sector, with the seasonal behaviour that generates bottlenecks especially in some key destinations. During the peak summer tourist season, airports as well as regional and local roads of tourist regions get congested. As a consequence, the scope of actions should be focussed on improving of accessibility (public transport) and the capacity of airports where, in the case of latter, the demand analysis shows it to be justified, and adaptation of the relevant airports to the required safety and traffic management European requirements, to cope with the demanding seasonal peaks and to prepare for the potential adhesion of Croatia to the Schengen treaty.



### 2.1.4 Inland navigation

The overall length of the current inland waterways in Croatia is 1016.8 km, of which 601.2 km has been integrated into the European network of inland waterways of international importance.

Inland waterways of the Danube Basin in the Republic of Croatia are part of the TEN-T corridors Rhine-Danube. Port of Vukovar and Slavonski Brod are classified as primary port of the TEN-T network while Osijek and Sisak port comprehensive TEN-T network

There are two separated sub-systems with their specific characteristics: basin which encompasses the Danube's waterway as well as Drava's waterway, and basin which encompasses the waterways of the Sava, Kupa, and Una. The Croatian inland waterway ports: Vukovar, Osijek, Slavonski Brod and Sisak and their port areas, have been characterised by an undeveloped and unconnected logistical port network.

The Croatian accession to the EU has opened some new opportunities for the improvement of transport on inland waterways. Favourable geographical location of the Croatian inland waterways in the heart of Europe, and cheap and safe transport compared to other types of transport, are the main strengths of this sector. However, the sector has a lot of weaknesses. There is a need for systematic work on the elimination of weaknesses and deficiencies within the sector, in terms of improvement of the organisation, fleet modernisation, education, construction of infrastructure (waterways and ports), maintenance and safety of navigation, as well as improved cooperation with the neighbouring countries

### 2.1.5 Maritime transport

The country has a thriving coastal shipping and nautical tourism industry with over 12 million passengers embarking and disembarking in Croatia's ports. There are over 120,000 vessels registered under the Croatian flag, from small boats to large ocean ships, and the country is a major seafaring nation with several maritime schools and training centres.

The Croatian fleet comprises 1,245 ships (1,274,833.36 GT), of which 10% operate in international shipping. At the same time, the fleet was reduced in numbers, with declining business of shipping companies

Six major seaports Rijeka, Zadar, Šibenik, Split, Ploče, and Dubrovnik are declared as national ports or ports of international economic interest. Croatian seaports are conveniently positioned to facilitate maritime transport between Central and Eastern Europe and Southern Asia, Australia and Oceania and Europe (via the Suez Canal). They enable a shortening of voyages by 5 to 8 days, or by a minimum of 2 000 km compared to north European ports. Currently in EU market Adriatic ports take only 3% of total freight. Therefore there is a large potential to increase freight transport of all Adriatic ports.

The Ports of Rijeka and Ploče have the highest market potential for transshipment cargo. Port of Rijeka is core port (TEN-T), part of Mediterranean Corridor: Ljubljana/Rijeka – Zagreb – Budapest – Ukraine border and port of Ploče is comprehensive port. The further development of Ports of Rijeka and Ploče depends on the development of railway. The most important common interest project for maritime sector is the development and reconstruction of railway from Rijeka to

Hungary. The railway development in Bosnia is of significant importance for the development of port of Ploče.

### 2.1.6 Urban, suburban and regional transport

In recent years, public transport (PT) in Croatia has registered a decrease in the number of passengers in all modes of transport.

At the same time, an increase in the number of registered cars, passenger car mileage and the general use of passenger cars has been observed. The predominance of private transport is made evident by the big traffic jams on access roads to urban centres, which contribute to increase pollution and noise level, lack of parking space and rising costs for citizens. At present, public transport in the Republic of Croatia is not integrated, as there are no coordinated timetables or tickets for different modes of transport. Intermodal terminals, which enable transit from one mode of transport to another, do not exist or are extremely rare. On certain lines, bus and rail carriers have "parallel routes". The contribution of rail transport is penalized by the fact that average age of the rolling stock is close to the end of its service life, while in road transport, the average age of buses is approximately 15 years. It can be stated that PT, in the full sense, is conducted only in the areas of the major cities such as Zagreb, Rijeka, Osijek, Split and their agglomerations, as well as Varaždin, Karlovac, Zadar and Pula.

Regarding other modes, PT by tram is conducted in Zagreb and Osijek, while PT by railway is conducted in Zagreb and Split.

From the legal and administrative points of view, it must be stated that almost all state administrative bodies have direct or indirect influence on public transport, lacking of a common financial, organisational and infrastructural strategy and policy. The legal framework needs to be more active in encouraging the integration of different modes.

## 2.2. Objectives and components of the Strategy

The vision of the TDS is the enhancement of the country's economy and development through the provision of an intermodal, sustainable, efficient and safe transport system.

The general goal of the Strategy is to achieve an efficient and sustainable transport system in the territory of the Republic of Croatia, taking into account the new role of the country after its accession to the European Union in July 2013. In order to fulfil this objective, all the interventions proposed by the Strategy consider the following principles, which are in line with the European Union policies, standards and regulations:

- Ensure environmental and social sustainability;
- Ensure safety and security;
- Ensure efficiency;
- Ensure financial sustainability;
- Improve accessibility and social inclusion;
- Improve energy efficiency;
- Improve modal split in favour of public transport, environmental friendly and soft modes (pedestrians and bicycle);
- Increase level of service;

- Ensure quality of service;
- Ensure interoperability of the system;



Table 2-1: Objectives of the TDS

OBJECTIVES	SUB-OBJECTIVES
<b>1 Improvement of transport connectivity and coordination with neighbouring countries</b>	1a Border bottlenecks elimination
	1b Improvement of international passengers long distance accessibility (including transit traffic)
	1c Improvement of international freight accessibility (including transit traffic)
<b>2 Improvement of passengers long distance accessibility inside Croatia</b>	2a Improvement of passengers long distance accessibility - Central Croatia (Zagreb)
	2b Improvement of passengers long distance accessibility - Northern Adriatic (Rijeka)
	2c Improvement of passengers long distance accessibility - Eastern Croatia (Osijek - Slavonski Brod)
	2d Improvement of passengers long distance accessibility - Northern and Central Dalmatia (Split - Zadar)
	2e Improvement of passengers long distance accessibility - Southern Dalmatia (Dubrovnik)
<b>3 Improvement of the passenger regional connectivity in Croatia enhancing territorial cohesion</b>	3a Improving the regional connectivity on the mainland
	3b Improving the regional connectivity to/from/between the islands
<b>4 Improvement of the passengers accessibility to and within the main urban agglomerations</b>	4a Improvement of the passengers accessibility - Zagreb node
	4b Improvement of the passengers accessibility - Rijeka node
	4c Improvement of the passengers accessibility - Zadar node
	4d Improvement of the passengers accessibility - Split node
	4e Improvement of the passengers accessibility - Osijek node
	4f Improvement of the passengers accessibility - Dubrovnik node
<b>5 Improvement of freight accessibility inside Croatia</b>	5a Improvement of freight accessibility - Central Croatia (Zagreb)
	5b Improvement of freight accessibility - Northern Adriatic (Rijeka)
	5c Improvement of freight accessibility - Eastern Croatia (Osijek - Slavonski Brod)
	5d Improvement of freight accessibility - Northern and Central Dalmatia (Split - Zadar)
	5e Improvement of freight accessibility - Southern Dalmatia (Dubrovnik)
<b>6 Improvement of the Transport System Organisational and Operational setup to ensure the efficiency and</b>	6a Adaptation of the legislation, rules and standards to the European requirements and best practice
	6b Improvement of the system organisational setup and cooperation between relevant stakeholders
	6c Improvement of the system operational setup

**sustainability of the system**

- 6d Improvement of the safety of the transport system
- 6e Reduction/mitigation of the environmental impact
- 6f Improvement of the energy efficiency
- 6g Financial sustainability of the transport system

Based on the analysis of the current situation and in order to address the defined intermodal and specific objectives, a set of measures has been identified in each sector. The measures propose interventions not only related to improve the infrastructure of the different transport systems but also related to operational and organisational aspects since isolated interventions on the infrastructure will not have a big impact on the efficiency and sustainability of the system if they are not accompanied by adequate changes in the setup of the system and the operations are not adapted to the real demand needs.

Table 2-2: Measures -Rail sector

Code	Measure	Measure Description
<b>Rail network elements</b>		
<b>R.1</b>	Zagreb - SI border towards Ljubljana (core/X/Mediterranean)	Line M101 belongs to the TEN-T core network and to RH1 and is one of the main international connections to Zagreb, the only urban node of the rail TEN-T core network in Croatia. As a result, RH1 historically has been the most relevant corridor in terms of long distance passenger traffic. Future scenarios like Croatia entering the Schengen area will increase the volume of traffic on this line. Although some specific activities for the improvement of this line are being developed, the fact is that at present, some sections of M101 line have a speed limit of 60 Km/h. Further studies will assess the technical requirements to be achieved in terms of capacity, permissible speed, taking into account also economic and environmental aspects. As the line is as well relevant for freight traffic, it will have to meet the following minimum technical criteria: 22.5 axle load, 750 m siding length, ERTMS
<b>R.2</b>	Zagreb - Karlovac (core/Vb/Mediterranean)	The corridor connecting Zagreb and Rijeka in mainly relevant for freight and partially for commuter traffic. The analysis shows that this commuter activity is mainly related to the section from Zagreb to Karlovac. At present, this part of the line M202 runs on single track, which is limiting the potential to increase in capacity. It is expected that the importance of this line for freight will increase in the medium to long term due to the fact that Rijeka has been defined as the TEN-T core port of Croatia. Further studies should analyse the design speed and capacity requirements taking into account economic and environmental aspects. Besides increase in capacity, freight traffic requires that the line meets the following technical criteria: 22.5 axle load, 750 m siding length, ETRMS.
<b>R.3</b>	Karlovac+ to Rijeka (core/Vb/Mediterranean)	The analysis shows that that this part of the corridor connecting Zagreb and Rijeka in mainly used for freight. At present, this part of the line M202 runs on single track which is electrified and some sections have speed limits of 50 km/h. Rijeka has been defined as the TEN-T core port of Croatia and consequently, the importance of this line for freight will increase in the medium to long term perspective. Therefore this section needs to meet the following technical criteria: 22.5 axle load, 750 m siding length, ETRMS. Further studies will analyse the design speed and capacity requirements taking into account economic and environmental aspects.
<b>R.4</b>	Rijeka regional	The development of the Port of Rijeka, which includes new rail terminals, creates opportunities for complementary measures to enhance the role of railways both in urban transport and in regional connectivity. Current preliminary analyses show that there might be a potential for a reorganisation of the Rijeka railway node with introduction of commuters services, thus favoring modal shift from private cars. All these issues will be analysed in the context of a multimodal city transport plan, which takes into consideration all the relevant economic, social and environmental aspects.
<b>R.5</b>	Zagreb - Križevci (core/Vb/Mediterranean)	The corridor connecting Rijeka and Zagreb to East Europe via Hungary in mainly used for freight and partially for commuter traffic. The analysis shows that in this part of the corridor, commuter activity is mainly related to Dugo Selo (15,568 passenger trains in 2012) and Križevci (11,516 passenger trains in 2012). At present, this part of the line M201 runs on double track to Dugo Selo and single track to Križevci. This fact is limiting the potential of increase in capacity, specially taking into consideration that the importance of this line for freight will increase in the medium to long term due to the fact that Rijeka has been defined as the TEN-T core port of Croatia. Besides the increase in capacity, as the line is as well relevant for freight traffic, it will have to meet the following minimum technical criteria: 22.5 axle load, 750 m siding length, ERTMS.
<b>R.6</b>	Križevci -HU border towards Budapest (core/Vb/Mediterranean)	The analysis shows that this part of the corridor connecting Zagreb and Rijeka to East Europe via Hungary is mainly relevant for freight and partially for commuter traffic. Complementary developments are currently under implementation on the Hungarian side (Gysev network development and Szekesfehervar - Boba line development). At present, this part of the line M201 runs on single track which is electrified and some sections have speed limits of 80 km/h. Rijeka has been defined as the TEN-T core port of Croatia and consequently, the importance of this line for freight will increase in the medium to long term perspective. Therefore, and taking into account that this section belongs to the TEN-T core network, it needs to meet the following technical criteria: 22.5 axle load, 750 m siding length, ERTMS.
<b>R.7</b>	Zagreb - Novska (core/X)	Lines M102 and M103 belong to the TEN-T core network and to RH1, one of the main international connections of Zagreb, the only urban node of the rail TEN-T core network in Croatia. As a result, RH1 historically has been the most important corridor in terms of long distance passenger traffic (between Zagreb and Dugo Selo over 59,000 passenger trains in 2012). Future scenarios like Croatia entering the Schengen area will increase the volume of traffic in this line. Although some specific activities for the improvement of line from Dugo Selo to Novska are being developed, the fact is that at present, some sections of both lines have a speed limit of 50 Km/h. Further studies should analyse the design speed and capacity requirements taking into account economic and environmental aspects. As the line is as well relevant for freight traffic, it will have to meet the following minimum technical criteria: 22.5 axle load, 750 m siding length, ERTMS.
<b>R.8</b>	Novska - SRB border towards Belgrade (core/X)	Line M105 belongs to the TEN-T core network and to RH1 one of the main international connections of Zagreb. RH1 historically has been the most important corridor in terms of long distance passenger traffic. Future scenarios like Croatia entering the Schengen area, or other surrounding countries like Serbia entering EU will increase the volume of traffic in this line. At present, M105 runs on double track between Novska and Tovarnik, which has been designed as the core rail network crossing point between Croatia and Serbia. Further studies should assess the technical requirements to be achieved, taking into account also economic and environmental aspects. As the line is as well relevant for freight traffic, it will have to meet the following minimum technical criteria: 22.5 axle load, 750 m siding length, ERTMS.
<b>R.9</b>	HU border - Osijek - BIH border (comprehensive/core/Vc)	Line M303 belongs to the TEN-T core network in Croatia, and Slavonski Šamac is the railways core network border crossing point to Bosnia and Herzegovina. Lines M301 and M203 belong to the comprehensive network but serve as a link Bosnia Herzegovina-Croatia Hungary link, following the Pan European corridor Vc. The potential of this international connection will increase in future scenarios in which Schengen borders will vary from its present configuration. Further studies will analyse the design speed and capacity requirements taking into account economic and environmental aspects. As the line is as well relevant for freight traffic, it will have to meet the following minimum technical criteria: 22.5 axle load, 750 m siding length, ERTMS.

Code	Measure	Measure Description
R.10	Regional connection Vinkovci - Vukovar (core/access to corridor X)	Railway line M601 Vinkovci – Vukovar will serve as the railway line connection of RH1 and the only inland core port on the Danube within Croatia, Vukovar. Further studies will assess the technical requirements to be achieved, taking into account also economic and environmental aspects. As the line is as well relevant for freight traffic, it will have to meet the following minimum technical criteria: 22.5 axle load, 750 m siding length, ETRMS.
R.11	Zagreb local	The present configuration of the Croatian rail network and the fact that Zagreb is the only urban node of the core transport network, outline the importance of the capital city of Croatia within the entire transport system. In order to enhance the role of railways in the urban transport system of Zagreb, matching time schedules, accessibility and travel times, existing stations must be adapted, new stations might be needed and dedicated tracks implemented. Further studies will analyse specific requirements to be fulfilled.
R.12	Zagreb regional	The present configuration of the Croatian rail network and the fact that Zagreb is the only urban node of the core transport network, outline the importance of the capital city of Croatia within the entire transport system. In order to enhance the role of railways in the regional connectivity with the rest of main cities in Croatia, enough capacity and competitive travel times must be achieved. Further studies should analyse specific requirements to be fulfilled in each case.
R.13	Zagreb freight	Zagreb is the only urban node of the rail TEN-T core network in Croatia. At the same time Zagreb is the distribution point of freight traffic in East-West direction and North-South direction. The transmissibility of the node is a key aspect for the attractiveness of the railway network in Croatia. Therefore the parts of its railway network focusing on freight will have to meet the following minimum technical criteria: 22.5 axle load, 750 m siding length, ETRMS. Further studies will analyse the potential creation of multimodal logistic centre(s).
R.14	Zagreb airport connection	Zagreb plays an important role as a business and tourist destination within Croatia, and its airport represents one of the main accesses to the city from abroad. A direct railway connection to the City centre could contribute to increase the modal split in favor of public transport and thus reduce congestion and ease regional and local connectivity. Further studies will assess if this railway connection is required, and in each case the required operational characteristics, capacity, design speed, configuration and location of stops.
R.15	Zagreb main station	Zagreb Main Station must play a key role not only in long distance traffic but also in local and regional traffic. Adaptation of the existing accesses and platforms, organization of passenger flows inside and outside the station, favouring modal interchange, are likely to be required. Specific technical requirements will be a result of further studies, which will take into consideration economic, social and environmental aspects.
<b>Rail network</b>		
R.16	ETCS L1, L2 on other lines, GSM-R	Installation of ETCS on lines other than the ones described in the previous measures would allow increasing the interoperability of the entire network. Dependent on the operational concept it might be feasible to install ETCS and GSM-R also on other lines of the Croatian network (comprehensive and non-TEN-T). Further studies will define specific needs and technical parameters in each case.
R.17	Electrification of other lines	Dependent on the operational concept, electrification of railway lines would allow increasing efficiency on existing infrastructure. Further studies will define specific needs and technical parameters in each case.
R.18	Rehabilitation, upgrading of other lines	Case by case studies will identify the need to rehabilitate and upgrade lines other than the ones described in the previous measures, taking into account the operational concept and also economic and environmental aspects.
R.19	Regional traffic other than Zagreb and Rijeka (Split, Varaždin, Osijek, etc.)	Rail transport can play as well an important role in regional transport in regional centres outside the railway TEN-T core network, due to the existing configuration of the network in these areas. Specific studies will analyse this potential in cities such as Split, Varaždin and Osijek. These studies will also assess case by case the necessary technical parameters.
R.20	Improvements and new marshalling yards	Specific studies will analyse, based on demand forecasts, the necessity to develop new marshalling yards or improve the existing ones to increase the potential of railways for freight.
R.21	Improvement of safety at crossing, axle load detectors, hot axle detectors, etc.	Increasing safety is one of the priorities for railway infrastructure development. Specific measures such as removal of level crossings, if justified by the traffic flows, or the definition of protective measures to be implemented in the cases where the crossing cannot be eliminated, installation of axle load detectors and hot axle detectors should be implemented to increase the level of safety of the railway system. Case by case studies should define the specific measures for each part of the network.
R.22	Added value services and improvement of the railway image	In order to increase competitiveness against other modes of passenger transport, railway infrastructure owners together with passenger transport operators should offer added value services that will make rail transport more attractive. Further studies will assess on the viability of implementing services like passenger information systems, internet access on certain types of rolling stock, other kinds of Infotainment, etc. This will include also increasing the attractiveness of the railway heritage including a better design for railway related spaces - inside and outside, to increase the comfort.
R.23	Intermodal passenger hubs	Improving and developing railway connections with other modes of transport is one of the priorities of the sector. The creation of points for intermodal exchange of passengers transport in urban areas will be the result of further studies that in each case will also define technical requirements in terms of specific facilities to be implemented.
R.24	Intermodal freight hubs	Improving and developing railway connections with other modes of transport is one of the priorities of the sector. The creation of logistic centres for intermodal exchange of freight transport others than the one to be located in the Zagreb area should be the result of further studies that in each case should also define technical requirements in terms of specific facilities to be implemented.
R.25	Development of concept of maintenance of the existing infrastructure	Adequate structures and organisation for maintenance must be put in place in order to provide an efficient and effective/sustainable rail service. The concept must derive from an appropriate and specific analysis of the Croatian and HZ Infrastructure Ltd. context, taking into account technical, financial and users' requirements, the indications from Directive 2008/57/EC on the interoperability of the rail system and the main international standards related to RAMS.
R.26	Energy efficiency	Promoting the efficient and sustainable use of the infrastructure is one of the priorities for railway infrastructure development according to the guidelines for development of the trans-European transport network. In this sense, it is necessary to improve energy efficiency and prioritise low carbon energy sources and propulsion systems. Further studies will analyse specific requirements.
<b>Rail operation/organization</b>		



Code	Measure	Measure Description
R.27	Reorganization of Track access charge	Track Access Charge can be used as a tool for improving the sustainability of the rail transport system. Track Access Charge has to be proportional to the emissions and therefore addressing the polluter pays principle. Coordinating Track Access Charge with rail administrations of neighbouring countries will facilitate international traffic.
R.28	Multi annual PSC	Public Service Contract(s) in compliance with EU Reg. 1370/2007 are a fundamental tool to assure transparency and efficiency in the provision of public transport services. A widespread implementation of PSCs is therefore required not only for compliance purposes, but also as a first step towards an improvement in sustainability of Croatia's transport system. Typology and duration of the PSC will have to be determined on a case-by-case analysis, together with the applicability of the in-house model (either based of pure compliance issues or after a thorough assessment of technical and financial requirements).
R.29	Increase financial sustainability	Increasing financial sustainability is one of the objectives of the Trans-European transport network. To achieve this objective it is necessary to optimise the organisational setup of the railway system and to increase the efficiency of the operation and maintenance. Financial sustainability of the railway transport system intends to reduce the dependence of the system on public subsidies. Further studies will assess concrete actions to be taken to optimise costs and incomes.
R.30	Reorganization of the railway transport system	In order to improve the efficiency and effectiveness of the railway system moving towards a more sustainable setup, changes in the organization are required (improvements in the productions chain such as modalities for operating services, doing maintenance, offering added value services in a more user oriented approach etc.).
R.31	Improvement of passenger rolling stock	The current railway fleet is aged and based on outdated and inefficient technologies. In order to increase the competitiveness of rail transport in comparison with other transport modes it is necessary to modernise the rolling stock, in coordination to the foreseen improvements on the infrastructure. The first step to develop this measure is to perform a comprehensive analysis of the current organisational, operational and maintenance setup of the railway operator analysing the future requirements and operational and maintenance plan. Once the real needs are identified further studies will define the specific technical requirements for the rolling stock.
R.32	Improvement of freight rolling stock	The freight fleet consists mostly of conventional covered or open wagons, some suitable for combined traffic operations. A large number of locomotives are in need of replacement, with an estimated 70% reaching the end of their working lives within the next decade. The first step to develop this measure is to perform a comprehensive analysis of the current organisational, operational and maintenance setup of the railway operator analysing the future requirements and operational and maintenance plan. Once the real needs are identified further studies will define the specific technical requirements for the rolling stock.
R.33	Update legislation and planning guidelines	Railway related legislation and planning guidelines must support the development of the sector and should be in line with international best practice and European regulations, especially regarding safety, security, interoperability, sustainability and environment.
R.34	Prepare for changes in Schengen borders	Future scenarios of Croatia and surrounding countries entering the Schengen area will increase the importance of international traffic on certain lines. The adaptation of the rail system requires the elimination of infrastructure and administrative bottlenecks. Specific studies will assess on the technical requirements to be met in each specific case.
R.35	Preparation/adaptation of non Schengen borders	Elimination of bottlenecks with non-Schengen surrounding countries will help in increasing the importance of international traffic in certain lines. Specific studies will assess on the technical requirements to be met in each specific case.
R.36	Liberalization of operations for passengers	Gradual opening of the transport market ensuring equal opportunities to all potential operators is one of the main criteria of compliance fulfilled by Croatia in the process of harmonization with the EU Acquis Communautaire, in line with the objectives of the White Paper. Croatian administrative institutions like the Regulatory Body and the Safety Agency must be prepared for the future situation.
R.37	Liberalization of operations for freight	Gradual opening of the transport market ensuring equal opportunities to all potential operators is one of the main criteria of compliance fulfilled by Croatia in the process of harmonization with the EU Acquis Communautaire, in line with the objectives of the White Paper. Croatian administrative institutions like the Regulatory Body and the Safety Agency must be prepared for the future situation.
R.38	Increase administrative capacity/training	The lack of administrative capacity and properly trained staff is one of the key issues identified in the sector and is one of the priorities in the EU cohesion policies. In this particular sector, employment of additional administrative capacities is mainly needed in the area of project preparation and project implementation management. The implementation of new technologies will imply the necessity to train the existing and new staff to their specific needs.
R.39	Reorganization of the operations/time schedules	In order to increase the share of rail mode, reorganization of time schedules (e.g. TAKT ) is necessary to improve connectivity and efficiency of the services provided. Further studies will analyse this possibility taking into account origin-destination patterns and the operational and infrastructural requirements.
R.40	Information platforms	Promoting and creating a positive image of rail transport mode as a reliable, safe and environmentally friendly means of transport is important for encouraging the demand, and as a result the investments. For better promotion, it is necessary to have complete and up to date information and knowledge of the Croatian rail infrastructure, possibilities and development plans.
R.41	Reduce environmental impact	Reduction of the environmental impact of the transport system is in the core of European transport policy. Environmental impact mitigation during operation must be achieved by increased energy efficiency (in particular using low or zero carbon energy sources), by reducing noise emissions, reducing pollution and minimising waste.
R.42	Improvement of data collection	For further development of the rail sector, it is necessary to have "up to date" data of among others: stations and infrastructure, rolling stock, freight and passenger current demand and forecasts, safety. It is necessary to improve and simplify the data collection, in order to increase the accessibility of data.

Table 2-3: Measures – Road sector

Code	Measure	Measure Description
<b>Road network elements</b>		
<b>Ro.1</b>	Gradiška bridge connection	Gradiška bridge over the river Sava is part of the road corridor HU border - Virovitica - Okučani – BiH border (Stara Gradiška). This road is located in the corridor of the existing D 5 road, being the bridge part of international agreement between Croatia and Bosnia. The Republic of Bosnia and Herzegovina has already finished the motorway from Banja Luka (B&H) to Gradiška, however, the planned bridge is required for the connection of motorway from Banja Luka to the existing Zagreb – Beograd Motorway. GP Gradiška is one of two major border crossings between the Croatia/EU and Bosnia and Herzegovina for all types of traffic.
<b>Ro.2</b>	A5 Osijek - HU border Pecs (comprehensive/Vc)	The A5 motorway is a part of the comprehensive TEN-t network and corridor Vc. The total length of the A5 motorway is 86.8 km, and it goes from the B&H border towards Osijek, Beli Manastir, to the HU border. Several sections of the motorway are at different stages of development. The motorway section at the lowest stage of development is the one from Osijek to the HU border, section Osijek – Beli Manastir 24.6 km and Beli Manastir – HU border 5 km. Other sections, like the bridge over River Drava (length 2.4 km) are part of planned corridor and are under construction. Further studies will analyse the phasing and timing of the remaining sections, as well as the required technical parameters, taking into consideration the expected demand and economical and environmental aspects, e.g. the planned section passes through some “Natura 2000” areas.
<b>Ro.3</b>	A5 from A3 to BiH border (comprehensive/Vc)	The A5 motorway is part of the comprehensive TEN-t network, and corridor Vc, being Svilaj included in the list of border crossing points of the EU core network. The total length of motorway A5 is 86.8 km, and it goes from the Bosnia and Herzegovina border toward Osijek, Beli Manastir to the Hungarian border. Several sections of the motorway are at different stages of development. The section from Sredanci (motorway A3) to the B&H border is 3.5 km long and is under construction. The section includes a bridge over the river Sava (660m in length). The contract for the construction of the bridge is currently in the tendering process. The continuation on the BiH side is already constructed.
<b>Ro.4</b>	A7 Križišće to Žuta Lokva (comprehensive/Adriatic Ionian corridor)	The A7 motorway (SLO border - Rupa – Rijeka – Žuta Lokva (A7)) is part of the comprehensive TEN-t network, and the Adriatic Ionian corridor. The total length of the A7 is 99 km, being several sections of the motorway are at different stages of development. Almost half of the total length of the A7 motorway that runs from Rupa (Slovenian border) to Križišće is completed, while the sub section from Križišće to Žuta Lokva, is at an earlier phase of the project development phase. A7 motorway plays an important role in linking the Croatian motorway network, the A8 motorway (Istrian Y), A6 motorway (Rijeka -Bosiljevo) and A1 motorway (Zagreb – Split). In addition, given the international importance of the A7 motorway, it might become, at regional and local level a driver for the development of the coast, the islands and Adriatic-Ionian regions, and as a link between Adriatic towns and harbours. Further studies will analyse the phasing and timing of the remaining sections, as well as the required technical parameters, taking into consideration the expected demand and economical and environmental aspects, especially orographical features due to very complex coastal relief terrain, and international coordination with Slovenia.
<b>Ro.5</b>	A11 Lekenik - Sisak	The A11Motorway (Zagreb – Sisak) is under construction, with one section already completed. The total length of the highway, between Zagreb and Sisak is 48, 1 km. The next planned section Lekenik – Sisak is 10.8 km long. The last section would be Sisak - Mošćenica, which will be considered after finishing of the previous sections. Further studies will analyse the phasing and timing of the remaining sections in the light of inter-modality, as well as the required technical parameters, taking into consideration the expected demand and economical and environmental aspects.
<b>Ro.6</b>	DC 10 Vrbovec - Križevci - Koprivnica - Hungarian border towards Kaposvar	The DC10 State road was previously categorized as a motorway, the A12. The A12 motorway is a partially built motorway in central Croatia, northeast from Zagreb, extending towards the city of Vrbovec. A 23 km dual carriageway exists between the A4 motorway and Sveta Helena. The DC10 represents the western arm of the so-called “Podravina Y”, as the eastern arm is planned to be the DC12 and will finally connect Zagreb with the Hungarian border towards Kaposvar. The corridor is divided into several sectors and the stage of project documentation (project design and permits) varies from sector to sector. Further studies should assess on the phasing and timing of the remaining sections, as well as the required technical parameters, taking into consideration economic and environmental aspects.
<b>Ro.7</b>	DC 12 Vrbovec 2 interchange - Ivanja Reka - Vrbovec - Bjelovar - Virovitica - Hungarian border towards Barcsu	DC12 represents the eastern arm of the so-called Podravina Y, as the western arm is planned to be the DC10 and will finally connect Zagreb with the Hungarian border towards Pecs. Only the Vrbovec 2 interchange, the starting (western) terminus of the D12 has been completed. The rest of the corridor is divided into several sectors, and the stage of project documentation (project design and permits) varies from sector to sector. Further studies will assess on the phasing and timing of the remaining sections, as well as the required technical parameters, taking into consideration economic and environmental aspects.
<b>Ro.8</b>	Zagreb main network reorganization	Zagreb is the capital of Croatia and the interchange of main road corridors. Currently all the motorway corridors are connected through the Zagreb bypass, the road with the highest traffic load in Croatia. A new “Zagreb ring” motorway, Pojatno - Horvati-Ivanić Grad - Sveti Ivan Zelina is considered for the redirecting of transit traffic. Additional studies for “Zagreb ring” are necessary, assessing on the capacity, connections and technical parameters to be implemented, taking into consideration the expected demand and economic, environmental and social aspects. The main road network inside the city should be reorganised as well taking into account the outcomes of the Transport Masterplan to be developed which will consider the introduction of integrated public transport systems emphasising the prioritisation of public transport and soft modes against private cars.
<b>Ro.9</b>	D2 from SLO border to SRB border	D2 is the existing state road for transit traffic in the northern areas of Croatia, and spans from the border crossing with Slovenia at Dubrava Križovljanska in the west via Varaždin, Osijek, Vukovar, ending at the Ilok–Bačka Palanka Bridge border crossing to Serbia. Most of the D2 route runs parallel to the Drava River (Podravska magistrala). Relevant intensity of very high heavy traffic, is affecting the features of the existing lanes and thus level of security is clearly decreasing. A new corridor for the D2 is planned, but studies should assess on the phasing and timing of the of its development, as well as the required technical parameters, taking into consideration the expected demand economic and environmental aspects.
<b>Ro.10</b>	Rijeka network reorganization	The Rijeka road junction is one of Croatian main traffic junctions, and plays an important role in linking the Croatian motorway network: A7 motorway links A8 motorway (Istrian Y) and A6 motorway (Rijeka – Bosiljevo). The Port of Rijeka is the main Croatian port (core port), and the development of the port must be harmonised with road development. The planned west container terminal in Rijeka port is connected with the planned state road D403. The Rijeka bypass is part of the A7 motorway, being one of roads in Croatia with the highest traffic intensities. In order to further upgrade the road network, a new corridor outside the city for A7 is planned as part of the potential further development of the port of Rijeka. The new state road D102 corridor, including the new bridge is planned for Krk island. All these measures must be coordinated with the reorganisation of the internal road network in the City of Rijeka taking into account the necessities for public transport and soft modes, the development of the port and the development plans of other relevant stakeholders such as the railway company. For that reason, further analyses are necessary to define the final set of interventions as

Code	Measure	Measure Description
		well as the required technical parameters, taking into consideration the expected demand and economical and environmental aspects.
Ro.11	Dubrovnik - ME border	The Corridor Dubrovnik – ME border is at different stages of development per sections. The development would bypass the Dubrovnik airport. Further studies will assess on the phasing and timing of its development, as well as the required technical parameters, taking into consideration the expected demand and economical and environmental aspects.
Ro.12	Increase of capacity - dedicated PT lane between Zagreb and Karlovac	Road corridor from Zagreb to Karlovac is included in the EU core network because of international and regional relevance of the traffic coming from Rijeka to inland. The PT accessibility of Istria and Dalmatia is dependent on regional bus providers and the prioritization of PT services on the road. There has been a constant increase in commuter traffic between Zagreb and Karlovac, while the existing motorway has two traffic lanes in each direction plus an emergency lane. Further studies analysing several options of increasing the capacity for public transport are necessary to identify the final solution. These studies will take into consideration the expected demand and economic, social and environmental aspects, as well as the developments planned in other modes of transport.
Ro.13	Increase of capacity - dedicated PT lane Zagreb bypass	The Zagreb bypass is the busiest traffic route in Croatia, and the level of traffic is constantly increasing. Some sections of the Zagreb bypass need upgrade with a new PT lane. This needs to be seen in relation to competing projects like the Zagreb ring road. Additional studies are needed to decide if it is better to upgrade the existing bypass or build a new “Zagreb ring” motorway: Pojatno - Horvati-Ivanić Grad - Sveti Ivan Zelina. These studies will analyse the existing options to increase the capacity, assess on the phasing and timing of its development, as well as the required technical parameters, taking into consideration the expected demand and economic, social and environmental aspects, as well as the developments planned in other modes of transport.
Ro.14	Slavonski Brod port access improvement	Slavonski Brod, as the main port on the river Sava, is the only inland port in Croatia in the Sava river included in the list of nodes of the EU core network. The development of port and the additional business zone must be accompanied with the improvement of other transport infrastructure, especially road. Further studies will define actual needs and analyse the required technical parameters, taking into consideration the expected demand and economical and environmental aspects.
Ro.15	Split network reorganization	Split is one of the main centres of tourism in Croatia. Of special relevance for the road network is the tourism linked to the cruises as it creates a heavy seasonal burden on the road network. It is necessary to reorganise the road network in Split taking into account as well the public transport system and planned developments in the city, the port and other relevant transport systems such as rail. One of the potential measures is the Split bypass : Trogir – Split – Omiš which has been planned for regional and local traffic, being several sections at different stages of development: the section Trogir – Split has been already completed, while the connection road from Split to the A1 motorway is under construction. Further studies are necessary to define the final set of interventions as well as the required technical parameters, taking into consideration the expected demand and economical and environmental aspects.
Ro.16	Preparation for accessibility of Dubrovnik when Croatia joins Schengen	In order to maintain the accessibility of Dubrovnik and the surrounding area to the rest of the country taking into account the possible scenario of Croatia entering the Schengen area, it is necessary to analyse all the options taking into account all the transport modes and functionalities. Long distance accessibility will be mainly solved through the airport connection in the mid-term scenario but for the local and regional needs and for freight, several options, like the Pelješac bridge will be considered. Further studies will analyse the full range of existing options (in a multimodal way and considering specific functionalities), as well as the required technical parameters, taking into consideration the expected demand and economic, social and environmental aspects, as well as the developments planned in other modes of transport.
<b>Road network</b>		
Ro.17	Develop maintenance concept (including maintenance stations) of the road network	Road maintenance is essential in order to preserve the road in its originally constructed condition, protect adjacent resources and user safety and provide efficient, convenient travel along the route. For efficient and effective/sustainable maintenance, adequate structures and organisation for maintenance must be put in place. The concept must derive from an appropriate and specific analysis of the Croatian and relevant stakeholders context, taking into account technical, financial and users requirements.
Ro.18	Secondary and tertiary road rehabilitation and realignment	To ensure the cohesion of the territory and provide the proper accessibility to the high level network, the status of the existing secondary and tertiary roads will be analysed to identify the needs for their rehabilitation. The main problem affecting these categories of roads is lack of maintenance and funding. It is necessary to provide the conditions for proper maintenance, especially taking into account the existing and forecasted levels of traffic on these roads.
Ro.19	Develop a resting station concept for the high level road network	According to EU Directive 2008/96/EC, sufficient roadside parking areas are very important with regards to road safety. Parking areas enable drivers to take breaks and continue their journey with full concentration. The provision of sufficient safe parking areas should therefore form an integral part of road infrastructure safety management. While some service facilities along the motorways and fast roads have been built, the number is still not sufficient, given the increase in traffic, especially during the tourist season. Additionally, Directive 2010/40/EU states that it is necessary to improve infrastructure for secure parking for trucks and buses. At the same time, renewal of the old parking lots with other facilities (gas stations, restaurants, toilets, playgrounds), is planned.
Ro.20	Traffic management, monitoring, traffic counting and information system	New technologies must be introduced to improve methods and ways of gathering information to ensure that the traffic management information collected has the content and quality required at international level. New technologies allow among others for real time data gathering and control of traffic conditions. In order to take advantage of these new technologies, the need for new centres for centralized management of the traffic, equipped with the latest advances in ITS solutions, will be analysed. Traffic management and monitoring is of special relevance to manage incidental situations and traffic jams in the peak traffic seasons. This will allow for a qualitative improvement in the planning and monitoring of alternative routes, passenger user information, traffic control and real time data gathering regarding congestion.
Ro.21	Interchange development plan	In order to improve the connectivity of the high level road network, it is necessary to develop an interchanges development plan. The plan will take into account the functionality of each road to identify the number and location of interchanges to avoid for example excessive amounts of local traffic in long distance corridors which might endanger the level of service. Specific seasonal requirements due to the touristic season will be considered as well.
Ro.22	Road safety	One of the main objectives of the TDS is to increase the level of safety on road transport, in order to effectively reduce the number of accidents and limit their negative consequences. The

Code	Measure	Measure Description
		Commission has set as its overall objective in terms of road safety that the number of fatalities needs to be moved to zero by 2050. To improve road safety, the following measures will be developed: - Integrate road safety in all the stages of project implementation via road safety impact assessments which will demonstrate, on a strategic level, the implications on road safety of the different alternatives of an infrastructure project and they will play a relevant role in the selection of the routes and final alternative. At a more advanced stage of the project phase, during construction and operation, road safety audits should identify, in a detailed way, unsafe features of a road infrastructure project and propose corrective measures. - To reduce the negative impacts of accidents, the procedures to be followed in case of accidents will be reviewed and improved to reduce the response time. The information channels will be as well improved and simplified and monitoring of the situation on the black spots will be monitored.
<b>Ro.23</b>	Network development to intermodal hubs, agglomerations in line with demand	Improvement and development of road connection with other modes of transport is one of the priorities of the sector. The creation of points for intermodal exchange of passengers transport in urban areas should be the result of the relevant Transport Masterplans or similar studies that in each case will also define the technical requirements in terms of specific facilities to be implemented.
<b>Ro.24</b>	Improve interoperability (intermodal hubs, P&R, etc.)	To ensure the sustainability of the transport sector as a whole, it is important to increase the interoperability to be able to use the potential of each transport mode. In the road sector it is important to ensure the proper accessibility to demand generation/attraction nodes (such as ports, airports, railway stations, working areas, commercial zones, etc.). An increase in the number of parking spaces linked to public transport systems, port and airports will help to increase the modal shift in favour of public transport and consequently reduce the congestion on the roads.
<b>Ro.25</b>	Reduce environmental impact	Reduction of the environmental impact of the transport system is in the core of European transport policy. The road sector is one of the main polluters in Europe; measures to reduce the environmental impact should consequently be applied in all the stages of the development (planning and construction) and operation. The main impacts from the road sector are noise, CO2 and other pollutant emissions from fuel combustion. It is important to promote the modernisation of private vehicles to increase energy efficiency and the use of more environmentally friendly vehicles.
<b>Ro.26</b>	Energy efficiency	Energy efficiency of the entire transport system is in the core of EU policy, as EU transport still depends on oil and oil products for 96% of its energy needs. Encouraging the use of energy efficient vehicles and optimisation of the performance of multimodal logistical chains are examples of measures to increase the energy efficiency. Further studies will analyse specific requirements.
<b>Road operation/organization</b>		
<b>Ro.27</b>	Update legislation and planning guidelines	Road related legislation and planning guidelines must support the development of the sector and must be in line with international best practice and European regulations, especially regarding safety, security, interoperability, sustainability and environment.
<b>Ro.28</b>	Increase administrative capacity/training	The lack of administrative capacity and properly trained staff is one of the key issues identified in the sector and is one of the priorities in the EU cohesion policies. In this particular sector, employment of additional administrative capacities is mainly needed in the area of project preparation and project implementation management and road safety. The implementation of new technologies will imply the necessity to train the existing and new staff to their specific needs.
<b>Ro.29</b>	Preparation/adaptation for Schengen borders	Future scenarios of Croatia and surrounding countries entering the Schengen area will increase the relevance of international traffic. The adaptation of the road system requires the elimination of infrastructure and administrative bottlenecks. Specific studies will assess on the technical requirements to be met in each specific case.
<b>Ro.30</b>	Preparation/adaptation of non-Schengen borders	Elimination of bottlenecks with non-Schengen surrounding countries will help in increasing the relevance of international traffic in certain roads with international connections. Specific studies should assess on the technical requirements to be met in each specific case.
<b>Ro.31</b>	Improve financial sustainability of the road network and tolling system	Increasing financial sustainability is one of the objectives of the Trans-European transport network. To achieve this objective it is necessary to optimise the organisational setup of the road system and to increase the efficiency of the operation and maintenance. Financial sustainability of the road transport system intends to reduce the dependence of the system on public subsidies. Road usage charging can address these issues as it can influence the choices of road transport users, besides supporting financial sustainability. Directive 2004/52/EC of the European Parliament and of the Council of 29 April 2004 on the interoperability of electronic road toll systems in the Community and Commission Decision 2009/750/EC of 6 October 2009 on the definition of the European Electronic Toll Service and its technical element provide legal basis for further studies, which will assess concrete actions to be taken to optimise costs and incomes.
<b>Ro.32</b>	Information platforms	In the road sector is very important to inform the users of the current situation of the traffic and weather conditions to reduce the amount of traffic jams and accidents by offering information on alternative routes. It is also important to inform drivers of amendments to the existing or adoption of new laws in the sector relevant for the users and to provide instant information on the motorways of the incidental situations that might require changes in the allowable speed or restrictions to the use of lanes. For that reasons, the need to constantly revise and update the information technologies and channels is very relevant for the improvement of the sector. It is important as well to increase the involvement of the media as a crucial partner for the transmission of the information.
<b>Ro.33</b>	Recategorization of the road network	It is necessary to develop a study to analyse the need to recategorise the road network to adapt to the real demand and functionality of each road to increase the efficiency and sustainability of the system.
<b>Ro.34</b>	Enforcement	In the White Paper on European transport policy for 2010: time to decide the Commission has set as its overall objective in terms of road safety that the number of fatalities needs to be moved to zero by 2050. It appears from research that enforcement is an important and effective way of preventing and reducing accidents, deaths and injuries, but enforcement actions are only optimally effective if they are combined with actions to make the public aware of such enforcement actions and of the reasons why they are being held. Pursuant to the Plan Commission and the Council on the establishment of cross-border exchange of information in road safety and the creation of a common strategy implementation, road safety and defined Regulations and EU Directives on national Level to develop and maintain a database. Further studies will assess on specific actions both in public awareness, enforcement and cross border information management.



Code	Measure	Measure Description
Ro.35	Improvement of data collection	For further development of the road sector, it is necessary to have “up to date” data of, among others: status of the road network, freight and passenger current demand and forecasts, safety. It is necessary to improve and simplify the data collection, in order to increase the accessibility of data.

Table 2-4: Measures – Aviation

Code	Measure	Measure Description
<b>Airports</b>		
A.1	Dubrovnik airport development (comprehensive)	Dubrovnik is one of the main destinations on the Dalmatian coast. The airport suffers from bottlenecks due to seasonal peaks. Given the characteristics and meteorological environment of the surrounding territory, an enclave, transport links must be maintained and enhanced to ensure the proper accessibility. The planned measures include expansion of existing transport/infrastructure capacity in order to maintain existing service quality levels, reduction/elimination of bottlenecks, reconstruction of existing and construction of new pavement structures and facilities necessary for the safe and smooth operation of the airport, implementation of environmental protection measures, implementation of measures aimed at improving energy efficiency and acquisition of necessary equipment and devices.
A.2	Pula airport development (comprehensive)	Pula airport is relevant for the long distance accessibility of the region. Traffic at the airport is seasonal which may lead to bottlenecks given the limited facilities. Two important operational aspects which must be considered include: 1) Quality of service, mainly because of competition with neighbouring foreign airports; 2) The balance of safety vs. operational capacity. These aspects, among others, highlight the need to increase the capacity of the airport by upgrading certain elements: approach lighting system, runway, aprons, terminal and accesses. Further analyses will identify the feasibility of these measures and prioritise them, taking into account environmental requirements and the real needs and potential according to the expected demand.
A.3	Brač airport development	The development of Brač Airport is planned to eventually increase the long distance connectivity of the Island of Brač and therefore the Centre of Dalmatia; while complying with a variety of different safety and traffic demand requirements. The analyses show the need to achieve the ICAO 3C Code and to comply with ICAO, EASA and national standards. Further analyses will identify the feasible measures and prioritise them, taking into account environmental requirements and the real needs and potential according to the expected demand.
A.4	Mali Lošinj airport development	The development of Mali Lošinj Airport is planned to eventually increase the long distance connectivity of the Island of Lošinj and therefore the North of Dalmatia; while complying with traffic demand requirements. The analyses show the potential necessity to extend the runway, apron and terminal area. Further analyses will identify the feasibility of these measures and prioritise them, taking into account environmental requirements and the real needs and potential according to the expected demand.
A.5	Osijek airport development (comprehensive)	Regional and long distance connectivity, apart from national cohesion, is the main reason for the expansion of Osijek airport considering cargo as well due to synergies with other modes of transport. Further analyses will identify the feasible measures and prioritise them, taking into account environmental requirements and the real needs and potential according to the expected demand.
A.6	Rijeka airport development (comprehensive)	Airport Rijeka presents large passenger traffic growth and has additional cargo potential due to the synergy with the Port of Rijeka. As part of the airports plans for development and alignment with ICAO, EASA and national standards, the reconstruction/expansion/displacement of apron and operations and control tower equipment planning is in progress. In order to achieve energy efficiency and environment protection it is planned to realize projects related to the solar power plant, terminal building facade and waste liquids separator. Further analyses will identify the feasibility of these measures and prioritise them, taking into account environmental requirements and the real needs and potential according to the expected demand.
A.7	Split airport development (comprehensive)	With a level of traffic similar to Dubrovnik airport, Split is the other main gate to the Dalmatian coast in term of passengers. The airport also suffers from bottlenecks due to seasonal peaks. Included in its master plan, the expansion of both landside and airside facilities is planned, tackling the issues of seasonality and quality of the service. Further analyses will identify the feasibility of these measures and prioritise them, taking into account environmental requirements and the real needs and potential according to the expected demand.
A.8	Zadar airport development (comprehensive)	Long distance connectivity of Central Dalmatia is the main driver for the expansion of the airport. The analyses show that the investment should be focused on the improvement of the airports transport and infrastructure capacities for the operation of ICAO 4E Code airplanes. Further analyses will identify the feasible measures and prioritise them, taking into account environmental requirements and the real needs and potential according to the expected demand.
A.9	Zagreb airport development (core)	Zagreb Airport is the main gateway to Croatia operating as a hub for domestic and international destinations. At present, it is operated by a concessionaire who established a new company Zagreb International Airport Jsc., whose investment plan is reviewed periodically with the MMATI. Zagreb Airport Ltd. company is still active, now having the role of an intermediary between the Government of the Republic of Croatia and the concessionaire, with the aim of further development of the infrastructure and all the transport segments that are not subject to the concessionaire contract. Should the concessionaire withdraw from the project and operation of the airport, Zagreb Airport Ltd. will immediately takeover the airport from the concessionaire to ensure continuous and uninterrupted operation of Zagreb Airport. The development plans of the airport include the construction of a new terminal to increase the capacity.
A.10	Accessibility of airports	To improve the accessibility of touristic and business travellers in Croatia, it is very important to offer fast and efficient accessibility to/from the airports. It is important to provide regular, frequent and fast public transport services in line with the potential demand, ensuring that proper accessibility is provided for travellers with different economic resources. Further analyses will identify the needs case by case in line with the Transport Masterplans of each city. It is also envisaged to conduct a Schengen compliance check of the airport in order to identify the measures to be introduced to allow for Croatia joining the Schengen area.
A.11	Airport safety	One of the main objectives of the TDS is the development of highest level standards of air transport safety on international, regional and national level, in order to effectively reduce dangers of air transport reduce the possibility of accident occurrences and limit the negative consequences of such accidents. Airport infrastructure and planes must comply with all the international safety requirements.
A.12	Energy efficiency	Energy efficiency in air transport can be improved in airports and planes. Airports will reduce energy consumption with modernisation of airport equipment and the gradual replacement of the airport vehicles for other more efficient types of fuel (biodiesel, LNG, electricity, etc.). The fleet must also be modernized to increase the energy efficiency. Further studies will analyse specific requirements.
A.13	Closure or change of role/ownership of regional airports	In order to enhance the efficiency and sustainability of the system, new managing strategies must be developed for airports; while considering the possible closure of non-sustainable airports.
<b>Aviation Planning and Organisation</b>		

<b>A.14</b>	Adaptation of legal national framework as well as the implementation rules	Existing legislation should be modified and/or new legislation developed to create a comprehensive and flexible framework for the development of the aviation system and to facilitate development of new ideas and models which aim to improve the aviation system. It should be in line with international best practice and European regulations. The main areas which will be affected include, among others: safety, security, administrative procedures, quality of the service, sectorial KPI and their supervision.
<b>A.15</b>	Improvement of the cooperation with the relevant regional authorities	Even though the main role of air transport is linked to long distance passengers, proper cooperation with the relevant regional and local authorities is necessary to improve the accessibility of the airports and ensure that the airport development plans are in line with the development plans of the relevant cities and regions.
<b>A.16</b>	Restructuring of Croatia Airlines	In order to improve the sustainability of the system it is necessary to fully implement and finalize the restructuring of Croatia Airlines. An additional analysis should facilitate the process of preparation for the privatisation of the company and search for strategic partners which would bring in additional capital and create clear plans for future development and growth of Croatia Airlines.
<b>A.17</b>	Information platform	Promoting and creating a positive image of air transport as a reliable and safe mean of transport is important for encouraging the demand and consequently the investments. For better promotion it is necessary to have complete and up to date information and knowledge of Croatian airports, and their possibilities and development plans. It is necessary to monitor the key performance indicators (KPI) of the service quality and report clearly and effectively to society and stakeholders.
<b>A.18</b>	System reorganization and planning	In order to improve the efficiency and effectiveness of the air transport system moving towards a more sustainable setup, some realities are to be maintained and some changes in the organisation are necessary (ensuring the continuous connectivity of Croatia's regions and thus achieving major impacts for the economic and social development of Croatia's regions through PSO, establishing an alternative, reliable and flexible way of transport and connectivity of the Adriatic coast and the islands - added value could be establishment of better/alternative connections with the mainland, although the focus would be on the coastal region and the islands, improvements in the productions chain such as modalities for operating services, doing maintenance, offering added value services in a more user oriented approach, etc.).
<b>A.19</b>	Cooperation with aeronautical industry	The development of the aviation sector has to be achieved as well by means of joint innovation projects in air navigation and fleet modernisation, research and development and environmental protection, with the joint participation of private investors and the government in the form of special funds for this purpose. More attention has to be devoted to the implementation of innovations in transport technology and compliance with the new technical standards.
<b>A.20</b>	International traffic management, Single European Sky SESAR	Elaboration of a national agenda for the development of coordination regarding the implementation of SESAR program and the Centralised Services Concept. Definition of a national priorities policy within FAB CE integrations as well as improve coordination and cooperation with neighbouring countries and within the wider region. Notwithstanding Croatia Control Ltd.'s competitiveness in respect of the region and similar size providers, there is a need for capacity building, implementation of safety standards, cooperation in terms of joint air navigation and development of educational centre for flight controllers.
<b>A.21</b>	Improving consumer satisfaction awareness	o increase the customer satisfaction awareness, it is necessary to monitor the quality of service through KPIs. This should help to identify the differences (if any) between high and low season, the requirements of the passengers, their perception of the facilities, etc. The results should be disseminated in a clear and concise manner to include the opinions of the public and stakeholders.
<b>A.22</b>	Increase financial sustainability of airports	Increasing financial sustainability is one of the main objectives of the TDS. To achieve this objective it is necessary to optimise the organisational setup of the system and to increase the efficiency of the operation and maintenance. Financial sustainability of the air transport system intends to reduce the dependence of the system on public subsidies. Further studies will assess concrete actions to be taken to optimise costs and incomes.
<b>A.23</b>	Limit environmental impact	Reduction of the environmental impact of the air transport system is in the core of European transport policy. Environmental impact mitigation during operation must be achieved by increased energy efficiency and by minimising waste and reducing noise, CO2 emissions and other pollutants.
<b>A.24</b>	Review/update Airport Masterplans	The planning of infrastructure and its response to traffic demand is essential for the development of a sustainable airport system in the Republic of Croatia. The first step will be to coordinate actions and activities being carried out in each airport in an Airport Master Plan. Once the Master Plan is completed, the next step will be to coordinate and prioritise the plan of actions.
<b>A.25</b>	Cooperation/agreements with other international airports	Although the Croatian airports are competitive with those of neighbouring countries, there is a need for cooperation in terms of border control, security and safety standards that will benefit all parties. It may even be possible to reach agreements on specialisation might be reached, i.e. cargo airports, operative bases for airlines, etc.
<b>A.26</b>	Increase administrative capacity/training	The lack of administrative capacity and properly trained staff is one of the key issues identified in the sector and is one of the priorities in the EU cohesion policies. In this particular sector, there is a need for capacity building in order to achieve improvements in this area. The employees of sector related companies must be trained - among others - for the use of new technologies in the field of maintenance, air navigation and safety.
<b>A.27</b>	Improvement of data collection	For further development of the aviation sector, it is necessary to have up to date data of, among others: physical characteristics, operational, safety, capacity, quality of service, tariffs. Data is published by the Croatian Bureau of Statistic and collected through the annual reports, however, the reports do not include all relevant data for the sector. It is necessary to improve and simplify the data collection, in order to increase the accessibility of data.

Table 2-5: Measures – Inland navigation

Code	Measure	Measure Description
<b>Ports and navigability</b>		
I.1	Maintaining Danube and Drava until Osijek	The Danube and Drava are part of the Rhine-Danube Corridor (TEN-T network). The total length of the Danube running through the Republic of Croatia is 137.5 km. A tributary of the Danube, the Drava is also considered an international waterway up to Osijek. As such, it is necessary to ensure the navigability in these international rivers in line with the required navigability level according to the European Agreement on Main Inland Waterways of International Importance (AGN), VIc class for the Danube and IV for the Drava up to the port of Osijek. To achieve that navigability requirements the dimensions of the waterway will be increased and the bottlenecks eliminated (trough among others dredging and/or construction of new waterways structures).
I.2	Upgrading Sava	Sava river does not meet the international waterways navigability requirements on its entire length in the territory of the Republic of Croatia according to AGN. Further analyses will determine the feasibility of upgrading the Sava river navigability to the required standards: (Va class) from the border with Serbia (rkm 210,8) to Gunja (rkm 234); (IV class) from Gunja (rkm 234) to Sisak (rkm 594). To achieve that navigability requirements the dimensions of the waterway will be increased and the bottlenecks eliminated (among others dredging and/or construction of new waterways structures).
I.3	Vukovar port development (core)	The Vukovar Port is located on the Danube river, and has been classified as a TEN-T core port. Vukovar is an inland port that can service class 5 vessels. It has a VIc class of navigability. The traffic of goods and passengers in port is increasing. In order to develop and upgrade the port of Vukovar the following measures have been identified: modernization and construction of new facilities to increase the capacity of the existing port; developing and building a New East Port; modernization of road and rail infrastructure connections; building of an industrial pier in Ilok; and developing passengers port facilities. Further analyses will identify the feasibility of these measures and prioritise them, taking into account environmental requirements and the real needs and potential according to the expected demand.
I.4	Osijek port development (comprehensive)	The Osijek Port is located on the Drava river and has been classified as a TEN-T comprehensive port. The traffic of goods and passengers in port is increasing. The Osijek port has a great opportunity to become intermodal logistics centre due to large port area and excellent potential from the point of view road and rail connections with hinterland In order to develop and upgrade the port of Osijek the following measures have been identified: construction of the port basin and developing of the business zone, relocation of the existing bulk cargo terminal, construction and reconstruction of the existing banks, modernization of the basic port infrastructure and safety systems. Further analyses will identify the feasibility of these measures and prioritise them, taking into account environmental requirements and the real needs and potential according to the expected demand.
I.5	Slavonski Brod port development (core)	The Slavonski Brod Port is located on the Sava river and has been classified as a TEN-T core port. The potential of Slavonski Brod, which is of particular importance for BiH, is largely dependent on the development of navigability of the Sava river in BiH and Serbia and/or on the construction of the Danube - Sava canal through Slavonia. Reliability and safety of navigation on the river Sava are crucial factors which influence the attractiveness of the port. The main goods transported are trans-shipment of crude oil together with general cargo. The current tendency shows that the crude oil traffic is decreasing, even though the general cargo is increasing. The port area Slavonski Brod is closely linked to international road and rail corridors (X and Vc) and is situated on the border with Bosnia and Herzegovina. Due to that, this port is also becoming an intermodal node. In order to develop and upgrade the port of Slavonski Brod the following measures have been identified: developing the complete port area and the business zone, modernization of the basic port infrastructure (including water supply, gas supply, waste-water, sewage systems, etc.) and safety systems, modernization of the passenger pier, construction of a dangerous cargo terminal and modernization of the road and rail connections. Further analyses will identify the feasibility of these measures and prioritise them, taking into account environmental requirements and the real needs and potential according to the expected demand.
I.6	Sisak port development (comprehensive)	The Sisak port is located on the Sava river, and has been classified as a TEN-T comprehensive port. Reliability and safety of navigation on the river Sava are crucial factors which influence the attractiveness of the port. It is based on three locations: in the town on the river Kupa, on location of Crnac on the river Sava, and in Galdovo zone on the river Sava. The potential of Sisak is largely dependent on the development of navigability of the Sava river in BiH and Serbia and/or on the construction of the Danube - Sava canal through Slavonia. A new port of Sisak is planned south of the Crnac settlement. Cargo transport in the port is mainly related to the Sisak oil refinery, i.e. transportation of crude oil. In order to develop and upgrade the port of Sisak the following measures have been identified: upgrading the existing port, developing the business zone, modernization of the basic port infrastructure (including electricity, water supply, gas supply, sewage systems, etc.) and safety systems, building the New port of Sisak with assuring the necessary connectivity to the road and rail network. Further analyses will identify the feasibility of these measures and prioritise them, taking into account environmental requirements and the real needs and potential according to the expected demand.
I.7	Building the Danube Sava canal	Multipurpose channel Danube – Sava is planned to have four equally important functions: shipping, irrigation, drying out and equalization of low water level. Due to its multiple functions, the channel will have an important impact on the Croatian economy. Regarding its potential transport functionality, besides connecting the Croatian network of inland waterways, construction of the canal will help connecting the Croatian maritime ports with the Danube and, therefore, with Central Europe. The feasibility of the canal will be analysed in further studies which will consider all the expected functionalities and take into account environmental requirements, and the real needs and potential according to the expected demand.
I.8	Safety, RIS, signalization system, etc.	The expected growth in traffic, and the consequent increased risk of accidents and the impact of potential incidents on the water require the existing safety level to be brought up to a higher level. In order to achieve this in Croatia, besides the implementation of the River Information Services and the availability of timely and accurate information regarding the movement of vessels, it is necessary to establish clear procedures regarding the actions which should be taken in cases of incidents, as well as upgrading the existing systems of marking and monitoring the navigability of the inland waterways. For safety, it is also necessary to modernize and upgrade the ports with safety systems.



Code	Measure	Measure Description
I.9	Interoperability, accessibility with other modes	<p>One of the objectives of the TDS is to increase the share of inland waterways transport. The increase in the share of inland waterway transport can be achieved if this sector is integrated into the intermodal transport network. It is necessary to establish an intermodal transport network, especially on the Adriatic-Danube axis, and to join maritime and inland transport. The main requirements for establishing an intermodal network are:</p> <ul style="list-style-type: none"> <li>- Improvement of the connections of river ports to the road and railway network</li> <li>- Development of the Sava waterway</li> <li>- Upgrading, construction and extension of railway lines</li> <li>- Construction of cargo storage facilities</li> <li>- Establishment of a comprehensive Information and Communication Technology system (ICT) for intermodal transport</li> </ul>
I.10	Energy efficiency	<p>Energy efficiency in inland transport can be improved in ports and in inland shipping. Ports will reduce energy consumption with modernization of port equipment, and gradual replacement of oil with other types of fuel (biodiesel, LNG, electricity, etc.). The shipping fleet must also be modernized, as the average age of Croatian ships is 40 years. Further studies will analyse specific requirements.</p>
I.11	Dangerous goods terminal and waste management facilities	<p>In accordance with the European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways (ADN), the duty of port authorities is to ensure separate warehousing, processing and disposal of harmless and dangerous waste in ports, as well as reception of waste from ships. Croatian inland ports are undeveloped, and in order to increase the safety and environmental protection is necessary to build and upgrade terminals for dangerous goods and upgrade ports with waste management facilities, primarily international ports, but also other ports where necessary.</p>
I.12	Environmental protection	<p>Reduction of the environmental impact of the transport system is in the core of the European transport policy. In this specific sector it is necessary to consider that according to the "European Water Framework Directive", the waterways are becoming a part of the integral plan for water management, so that their biological diversity and ecological value can be preserved. The environmental protection of waterways can be increased by:</p> <ul style="list-style-type: none"> <li>- pollution prevention; ensuring the reception of waste water from all vessels navigating along the internal waterways,</li> <li>- increasing the efficiency of inspections,</li> <li>- planning for improved water management to preserve biological diversity and ecological value,</li> <li>- mitigation of environmental impact during operation by increased energy efficiency.</li> </ul>
<b>Inland navigability operation/organization</b>		
I.13	Adaptation of legal national framework as well as the implementation rules	<p>Inland waterways related legislation and planning guidelines must support the development of the sector and must be in line with international best practice and European regulations, especially regarding safety, security, interoperability, sustainability and environment. In this sector, it is of relevance to define more clearly and completely the legal framework for the implementation of RIS and to establish close cooperation with neighbouring countries.</p>
I.14	Increase administrative capacity/training	<p>The lack of administrative capacity and properly trained staff is one of the key issues identified in the sector and is one of the priorities in the EU cohesion policies. In this particular sector, employment of additional administrative capacities is mainly needed in the field of transport safety and control, as well as safety inspection of navigation in the Harbour master's offices. The employees must be trained - among others - for the use of new technologies in the field of maintenance of waterways and navigation safety.</p>
I.15	Increase the financial sustainability	<p>Increasing financial sustainability is one of the main objectives of the TDS. To achieve this objective it is necessary to optimise the organisational setup of the system and to increase the efficiency of the operation and maintenance. Financial sustainability of the inland waterways transport system intends to reduce the dependence of the system on public subsidies. Further studies will assess concrete actions to be taken to optimise costs and incomes.</p>
I.16	Cooperation with Croatian shipping industry	<p>The support for shipping has to be achieved by means of joint innovation projects in shipping and shipbuilding, research and development and environmental protection, with the joint participation of private investors and the government in the form of special funds for this purpose. More attention has to be devoted to the fleet modernization, implementation of innovations in transport technology and compliance with the new technical standards</p>
I.17	Information platform	<p>Promoting and creating a positive image of internal navigation as a reliable, safe and environmentally friendly means of transport is important for encouraging investments, and increase interest for transport on inland waterways. For better promotion is necessary to have complete and up to date information of Croatian inland waterways and ports, and their possibilities and development plans.</p>
I.18	Support to water transport companies	<p>It is important to establish support instruments which will relieve the integration of shipping companies into the European transport market. The stimulation of inland shipping implies different measures of fiscal policy towards the sector, especially in the area of forming fuel prices.</p>
I.19	Reorganization of the sector	<p>The institutional framework for inland waterways sector in Croatia includes the Ministry of Maritime Affairs, Transport and Infrastructure as head authority, with port authorities as regional units located in Sisak, Slavonski Brod, Osijek and Vukovar. In order to improve the efficiency and effectiveness of the inland waterways system moving towards a more sustainable setup, changes in the organisation are required (improvements in the productions chain such as modalities for operating services, doing maintenance, offering added value services in a more user oriented approach etc.). It is necessary as well to establish the National head office for the RIS and to define the organizational and hierarchical structure of the RIS.</p>
I.20	Increase the fleet of safety and environmental protection vessels	<p>For more effective safety control and inspection, and installation and maintenance of signalization system on waterways, it is necessary to increase the fleet of safety and environmental protection vessels.</p>

Code	Measure	Measure Description
I.21	Cooperation/agreements with other international ports	The Sava, Drava, Danube, and Una rivers, at some sections are bordering rivers; therefore the close cooperation with the neighbouring countries is necessary, especially in the field of safety and implementation of River Information Services. Close cooperation of Croatian inland ports with other international ports is also needed in order to be more competitive on international market and to be up to date with new port technologies.
I.22	Improvement of data collection	For further development of inland sector, it is necessary to have up-to-date" data of: waterways, navigability, ports and infrastructure, shipping fleet, traffic of goods and passenger on waterways and in ports, safety ... Croatian Bureau of Statistic is in charge for data publishing and the data are collected through the monthly and Annual Reports on Inland Waterway Transport; however, reports do not include all relevant data for the sector. It is necessary to improve and simplify the data collection, in order to increase the accessibility of data.

Table 2-6: Measures – Maritime transport

Code	Measure	Measure Description
<b>Ports and navigability</b>		
<b>M.1</b>	Increase intermodality and accessibility	The modal share of maritime transport is still very low, against road transport. It can be increased by increasing the intermodality and accessibility of ports. The development of national ports must be followed by the development of intermodal infrastructure (road and railway connections and logistics areas). The planning of expansion and development of port (new berths and terminals) must take in consideration, all the possibilities offered by the location for further development.
<b>M.2</b>	Implementation of the "Motorways of the sea" project	Although there are RO-RO lines connecting Croatian and Italian ports, "Motorways of the Sea" has yet to be implanted in Croatia. The stages for implementation of the "motorways of the sea" projects in Croatia are: - together with EC, establish the main corridors (combined "land-maritime" routes) - upgrade the Croatian ports on the corridors to receive ro-ro traffic - if necessary, upgrade road and railway connections to/from port
<b>M.3</b>	Environmental protection	Responsible protection of the marine environment combines the elements of protection of the sea eco-system and the coastal area as an integral whole, and undertakes the actions to prevent the pollution of the sea and air from ships and other sources of environmental pollution in maritime traffic. Responsible protection of the marine environment combines the elements of protection of the marine ecosystem and the coastal area as an integral whole, and undertakes the actions to prevent the pollution of the sea and air from ships and other sources of environmental pollution in maritime traffic. The main objective is to prevent environmental pollution and harmful impacts of floating structures on the Adriatic Sea. In this sense it is necessary to: - declare the Adriatic Sea a Particularly Sensitive Sea Area in cooperation with coastal countries of the Adriatic, according to guidelines of the International Maritime Organisation, - set the National and Regional Contingency Plan for Accidental Marine Pollution in full operational application, - perform training and equip the inspection services in port harbour master's offices and other competent services of the Ministries, for the purpose of finding and prosecuting pollution perpetrators, - form joint inventories of emissions and common approaches to evaluation of shipping and its impact on air pollution in countries in the area of the Adriatic and Ionian seas, - ensure the conditions for sustainable and available service of acceptance and disposal of ship waste and cargo residues, - improve the response system in emergency situations, - mitigate environmental impact during operation by increased energy efficiency.
<b>M.4</b>	Bunkering facilities for gas powered and eco ships	A Croatian shipping fleet will be modernised in order to develop energy-efficient eco-shipping, by stimulating the procurement/construction of new eco-ships and by adapting existing ships according to the highest environmental standards and the MARPOL 73/78 Annex VI - Regulations for the prevention of air pollution from ships-. Parallel with developing eco-shipping is necessary to develop bunkering facilities for gas powered and eco ships.
<b>M.5</b>	Navigability	The Croatian coastline is 1,880 km (6,287 km including islands) and includes 718 islands and 467 coastal reefs. It is one of the most indented coastal regions in Europe. Navigability on the east Adriatic coast is constrained by islands and reefs, but the sea is mainly deep. The advantage of main Croatian ports is depth; therefore, the only limitation to receiving big ocean ships is port infrastructure.
<b>M.6</b>	Improve the accessibility of islands, port development	Public transport in the coastal line passenger transport is considered to be the key factor in the maritime transport segment, given that it ensures permanent and regular connection between the islands with the mainland and between the islands, without which there would be no sustainable development of inhabited islands. For the proper provision of maritime public transport it is necessary to ensure safety, regularity, reliability and comfort and to coordinate the services among them and with the integrated transport systems in the mainland. The ports must be upgraded for coastal line passenger transport, and the accessibility and connectivity to the ports improved.
<b>M.7</b>	Other ports development (ex. Korčula, Pula...)	Croatia has 409 ports open for public traffic, 95 of which have at least one shipping line. Apart from the 6 main ports of special (international) economic interest, there are numerous county and local ports. Their development is important for the sustainability development of the islands themselves, as well as tourism. The existing public ports in the county must be upgraded to receive coastal line passenger ships, and in the case of ports of interest to tourists, to receive smaller cruise ships. Further studies will identify the need to upgrade and reconstruct the existing county and local public ports for the needs of the local population, and for tourists.
<b>M.8</b>	Specialise Rijeka port (container, liquid cargo transport and LNG terminal)	Rijeka has been classified as the TEN-T core port of Croatia. It is a port open to public traffic of special (international) economic interest for the Republic of Croatia. It is the largest port in Croatia and benefits from the deepest natural channel in the Adriatic. The major part of the traffic is transit cargo to/from its wider hinterland in Central Europe, and is dominated in volume terms by liquid and bulk cargo followed by container and general cargoes. Further development is focused on the specialisation to container and liquid cargo transport. For the success of the port it is necessary to ensure interoperability and accessibility of the port and ensure that the port development is complemented by the necessary developments of the road and railway infrastructure, as well as logistic areas. Further analyses will identify the necessary project to achieve this specialisation and prioritise them, taking into account environmental requirements and the real needs and potential according to the expected demand.

Code	Measure	Measure Description
M.9	Specialise Ploče port (container and bulk cargo)	The Ploče port has been classified as a TEN-T comprehensive port of Croatia, and is of specific importance for BiH. Further development of the port will be focussed on the specialisation to container and bulk cargo transport. According to the development plans, the focus will be on the construction of a new dry bulk cargo terminal, a container terminal, modernisation of existing port infrastructure and a new logistic area. Although outside the scope of this strategy, it is necessary to mention that the success of the port is clearly linked to the development of the road and railway infrastructure across the Republic of Bosnia and Herzegovina. Further analyses will identify the feasibility of these measures and prioritise them, taking into account environmental requirements and the real needs and potential according to the expected demand.
M.10	Specialise Dubrovnik port (cruising vessels)	The Dubrovnik port has been defined as a TEN-T comprehensive port of Croatia. It is a port open to public traffic of special (international) economic interest for the Republic of Croatia. The port of Dubrovnik has become in recent years one of the most popular destinations for cruise voyages in Europe, so its development is directed to cruising passenger transport. Planned developments include the modernisation and reconstruction of the passenger terminal and the expansion of ferry traffic facilities. Further analyses will identify the feasibility of these measures and prioritise them, taking into account environmental requirements and the real needs and potential according to the expected demand.
M.11	Specialise Split port (Ro-Ro, passenger and cruising)	The Split port has been classified as a TEN-T comprehensive port of Croatia. It is a port open to public traffic of special (international) economic interest for the Republic of Croatia. The port of Split, also called gateway to the islands, is the largest passenger port in Croatia, therefore, its development is mainly directed to passenger and cruising transport. Planned developments will be focussed on the construction of new berths for ferry, Ro-Ro and cruise vessels including the extension of the passenger wharves. Further analyses will identify the feasibility of these measures and prioritise them, taking into account environmental requirements and the real needs and potential according to the expected demand.
M.12	Specialise Zadar port (Ro-Ro, passenger and cruising)	The Zadar port has been classified as a TEN-T comprehensive port of Croatia. It is a port open to public traffic of special (international) economic interest for the Republic of Croatia. The port of Zadar is the second largest Croatian port for passengers. Cargo traffic is limited due to physical constraints and proximity to Rijeka. The port development is directed to Ro-Ro, passenger and cruising transport. The construction of a new passenger port outside old town, in Gaženica is in progress. The new port will provide an extended berthing capacity for larger international ferries and modern cruise ships ("home port") and international standard on-shore facilities for passengers and vehicles. Further analyses will identify the necessary projects to achieve this specialisation and prioritise them, taking into account environmental requirements and the real needs and potential according to the expected demand.
M.13	Specialise Šibenik port (small capacity cruising and super-yachts)	The Šibenik port has been defined as a TEN-T comprehensive port of Croatia. It is a port open to public traffic of special (international) economic interest for the Republic of Croatia. Further development of the port will be focussed on the specialisation to passenger traffic, as a port for exclusive cruising vessels of smaller capacities (boutique vessels) and super-yachts. Further analyses will identify the necessary projects to achieve this specialisation and prioritise them, taking into account environmental requirements and the real needs and potential according to the expected demand.
M.14	Development of special purpose ports (shipbuilding ports, nautical ports, military ports, industrial ports, fishing ports, sport ports)	Depending on activities carried out, special purpose ports are classified as shipbuilding ports, nautical ports, military ports, industrial ports, fishing ports, and sport ports. The Croatian coast had been developing as tourist destination, and special purpose ports have also been developed in that direction: new nautical berths, dry docks and warehouses for yachts... Fishing ports on islands are part of sustainable development of islands. Industrial ports are berths for some industrial plants: thermal power plants, oil refinery. There is a great of possibility developing a LNG terminal with industrial port in Krk island, and it should be analysed in further studies.
M.15	Energy efficiency	Energy efficiency in maritime transport can be increased by - developing energy-efficient eco-shipping (including modernisation of the shipping fleet),- modernisation of port equipment,- Stimulate the use of renewable sources of energy in the port sector - Stimulate innovative pollution preventing decisions in ports Further studies will analyse specific requirements.
M.16	Closure or change of role/ownership of unused ports	Some military, industrial and shipbuilding ports are unused. It is necessary to how to make use of these unused ports for the purpose of economic development (tourism, fishing and small industries). Further analyses will identify the feasible measures in this regard and prioritise them, taking into account environmental requirements and the real needs and potential according to the expected demand.
<b>Maritime operation/organization</b>		
M.17	Cooperation with shipping industry	The support for shipping has to be achieved by means of joint innovation projects in shipping and shipbuilding, research and development and environmental protection, with the joint participation of private investors and the government in the form of special funds for this purpose. More attention has to be devoted to the fleet modernization, implementation of innovations in transport technology and compliance with the new technical standards.
M.18	Strategical Maritime definition	Croatian maritime strategy and the strategy for intermodal transport must be developed in order to increase intermodality and accessibility to maritime transport. The development plans of ports of international economic interest (Rijeka, Šibenik, Zadar, Split, Ploče, Dubrovnik), must be harmonised with the national development plans and the transport infrastructure development plans.



Code	Measure	Measure Description
<b>M.19</b>	Adaptation of national legal framework as well as implementation rules	The maritime regulatory framework in Croatia is arranged through various forms of legislation which are divided into five main categories: maritime affairs, maritime safety and security, prevention of marine pollution, public transport in liner coastal maritime transport, maritime domain and seaports, and maritime administration. To improve the maritime sector the related legislation and planning guidelines must support the development of the sector and must be in line with international best practice and European regulations, especially regarding safety, security, interoperability, sustainability and environment.
<b>M.20</b>	Improvement of operational plan (ship routing, etc.)	A key segment of Croatian shipping is coastal line passenger transport, and it is necessary to improve and to develop an adequate operational plan for optimising ship routing and service schedules coordinated with the public transport systems in the relevant mainland cities. Ship routing should consider if necessary opening and closure of lines between islands. Irrespective of public transport, the operation plan must be improved by considering the need for cruise passenger ships in ports with important cruise liner traffic due to port and city congestion.
<b>M.21</b>	Traffic management and IT system, VTMS	Traffic management with IT system for public maritime transport need to be improved. Improvement in maritime safety and security, and environmental protection, can be reached by enhanced cooperation with neighbouring countries, and modernization of the Croatian Coast Radio Stations, and upgrading of Vessel Traffic Monitoring and Information System (VTMS).
<b>M.22</b>	Improvement of MET systems	Croatia is a seafaring nation supplying both national and foreign vessels with qualified seafarers. Croatia must develop and promote itself as an international centre of excellence for schooling seafarers. The maritime education and training (MET) system needs improvement, including: - The development of an action plan about the needs and the future of the education system and seafarers' education with regard to the target markets, education programmes, the target number enrolled - Encouraging the planning and implementation of the curriculum, as well as education programmes and tests for acquiring the certificate of proficiency in English to ensure access to foreign students and candidates; - Promotion of cooperation of Faculties of Maritime Studies and colleges with maritime economy.
<b>M.23</b>	Training and capacity building	It is necessary to strengthen the capacity of employees in the maritime sector (administrative, seafarers...) with training and education. The administrative capacity must be strengthened to develop and implement maritime projects that can be financed by the forthcoming EU structural and cohesion funds. The lack of administrative capacity and properly trained staff is one of the key issues identified in the sector and is one of the priorities in the EU cohesion policies. In this particular sector, employment of additional administrative capacities is mainly needed in the field of transport safety and control, safety inspection of navigation and in the area of project preparation and project implementation management. The employees must be trained - among others - for the use of new technologies in the field of maintenance and navigation safety.
<b>M.24</b>	Reorganization of the maritime transport system	The Government of the Republic of Croatia has established 6 state port authorities for the purposes of managing and constructing ports of exceptional (international) economic significance for the Republic of Croatia. On the other hand, counties were given the option of establishing one port authority (or more, based on their needs) for the purposes of managing and constructing public traffic ports significant on a local and county level. The situation resulted in 22 port authorities on a county level in 7 counties. In order to improve the efficiency and effectiveness of the maritime transport system moving towards a more sustainable setup, changes in the organisation are required (improvements in the productions chain such as modalities for operating services, doing maintenance, offering added value services in a more user oriented approach, etc.).
<b>M.25</b>	Information platform, database	The information platform and maritime database must be constantly upgraded and updated to ensure accurate, reliable, and updated maritime data and information. It is necessary to: - Establish effective and publicly available exchange system for information from the main registers - Integrated management of all marine service actions in accordance with the needs of citizens and the maritime economy; - Improve the services of the maritime meteorological office through the establishment of the Adriatic regional maritime weather centre - Establish e-services for all users of public services with particular emphasis on the development of the Croatian Integrated Maritime Information System (CIMIS) - Establish "The maritime land register" as a national infrastructure of spatial data of the sea (MIPP) based on standards of the International Hydrographic Organization.
<b>M.26</b>	PSC concession reorganization	Public Service Contract(s) in compliance with EU Reg. 1370/2007 are a fundamental tool to assure transparency and efficiency in the provision of public transport services. A widespread implementation of PSCs is therefore required not only for compliance purposes, but also as a first step towards an improvement in sustainability of Croatia's transport system. Typology and duration of the PSC will have to be determined on a case-by-case analysis, together with the applicability of the in-house model (either based of pure compliance issues or after a thorough assessment of technical and financial requirements).
<b>M.27</b>	Maritime safety, inspections, SAR cooperation	One of the main objectives of the TDS is the development of highest level standards of maritime safety on international, regional and national level, in order to effectively reduce dangers of maritime navigation for Croatian ships and reduce the possibility of marine accident occurrences and limit the negative consequences of such accidents. Maritime safety and availability and quality of SAR services and facilities must be enhanced, including increased cooperation with neighbouring countries and the implementation of a strict inspection regime.

Code	Measure	Measure Description
M.28	Modernisation of the vessels (safety, energy efficiency and environment)	The maritime industry has to develop in a safe and sustainable manner. The objective is to continuously increase the efficiency of safety oversight and security safeguards of Croatian vessels and floating structures. and to increase the share of energy efficient vessels. It is necessary to develop a system of targeted inspection and technical control to implement the highest international, European and national safety standards to Croatian vessels and floating structures according to established priorities. An efficient monitoring system of recreational craft and marine must be established as well.
M.29	Cooperation/agreements with other international ports	In order to increase the traffic in Croatian ports, and to be more competitive on the global market and to be up to date with new port technologies, it is necessary to increase the cooperation with other international ports in Adriatic sea.
M.30	Increase the financial sustainability	Increasing financial sustainability is one of the main objectives of the TDS. To achieve this objective it is necessary to optimise the organisational setup of the system and to increase the efficiency of the operation and maintenance. Financial sustainability of the maritime transport system intends to reduce the dependence of the system on public subsidies. Further studies will assess concrete actions to be taken to optimise costs and incomes.
M.31	Development of concept of maintenance	The concept of maintenance in maritime sector can be divided into: maintenance of ports and port infrastructure, and maintenance of shipping fleet. Adequate structures and organisation for maintenance must be put in place in order to provide an efficient and effective/sustainable maritime transport service. The concept must derive from an appropriate and specific analysis of the Croatian and maritime operators context, taking into account technical, financial and users requirements.
M.32	Improvement of data collection	For further development of maritime sector, it is necessary to have up- to- date data of, among others:, navigability, ports and infrastructure, shipping fleet, traffic of goods and passengers, safety. Data is published by the Croatian Bureau of Statistic and collected through the quarterly statistical surveys, however, the reports do not include all relevant data for the sector. It is necessary to improve and simplify the data collection, in order to increase the accessibility of data.

Table 2-7: Measures – Urban, suburban and regional transport

Code	Measure	Measure Description
<b>Infrastructure</b>		
<b>U.1</b>	Intermodal terminals development	A network of intermodal terminals should be established to allow the passengers to easily change between transport modes. A well thought out, balanced, intermodal network is key to maximizing the efficiency of the overall system, minimising nuisances to users. Location and modes of each terminal will be determined according to a specific area study (e.g. Masterplan).
<b>U.2</b>	Infrastructure development	A proper analysis of the existing situation and expected developments of the Transport System and socio-economic context in urban and regional areas, in a perspective of Sustainable Mobility/Integrated Public Transport Plans, should identify the needs of rehabilitating/upgrading existing infrastructure or of creating new ones where mobility levels will justify it. On the other side, this might also mean to dismiss or functionally downgrade some parts of the network where expected mobility levels become non relevant. Infrastructure investments will be primarily focused on public transport and low/zero emission modes and will be accompanied by complementary mobility management policies and interventions, together with appropriate ITS installations.
<b>U.3</b>	Station development	A proper analysis of the existing situation and expected developments of the Transport System and socio-economic context in urban and regional areas, in a perspective of Sustainable Mobility/Integrated Public Transport Plans, will identify the needs of rehabilitating/upgrading existing stations or of creating new ones where mobility levels will justify it. On the other side, this might also mean to dismiss or functionally downgrade some existing stations where expected mobility levels become non relevant. Station development will be primarily focused on improving passengers accessibility, especially for persons with reduced mobility, assuring safety and security of the passenger movements and introducing information and PA systems.
<b>U.4</b>	Separation of modes - prioritization to PT, removal of bottlenecks	Public transport (buses and tramways, mainly) has to coexist with the private car since the available space in cities is always limited. At the same time, more importance will be given to public transport and recovering part of the urban space for the use of the citizens. In this sense and in order to increase the efficiency of public transport, the level of separation of private traffic and public transport will be increased by building reserved lanes for public transport and/or dedicated public transport corridors (for tram and buses), and by implementing measures to increase the prioritisation of public transport by means of traffic management, such as traffic lights preferential. Additionally, detected obstacles and bottlenecks that impede the efficient operation of public transport will be removed. These obstacles and bottlenecks often cause delays on public transport and can even compromise road safety (e.g. rail-road crossings).
<b>U.5</b>	Increase of intermodality (P&R, etc.)	One of the key aspects to achieve a good public transport system and for the success of integrated transport systems encouraging the modal shift from private to public transport is to increase and facilitate the intermodality. In this sense, together with the development of proper intermodal terminals, the development of facilities such as Park & Ride, kiss & ride, bike & ride, etc. will help providing commuters another option to access the city, avoiding congestion in the core urban areas and encouraging the use of public transport. The location of these facilities will be analysed in detail case by case taking into account their functionality, e.g. Park & Ride should normally be located on the outskirts of the city next to public transport terminals.
<b>U.6</b>	Filling stations for alternative fuel	Alternative fuels have been largely improved in recent years specially in the context of public transport in urban and suburban areas. The building of filling stations for alternative fuels will be encouraged to reduce the conventional fuel consumption, CO2 emissions and toxic particles.
<b>U.7</b>	Environmental protection	The transport sector is responsible for about a quarter of all the carbon dioxide (greenhouse effect emissions) produced in the world. To reduce these greenhouse effect emissions as well as other toxic particles in the urban environments, the rolling stock and vehicles for public transport should be modernized. Other factors affecting the quality of life of city residents and urban environmental quality are noise and vibration produced by urban transport. To mitigate these effects, the focus will not only be on the procurement of new public transport vehicles but also on the modernisation of the infrastructure of the public transport systems, taking into account noise and vibrations reduction and protection measures.
<b>U.8</b>	Improvement of safety and security	Safety and security in urban areas should be improved at least on two different levels: 1) Identifying and eliminating black spots such as rail-road crossings, signalling pedestrian crossings, providing additional protection to pedestrians by constructing new pedestrian footpaths where needed, constructing pedestrian islands to minimize crossing distances and extending curbs where necessary and even construction of new pedestrian sidewalks / footpaths to improve the accessibility to main public transport stations and terminals. 2) The rolling stock and vehicles for public transport should be modernized. Procurement of new public transport vehicles that comply with the highest safety and quality standards should be encouraged. These vehicles should incorporate the latest advances in safety and control and surveillance devices (e.g. video cameras). The infrastructures and stations should also be modernized with the necessary adaptations to increase safety and accessibility to the public transport and the installation of surveillance and control devices to improve the security.
<b>Operation and organization</b>		
<b>U.9</b>	Sector reorganization	The transport sector in Croatia will be reorganized through the establishment of a common administrative body at national level and specific entities in charge of transport in the different functional regions, taking into account the concept of integrated transport systems at the functional regional level. Having a specific administrative body in charge of urban, suburban and regional transport at national level is fundamental for establishing a coherent legislative framework for all functional regions and good coordination of the transport system decisions. On the other hand, a specific entity in charge of urban, suburban and regional transport at the functional regional level is a key factor in coordinating and defining the specific roles and responsibilities of the different stakeholders and in ensuring the efficient operation and management of the public transport system in each functional region. For example, a common administrative body at national level will be responsible for the preparation of the common legislation and acts, strategic decisions and coordination of the different entities in charge of public transport in the different functional regions, while entities in charge of transport on the functional regional level will be responsible for the good functioning of the public transport in its area, ensuring coordination of the different stakeholders and financial and environmental sustainability.

<b>U.10</b>	Improvement of data collection	To better understand the existing urban/regional transport systems and to forecast the future needs, continuous data collection and analysis is required in a simplified, clear and easily accessible manner. Transport related data and performance indicators must be regularly collected, to permit the statistical analysis and assessments on the transport sector. Necessary data and information will be obtained through secondary data or primary data collection (periodical surveys) or also using data collected and processed by intelligent transportation systems.
<b>U.11</b>	Adaptation of the legal framework and the implementation rules (PSC)	The planned introduction of integrated transport systems in the functional regions in Croatia will be supported by the relevant changes in the legal framework, implementation rules and planning guidelines. For this purpose, the current transport legal framework is being adapted. Regarding the transport planning obligations, the functional regions and/or cities will be required to develop proper Sustainable Urban Mobility Plans (Mobility plans can cover the area of one city or several cities belonging to a joint agglomeration/functional region). The operation of public transport systems will be performed under the framework of Public Service Contract(s) in compliance with EU Reg. 1370/2007 in order to assure transparency and efficiency in the provision of public transport services. A widespread implementation of PSCs is therefore required not only for compliance purposes, but also as a first step towards an improvement in sustainability of Croatian's transport system. Typology and duration of the PSC will have to be determined on a case-by-case analysis, together with the applicability of the in-house model (either based of pure compliance issues or after a thorough assessment of technical and financial requirements).
<b>U.12</b>	Increase financial sustainability	Increasing financial sustainability of the transport systems is one of the objectives of the TDS. To achieve this objective it is necessary to optimise the organisational setup of the system and to increase the efficiency of the operation and maintenance. Financial sustainability of the transport systems intends to reduce the dependence of the system on public subsidies. Further studies will assess concrete actions to be taken to optimise costs and incomes.
<b>U.13</b>	Fare collection and joint ticketing systems	One of the most tangible benefits for users of the integrated transport systems is the introduction of integrated tariff systems. The level of integration of the tariff system and the type of tickets and technologies to be used (single tickets and/or e-ticketing, smart cards or contactless payment methods, etc.) will be analysed case by case based on the competences of the relevant transport authority and taking into account all the possibilities, such as the possibility to use smart cards to pay P&R, on-street parking, toll zones, etc.
<b>U.14</b>	Introduction of on-demand PT services	One of the main objectives of the National Transport Development Strategy is to increase the sustainability of the transport system and at the same time provide public transport solutions which are accessible for the majority of the population. Taking into account that some parts of the Croatian territory do not have enough demand to justify the introduction of regular public transport lines (i.e. rural or disperse areas), the introduction of on-demand public transport services will provide the opportunity to also offer public transport services to these areas.
<b>U.15</b>	Adjustment of timetable (coordinated)	In order to increase the share of public transport modes in the urban, suburban and regional transport, reorganization of time schedules (e.g. TAKT ) is necessary to improve connectivity, efficiency and coordination of the different modes. Further studies will analyse this possibility taking into account origin-destination patterns and the operational and infrastructural requirements..
<b>U.16</b>	Administrative capacity and training	<p>The introduction of integrated transport systems and new technologies together with the necessity to increase the financial sustainability and efficiency of the transport systems leads to the definition of the lack of administrative capacity and properly trained staff as one of the key issues in the sector, being at the same time one of the priorities in the EU cohesion policies. In this particular sector, employment of additional administrative capacities is mainly needed in relation to the creation of new entities in charge of integrated transport systems and in the area of project preparation and project implementation management. The implementation of new technologies will imply the necessity to train the existing and new staff to ensure the proper operation and maintenance of these systems.</p> <p>Due to the close relation of the urban, suburban and regional transport with the zero emission modes and private car users, trainings will be combined with educational programs for the users on how to safely use the different transport modes.</p> <p>Among others, the training and educational program will be developed to:</p> <ul style="list-style-type: none"> <li>- Increase the capacities and competences of the administration staff;</li> <li>- Train the different carriers' personnel in cost-effective and safe driving as well as communication with passengers;</li> <li>- Train students on the use and safety of bicycles and public transport;</li> <li>- Overall public education and information on safe driving, public transport, focusing on the vulnerable groups (e.g.: disabled people or the elderly), about the effective and safe use of public transport and its advantages.</li> </ul> <p>The program will be based on study cases and examples of good practices to provide an entertaining and enduring education.</p>
<b>U.17</b>	Purchase of new rolling stock	With some exceptions, the current fleet of public transport vehicles is aged and based on outdated and inefficient technologies. In order to increase the competitiveness of public transport in comparison with private car it is necessary to modernise the rolling stock ensuring its compliance with the highest quality, safety and environmental standards and the accessibility for persons with reduced mobility. The purchase of new rolling stock will be performed in coordination to the foreseen improvements on the infrastructure. The first step to develop this measure is to perform a comprehensive analysis of the current organisational, operational and maintenance setup of the relevant operators analysing the future requirements and operational and maintenance plan. Once the real needs are identified further studies will define the specific technical requirements for the rolling stock.
<b>U.18</b>	Traffic reorganization	Offering competitive alternatives to the use of the private cars is important to achieve the objectives of the TDS and to ensure the sustainability of the transport system. The different transport modes' hierarchy will be rethought, and traffic will be reorganized and integrated seeking prioritization of public transport against private car. At the same time, more pedestrian areas in urban centres will be constructed, bike paths for daily commuters will be built, public bicycle systems will be implemented and traffic schemes will be planned to adapt the traffic to seasonal requirements.



<b>U.19</b>	Information platform	Public awareness of the administration efforts and the advantages of public transport are relevant to a successful implementation of the rest of the measures. To help raise this awareness of the measures taken, promotion campaigns will be organized. These include traditional public media, advertisements and public workshops and the creation of specific information platforms which will be used as well as a forum for public participation.
<b>U.20</b>	Support of non-profit groups in the transport area	The role of non-profit groups that promote the use of alternatives to the private car has proven to be very successful in numerous cities across Europe. Among others, there are groups that promote daily bike use, groups that watch out for passenger rights, for the maintenance of pedestrian areas or even for traffic surveillance. These groups (neighbourhood associations or common interest groups, non-governmental organisations, etc.) can help the local administrations and transport authorities in their duties and help to promote the use of the public transport. The participation of such associations, local groups and non-governmental organizations in the transport planning decisions will hence be promoted and considered.
<b>U.21</b>	Traffic and logistic management and information	New technologies allow among others for real time data gathering and control of traffic conditions and public transport use. In order to take advantage of these new technologies, centres for centralized management of the public transport will be constructed, equipped with the latest advances in ITS solutions. New public transport vehicles will be equipped accordingly, ITS platforms for trip planning will be used, and traffic signalling will be modernized so as to be integrated in the centralized management system (e.g. "Smart Traffic Lights" or public transport prioritization measures). This will allow for a qualitative improvement in the planning and monitoring of public transport, passenger user information, traffic control and real time data gathering regarding congestion, public vehicles arrival times.
<b>U.22</b>	Review/update local/regional Transport Masterplans	Regarding the transport planning obligations, the functional regions and/or cities will be required to develop proper Sustainable Urban Mobility Plans (Mobility plans can cover the area of one city or several cities belonging to a joint agglomeration/functional region). These mobility plans will analyse the current situation of the transport systems considering not only infrastructural but also operational and organisational aspects, and based on the outcomes of these analyses the future needs will be identified. The existence of these plans is a prerequisite for investing in public transport systems. These mobility plans will be periodically reviewed and updated and must be in line with the high level planning instruments such as the TDS.

## 2.3. Relationship with relevant plans and programmes

The TDS has strong relationship with a number of current plans and programs both at EU level and at national level. The main relative issues are presented in the following paragraphs:

### 2.3.1 Relationship with EU programs

**EU programming period 2014-2020:** Extension and upgrading of the transport and ICT infrastructure is among the priorities set for funding in the EU programming period 2014-2020<sup>1</sup>. The total allocation from EU structural and investment funds in 2014-2020 for Croatia is EUR 8.6 bn with rail and ports being identified as main areas for investment in the transport sector.

The **White Paper on Transport** was adopted by the European Commission at the beginning of 2011 to inspire the Common Transport Policy until 2050. Through the implementation of 40 'initiatives' it aims to<sup>2</sup>:

- 1) Complete the internal market by removing the obstacles that still exist, be they regulatory or technical.
- 2) Achieve a genuine trans-European transport network (TEN-T) via new financing and new tariff rules for infrastructure.
- 3) Reduce greenhouse gas emissions through modal shift and new technologies.
- 4) Reduce dependence on oil without sacrificing mobility.
- 5) Integrate the transport sector into the global market to protect European interests

The main significant outcomes of the White Paper **by 2050** would be:

- a reduction of at least 60% (in relation to 1990) in climate gases emissions from the transport sector;
- the phasing out of 'conventionally-fuelled' cars in cities;
- the setting up of a 'core-network' of multimodal infrastructures connecting the main urban and economic centres of the continent; or
- a 50% shift of medium distance intercity passenger and freight journeys from road to rail and waterborne transport.

The TDS is in general in line with the White Paper, promoting multimodality, rail and inland water transport.

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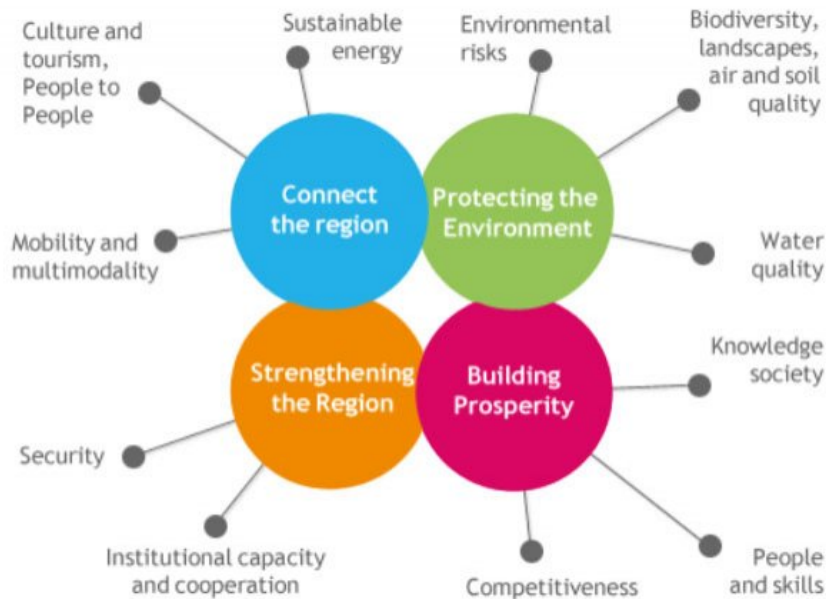
<sup>1</sup> Position of the Commission Services on the development of Partnership Agreement and programmes in the Republic of CROATIA for the period 2014-2020

<sup>2</sup> EEA – Joint Parliamentary Committee (2012), *Report on the White Paper on a Single European Transport Area*, May 2012

The **Europe 2020 Energy Strategy** aimed at promoting a "Resource-efficient Europe" and had the commitment to deliver the 20-20-20 targets on greenhouse gas emissions, renewable energy and energy savings. On 27 March 2013, the European Commission launched a Green Paper on "A 2030 framework for climate and energy policies" (COM (2013) 169), aiming at developing a new framework for energy and climate policies, taking into account the current situation and achievements of Energy 2020, the Energy Roadmap 2050 (promoting low carbon economy) and the White Paper on Transport. The consultation on the Green Paper took place in summer 2013.

**EU Strategy for the Danube Region (EUSDR):** The EUSDR addresses a wide range of issues divided among 4 pillars and 11 priority areas

**Figure 2-1: Pillars and priorities of the EUSDR**



Source: <http://www.danube-region.eu/>

It is obvious that the TDS has strong relationship with the EUSDR priorities and its implementation must be coordinated with the activities in the framework of the EUSDR.

Additionally, during the implementation and monitoring of the TDS the Danube River Basin Management Plan, developed by the International Commission for the Protection of the Danube River and the Sava River Basin Management Plan, developed by the International Sava River Basin Commission must be taken into account, since they set environmental objectives and best practices for the water bodies.

**EU Strategy for the Adriatic and Ionian Region (EUSAIR):** it is currently under development. It will focus on four costal priorities (Transport, Environment, Tourism, Maritime issues) and two cross cutting issues (Capacity building and Research and innovation). According to the timetable set the EUSAIR Communication and Action Plan are to be adopted by the Commission in June 2014 (tentative) and by the Council in the 2nd semester 2014.

### 2.3.2 National Plans and Programs

The major objectives of the ***Croatian Strategy for sustainable Development*** (OG 30/2009) are:

- nature protection, which implies the conservation of biological and landscape diversity and protection of natural values;
- sustainable economic development that would have as little impact as possible on nature degradation and waste production;
- quality and stable energy supply with necessary reduction of negative impacts on the environment and society – this implies increasing the share of energy production from renewable energy sources and implementation of energy efficiency measures in all sectors;
- promotion of cleaner fuels and more sustainable transport technologies;
- sustainable management of the Adriatic sea, coast and islands and conservation of marine ecosystems.

The main environmental specific targets of the Strategy are:

- Reduce the loss of marine and coastal biodiversity and increase the number of protected areas;
- Demine all mine infested areas as soon as possible;
- Preserve water quality and prevent pollution, including wastewater treatment, improve the national level of coverage by the public water supply (increase the supply rate to 85-90%), improve the level of wastewater treatment and sewage network availability, increase the quality of the flood protection system, take account of renewability of resources and increase protection of sensitive aquatic and water-dependent ecosystems as well as marine and coastal ecosystem;
- By 2010 reduce quantities of finally landfilled waste as well as generated hazardous waste by approx. 20% in comparison to 2000
- Increase the share of arable land from the present 1,092,000 ha to 1,800,000 ha, by using uncultivated land that presently amounts to 947,000 ha;
- By 2013 increase the share of areas used for ecological production (including pastures and forests) to at least 5% and support the development of the market for ecological products
- 20% of renewable energy sources in final energy consumption up to 2020;
- 20% decrease in greenhouse gas emissions (in comparison to 1990) up to 2020
- 10% of bio fuels in the total consumption of petrol and diesel fuel up to 2020;



- through implementation of the energy efficiency measures reducing direct energy consumption by 9% in the period of 2008 – 2016 (compared to the average consumption in the period 2001 - 2005);

**Energy strategy of Croatia:** It was adopted by the Croatian Parliament in 2009 for the period until 2020 in order to harmonize national energy goals with goals and time framework of strategic documents of the European Union. The adoption of the Energy Strategy Implementation Program with associated measures is still in process. The goal of the Strategy is to create sustainable energy system that will make a balanced contribution to the security of energy supply, competitiveness and environmental protection in Croatia. Specifically for transport, the Strategy foresees 10% of renewable energy sources share in all types of transport in relation to the final energy consumption in land transport.

The **Water Strategy of Croatia** (OG 91/2008), sets the main principles for water management in Croatia and foresees that "Managing water areas in a sustainable manner includes integrated management of surface and groundwater, and water resources which will provide good water status, sufficient water of adequate quality for the various uses of water, the protection and improvement of aquatic ecosystems, mitigation of the adverse effects on the environment caused by drought and floods". It sets the framework for the water management and for cooperation with the neighbouring for water management and inland water navigation. The Decision on the adoption of River Basin Management Plans (OG 82/2013) sets the principles and guidelines for River Basin Management Plans according to the Water Framework Directive.

Water Basin Management Plan (OG, 82/13) is an integrated water management planning document which in its program of measures combine's obligations towards the EU water directives, related to environmental protection. In this document gives an overview of the features of water areas and water bodies, and provide the goals, measures and monitoring program for the period until the end of the 2015. The program of investment measures and programs have been devised by water areas, and according to Plan program of regulatory and administrative measures is unique to the entire national territory. That plan focuses on the protection and improvement of the ecological and chemical status of surface waters, ie quantitative and chemical status of groundwater in accordance with the WFD. It also defines a protected area of water and the necessary measures and actions for the implementation and protection

The **Croatian Strategy on Tourism Development**, adopted by the Croatian Parliament in 2013, sets as main objective of developing the Croatian Tourism to 2020 the increase of its attractiveness and competitiveness, which will result in entering the top 20 tourist destinations in the world. Additionally objectives of the Strategy are the improvement of quality of accommodation, creation of new employment, the realization of new investments in the amount of about 7 billion and the increase in tourist spending. It is obvious that the improvement of transport services plays an important role for the development of the tourist sector in the country.

The general target of **the Spatial Planning Strategy of the Republic of Croatia** was (adopted in 1997) is achieving a higher degree of the State's safety and development, raising the population's quality of life, increasing the value of Croatian's space and achieving integration into European

Development systems <sup>3</sup>. Transport has an important role in the Strategy, which states that Croatia has to be well connected within its own territory as well as within the system of European Routes. The TDS is within the spirit of the Strategy and its amendment of 2013. The provisions of the Spatial Strategy for the Transport Sector are presented in the maps at the end of the present chapter.

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<sup>3</sup> Spatial Planning Strategy of the Republic of Croatia, Ministry of Physical Planning, Construction and Housing, 1997

Map 2-1: : Spatial Strategy – Road Transport

## Izmjena i dopuna Strategije prostornog uređenja Republike Hrvatske

MINISTARSTVO GRADITELJSTVA I PROSTORNOGA UREĐENJA  
Zavod za prostorno planiranje

4. Poglavlje:

**Prostorno razvojna i planska usmjerenja**

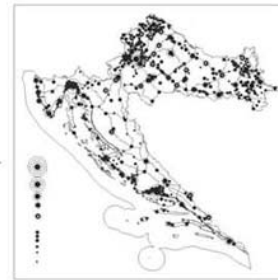
Sektor:

**Prometni sustav**

Tema:

**Cestovni promet**

*Autoceste - brze ceste; pravci, koridori i trase (planovi i istraživanja)*



Godina podataka - stanje - planirano:

1997., 2005. i 2015.

Kartografski prikaz:

44-02

Izvori podataka:

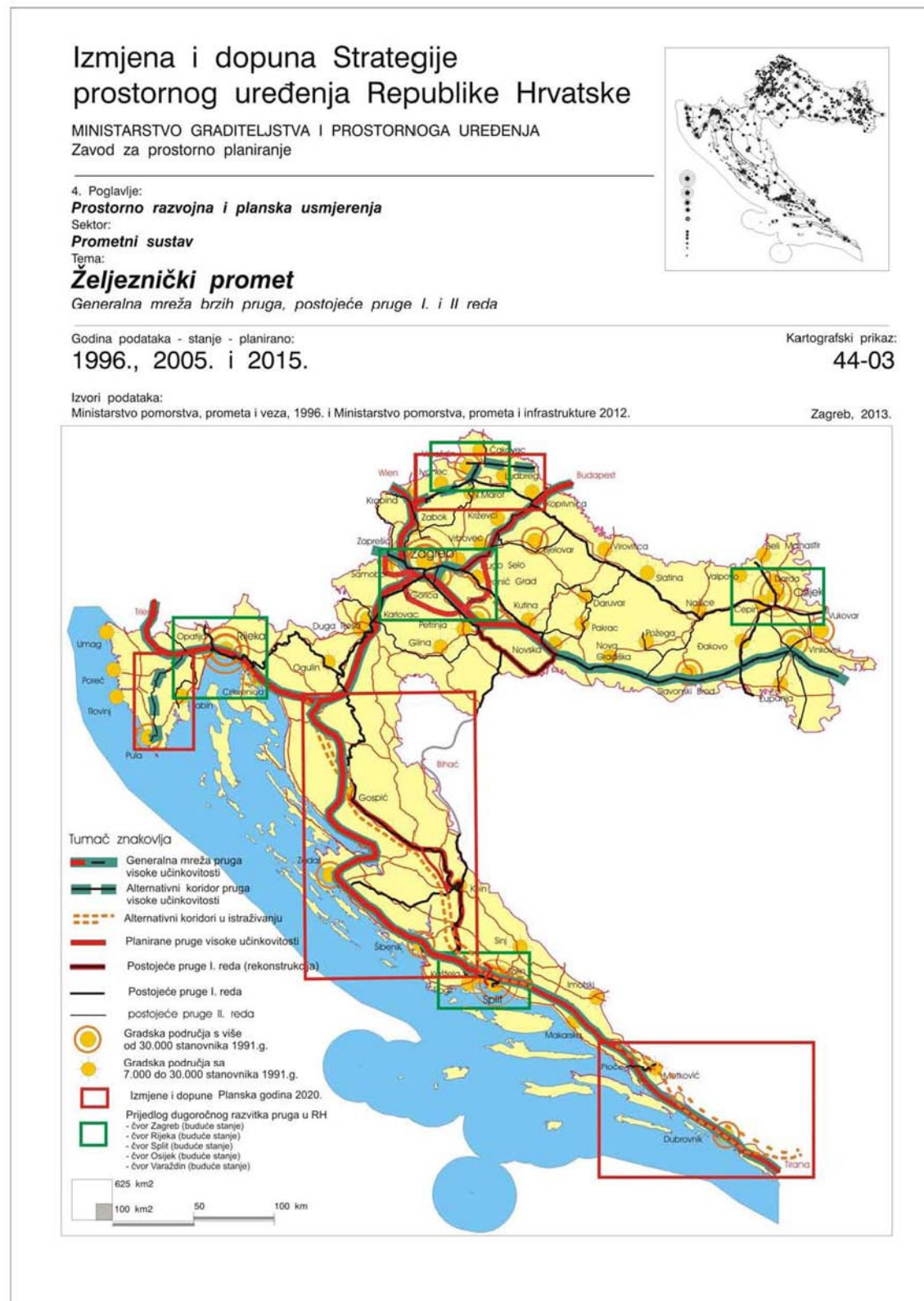
Ministarstvo razvitka i obnove i Ministarstvo pomorstva, prometa i veza, 1997.

Ministarstvo pomorstva, prometa i infrastrukture, 2012.

Zagreb, 2013.

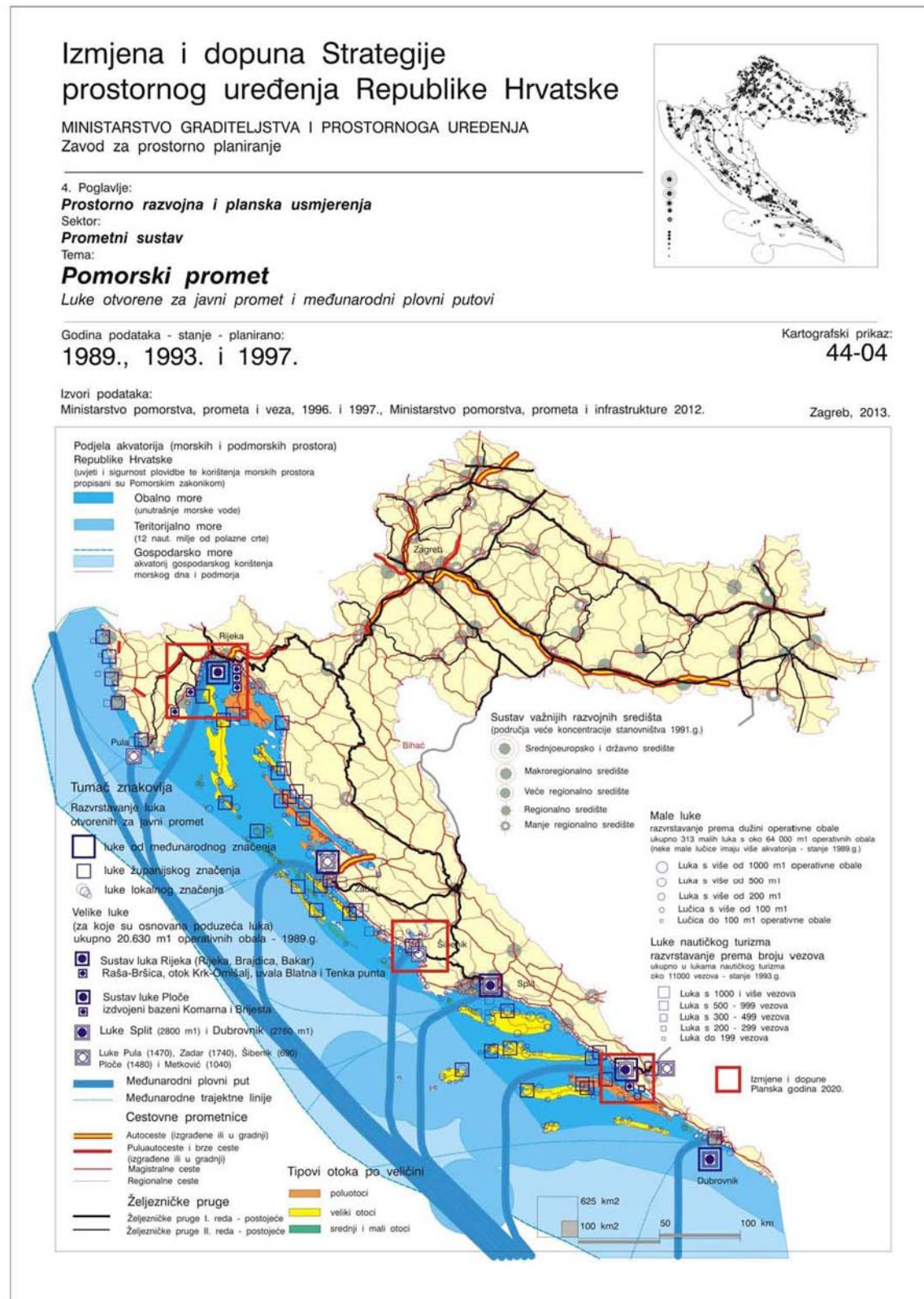


Map 2-2: Spatial Strategy – Rail Transport





## Map 2-3: Spatial Strategy – Maritime Transport



### 3. CURRENT STATE OF ENVIRONMENT IN CROATIA

The presentation and assessment of the current state of the environment in Croatia aims at establishing the baseline which provides the reference for predicting and monitoring environmental effects and helps to identify environmental impacts of the Strategy and alternative ways of dealing with them. The present chapter summarises the current environmental and socio-economic state of Croatia, assesses the environmental quality and identifies the current pressures.

#### 3.1. Geographic and socio-economic profile

##### 3.1.1 Geographic profile and land uses

Republic of Croatia is located in south-eastern Europe, at the meeting point of Central Europe, the Mediterranean, and the Balkans. The overall area of Croatia is 87,661 km<sup>2</sup> of which 56,594 km<sup>2</sup> are land and 31,067 km<sup>2</sup> sea. The population, according to the 2011 census, is 4,290,612 inhabitants. It borders with Slovenia, Hungary, Bosnia and Herzegovina, Serbia and Montenegro and on the sea with Italy.

Three large geomorphological sections may be distinguished in Croatia: the Pannonian basin, the mountain range of Dinaric Alps and the Adriatic basin. Lowland areas up to 200 m above sea level amount 53%, the rolling hills up to 200-500 m 26% and the highland and mountainous areas above 500 m 21% of Croatia's land area. The highest mountain peak in Croatia is Dinara (1,831 m). The **karst area** covering 54% of Croatia's territory represents relief specificity. Karst phenomena and forms have developed primarily in limestone of the mountainous and coastal zone of Croatia and also as isolated phenomena of the Sava and the Danube basin<sup>1</sup>.

The surface area of Croatia is divided into three big natural and geographic regions:

- Pannonian and Peri-pannonian area covers the lowlands and rolling hills of the eastern and north-western Croatia. Mountains higher than 500 metres are rare and isolated. Most of the surface is used for agriculture and cattle breeding. Slavonija and Baranja on the east are the most suitable for cereal growing, moist lowlands and mountain regions are rich in woods, while the north-western part, which distinctly gravitates towards Zagreb, is the most industrially developed.
- Mountain region, which mainly separates the Pannonian Croatia from its coastal area, is less developed region. Its future development is based on the important traffic routes, further development of wood industry, on the still insufficiently exploited possibilities for the production of healthy food, and on the development of the winter and rural tourism.
- The Adriatic region covers the narrow coastal zone, separated from the hinterland by high mountains. This is mostly a karst region with exceedingly dry summers. Few water streams pass through usually by narrow gorges towards the sea. Croatian coastline is divided in northern (Istria and Kvarner) and southern (Dalmatia) region, together with three distinctive longitudinal

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<sup>1</sup> 5th National Communication of the Republic of Croatia under the UNFCCC

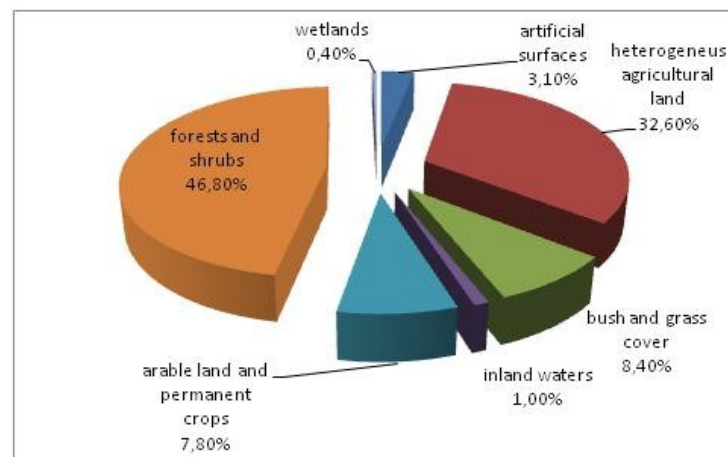
divisions to island zone, coastline zone and hinterland. Croatian Adriatic coast is one of the most indented coasts in Europe. Islands occupy 3,259 km<sup>2</sup> (5.8% of the land area), forming the second largest archipelago in the Mediterranean. Croatia has a total of 1,185 islands, 47 of which are inhabited, 651 uninhabited, 389 are islets and 78 are reefs. The largest island is Krk (410 km<sup>2</sup>) and prominent by its size are also the islands of Cres (404 km<sup>2</sup>), Brač (395 km<sup>2</sup>), Hvar (300 km<sup>2</sup>), Pag (285 km<sup>2</sup>) and Korčula (276 km<sup>2</sup>). The largest peninsulas are Istra and Pelješac, and of the bays it is the maritime zone of Kvarner.

Both the Central and the he Adriatic coastal areas belong to the **Dinaric Karst Aquifer System**. Groundwater flow is mostly towards the Adriatic, with minor sections draining to the Sava River. The coast consists of islands and of a narrow continental strip separated from the inland by high mountains. The rock composition is mostly dominated by carbonate deposits, which form the inland mountainous ranges, peninsulas and islands, whereas the lower inland plateaus are mostly built of flysch deposits and dolomites. The karstic area of Croatia is characterized by low density and length of watercourses, and by significant groundwater flows<sup>2</sup>.

Due to the exceptionally large karst area, Croatia abounds in speleological structures, most of which are yet to be explored. Croatia has 54 caves with more than 250 m depth and 66 caves and pits more longer than 1000 m most of which belong to the Dinaric Karst Aquifer System.

According to the CLC 2006 Land Cover map (see Figure 3-1), the majority of the total area is under forests and shrubs – 26,487.6 km<sup>2</sup> (46.8%). Bush and grass-covered surfaces cover 4,742.1 km<sup>2</sup> (8.4%). The total agricultural land is 22,841.1 km<sup>2</sup>, of which heterogeneous agricultural areas account for 18,452 km<sup>2</sup> (32.6%), and plough land and permanent crops for 4,389.1; km<sup>2</sup> (7.8%). Areas subject to human activity account for 1,774.5 km<sup>2</sup> (3.1%). Inland waters account for just 539.3 km<sup>2</sup> (0.95%), and marshland for 200 km<sup>2</sup> (0.4%).

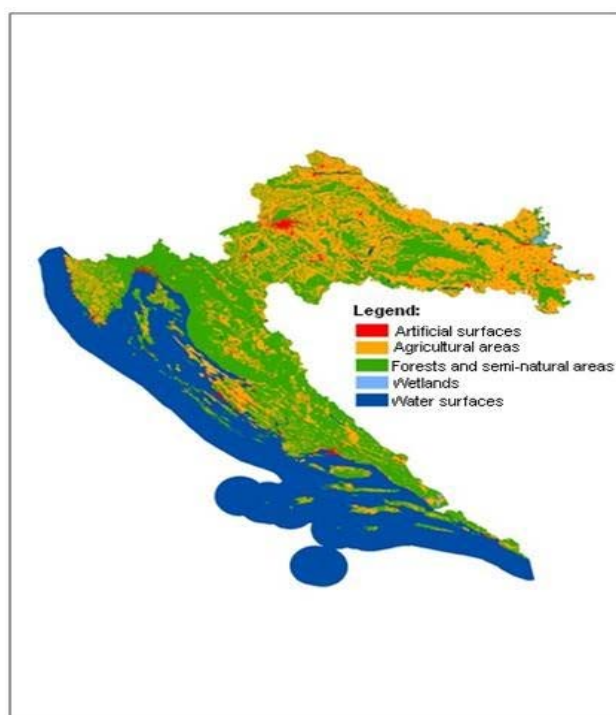
**Figure 3-1: Structure of land cover in Croatia (without sea), 2006**



Source: EEA

<sup>2</sup> Protection and Sustainable Use of the Dinaric Karst Transboundary Aquifer System (DIKTAS), UNDP Project Document

**Map 3-1: Land uses in Croatia**

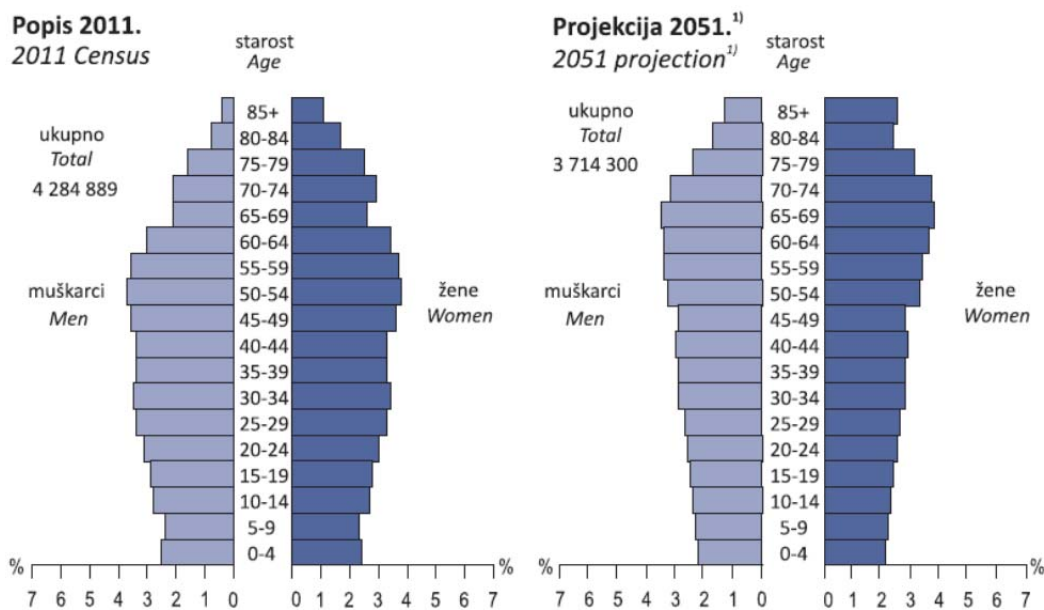


Source: EEA

### 3.1.2 Demographics

According to the 2011 Census, the population of Croatia is about 4.3 million, of which 48.2% men and 51.8% women. Life expectancy is 71.1 years for men and 78.1 years for women. The age structure of the population according to the 2011 Census and the forecast for a 40-year horizon are presented in Figure 3-2, in which an ageing of the population is noticed. Statistical estimates indicate that Croatia has a natural decrease in population of -1.9 per 1,000 inhabitants.



**Figure 3-2: Population by age and sex in Croatia**

Source: *Women and Men in Croatia*, Croatian Bureau of Statistics, 2013

Table 3-1 presents a comparison of the leading causes of death between Croatia and the EU-27. As noticed in the table, Croatia has higher rate than the EU average in all causes with the exception of respiratory diseases. In 2010 transport accidents caused 10.3 deaths/100,000 inhabitants, while the EU average was 6.5.

**Table 3-1: Causes of death - standardised death rate, 2010 (per 100 000 inhabitants)**

	Total							Females	
	Circula- tory disease	Heart disease (2)	Cancer (3)	Lung cancer (4)	Colo- rectal cancer	Respira- tory diseases	Transport accidents	Breast cancer	Cancer of the uterus
EU-27	209.9	76.5	166.9	38.4	18.7	41.2	6.5	22.6	7.2
Croatia	372.6	165.0	211.9	48.8	29.0	28.1	10.3	27.6	10.0

Source: Eurostat Database ([http://epp.eurostat.ec.europa.eu/statistics\\_explained/index.php/Causes\\_of\\_death\\_statistics#](http://epp.eurostat.ec.europa.eu/statistics_explained/index.php/Causes_of_death_statistics#))

Croats represent the majority of the total population of the country (90.42%), followed by the Serbs (4.36%), while all other ethnicities represent small % of the population (with no other ethnicity having more than 1%). Most of the population are Catholics (86.28%), and Orthodox (4.44%), while other religions represent small shares of the population.

Due to the modern way of life and work, total urbanised surfaces in towns and cities have been on increase. As a consequence, the population increase trend has been recorded in metropolitan and suburban areas, and in settlements located alongside the roads and coastline. However, the Croatian urban settlement density is not high - 2.2 settlement per 1,000 km<sup>2</sup> only. Additionally, only Zagreb has a density in excess of a thousand inhabitants per km<sup>2</sup> in 2011 (EU average is 117 inhabitants/sq. km and Paris is around 21,000 inhabitants / sq km).

It must be also stressed that during tourist period the population increases to an important extent especially at the coastal areas (around 11 million arrivals in 2011).

The **population** of Croatia is declining. The birth rate in 2005 was 9.6% while the natural growth rate was negative (-2.1%). According to the projections of the mean fertility rate with migrations, by 2050 the total number of inhabitants in the Republic of Croatia would be around 3.68 million, of which 80% would live in urban settlements<sup>3</sup>.

### 3.1.3 Economic activities

In 2012, Croatia's GDP was of 43929 million Euros and GDP per capita of 10295 €<sup>4</sup>, while the EU-27 average is about 25000 €. The GDP presents zero or negative growth during the last years. The registered unemployment rate for September 2013 was 19,1%.

Before the global financial crisis of 2008-09, the **Croatian economy** grew at a 4-5% annually, incomes doubled, and economic and social opportunities improved to an important extent. The country has been facing an economic crisis since 2009. For 2013 as a whole the Economic Institute of Zagreb has foreseen GDP to decline by 0.9 %, while for 2014 they expect the return of positive growth at 1.0 %<sup>5</sup>.

The main economic activities of Croatia are agriculture, industry, tourism and construction.

**Agriculture:** Agriculture and fishery generate 4.1% of Croatian GDP in 2011. Croatia has a total of 1.3 million hectares of cultivated agricultural land, whereof 66% relates to ploughland and gardens, 27% to permanent pastures, 7% to orchards, vineyards and olive grows, 0.4% to vegetables and 0.1% to plant.<sup>6</sup> Agricultural activities represent around 15% of the employment in the country<sup>7</sup>.

**Mineral resources:** Croatia has useful mineral resources such as deposits of petroleum, natural gas and coal. Additionally there is bauxite, iron and clay. Mining and quarrying represented around 1% of the country's GDP in 2009<sup>7</sup>.

**Industry:** In 2011, industry employed approximately 243.846 persons (i.e. 20.9% of total employment with companies) in 13 185 active companies (12.5% of their total number) and accounts for 20% of Croatian GDP. In terms of gross value added, leaders are the manufacture of food and beverages followed by electricity, gas and water supply, manufacture of chemicals and chemical products, refined petroleum product and fabricated metal products<sup>8</sup>. Between the years 2000 and 2007, i.e. before the financial and economic crisis, the average annual growth of the industrial production index was 4.5% (in the EU-28 had been approximately 1.7 %). Since 2008 industrial activity has a declining trend (Figure 3-3).

<sup>3</sup> Sustainable Development Strategy, 2009

<sup>4</sup> Croatian Statistics Bureau, (2012)

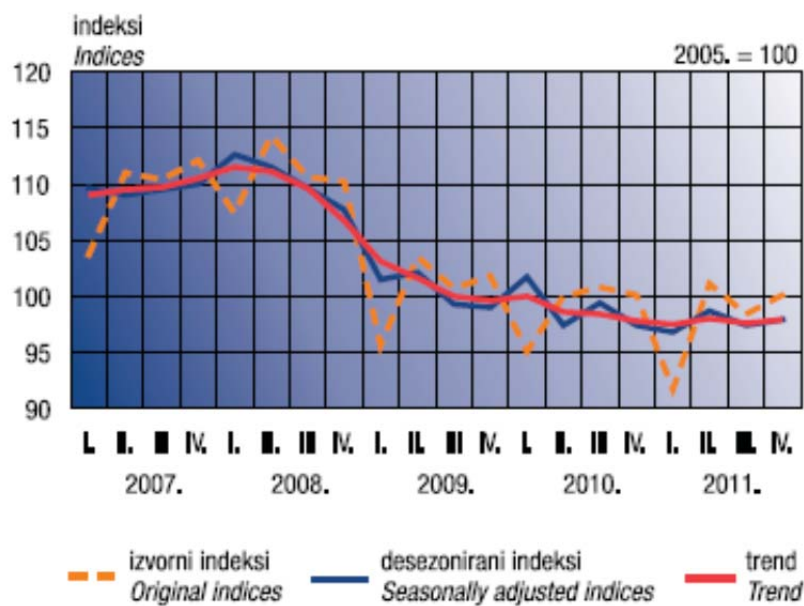
<sup>5</sup> Croatian Economic Outlook Quarterly, No 55, July 2013, The Economic Institute Zagreb

<sup>6</sup> Croatian Chamber of Economy (2010), Agriculture Economic Report

<sup>7</sup> Croatian Bureau of Statistics (2012), Statistical Yearbook 2012

<sup>8</sup> Croatian Chamber of Economy (2012), Croatia, Your Business Partner

Figure 3-3: Changes in total production volume indices, 2007-2011



Source: Statistical Yearbook 2012, Croatian Bureau of Statistics

**Tourism:** Due to its significant natural environment and cultural heritage, Croatia represents one of the most important Mediterranean tourist destinations. International tourism generates around 20% of the county's GDP (around 11 million arrivals in 2011). Over 95,500 persons employed in the catering and tourism sector, close to 7% of total employment in Croatia<sup>9</sup>.

The tourist sector has an increasing trend during the last decade, due to the increase of foreign tourism, while domestic tourism is rather stable (Figure 3-4). German tourists represent the greatest part of the foreign tourists in Croatia. According to EUROSTAT estimations based on the current data, the coastal zone of Croatia will rank in the 10 most popular touristic destinations of the EU-28.

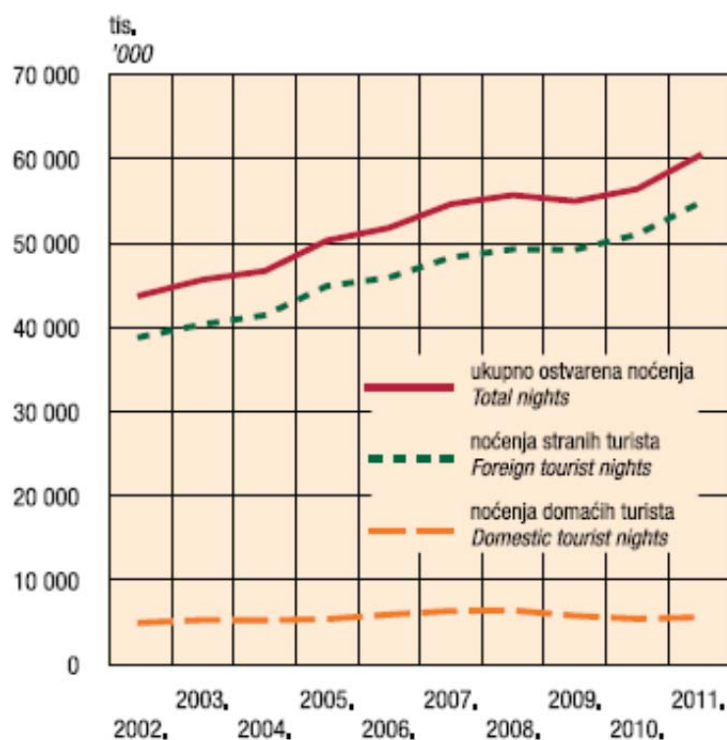
The tourist season is between May and October, reaching a peak in August. The sea coast is the main tourist destination (around 87% of the arrivals in 2012), while the most popular counties in terms of overnights for the year 2012 were Istria (31.7%), Primorje - Gorski Kotar (19.1%), Split – Dalmatia (16.8%), Zadar (10.8%) and Dubrovnik – Neretva (8.3%)<sup>10</sup>.

The **tourist** sector in Croatia shows an increasing trend during the last years. The recent "Croatian Tourism Development strategy till 2020" sets a target of 43% increase in overnights comparing to 2011.

<sup>9</sup> Ministry of Tourism (2013), *Croatian Tourism Development Strategy till 2020*.

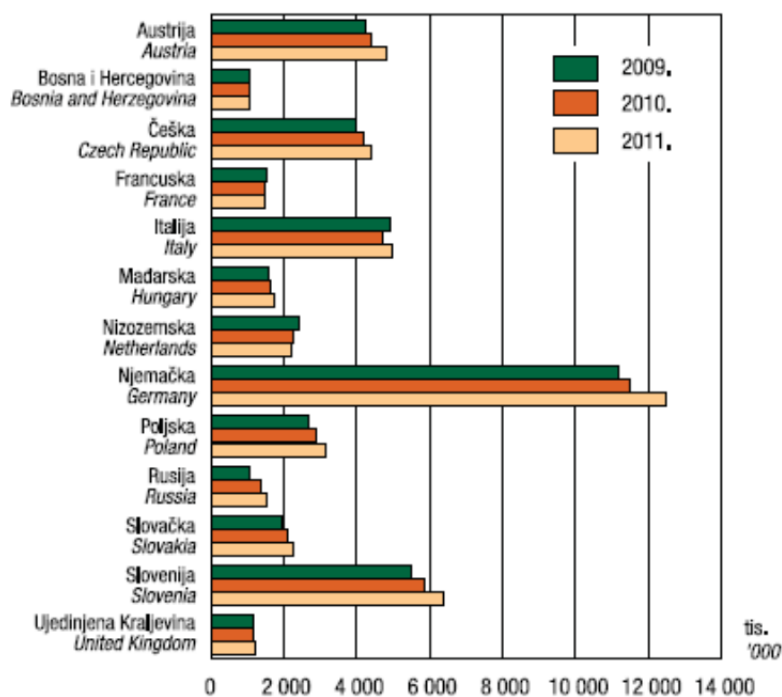
<sup>10</sup> Ministry of Tourism, *Tourism in figures 2012*

Figure 3-4: Tourist nights, 2002-2011



Source: Statistical Yearbook 2012, Croatian Bureau of Statistics

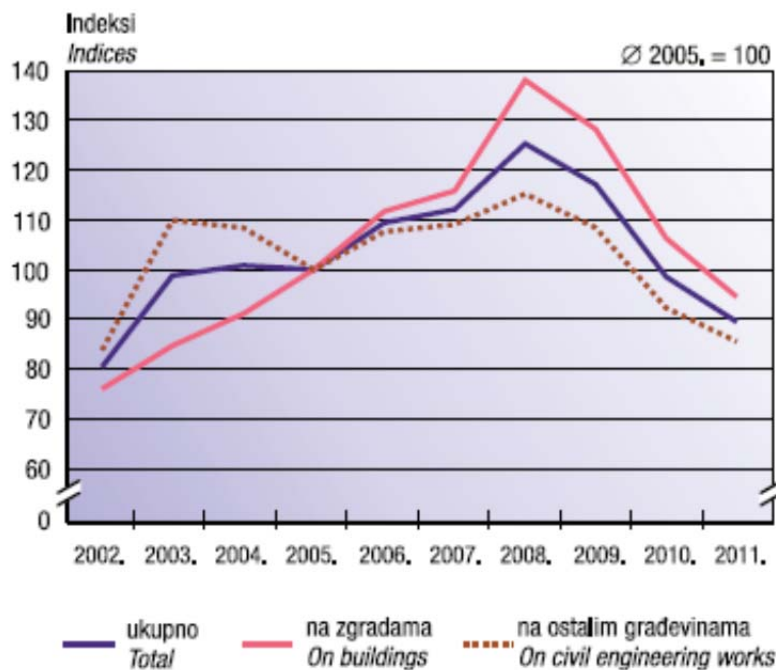
Figure 3-5: Foreign tourist nights by country of residence (2009-2011)



Source: Statistical Yearbook 2012, Croatian Bureau of Statistics

**Construction:** Construction industry represents around 6% of the country's GDP. Between 2000 and 2007 the average annual growth of production in construction was 8.7% (versus 2.3 % in the EU-28). The peak of the economic development was noticed in 2008. Since then however, production in the construction sector has been on a steady decline in both Croatia and the EU-28. Between the pre-crisis peak and the first quarter of 2013 European production in construction dropped by 30 percentage points, while in Croatia the fall between the most recent data (last quarter 2012) and the pre-crisis high was nearly 48 percentage points. This corresponds to annual rates of change between 2008 and 2012 of -4.8 % in the EU-28 and -10.3 % in Croatia<sup>11</sup>.

Figure 3-6: Total volume indices of construction works



Source: Statistical Yearbook 2012, Croatian Bureau of Statistics

**Energy:** Primary sources of energy that are produced in Croatia are fuel wood, crude oil, natural gas, hydro power and other renewables. Coal production stopped in 2000.

The total installed capacity of **electricity generating plants** built in the territory of Croatia is 3745 MW, of which 2079 MW in hydro power plants and 1666 MW in thermal power plants. Most hydro power plants are of reservoir type and located in the Croatian coastal area, others are run-of river plants located mainly in the north-western part of Croatia. The majority of thermal power plants run on liquid fuel (fuel oil, extra light oil) while others use coal or natural gas. A few plants in addition to electricity generate heat for industry and heating in big cities. Installed capacity of industrial power plants in the Republic of Croatia is 210 MW. Two wind farms are integrated into

<sup>11</sup> Eurostat (2013), Short-term business statistics for Croatia and the European Union



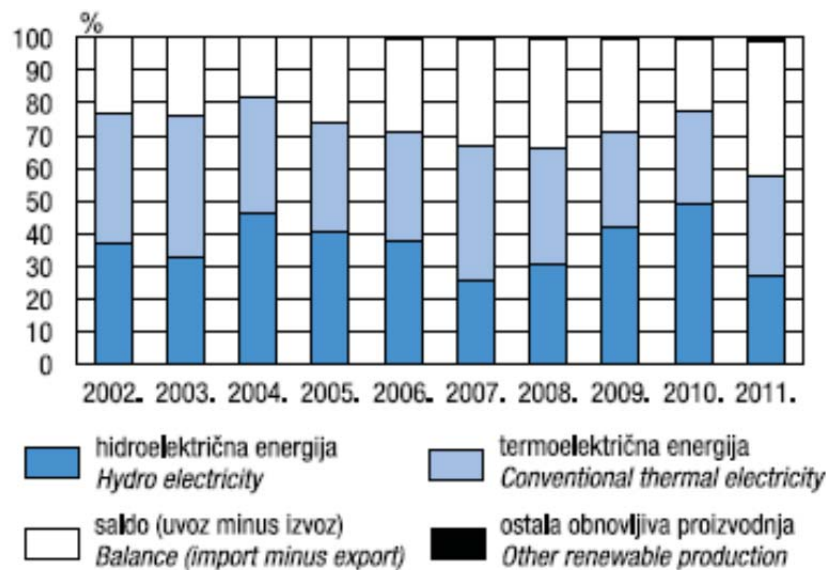
the Croatian electricity power system; Ravne on the island of Pag of 6 MW of nominal power, and Trtar Krtolin near Šibenik of 11 MW of nominal power<sup>12</sup>.

**Table 3-2: Electricity data in Croatia**

Production and exchange of electricity	GWh		%		%
	2010	2011	2010	2011	2011/2010
Hydro power plants	8308	4581	46,3	25,9	-44,9
Thermal power plants	4787	5179	26,7	29,3	8,2
Wind power plants	138	201	0,77	1,14	45,7
Industrial power plants	38	38	0,21	0,21	0,0
<b>Total production in Croatia*</b>	<b>13272</b>	<b>9999</b>	<b>73,9</b>	<b>56,5</b>	<b>-24,7</b>
Import (to Croatia)	12359	14012	-	-	13,4
Export (from Croatia)	7683	6308	-	-	-17,9
Exchange balance	4676	7704	26,1	43,5	64,8
<b>Total</b>	<b>17947</b>	<b>17703</b>	<b>100</b>	<b>100</b>	<b>-1,4</b>

Source: <http://www.hep.hr/ops/en/hees/data.aspx>

**Figure 3-7: Structure of electricity production**



Source: Statistical Yearbook 2012, Croatian Bureau of Statistics

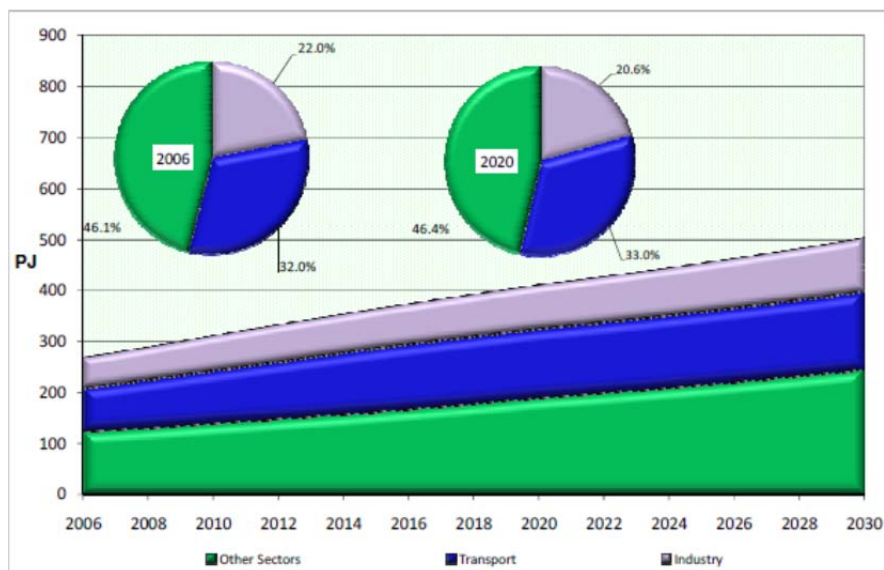
According to the above data, hydropower electricity accounted for 46% of electricity production (GWh) in Croatia in 2010 and presented an important decrease in 2011, while thermal power plants have increased their share. Production by wind plants increased by 45% but represents still a small part of the electricity production. Furthermore, it is worth noticing that imports have

<sup>12</sup> HEP internet site <http://www.hep.hr/>

increased, while local production has fallen about 25%. The electricity generation system is important while assessing the transport strategy as far as rail transport is concerned.

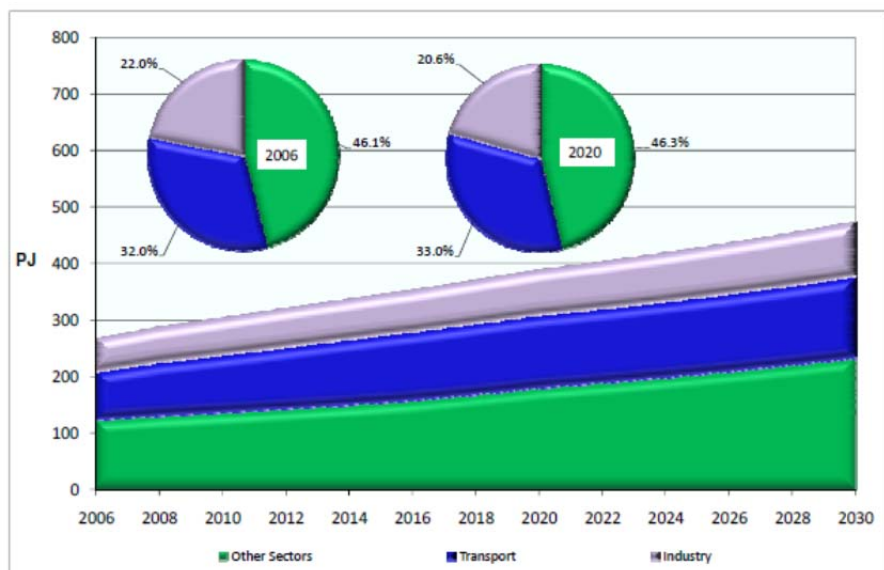
**Energy consumption** is expected to increase in the future with an average growth rate of 3.1% in the period 2006-2020 for the business as usual scenario and 2.7% for the energy efficiency scenario. Energy consumption in transport is expected to grow with a slightly higher rate (3.3% and 2.9% respectively). Croatia needs to continue efforts to meet the 2020 requirements regarding the promotion of energy efficiency and renewable energy.

**Figure 3-8: Business as usual projection of final energy consumption**



Source: Energy Strategy of the Republic of Croatia, June 2009

**Figure 3-9: Sustainable scenario of final energy consumption**



Source: Energy Strategy of the Republic of Croatia, June 2009

## 3.2. Current state of Environmental Media in Croatia

### 3.2.1 Air quality and climate change

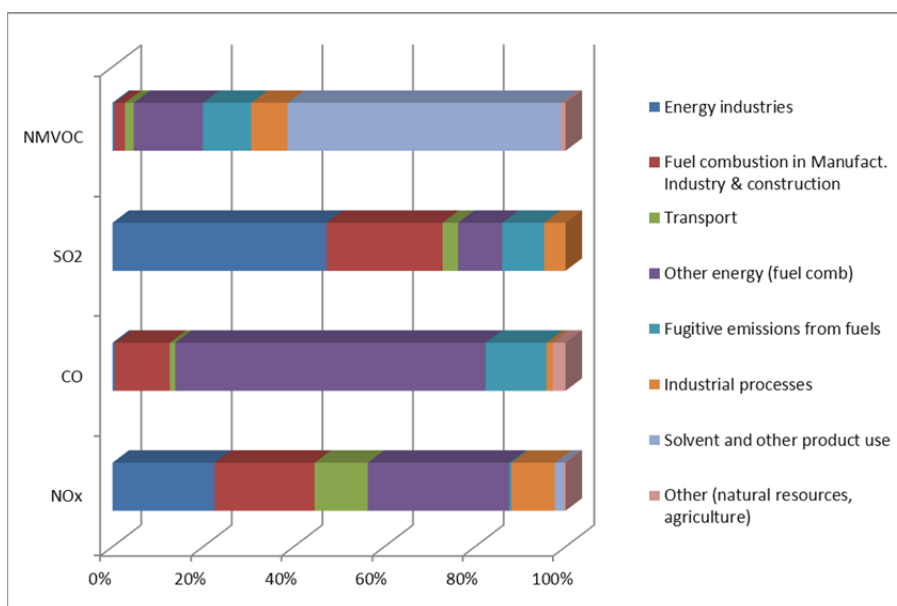
#### Air quality

In Croatia, emission reduction of pollutants was particularly noticeable in the beginning of 1990s as a result of industrial production decline and subsequently closure of large emission sources (Coke Production Bakar, Sisak Ironworks, and Aluminium Factory Šibenik)<sup>13</sup>.

Atmospheric pollution of **particulate matter with aerodynamic diameter less than 10  $\mu\text{m}$  ( $\text{PM}_{10}$ )** is the most widespread problem in Croatia.  $\text{PM}_{10}$  primarily come from traffic, large combustion plants and large point sources. Total  $\text{PM}_{10}$  emissions in 2010 amounted to 13.8kt, with Combustion in non-industrial combustion plants causing about 29.1%, industrial processes about 25.2%, road transport 16.6% and agriculture about 6.3% of total emissions Concerning **particulate matter with aerodynamic diameter less than 2.5  $\mu\text{m}$  ( $\text{PM}_{2.5}$ )**, in 2010, the major contribution (37%) to total emissions was made by the Combustion in non-industrial combustion plants, followed by road transport (19%), industrial processes sector (17.3%)<sup>14</sup>.

The contribution of the various sectors in the total emissions of other important air pollutants is presented in the following diagram:

**Figure 3-10: Contribution of activity sectors to total emissions of air pollutants (2011)**



Source: National Inventory Report 2013 – Greenhouse gas inventory for the years 1990-2011

<sup>13</sup> Ministry of Environmental Protection, Physical Planning and Construction (2009), National Implementation Plan for the Implementation of Stockholm Convention on Persistent Organic Pollutants.

<sup>14</sup> Statistical Yearbook 2012, Croatian Bureau of Statistics

As shown in the previous diagram, energy industries and fuel combustion in industry and non-industrial sources are the main source of sulphur dioxide (SO<sub>2</sub>) and nitrogen oxides (NO<sub>x</sub>) emissions, fuel combustion (small combustion) is the main source of carbon monoxide (CO) and Solvent and other product use is the main source of Non Methane Volatile Compounds (NMVOCs).

The Regulation on the establishment of a list of measurement points for monitoring the concentration of certain pollutants into the air and location of monitoring stations in the national network for continuous monitoring of air quality (Official Gazette 22/14), foresees the following measurement sites for air quality in Croatia:

**Table 3-3: Air quality monitoring sites and monitored pollutants**

ZONE	MEASURING SITE	CLASSIFICATION OF MEASUREMENT	POLLUTANT
<b>AGGLOMERATION</b>			
<b>HR 01</b>	Kopački rit	Rural background	O <sub>3</sub> ; PM <sub>10</sub> ; PM <sub>2,5</sub>
<b>HR 01</b>	Desinić	Rural (O <sub>3</sub> )/Rural background	O <sub>3</sub> ; NO <sub>2</sub> ; PM <sub>10</sub>
<b>HR 01</b>	Varaždin	suburban	O <sub>3</sub> ; NO <sub>2</sub>
<b>HR 02</b>	Slavonski Brod-1	suburban (O <sub>3</sub> )/urban background	O <sub>3</sub> ; SO <sub>2</sub> ; NO <sub>2</sub> ; PM <sub>2,5</sub>
<b>HR 02</b>	Sisak-1	industrial	benzene; PM <sub>10</sub> ; BaP; PAU; heavy metals
<b>HR 02</b>	Kutina-1	suburban (O <sub>3</sub> )/urban background	O <sub>3</sub> ; PM <sub>10</sub>
<b>HR 03</b>	Plitvička jezera	Rural background	PM <sub>10</sub> ; PM <sub>2,5</sub> ; chemical composition PM <sub>2,5</sub>
<b>HR 03</b>	Parg	Rural background	O <sub>3</sub>
<b>HR 03</b>	Karlovac	suburban	O <sub>3</sub> ; NO <sub>2</sub>
<b>HR 04</b>	Višnjičan	Rural background	PM <sub>10</sub>
<b>HR 04</b>	Pula Fižela	suburban	O <sub>3</sub> ; NO <sub>2</sub>
<b>HR 05</b>	Hum (otok Vis)	Rural background	O <sub>3</sub>
<b>HR 05</b>	Žarkovica (Dubrovnik)	suburban	O <sub>3</sub> ; NO <sub>2</sub> ; PM <sub>10</sub> ; PM <sub>2,5</sub>
<b>HR ZG</b>	Zagreb-1	traffic	NO <sub>2</sub> ; PM <sub>10</sub> ; benzene; BaP; PAU; Hg; heavy metals
<b>HR ZG</b>	Zagreb-3	urban background/suburban (O <sub>3</sub> )	O <sub>3</sub> ; NO <sub>2</sub> ; PM <sub>10</sub> ; BaP; PAU; HOS-evi
<b>HR ZG</b>	Velika Gorica	urban background/suburban (O <sub>3</sub> )	O <sub>3</sub> ; NO <sub>2</sub> ; PM <sub>2,5</sub>
<b>HR ZG</b>	Zagreb PPI PM <sub>2,5</sub> – Ksaverska cesta	urban background	PPI PM <sub>2,5</sub> ; chemical composition PM <sub>2,5</sub>
<b>HR OS</b>	Osijek-1	traffic	O <sub>3</sub> ; NO <sub>2</sub> ; benzene; PM <sub>10</sub> ; PM <sub>2,5</sub>

<b>HR RI</b>	Rijeka-2	urban background/suburban (O3)	O <sub>3</sub> ; SO <sub>2</sub> ; NO <sub>2</sub> ; PM <sub>10</sub> ; PM <sub>2,5</sub>
<b>HR ST</b>	Split-1	urban background/suburban (O3)	O <sub>3</sub> ; SO <sub>2</sub> ; NO <sub>2</sub> ; PM <sub>10</sub> ; PM <sub>2,5</sub>
<b>HR ST</b>	Kaštel Sućurac	suburban background	SO <sub>2</sub> ; NO <sub>2</sub>

Source: Regulation on the establishment of a list of measurement points for monitoring the concentration of certain pollutants into the air (OG 22/14)

The locations of existing monitoring stations in the national network for permanent air quality monitoring are:

- HR Zone 01: location Kopački rit Desinić and Bilogora
- HR Zone 02: location Slavonski Brod-1, Sisak-1 and Kutina-1
- HR Zone 03: location Plitvice Lakes, Parg
- HR Zone 04: location Višnjan
- HR Zone 05: location Pola, Vela Guard, Hum, Opuzen , Žarkovica (Dubrovnik)
- Agglomeration HR ZG: location Zagreb-1, 2-Zagreb, Zagreb 3
- Agglomeration GB OS: location Osijek-1
- Agglomeration HR RI: location Rijeka -2

The Regulation foresees also new monitoring stations as follows:

- Zone HR 01: location Varaždin
- Zone HR 02: location Slavonski Brod-2
- Zone HR 03: location Karlovac
- Agglomeration HR RI: location Omišalj (otok Krk)
- Agglomeration HR ST: location Split-2
- Agglomeration HR ZG: location Zagreb for PPI PM<sub>2,5</sub>
- Agglomeration HR ST: location Split for PPI PM<sub>2,5</sub>
- Agglomeration HR OS: location Osijek for PPI PM<sub>2,5</sub>.

Apart the national air quality monitoring stations, there is a number of local networks, operated by institutes, local authorities and private entities.

According to the measured data of the National Air Quality Network of Croatia<sup>15</sup>, exceedances of the PM<sub>10</sub> limit values according to Air Quality Directive 2008/50/EC (limit value= 50 µg/m<sup>3</sup>, not to be exceeded more than 35 times a calendar year) have occurred in most of the monitoring stations within the year 2012, being close to, but without exceeding the number of allowed number of incidents per calendar year. Ozone exceedances have been measured in Rijeka (24 in 2012 over 25 allowed according to the Directive). Finally the 3 stations in Zagreb have measured exceedances in NO<sub>2</sub> (but still below the allowed annual number of exceedances). Concerning the other pollutants, the measurements are within the allowed limits.

It is thus concluded, that the air quality is good, with the main issues being the PM<sub>10</sub> and to a lesser extent NO<sub>2</sub> (due mainly to transport in urban areas) and ozone (secondary pollutant due to NO<sub>x</sub>).

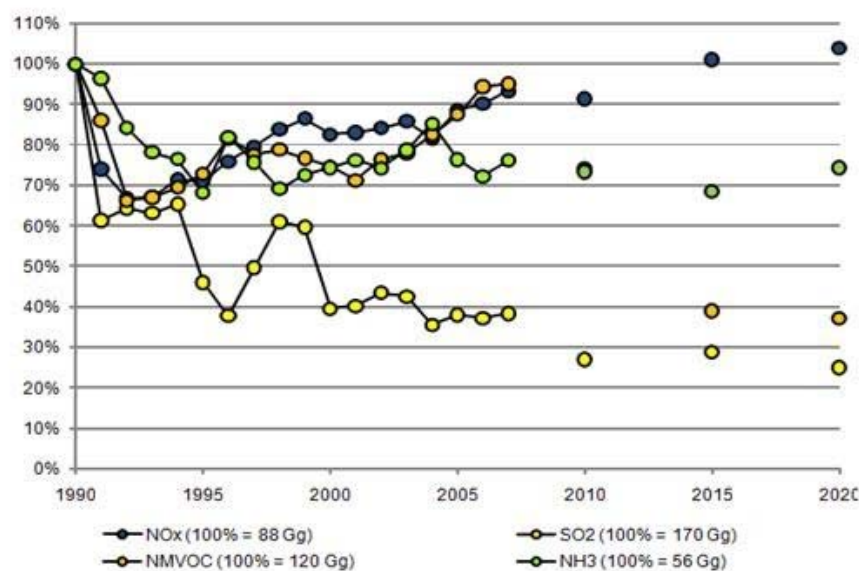
<sup>15</sup> <http://lokalnemreze.azo.hr/isko/iskzl/index.jsf>



Since the early 1990s, pollutant emissions from large point sources have generally decreased, due to increased use of low-sulphur fuels as an energy source and extension of district heating, decline in industrial production, and the shutdown or replacement of polluting industry with a new environmentally cleaner technology. However in some heavily industrialized regions the episodic high concentrations of SO<sub>2</sub> still occur. According to the proposals of the Twinning Project “Establishment of Air Quality Monitoring and Management System” in the future, pollution prevention measures will have to focus more and more on the road transport sector. The improvement of the living standards the increase of mobility have resulted in the increased number of vehicles and kilometres covered. This has compensated the positive development achieved by the adoption of less polluting vehicle technology such as catalytic converters<sup>16</sup>.

According to projections (based on future energy consumption according to the Energy Strategy for the Republic of Croatia), increase of emissions is expected for NO<sub>x</sub>.

**Figure 3-11: Relative trends for total emission of main air pollutants in Croatia in the 1990-2008 period and projections for 2010, 2015 and 2020**



Source: EEA

### Climate change

Total GHG emissions in Croatia were 28256 ktn in 2011, which corresponds to approximately 6.5 tn/capita (EU-27 average is 9.2 tn/capita for 2011).

The energy sector<sup>17</sup>, (including transport) is the major contributor to GHG emissions.

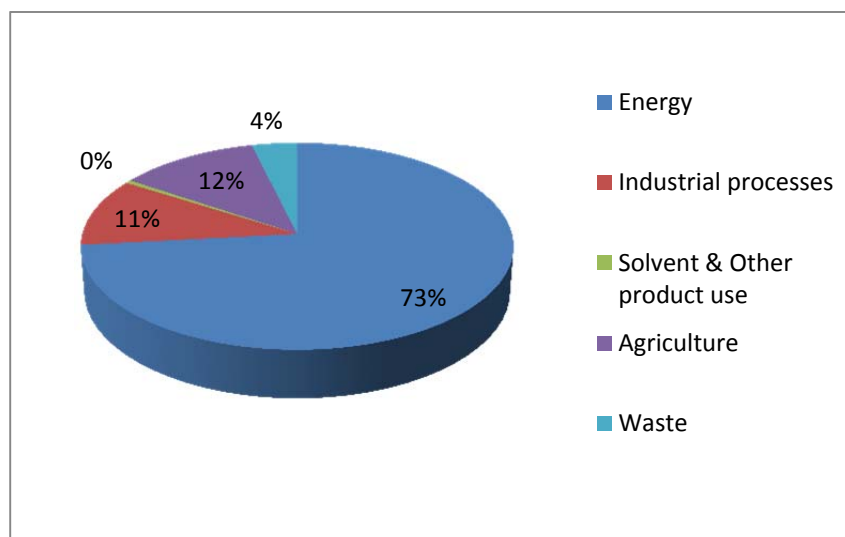
<sup>16</sup> Meteorological and Hydrological Service [http://meteo.hr/twinning/index.php?id=on\\_air\\_quality](http://meteo.hr/twinning/index.php?id=on_air_quality)

<sup>17</sup> according to the IPCC guidelines for National Inventories, under the category “energy sector” fall all activities causing emissions by fuel combustion, i.e. energy industries (electricity generation, petroleum refining, CHP etc.), combustion in industry, transport etc.

**Table 3-4: Contribution of individual sectors to GHG emissions (Gg CO<sub>2</sub>-eq)**

SOURCE	1990	1995	2000	2005	2008	2009	2010	2011
Energy	22,796	17,263	19,482	22,672	22,903	21,651	21,009	20,715
Industrial processes	3,789	2,016	2,861	3,295	3,593	2,984	3,211	3,000
Solvent & Other product use	117	108	109	195	239	153	152	144
Agriculture	4,381	3,055	3,130	3,478	3,491	3,314	3,193	3,319
Waste	564	619	707	814	1,001	1,057	1,050	1,078
<b>TOTAL</b>	<b>31,647</b>	<b>23,061</b>	<b>26,289</b>	<b>30,454</b>	<b>31,227</b>	<b>29,159</b>	<b>28,615</b>	<b>28,256</b>

Source: National Inventory Report 2013 – Greenhouse gas inventory for the years 1990-2011

**Figure 3-12: Contribution of sectors in GHG emissions in 2011**

Source: National Inventory Report 2013 – Greenhouse gas inventory for the years 1990-2011

**Table 3-5: Contribution of subsectors in total energy sector emissions - 2011**

GHG categories	Gg			Total	
	CO <sub>2</sub>	CH <sub>4</sub>	N <sub>2</sub> O	CO <sub>2</sub> -eq (Gg)	%
<b>ENERGY</b>	19,051.98	74.43	0.32	20,715.35	100
A. Fuel combustion activities	18,474.82	6.45	0.32	18,710.49	90.32
1. Energy industries	6,252.91	0.22	0.06	6,275.44	30.29
2. Manufacturing ind. and constr.	3,139.07	0.29	0.03	3,153.34	15.22
3. Transport	5,826.11	0.66	0.16	5,888.70	28.43
4. Other sectors	3,256.73	5.28	0.08	3,393.01	16.38
5. Other	NO	NO	NO	-	-
B. Fugitive emissions from fuels	577.16	67.98	0	2,004.86	9.68
1. Solid fuels	NO	NO	NO	-	-
2. Oil and natural gas	577.16	67.98	0	2,004.86	9.68

Source: National Inventory Report 2013 – Greenhouse gas inventory for the years 1990-2011

In the year 2011, the transport sector presented the 28.4% of total emissions of the energy sector and contributed about 20% to the total national emissions. The largest part of the transport's emissions arises from road transport (95.1% of the emissions of the transport sector, see [Table 3-6](#)).

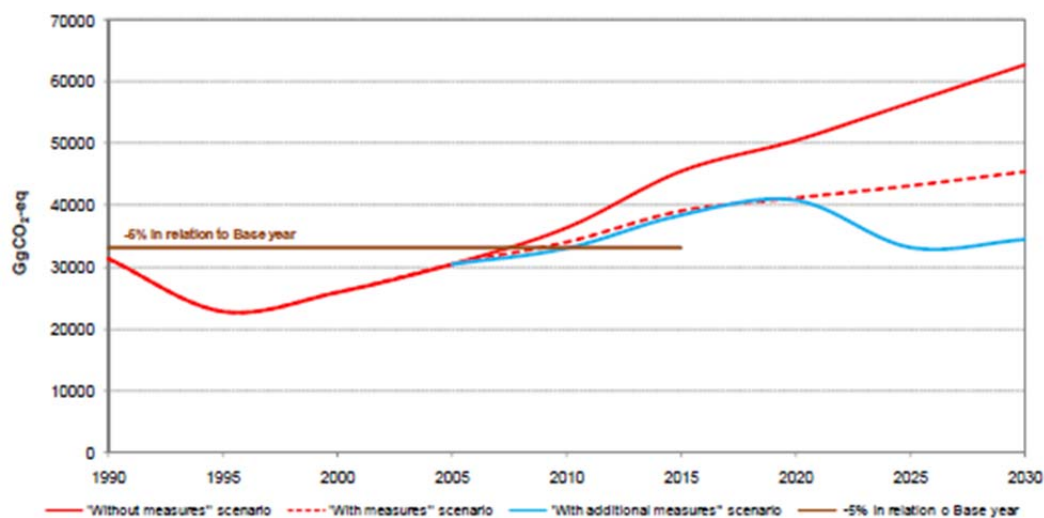
**Table 3-6: The CO<sub>2</sub>-eq emissions (Gg) from sector Transport**

	1990	1995	2000	2005	2008	2009	2010	2011
Civil Aviation	156.1	79.4	55.4	67.2	89.0	78.1	81.8	89.9
Road Transport	3,634.1	3,151.6	4,327.5	5,373.2	5,948.0	5,954.8	5,748.0	5,598.9
Railways	138.7	106.8	85.8	95.9	101.6	89.6	90.0	83.0
Navigation	133.5	98.7	86.1	100.0	131.3	145.9	115.6	116.9
<b>Total Transport</b>	<b>4,062.4</b>	<b>3,436.4</b>	<b>4,554.8</b>	<b>5,636.3</b>	<b>6,269.9</b>	<b>6,268.4</b>	<b>6,035.4</b>	<b>5,888.7</b>

Source: National Inventory Report 2013 – Greenhouse gas inventory for the years 1990-2011

Projections of GHG emissions up to 2030 have been done in the framework of the 5<sup>th</sup> National Communication of Croatia to UNFCCC. Total projections of GHG emissions for scenarios “without measures”, “with measures” and “with additional measures” are shown in the [Figure 3-13](#). According to these projections, in the period 2012-2025 GHG emissions will increase despite the implementation of measures.

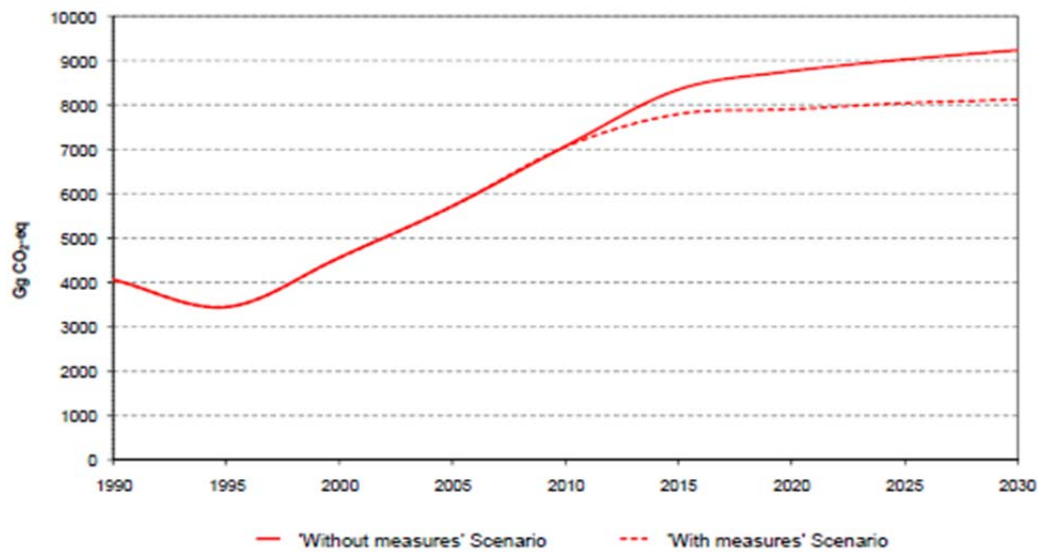
**Figure 3-13: Projections of GHG emissions in Croatia (1990-2030)**



Source: 5<sup>th</sup> National Communication of the Republic of Croatia under the UNFCCC

More specifically, the projections foresee a slight increase in GHG emissions of the transport sector even in the “with measures” scenario, which includes the measures foreseen in the Energy Strategy.

Figure 3-14: Transport sector emission projections (1990-2030)



Source: 5<sup>th</sup> National Communication of the Republic of Croatia under the UNFCCC

Croatia will be fully integrated into the aviation part of the EU Emissions Trading System (EU ETS) on 1 January 2014.

As far as **climate change impacts and adaptation** are concerned, according to the “Fifth National Communication of the Republic of Croatia under the United Nation Framework Convention on the Climate Change”, there has been an increase in mean annual air temperature during the last century, accompanied by a decrease in precipitation. Research show that water resources in Croatia are already under challenge of climate change, as certain impacts and changes occur in regard to water flow, evapotranspiration, groundwater inflow, water level in rivers and lakes, water temperature, etc., while forests are under the risk of forest fires. As far as protection of coastal zones is concerned, although measurements during the last decade indicate constant sea-level increase, considering the shortness of monitored period, it cannot be determined with certainty whether the level increase is a result of general sea-level increase trend or just a 10-year sea level variation. Significant sea level-increase could endanger numerous commercial and fishing ports, contaminate coastal freshwater sources in karstic zone, disrupt touristic and recreative activities depending on coastal areas, etc. Adaptation to climate change impacts, related to the coast and coastal area, can include numerous technical measures as well, such as the silting of beaches with gravel and sand, developing alternative sources of water supply, increasing the capacities for water purification due to salinity intrusion, etc.

### 3.2.2 Water resources

#### **Inland water**

The Republic of Croatia is rich of water resources available for use for various purposes, but its spatial and annual distribution is unfavourable (which is more evident in the Adriatic Sea basin district). The total quantity of water available in Croatia is approx. 156.32x10<sup>9</sup> m<sup>3</sup> per year, out of which 23% are own waters.

Croatia is divided into 2 River Basin Districts, the Danube River Basin District and the Adriatic Sea River Basin District (Map 3-2). The Danube River Basin District is divided into 2 sub-basins (Sava river sub-basin and Drava & Danube sub-basin).

**Map 3-2: River Basin districts in Croatia**



Source: River Basin Management Plan, June 2013 (available at [http://ec.europa.eu/environment/water/participation/map\\_mc/countries/croatia\\_en.htm](http://ec.europa.eu/environment/water/participation/map_mc/countries/croatia_en.htm))

The river Danube, the largest and richest in water, flows through the eastern borderland of Croatia over a length of 137.5 km. The Croatian part of the river falls into the Middle Basin of Danube. Other major rivers are the Sava (562 km) and the Drava (505 km). The Kupa is the longest river (296 km) flowing entirely through Croatia and converges to Sava River.

The main problems affecting the Danube River Basin ecosystems are:

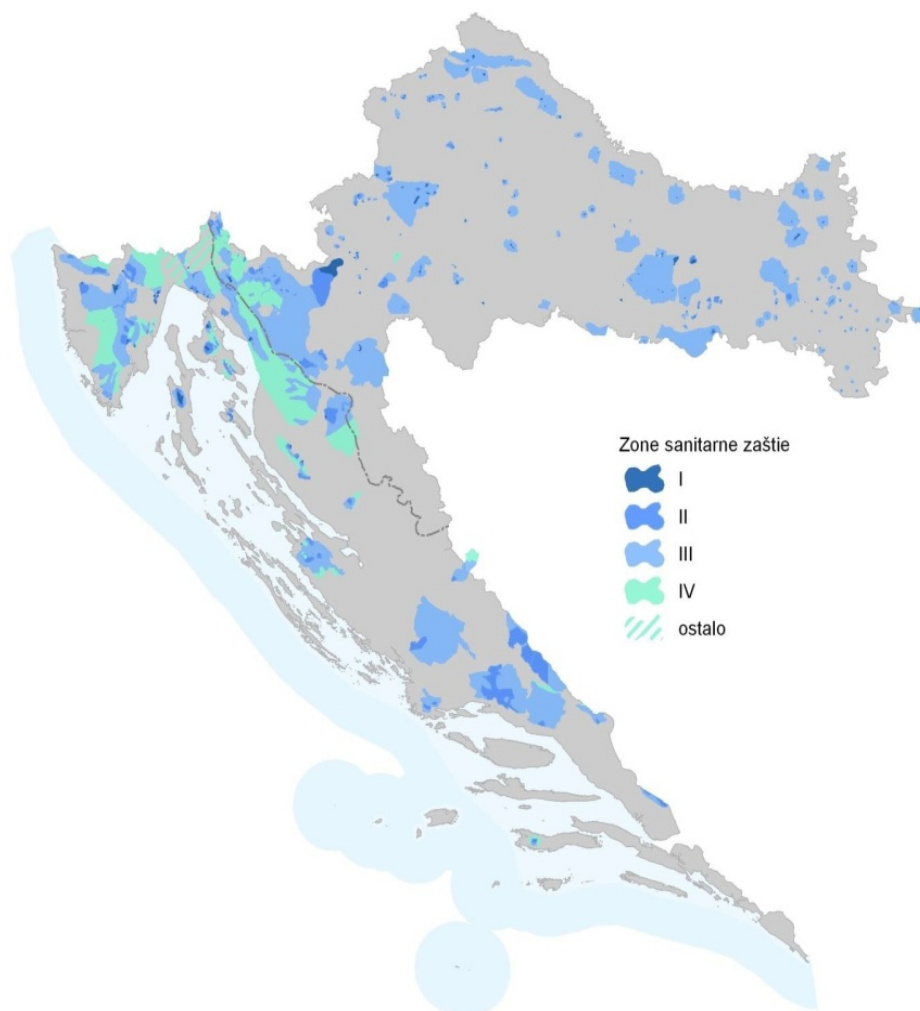
- High Nutrient (nitrogen and phosphorous) loads
- Competition for available water



- Overexploitation of surface and groundwater
- Changes in river flow patterns, including transport of sediment
- Contamination with hazardous substances
- Accidental pollution
- Degradation and loss of wetlands

#### **Protected water areas**

**Map 3-3: Overview map of water protection zones (according to the Register of protected areas, the situation in September 2012)**



**Source: Water management Plan**

River basin management plan focuses on the protection and improvement of the ecological and chemical status of surface waters, ie quantitative and chemical status of groundwater. Additional

requirements apply to protected areas of water (water intended for human consumption, water suitable for the protection of economically significant aquatic organisms, water for bathing and recreation areas subject to eutrophication, including areas of poor water exchange in coastal waters, areas vulnerable to nitrates, areas designated for protection aquatic and water-dependent habitats and species), in accordance with the regulations under which it was established protection. The introduction of environmental standards in water management is a key postulate stemmed from the desire for ecological restoration of the aquatic environment and returning the water to the state in which the composition and abundance of biological populations to be as close as possible to their natural state. Liabilities and normative rules for assessing the state of the water taken from the Water Framework Directive and related to the water above a given threshold veličinskog rivers with a catchment area greater than 10 km<sup>2</sup>, the lake with the surface water table above the 0.5 km<sup>2</sup> aquifers from which it is possible to draw an average of more than 10 m<sup>3</sup> per day or furnish more than 50 people, or that significantly affect a surface ecosystem. Smaller rivers and lakes or aquifers smaller yields are not covered by the Water Framework Directive and of them it is not necessary to report, but they can be subject to analysis and planning, if it proves to be essential from the standpoint of management and water management.

A special category of surface water make artificial significantly altered water bodies<sup>18</sup>, which are caused by human activity or are substantially changed in character due to physical changes caused by human activity and function of sustainable development. Subject to the slightly lower quality standards than the standards that apply to natural water bodies which are most similar to them, that take into account the constraints that have occurred due to the physical changes that are required for a given purpose of a body.

#### Rivers

Typing begins deployment of individual streams and parts of the Pannonian Ecoregion, and the Dinaric coastal sub-Ecoregion Dinaric continental or sub-level event. An extensive hydrographic network of the water of the river Danube makes up more than 80% of the total length of the river typed, categorized into 29 types. On the Adriatic Sea water area, although there is much less developed hydrographic network, was found almost the same number (27) types of rivers. Four types: T11A (mountain streams of small streams in the karst limestone base), T12A (foothill streams of small streams in the karst

The lakes are classified as belonging to the ecoregion types, sub-ecoregion and, then, according to four factors required for typing lake: altitude, depth, size and surface geology. On the Croatian territory have little lakes that are larger than 0.5 km<sup>2</sup>, respectively, which are classified into types. In particular, the number of natural lakes is small. According to the data in GIS-based of

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<sup>18</sup> *Water bodies - Water bodies are the smallest unit for water management allocated to describe the state of water, defining the objectives of protection of the aquatic environment, identify problems and determine the measures to achieve the objectives, defining monitoring programs, monitoring and reporting on the results of the implementation of the measures. It is possible that, due to anthropogenic causes, some natural body of water separated further divided into smaller water bodies, which are clear and specific terms of the actual situation, risks, objectives to be achieved and the measures that are appropriate for it. Common secondary criteria to extract water bodies, the purpose of certain water, exposure to anthropogenic loads and impacts (especially morphological alterations), the status of protection and the like.*

Croatian water, set aside the 44 lakes, of which 33 with an area greater than 0.5 km<sup>2</sup>, which are classified into 14 types.

### The general state of the water of rivers and lakes

#### Map 3-4 General hydromorphological status



**Source: River management Plan**

Assessment of the general physico-chemical status based on individual assessments of the four basic physical and chemical quality elements: BOD<sub>5</sub> and COD as indicators of organic pollution and total N and total P as indicators of nutrient pollution. For each element of the quality an assessment of the situation was done on the basis of the results of the national water quality monitoring for the year 2009.

From a total of 1,234 water bodies, about 90% are rated of good condition compared to the organic load measured BOD<sub>5</sub> and COD. Criteria good condition does not meet the 118 water bodies with a total length of 1404 km per BOD<sub>5</sub> and 102 bodies a total length of 1086 km by the CCP.

The situation is much less favourable if it observes the state of water in relation to nutrient pollution as measured by total nitrogen and total phosphorus. A total of 270 water bodies (nearly 22%) of the total length of 2832 km don't meet the criteria of high status in relation to the total nitrogen and as many as 433 water bodies (35%) with a total length of 4417 km are in a satisfactory condition in relation to the total phosphorus.

The total length of streams that do not have a satisfactory general physico-chemical state is almost 40% of the total length of all streams typed in Croatia.

Generally speaking, the general physico-chemical state is much more favourable to the Adriatic river basin area in relation to the water area of the Danube River, on which the number of water bodies that don't meet one or more of the analyzed physico-chemical parameters exceed 50% of the total number of water bodies, and 45% the total length of all typed river. On the Adriatic Sea RBD only 15% of the length of typed river does not meet the criteria of good general physico-chemical conditions

### **Sea water**

**Sea waters** in Croatia have a total surface of 138,595km<sup>2</sup>. The Adriatic's average depth is 173m. A depth exceeding 200m can be found around the island of Jabuka and in the southern Adriatic. The Adriatic, possessing low levels of nutritious salts, phosphorus and nitrogen in particular, is considered to be a sea that is low in productivity. However, considering the large number of endemic flora and fauna, the Adriatic stands out as a special biogeographical unit of the Mediterranean. Two areas are, in that respect, of particular importance - western Istria and parts of Kvarner, and around islands of Jabuka, Brusnik, Svetac, Vis and Plagruža. Some 6000-7000 plant and animal species have been found in the Adriatic. A number of groups, especially invertebrates are insufficiently explored, making the basic data on their diversity, in most cases, not available<sup>19</sup>.

The threats to the Adriatic are numerous especially to the shallow coastlines where uncontrolled development including backfilling, solid waste disposal and particularly discharge of unpurified waste water, both municipal and industrial is occurring. Excessive and uncontrolled fishing is adversely affecting various algae/ genus cystoseria including settlements of the endemic brown algae/Adriatic wrack that has almost completely disappeared from some polluted parts of the Adriatic (western Istria). In the shallow coastal parts particularly threatened are communities of photophilous algae and meadows of *Posidonia oceanica*, while in the deeper waters communities of detrial surfaces are in peril and also the communities of muddy surfaces due to excessive trawling.

Assessments of **sea bathing water** are made on the basis of criteria defined by Regulation on Sea bathing water quality (OG 73/08) and the EU Directive on management of bathing water quality No 2006/7/EC. Sea bathing water is in most cases of excellent quality (more than 95% of samples).

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<sup>19</sup> Implementation of the WFD, 1<sup>st</sup> Environmental EU project in Croatia, <http://www.wfd-croatia.eu/templates/radnaeng.asp?sifrastranica=556#SEA>

### 3.2.3 Wastewater management

Concerning wastewater treatment, in 2009, 108 urban wastewater treatment plants were in operation (33 pre- treatment, 20 primary, 49 secondary and 6 tertiary treatment level). About 62% of collected waste water was purified on them. About 44% of the population is connected to public sewerage systems, and the goal is to achieve a connection of at least 67%. By Croatian accession to the EU, the obligation to fulfil the requirements of the Wastewater Treatment Directive should be carried out in the investment cycle to the 2023rd year.

Concerning **wastewater**, in order to reduce pollution from sewerage systems (point sources), it is planned to increase the connection rate to public sewerage systems to approx. 70% in agglomerations between 2,000 and 10,000 PE; approx. 77 % in those between 10,000 and 15,000 PE, and approx. 100 % in agglomerations of more than 15,000 PE. This will increase the connection rate to public sewerage systems to approx. 60% of the total population (i.e. 2,660,000 inhabitants). The remaining UWWT Directive requirements will be implemented in the post-2023 investment cycle.

### 3.2.4 Biodiversity and habitats

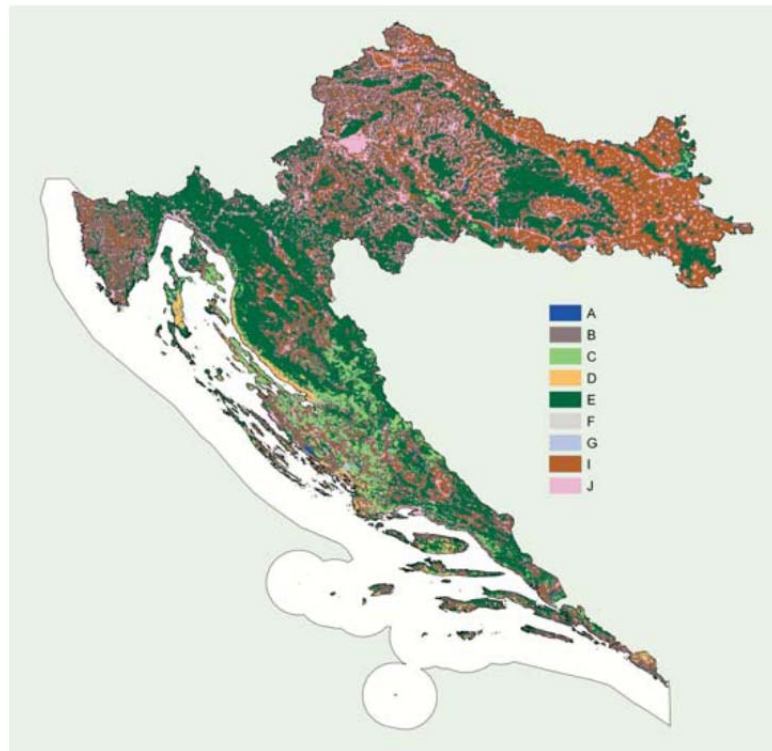
National habitat classification of Croatia defines the following main habitat classes, with each divided into four levels of habitat types. The first eight classes contain the majority of natural habitat types in Croatia<sup>20</sup>.

- A inland surface water and wetland habitats
- B inland unvegetated and sparsely vegetated habitats
- C grassland, bogs, fens and tall forbs habitats
- D scrub habitats
- E forest habitats
- F coastal habitats
- G marine habitats
- H underground habitats
- I cultivated non-forested land and habitats with weeds and ruderal vegetation
- J constructed and industrial habitats
- K complexes

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<sup>20</sup> State Institute for Nature Protection (2006), *Biodiversity in Croatia*



**Map 3-5: Habitat types in Croatia**

Source: State Institute for Nature Protection (2006), *Biodiversity in Croatia*

The great diversity of terrestrial, marine and underground habitats has resulted in a wealth of species and subspecies with a high number of endemics. The number of known taxa (species and subspecies) in Croatia is 38,268, and they are believed to actually number between 50,000 and 100,000.

Croatia is home to a considerable part of the populations of many species endangered at the European level. Based on the earlier estimate of the level of threat to the analysed plant, fungal and animal groups (vertebrates, butterflies, dragonflies, underground fauna, corals, ground beetles, stoneflies, vascular flora, lichen and fungi) there are 2,235 endangered taxa on the red list. The most highly threatened are freshwater fish, then reptiles, amphibians, dragonflies and birds<sup>21</sup>.

The most serious threat to wild species in Croatia is degradation and loss of habitats, partly as a consequence of conversion of natural habitats into building or agricultural land, or as a consequence of construction of roads and other communications, which frequently causes habitat fragmentation.

Under the current Nature Protection Act (OG 80/2013), there are 10 area protection categories in Croatia. These are: strict nature reserve, national park, special nature reserve, Nature Park, Regional Park, nature monument, significant landscape, forest park, park architecture monument, components with larger protected areas. The total surface of these protected areas is 689,709.65 hectares, which represents around 12% of total country land area (the EU-27

<sup>21</sup> European Environment Agency, <http://www.eea.europa.eu>

average for nationally protected areas is 15.3%, and reaches 25% including the NATURA 2000 areas).

The protected areas are presented in the following table:

**Table 3-7: Protected areas in Croatia**

Category of protection	Number	Land part	Marine part	Total
Strict nature reserve	2	2.425,18 ha	0,00 ha	2.425,18 ha
National park	8	76.311,04 ha	21.652,12 ha	97.963,16 ha
Special nature reserve	77	29.140,48 ha	11.051,25 ha	40.191,73 ha
Nature Park	11	412.739,22 ha	18.779,24 ha	431.518,46 ha
Regional Park	2	102.721,20 ha	0,00 ha	102.721,20 ha
Nature monument	84	224,95 ha	0,00 ha	224,95 ha
Significant landscape	85	119.990,78 ha	9.293,00 ha	129.283,78 ha
Forest Park	28	3.061,14 ha	0,00 ha	3.061,14 ha
Monument of park architecture	121	856,05 ha	0,00 ha	856,05 ha
Components with larger protected areas:		57.760,39 ha	429,00 ha	58.189,39 ha
<b>TOTAL:</b>	<b>418</b>	<b>689.709,65 ha</b>	<b>60.346,61 ha</b>	<b>750.056,26 ha</b>
<b>Percentage share of protected areas in Croatia surface</b>		<b>12,20 %</b>	<b>1,94 %</b>	<b>8,56 %</b>

The National Parks<sup>22</sup> and Nature Parks<sup>23</sup> of Croatia are presented in the following table:

**Table 3-8: National Parks and Nature Parks of Croatia**

Protected Area	Short description
<b>National Parks</b>	
Brijuni	It comprises of an archipelago of 14 islands and islets. It is located along the southwest coast of Istria and renowned for its special climate, landscape and cultural-historical features.

<sup>22</sup> A national park is a large, mostly unchanged area of land and / or sea area of outstanding natural value, which includes one or more preserved or insignificantly altered ecosystems, and is primarily intended for the preservation of the original natural and landscape values..

<sup>23</sup> Nature Park is a vast natural or partly cultivated land with high biodiversity and / or geodiversity with valuable ecological features, marked landscape, cultural and historical values..

Kornati islands	The densest archipelago in the Mediterranean Sea situated in the central part of the Adriatic. They are characterized by interesting geomorphology, well-indented coast and various living communities. The archipelago consists of 89 islands, islets and reefs.
Bed of the river Krka	It is deeply embedded into the limestone plateau between the towns Knin and Skradin. This natural and karstic phenomenon created seven travertine waterfalls: Bilušića buk, Brljan, Manojlovački slap, Rošnjak, Miljacka slap, Roški slap and Skradinski buk, the highest cascade in the Mediterranean (46m).
Mljet	It is situated on the western part of the same-named island Mljet. Autochthonous forests of Holm oak and Aleppo pine cover more than 90% of the Park's surface providing it with special biological and aesthetic value and it is therefore often called the "Green Island".
Paklenica	It covers the area of torrent flows of Velika Paklenica and Mala Paklenica, and their distinctive canyons carved vertically into the south slopes of Velebit and the broader surrounding area. This relatively small area has an abundance of geomorphological forms, diverse flora and fauna, attractive landscapes and intact nature.
Plitvička jezera (Plitvice Lakes)	The oldest Croatian national park. It is known for its magnificent travertine waterfalls which create clear lakes in a constant biodynamic process of travertine creation. As a result of that process, a series of 16 cascade-lined larger and several smaller lakes, which are the most picturesque part of this Park, was created. It inscribed on the World Heritage List of UNESCO.
Risnjak	It is located in hinterland of the city of Rijeka and Kvarner Gulf, in the north-western part of Gorski Kotar.
Sjeverni Velebit	It was proclaimed a national park for its wealth and diversity of karst forms, flora, fauna and landscapes located within a small area.
<b>Nature Parks</b>	
Biokovo	The Nature Park Biokovo is characterised by special beauty of landscapes, great diversity of flora and fauna and wealth of geomorphological forms and phenomena (caves, pit-caves, scraps, sinkholes, crests, pits...).
Kopački rit	The Nature Park Kopački rit is considered one of the most preserved fluvial-wetlands in Europe characterised by outstanding beauty of landscape and rich biodiversity.
Lastovsko otočje	Lastovsko otočje (Lastovo archipelago) belongs to the outer group of islands in south Dalmatia and includes the island of Lastovo with neighbouring islands, island groups Lastovnjaci and Vrhovnjaci and island Sušac, consisting of the total of 44 islands, islets and reefs.
Lonjsko polje	It is the largest protected flooding area of the entire Danube river basin with valuable landscape and ecological features. Special beauty of landscape is provided by flood forests of common oak and picturesque wet pastures with old dwellings in between a network of water surfaces.
Medvednica	The main feature of the Nature Park Medvednica are forests (beech, fir, maple, ash and sessile oak) of great biological value due to which 8 forest reserves are protected within the Park.

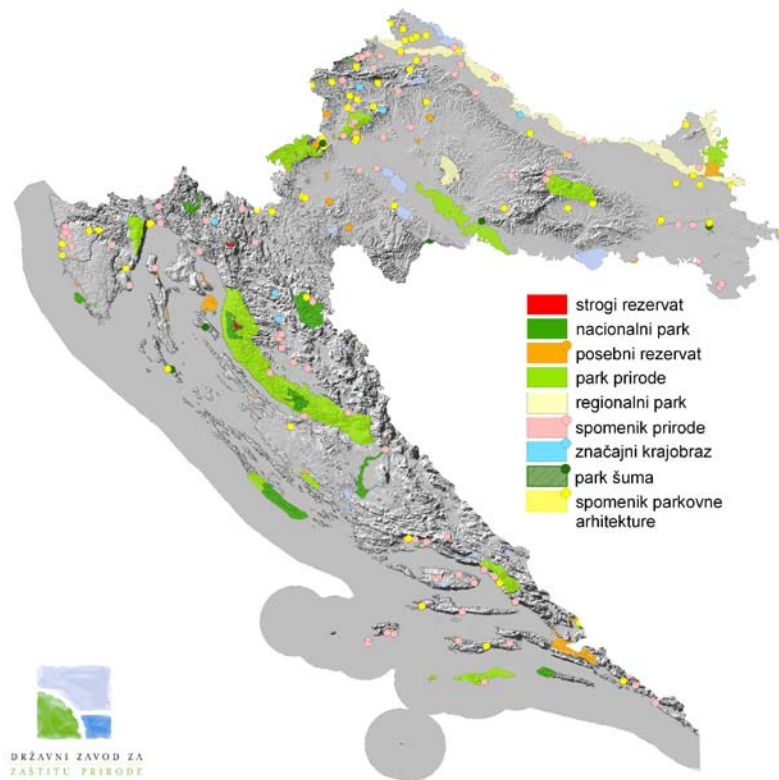
Papuk	The Nature Park Papuk is protected because of its extremely valuable biological, geological, landscape and historical features and includes almost the entire area of the Mountain Papuk and western part of the Mountain Krndija.
Telaščica	The Nature Park Telaščica, as one of the most beautiful and largest Adriatic bays, with its marine area consisting of 13 islands and reefs and covering the surface area of 70.5 km <sup>2</sup> , of which 44.55 km <sup>2</sup> belongs to the sea.
Učka	Učka Nature Park is characterised by an exceptional variety of features in a comparatively small area. The Park is home to over 1,200 plant species, and around 150 bird species.
Velebit	The Nature Park Velebit includes the largest part of the Mountain Velebit and valley of the karst river Zrmanja and it is the largest protected area in Croatia.
Vransko jezero (Vransko Lake)	It is the largest natural lake in Croatia and represents a geomorphological rarity of our karst area since it is a cryptodepression filled with mildly salt water in which a specific community of sea organisms developed.
Žumberak–Samoborsko	It is characterised by preserved nature, forests, streams, waterfalls, vineyard covered hills, pastures and traditional farms.

Source: Ministry of Environment and Nature Protection

The other categories of protected areas comprise:

- **Strict nature reserves:** Bijele & Samarske stijene and Hajdučki & Rožanski kukovi.
- **Special Nature Reserves:** There are currently 77 special nature reserves, of which 9 Botanical, 2 Ichthyological, 2 of ichthyological ornithology, 21 of Ornithology, 1 paleontological, 36 of forest vegetation), 1 Geographical – botanical and 1 Botanical - Zoo.
- **Regional Parks:** Mura – Drava and Moslavačka gora
- **Nature Monuments:** There are 84 nature monuments in Croatia. Most of them are related to rare specimens of trees and geomorphological nature monuments followed by geological, paleontological, zoological, hydrological, botanical and geological-geographical nature monuments.
- **Important Landscape:** There are currently 85 important landscapes protected in Croatia, of which 3 under preventive protection.
- **Forests Parks:** there are 28 protected forest parks.
- **Park architecture monuments:** There are currently 121 protected park architecture monuments in Croatia

Map 3-6: Protected areas in Croatia



Source: State Institute for Nature Protection

The first draft of the Croatian **Natura 2000** network was launched for public consultation in 2009, with the help of a PHARE funded project, which, amongst others, initiated a nationwide information campaign to raise awareness of Natura 2000 and to ensure full public consultation on the proposed sites. The final list of Natura 2000 sites was adopted by the government following a further period of public consultation which ended on 5 June 2013, with the Regulation on Ecological Network. The list contains 744 pSCIs (proposed Sites of Community Interest) (of which 208 sites are caves and pits) and 40 SPAs (Special Protection Areas). Altogether, they cover about a third of the country and around a sixth of the territorial sea, putting Croatia among the first places in Europe in terms of percentage of the territory included in Natura 2000<sup>24</sup>.

<sup>24</sup> EC, *Nature and Biodiversity Newsletter, Natura 2000*, No 34, July 2013



**Map 3-7: Conservation areas important for species and habitat types – Habitats Directive 92/43/EEC**



*Source: Regulation on Ecological network (2013)*

According to the Directive 92/43/EEC, protection measures should be defined for NATURA 2000 sites that ensure favourable conservation status of species and habitat types for which the certain site has been designated. In this framework the appropriate management plans should be developed for the sites that will be finally included in the NATURA 2000 network.

Croatia presently has 5 sites designated as **Wetlands of International Importance** (RAMSAR list), with a surface area of 94,358 hectares<sup>25</sup>:

**Table 3-9: RAMSAR sites in Croatia**

Site	Characteristics
Crna Mlaka (Crna Mlaka Fishponds)	Ornithological Reserve, National Ecological Network
Lonjsko polje and Mokro polje including Krapje Dol	Nature Park, Ornithological Reserve, Protected Landscape, Wilderness Area
Nature Park Kopački rit (Kopački rit)	Zoological Reserve, Nature Park.
Neretva River Delta	Important Bird Area, Protected Ornithological Reserve, Wilderness Area, Protected Landscape
Vransko Lake ("Vransko jezero")	Nature Park, Special Ornithological Reserve.

Source: [www.ramsar.org](http://www.ramsar.org)

### Forests

The forests and woodlands cover 44% of the land area. The forests and forest lands cover 44% of the land area. Forests fulfill their economic, ecological and social functions, and in this sense are of interest of Croatia and have been incorporated into the provisions of the Constitution. It is important to note that HR is one of the few European countries whose forests are predominantly natural structure on which is greatly affected by 200 year old practice of forestry profession and science. Due to the geographical position of Croatia found forests and forest lands that are located between the Euro-Siberian-North American and Mediterranean regions, distinguished 60 forest communities and around 4500 plant species. We distinguish three areas: the Dinaric area, the Pannonia region, Euro-Mediterranean and Sub-Mediterranean Area. 42% of total area of forests and forest lands belongs to forest of carst. The contained the beneficial functions-keeping soil erosion, landscape value, tourism potential, etc are the primary value of forest. In addition to the above it was found that the area of forest and forest land one complete uniform space by habitat (relief, climate, vegetation) conditions in which inhabit more unique populations certain types of wildlife, with a focus on deer, chamois, wild boar, roe deer and bears. Population wild animals (venison) inhabited mainly continuously in certain areas regardless of the daily and seasonal migration. For each specific area (breeding area) that is a specific type of wild animals, given the unique criterion for determining the density of the population that is fond of wildlife and credit worthiness, and the available productive hunting areas, in order to keep the breeding stock of wildlife, natural breeding of wild animals, etc.

### 3.2.5 Acoustic Environment (Noise)

Croatia has harmonised its legislation with the EU legislation on noise with the Noise Protection Act (OG 30/2009 amended by , 55/13 and 153/13). By the day of accession to the European Union, the Republic of Croatia became mandatory in accordance with the deadlines for reporting

<sup>25</sup> The RAMSAR Convention on Wetlands <http://www.ramsar.org>

to the European Commission on the implementation of Directive 2002/49/EC on environmental noise to submit to the European Environment Agency collected information on strategic noise maps and action plan

The strategic noise mapping is under development for major highways and airports, as well as for four cities with population greater than 100.000 inhabitants (Zagreb, Osijek, Split and Rijeka). There is no noise monitoring network in Croatia, while some measurements have been made at local level by local authorities. Furthermore, noise is systematically monitored in the airport of Zagreb (noise monitoring system installed at Zagreb Airport consists of three static and one mobile NMT- Noise Monitoring Terminals).

### 3.2.6 Soil

Agricultural land accounts for around 1/3 of the country's area. Data on land management and quality of soil are not available for most of the agricultural soil. However, according to research works, soil in Croatia faces many threats, such as water and wind erosion (46% of agricultural land is exposed to high or moderate risk of soil erosion by water, and 45% of forest land to moderate risk), increased soil acidity, reduced nutrient bioavailability, increased toxicity of some elements (about 830,000 ha of predominantly acid to highly acidic soils were determined on agricultural land), contamination by heavy metals (anthropogenic soil contamination by heavy metals was detected in Croatia on locations exposed to imissions from industry, urban environments, transport and similar, while high concentrations of potentially toxic elements in agricultural soils are commonly associated with regular application of agricultural management practices, primarily plant protection against pests or fertilization), contamination by petrochemicals, forest fires<sup>26</sup> and war damages (current status of mine suspected areas in the Republic of Croatia amounts to 666 km<sup>2</sup>).<sup>27</sup>

Based on available data, there were 1151 potentially contaminated sites in 2005, of which 38 contaminated locations were declared positive. These are generally landfills, industrial sites and power generation facilities (black spots). Most contamination cases are related to accidents such as oil pipeline failures, traffic accidents, etc.

Most of the potentially contaminated sites are located in the City of Zagreb (232), and in Splitsko-Dalmatinska (217), Istarska (177), Zagrebačka (156), Primorsko-Goranska (151) and Osječko-Baranjska (142) Counties<sup>28</sup>.

Soil quality was not systematically monitored in Croatia. There have been local and/or pilot monitoring projects in certain areas. With the LIFE project "Development of the Croatian Soil Monitoring Programme with a pilot project, (LIFE05 TCY/CRO/000105) of the Croatian Environment Agency which described the monitoring system for both agricultural and forest soil

<sup>26</sup> HUSNIAK S., M. ROMIĆ, M. POLJAK, N. PERNAR (2011), in *Agriculturae Conspectus Scientificus* | Vol. 76 (2011) No. 1 (1-8)

<sup>27</sup> Croatian Mine Action Centre <http://www.hcr.hr/en/minSituac.asp>

<sup>28</sup> Ministry of Environmental Protection, Physical Planning and Construction, Croatian Environment Agency (2009), *The Environment in your pocket - 2009*

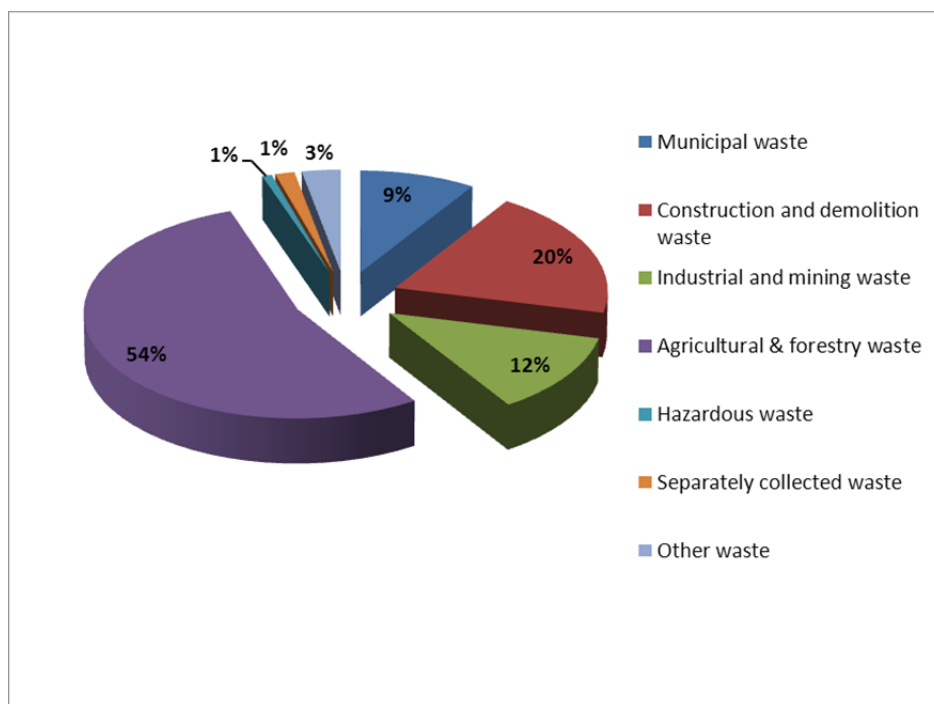
in the country<sup>29</sup>, and the adoption of relative legislation, the preconditions for the establishment of a permanent monitoring of the soil are achieved.

Due to lack of data on soil quality, it is difficult to forecast the future trends. As already mentioned, rehabilitation of old dumpsites has started in Croatia. Concerning demining, the objective of the National Mine Action Strategy of the Republic of Croatia is to remove of mine danger from the entire territory of the Republic of Croatia until 2019.

### 3.2.7 Solid waste management

According to the Waste Management Strategy of Croatia (OG 130/05), the total quantity of waste generated in a year is estimated at about 13.2 million of tons, (about 2.97 tons of waste/inhabitant, with EU-27 average about 4.5 tn/capita). The distribution of the total quantity per type of waste is presented in the Figure 3-15.

Figure 3-15: Waste distribution by type of waste



Source: Waste Management Strategy of Croatia (OG 130/05)

The country generates an estimated 1.4 million tons per year of **municipal solid waste**, equivalent to 327 kg per capita annually for 4.4 million inhabitants, or an average of 0.90 kg per capita per day (ranging between 0.56 to 1.28 kg/ per capita/per day (206 to 467 kg per capita/per year). These data also include waste from the tourism industry. It is estimated that around 97,700 tons per year are due to tourism sector<sup>30</sup>. However, Croatia's waste profile varies seasonally and

<sup>29</sup> Croatian Environment Agency (2008), Croatian Soil Monitoring Programme, "Development of the Croatian Soil Monitoring Programme with a pilot project, (LIFE05 TCY/CRO/000105)

<sup>30</sup> Waste Management Plan (OG 85/07)

geographically due to tourism, and can be as high as 1.9 kg per tourist per day in some coastal areas.<sup>31</sup>

About 93% of the population is covered by organized municipal waste collection and disposal performed by 199 municipal companies.

Systems of separated waste collection have developed gradually in Croatia for paper, cardboard, packaging waste (glass, PET and metal), green waste, used batteries, medicines, oils, car tires, bulky metals, and construction materials; some recycling yards and «green islands» have been established. Croatia has introduced various environmental taxes on certain waste types including packaging, which has encouraged recycling and reuse. Tax revenues are an important source of funding for the Environmental Protection and Energy Efficiency Fund (EPEEF), and an incentive to return to solid waste investments.

A large share of generated MSW is disposed in landfills; most official landfills are non-sanitary although some EU-standard sanitary landfills are operational or under construction. Landfill restoration and closure began in 2004, and will continue for the foreseeable future since closures must be coordinated with new landfills constructed to EU standards. Many old landfill sites will become transfer stations and recycling yards; the rest will close within five years. In addition, over 3000 illegal dump sites have begun remediation and closure.

**Non-hazardous industrial waste** is estimated to be of 1.6 million tn per year and consists mainly of the following categories:

- Wastes from agriculture, horticulture, aquaculture, forestry, hunting and fishing, food preparation and processing (23.28 %), which are generally, after the adequate pre-treatment, used at the very point of generation
- Wastes from inorganic chemical processes (21.83%), which are deposited on a controlled landfill for Category I technological waste, owned by Petrokemija d.d. which holds all the necessary documentation required by law.

According to a preliminary estimate, presented in the Waste Management Plan 85/07, about 213,000 tons of **hazardous waste** is generated in Croatia per year. Croatia there are 47 companies in possession of the permit for the activities of collection and temporary storage of hazardous waste in accordance with the new Waste Act and its Amendments and the old Waste Act (OG 151/03) and 43 companies hold permits for the activities of waste disposal/treatment according to the provisions of the Article 41 of the Waste Act. The methods of disposal/treatment of hazardous waste are mainly: thermal treatment, conditioning by incorporation into brick products, solvent regeneration, neutralisation of acids and bases, solidification and stabilisation, sterilisation/disinfection, electrolysis and dilution. At present in Croatia there are no controlled locations for landfilling hazardous waste and hazardous waste intended for landfilling is exported for landfilling abroad (to, for example, salt mines in Croatia).

The quantity of **construction waste** generated in Croatia is estimated at about 1,000,000 tons/annually. If we take into account the waste generated during construction of transport facilities and other big development projects, then the tailings generated during extraction of

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<sup>31</sup> World Bank (2011), *Solid Waste Management in Bulgaria, Croatia, Poland and Romania, A cross-country Analysis of sector challenges towards EU harmonization*.



minerals, the waste from demolition of various facilities, and the waste resulting from military destructions, then the annual quantity of construction and demolition waste may be estimated at 2,600,000 tons/annually. Almost one half of the construction waste ends up on disposal sites destined for municipal waste, which increases by several times the price of remedial works, takes up a lot of space both in and outside of disposal sites, and increases the need for opening new deposits with natural mineral materials. Although as much as 80 % of construction waste can be reused, only 7 % is actually recycled while 11 % is separated as secondary raw materials<sup>32</sup>.

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<sup>32</sup> Waste Management Strategy of Croatia (OG 130/05)

### 3.2.8 Cultural heritage

The cultural heritage of all material and immaterial traces, remnants and products activities of the human species through the evolution of cultural heritage, or will be at a certain point. Conventional is a division of the movable, immovable and intangible heritage.

Croatian Movable Cultural Heritage is characterized by the richness and diversity, and consists from the objects that are in museums, galleries, libraries, archives, private collections or are part of the church inventory. Include natural history and archaeological materials, works of fine and applied art, archives and documents, letters, manuscripts, old and rare books, money, weapons, movies, theatre props, costumes, clothing, furniture, musical instruments, ethnographic and other useful objects. According to Article 9 of the Law on the Protection and Preservation of Cultural Heritage (OG 69/99, 151/03, NN 157/03, Correction), intangible cultural property can be various forms and phenomena of spiritual creativity which is transmitted transmitting or otherwise. Immovable cultural heritage with specified cultural property consists of individual buildings and / or complexes of buildings, cultural and historical units and landscapes. Cultural property represents architectural heritage from individual buildings to the whole (group of buildings) or area (landscape).

Archaeological heritage sites are often detected only during construction, and in the case of underwater sites and during recreational diving, and their degree of preservation varies from intact to severely damage. Nevertheless, the importance of archaeological sites is unquestionable for Croatian and world culture and science. Croatian archaeological sites in the world heritage list or are recognized in the European context and project such sites which are strongly influenced by the history of civilization in a period of prehistory and antiquity, and in recent years there have been those from the Medieval and Early Modern periods.

Cultural landscapes are kind of immobile cultural property which contains historical characteristic structures which bear witness to the human presence in space, and represent the common work of man and nature, illustrating the development of the community and the relevant territory throughout history. The Republic of Croatia has characteristic types of cultural landscapes, which are an important component of the source of its regional identity. In a relatively small territory of diverse geomorphologic and climate characteristics, historical development are created different types of cultural landscapes comparable to the European regions of the Mediterranean and Central European countries. As living environment landscapes subject to change, often destroying the social and technological change, the spread of cities and other forms of construction, but also neglect and improper use. In many areas there are Croatian historic cultural landscapes in which they have preserved traditional spatial relations, historical patterns and manner of use (rural landscapes nature park, Žumberak, central Istria, Karsts Dinarides fields, Gorski Kotar, the Neretva valley, the individual parts of the coastal areas, offshore islands etc). Act of preventive protection of cultural property has so far been protected by only one area of cultural landscapes: Žumberak - Samobor – Plješivica.

The Republic of Croatia heritage was created in three different geographical zones: coastal, mountain and lowland, which caused the different historical circumstances in economic, social, and therefore in cultural development. Some of the region with its outer edges and hinterland - Istria, Slavonia, Lika, north-western Croatia, the Danube region Vučedol, Dalmatian communes, Dubrovnik - experienced a peak in certain departments on timeline. In these sections, each of them left a legacy of extraordinary value to the fascinating diversity and uniqueness. Often position at the crossroads of civilization circles of influence and Croatian heritage reflect the civilization of the image area which yielded the highest value and uniqueness.

Croatia has significant cultural heritage from all periods of European history. The register of historic buildings currently enrolled 327 historic sites and 4,451 individual locations is under legal protection. During the bombing of the 1991st to 1992nd historical old city of Dubrovnik is inscribed on the list of endangered World Heritage Sites.

There are 6 cultural sites inscribed in the World Heritage List, while 17 more are in the Tentative List (Table 3-10).

Table 3-10: Sites inscribed in the World Heritage List of UNESCO

Site	Year of inscription	Description
<b>Properties inscribed on the World Heritage List</b>		
Stari Grad Plain	2008	Stari Grad Plain on the Adriatic island of Hvar is a cultural landscape that has remained practically intact since it was first colonized by Ionian Greeks from Paros in the 4th century BC. The original agricultural activity of this fertile plain, mainly centring on grapes and olives, has been maintained since Greek times to the present. The site is also a natural reserve. The landscape features ancient stone walls and trims, or small stone shelters, and bears testimony to the ancient geometrical system of land division used by the ancient Greeks, the chora which has remained virtually intact over 24 centuries.
The Cathedral of St James in Šibenik	2000	The Cathedral of St James in Šibenik (1431-1535), on the Dalmatian coast, bears witness to the considerable exchanges in the field of monumental arts between Northern Italy, Dalmatia and Tuscany in the 15th and 16th centuries. The three architects who succeeded one another in the construction of the Cathedral - Francesco di Giacomo, Georgius Mathei Dalmaticus and Niccolò di Giovanni Fiorentino - developed a structure built entirely from stone and using unique construction techniques for the vaulting and the dome of the Cathedral. The form and the decorative elements of the Cathedral, such as a remarkable frieze decorated with 71 sculptured faces of men, women, and children, also illustrate the successful fusion of Gothic and Renaissance art.
Episcopal Complex of the Euphrasian Basilica in the Historic Centre of Poreč	1997	The group of religious monuments in Porec, where Christianity was established as early as the 4th century, constitutes the most complete surviving complex of its type. The basilica, atrium, baptistery and episcopal palace are outstanding examples of religious architecture, while the basilica itself combines classical and Byzantine elements in an exceptional manner.
Historic City of Trogir	1997	Trogir is a remarkable example of urban continuity. The orthogonal street plan of this island settlement dates back to the Hellenistic period and it was embellished by successive rulers with many fine public and domestic buildings and fortifications. Its beautiful Romanesque churches are complemented by the outstanding Renaissance and Baroque buildings from the Venetian period.

Site	Year of inscription	Description
Historical Complex of Split with the Palace of Diocletian	1979	The ruins of Diocletian's Palace, built between the late 3rd and the early 4th centuries A.D., can be found throughout the city. The cathedral was built in the Middle Ages, reusing materials from the ancient mausoleum. Twelfth- and 13th-century Romanesque churches, medieval fortifications, 15th-century Gothic palaces and other palaces in Renaissance and Baroque style make up the rest of the protected area.
Old City of Dubrovnik	1979	The 'Pearl of the Adriatic', situated on the Dalmatian coast, became an important Mediterranean sea power from the 13th century onwards. Although severely damaged by an earthquake in 1667, Dubrovnik managed to preserve its beautiful Gothic, Renaissance and Baroque churches, monasteries, palaces and fountains. Damaged again in the 1990s by armed conflict, it is now the focus of a major restoration programme co-ordinated by UNESCO.
<b>Properties submitted on the Tentative List</b>		
Zadar - Episcopal complex	2005	The area proposed for inscription in the World Heritage List is located in the centre of the historic nucleus of the town of Zadar and comprises the Roman forum with the remains of a temple, the Episcopal complex with the cathedral of St. Anastasia, the archbishop's palace, the church of St. Donatus and the Zmajevic seminary, the orthodox church of St. Elias, the Benedictine nunnery with the church of St. Mary and the Permanent Exhibition of Religious Art, and the Archaeological Museum.
Historical-town planning ensemble of Ston with Mali Ston, connecting walls, the Mali Ston Bay nature reserve, Stonsko polje and the salt pans	2005	The area of this cultural property includes urban ensembles developed in accordance with the configuration of the ground and the preserved parts of the outstanding natural environment. Its development and structuring reflects the successive historical stages, and provides a clear overview of its historical, strategic and economic role notwithstanding modern interference in the environment.
Historical-Town Planning Ensemble Tvrđa (Fort) in Osijek	2005	It is the best-preserved and largest ensemble of Baroque buildings in Croatia and consists of a Habsburg star fort built on the right bank of the River Drava. Tvrđa has been described by the World Monuments Fund as "a unique example of an eighteenth-century baroque military, administrative, and commercial urban center".
Varaždin - Historic Nucleus	2005	Medieval-renaissance-baroque



Site	Year of inscription	Description
and Old Town (the Castle)		
Burg - Castle of Veliki Tabor	2005	Medieval-renaissance-baroque
Lonjsko polje Nature Park	2005	Situated in the alluvial plain of the Sava River in the central Sava River basin region, between the cities of Sisak and Stara Gradiška, it represents a unique landscape and ecological systems of flooded river plain of the Danubian basin.
Velebit Mountain	2005	Velebit is typical karst mountain, composed largely of carbonate rocks. It has very high biological diversity, due to very diverse habitats but also to the fact that some part of the mountain acted as refugia for numerous species during glaciations in the past. Some 2500 plant species have been described, about hundred being endemic. Special, isolated habitats with extreme conditions, such as mountaintops, rock crevices, subterranean habitats and submarine springs favoured the development of specific flora and fauna.
Frontiers of the Roman Empire Croatian Limes	2005	Roman period - The Croatian part of the Danubian limes stretches from Batina Skela to Ilok and is 188 km long
Diocletian's Palace and the Historical Nucleus of Split (extension)	2005	Roman period
Lubenice	2005	Fortified urban settlement from prehistoric times continuously settled throughout the ancient times and middle Ages.
Primošten Vineyards	2007	Originally rocky, inaccessible terrain transformed through extreme human effort into agricultural land, namely, by its clearing in the traditional manner, (manually) without the use of machines. The Bucavac Veliki site has remained a completely preserved surface as it was at the time it was first developed maintaining the original morphology of cleared lots (cassettes), traditional way of soil cultivation and agricultural function which have not changed in the entire area up to the present.
Hermitage Blaca	2007	Hermitic monasteries were founded in the Renaissance period but in continuity with earlier traditions:
City of Motovun	2007	The City of Motovun is located in central Istria, on an elevation that dominates over the valley of the Mirna River. It developed on the site of a prehistoric hillfort. It presents features of all historic periods.

Site	Year of inscription	Description
The historic town of Korčula	2007	Gothic - Renaissance
Kornati National Park and Telašćica Nature Park	2007	The Kornati archipelago is an isolated island group situated in the central region of the Croatian part of the Adriatic Sea. The Kornati archipelago occupies an area of about 320 sq km and includes about 150 islands, islets and rocks. The Telašćica Nature Park encompasses the far south-eastern part of the island of Dugi Otok with its bay Telašćica and the belonging islets and rocks (15 islets and 4 rocks).
Stećci - Medieval Tombstones	2011	Stećci are medieval monolithic tombstones found on the entire territory of the present Bosnia and Herzegovina, as well as in parts of Serbia, Montenegro and Croatia. Available data suggest that they first appeared in the second half of the 12th century, with the first phase lasting throughout the 13th century. A period of the most intensive production and decoration were the 14th and 15th centuries. In the 16th century their use completely ceased.
The Venetian Works of defence between 15th and 17th centuries	2013	The system composed by the Venetian Works of defence between 15th and 17th centuries is the proposed nomination of a serial transnational site to the World Heritage List; it is representative of the more complex defensive system, designed and built by the Serenissima Republic of Venice in order to control its territories and the commercial routes leading to the East.

Source: UNESCO, <http://whc.unesco.org/en/statesparties/hr>

### 3.2.9 Data gaps

The main data gaps that have been identified during the assessment of the current state of the environment in Croatia are the following:

- Noise data are rather insufficient, since the noise mapping is under development
- Due to the economic crisis of the country, the forecast of long-term future economic trends is difficult. There is no sufficient information published for the long term evolution of the country's economy
- There are insufficient data on the trends and the evolution of the state of the environment in the future

### 3.3. Strategies and policies for the environmental and the transport sector

#### 3.3.1 Strategies and policies of the European Union

##### 3.3.1.1. EU environmental strategy

Environment has been a major priority for EU strategy for almost 40 years. Despite progress in some areas, Europe continues to face significant environmental challenges, as well as opportunities to make the environment more resilient to risks and change. In 2012, the European Commission proposed the “**General Union Environment Action Programme to 2020 "Living well, within the limits of our planet"**” (COM(2012) 710 final). The proposed programme builds on the significant achievements of 40 years of EU environment policy, and draws on a number of recent strategic initiatives in the field of environment, such as the 2020 Biodiversity Strategy and the Energy - Low Carbon Economy Roadmap.

Protecting and enhancing natural capital, encouraging more resource efficiency and accelerating the transition to the low-carbon economy are key features of the programme, which also seeks to tackle environmental causes of disease. The results should help stimulate sustainable growth and create new jobs to set the Union on a path to becoming a better and healthier place to live. The Commission proposes to focus action on nine priority objectives.

Three **thematic priority objectives** are intended to

- Protect nature and strengthen ecological resilience
- Boost sustainable resource-efficient low-carbon growth, and
- Effectively address environment-related threats to health.

The thematic priorities are supported by an enabling framework **with four further priority objectives** which will:

- promote better implementation of EU environment law,
- ensure that policies benefit from state of the art science,
- secure the necessary investments in support of environment and climate change policy,
- improve the way environmental concerns and requirements are reflected in other policies.

**Two more priority objectives** focus on:

- enhancing the sustainability of EU cities, and
- improving the EU's effectiveness in addressing regional and global challenges related to the environment and climate change.

The current strategy and policy by environmental theme is presented in the following paragraphs.

#### **Air Quality**

The European Union sets objectives for reducing certain pollutants and reinforces the legislative framework for combating air pollution via two main routes: improving Community environmental

legislation and integrating air quality concerns into related policies. The “Thematic Strategy on Air Pollution” establishes objectives for air pollution and proposes measures for achieving them by 2020: modernising the existing legislation, placing the emphasis on the most harmful pollutants, and involving to a greater extent the sectors and policies that may have an impact on air pollution.

- Compared with the situation in 2000, the Strategy sets specific long-term objectives (for 2020):
- 47% reduction in loss of life expectancy as a result of exposure to particulate matter;
- 10 % reduction in acute mortalities from exposure to ozone;
- reduction in excess acid deposition of 74% and 39% in forest areas and surface freshwater areas respectively;
- 43% reduction in areas or ecosystems exposed to eutrophication.

To achieve these objectives, SO<sub>2</sub> emissions will need to decrease by 82%, NO<sub>x</sub> emissions by 60%, volatile organic compounds (VOCs) by 51%, ammonia by 27%, and primary PM<sub>2.5</sub> (particles emitted directly into the air) by 59% compared with the year 2000<sup>33</sup>.

### **Water Management**

In 2000, the EU **Water Framework Directive** (WFD) addressed for the first time in a comprehensive manner all the challenges faced by EU waters, making it clear that water management is much more than just water distribution and treatment. It involves land-use and management that affect both water quality and quantity; it requires coordination with spatial planning by the Member States and integration into funding priorities. The WFD established the objective to achieve good status by 2015.

In 2012 EU adopted the COM(2012) 673, “**A Blueprint to Safeguard Europe's Water Resources**”, which aims to tackle the obstacles which hamper action to safeguard Europe's water resources. The Blueprint presents the policy response to the challenges described above with the long-term aim to ensure availability of good quality water for sustainable and equitable water use. This contributes to all 3 dimensions of the Europe 2020 strategy (Smart, Sustainable and Inclusive Growth). To achieve this objective, it is necessary to implement at EU level a balanced approach, focusing on<sup>34</sup>:

- Achieving Good Status in EU water bodies by 2015 as a rule, or by 2027 at the latest for specific water bodies covered by WFD exemptions
- Reducing water stress taking into account the need to maintain ecological flows at a level compatible with the achievement of WFD objectives
- Reducing vulnerability to climate change and extreme events

Especially for the Danube Region, EU adopted in 2010 a macro-regional strategy, the **EU Strategy for the Danube Region (EUSDR)** (COM(2010) 715). The Strategy was jointly developed by the Commission, together with the Danube Region countries and stakeholders, in order to address common challenges together. The Strategy seeks to create synergies and coordination between

<sup>33</sup> EU, [http://europa.eu/legislation\\_summaries/environment/air\\_pollution/l28159\\_en.htm](http://europa.eu/legislation_summaries/environment/air_pollution/l28159_en.htm)

<sup>34</sup> EC (2012), Commission staff working document, Executive summary of the Impact Assessment accompanying the document A blueprint to safeguard Europe's water resources, SWD(2012) 381 final



existing policies and initiatives taking place across the Danube Region. The Danube Region Strategy addresses a wide range of issues; these are divided among 4 pillars and 11 priority areas:

**Pillar 1:** Connecting the Region

- Priority Area 1A "To improve mobility and intermodality of inland waterways" (coordinated by Austria and Romania).
- Priority Area 1B "To improve mobility and intermodality - rail, road and air" (coordinated by Slovenia and Serbia).
- Priority Area 2 "To encourage more sustainable energy" (coordinated by Hungary and the Czech Republic)
- Priority Area 03 "To promote culture and tourism, people to people contacts" (coordinated by Bulgaria and Romania).

**Pillar 2:** Protecting the Environment

- Priority Area 4 "To restore and maintain the quality of waters" (coordinated by Hungary and Slovakia)
- Priority Area 05 "To manage environmental risks" (coordinated by Hungary and Romania)
- Priority Area 06 "To preserve biodiversity, landscapes and the quality of air and soils" (coordinated by the Land Bavaria (Germany) and Croatia)

**Pillar 3:** Building prosperity

- Priority Area 07 "To develop the Knowledge Society (research, education and ICT)" (coordinated by Slovakia and Serbia)
- Priority Area 08 "To support the competitiveness of enterprises" (coordinated by the Land Baden-Württemberg (Germany) and Croatia)
- Priority Area 09 "To invest in people and skills" (coordinated by Austria and Moldova)

**Pillar 4:** Strengthening the Region

- Priority Area 10 "To step up institutional capacity and cooperation" (coordinated by the City of Vienna (Austria) and Slovenia)
- Priority Area 11 "To work together to tackle security and organised crime" (coordinated by Germany and Bulgaria)

Additionally, the new **EU Strategy for the Adriatic and Ionian Region (EUSAIR)** is currently under development. It will focus on four costal priorities (Transport, Environment, Tourism, Maritime issues) and two cross cutting issues (Capacity building and Research and innovation). According to the timetable set the EUSAIR Communication and Action Plan are to be adopted by the Commission in June 2014 (tentative) and by the Council in the 2nd semester 2014<sup>35</sup>.

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<sup>35</sup> Forum of the Adriatic and Ionian Chambers of Commerce, <http://www.forumaic.org/>

## Noise

The main focus of European Union noise policy is on noise abatement through the use of mandatory technical standards for products. The most important legal tools consist of a set of directives establishing noise emission limits for particular products: motor vehicles, motorcycles, tyres, aeroplanes, household appliances and outdoor equipment. In addition, there are two important directives: the first provides for the imposition of noise-related operating restrictions at airports Directive 2002/30/EC and the second provides for the creation of noise maps and action plans in order to reduce environmental noise (Directive 2002/49/EC.)

## Biodiversity

On May 3 2011, the European Commission adopted a new strategy to halt the loss of biodiversity and ecosystem services in the EU by 2020, in line with two commitments made by EU leaders in March 2010 – halting the loss of biodiversity and the degradation of ecosystem services in the EU by 2020, and restoring them in so far as feasible, while stepping up the EU contribution to averting global biodiversity loss"- and a vision for 2050: "by 2050, European Union biodiversity and the ecosystem services it provides – its natural capital – are protected, valued and appropriately restored for biodiversity's intrinsic value and for their essential contribution to human wellbeing and economic prosperity, and so that catastrophic changes caused by the loss of biodiversity are avoided". The strategy is also in line with the global commitments made in Nagoya in October 2010, in the context of the Convention on Biological Diversity, where world leaders adopted a package of measures to address global biodiversity loss over the coming decade.

The six targets cover:

- Full implementation of EU nature legislation to protect biodiversity
- Better protection for ecosystems, and more use of green infrastructure
- More sustainable agriculture and forestry
- Better management of fish stocks
- Tighter controls on invasive alien species
- A bigger EU contribution to averting global biodiversity loss

### 3.3.1.2. EU Transport Strategy

The **White Paper on Transport** was adopted by the European Commission at the beginning of 2011 to inspire the Common Transport Policy until 2050. Through the implementation of 40 'initiatives' it aims to<sup>36</sup>:

- 1) Complete the internal market by removing the obstacles that still exist, be they regulatory or technical.
- 2) Achieve a genuine trans-European transport network (TEN-T) via new financing and new tariff rules for infrastructure.

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<sup>36</sup> EEA – Joint Parliamentary Committee (2012), *Report on the White Paper on a Single European Transport Area*, May 2012

- 3) Reduce greenhouse gas emissions through modal shift and new technologies.
- 4) Reduce dependence on oil without sacrificing mobility.
- 5) Integrate the transport sector into the global market to protect European interests

The main significant outcomes of the White Paper **by 2050** would be:

- a reduction of at least 60% (in relation to 1990) in climate gases emissions from the transport sector;
- the phasing out of 'conventionally-fuelled' cars in cities;
- the setting up of a 'core-network' of multimodal infrastructures connecting the main urban and economic centres of the continent; or
- a 50% shift of medium distance intercity passenger and freight journeys from road to rail and waterborne transport.

#### 3.3.1.3. *Other relevant EU strategies*

The **Europe 2020 Energy Strategy** aimed at promoting a "Resource-efficient Europe" and had the commitment to deliver the 20-20-20 targets on greenhouse gas emissions, renewable energy and energy savings. On 27 March 2013, the European Commission launched a Green Paper on "**A 2030 framework for climate and energy policies**" (COM (2013) 169), aiming at developing a new framework for energy and climate policies, taking into account the current situation and achievements of Energy 2020, the Energy Roadmap 2050 (promoting low carbon economy) and the White Paper on Transport. The consultation on the Green Paper took place in summer 2013.

In the "**Europe, the world's No 1 tourist destination – a new political framework for tourism in Europe**" (COM (2010) 352) the Commission sets four priorities for action on tourism:

- stimulate competitiveness in the European tourism sector
- promote development of sustainable, responsible, high-quality tourism
- consolidate Europe's images as a collection of sustainable, high-quality destinations
- maximise the potential of EU financial policies for developing tourism.

In this framework, the Commission foresees the development of a Strategy for sustainable coastal and marine tourism.

### 3.3.2 **National strategies and policies**

The general goal of the Transport Development Strategy is to achieve an efficient and sustainable transport system in the territory of the Republic of Croatia, taking into account the new role of the country after its accession to the European Union in July 2013. In this framework the Strategy comprises measures of infrastructure, technological, and organisational character. It is obvious that the Strategy has close relationship and /or should be coherent with the current strategies of

the country related to other sectors. Furthermore, the implementation of the strategy influences the fulfilment of the country's obligations regarding several policy fields. The main relevant strategies and policies are presented in the following paragraphs.

#### 3.3.2.1. *Croatian Environmental Strategy*

Pursuant to Article 44 of the Environmental Protection Act (Official Gazette 110/07), the Croatian Parliament at its session on 20 February 2009 adopted the "Strategy for Sustainable Development of the Republic of Croatia"

The major objectives of the ***Croatian Strategy for sustainable Development*** (OG 30/2009) are:

- nature protection, which implies the conservation of biological and landscape diversity and protection of natural values;
- sustainable economic development that would have as little impact as possible on nature degradation and waste production;
- quality and stable energy supply with necessary reduction of negative impacts on the environment and society – this implies increasing the share of energy production from renewable energy sources and implementation of energy efficiency measures in all sectors;
- promotion of cleaner fuels and more sustainable transport technologies;
- sustainable management of the Adriatic sea, coast and islands and conservation of marine ecosystems.

The main environmental specific targets of the Strategy are<sup>37</sup>:

- Reduce the loss of marine and coastal biodiversity and increase the number of protected areas;
- Demine all mine infested areas as soon as possible;
- Preserve water quality and prevent pollution, including wastewater treatment, improve the national level of coverage by the public water supply (increase the supply rate to 85-90%), improve the level of wastewater treatment and sewage network availability, increase the quality of the flood protection system, take account of renewability of resources and increase protection of sensitive aquatic and water-dependent ecosystems as well as marine and coastal ecosystem;
- By 2010 reduce quantities of finally landfilled waste as well as generated hazardous waste by approx. 20% in comparison to 2000
- Increase the share of arable land from the present 1,092,000 ha to 1,800,000 ha, by using uncultivated land that presently amounts to 947,000 ha;

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<sup>37</sup> EEA (2011), *2011 Survey of resource efficiency policies in EEA member and cooperating countries, country profile: Croatia, May 2011*

- By 2013 increase the share of areas used for ecological production (including pastures and forests) to at least 5% and support the development of the market for ecological products
- 20% of renewable energy sources in final energy consumption up to 2020;
- 20% decrease in greenhouse gas emissions (in comparison to 1990) up to 2020
- 10% of bio fuels in the total consumption of petrol and diesel fuel up to 2020;
- through implementation of the energy efficiency measures reducing direct energy consumption by 9% in the period of 2008 – 2016 (compared to the average consumption in the period 2001 - 2005);

The recent **Environmental Protection Act** (OG 80/2013) sets the environmental objectives:

- Protection of life and health,
- protection of wildlife, geodiversity, biodiversity and landscape diversity and the preservation of ecological stability,
- protection and improvement of the quality of individual components of the environment,
- protection of the ozone layer and climate change mitigation,
- Protection and restoration of cultural and aesthetic value of the landscape,
- Prevention of major accidents involving dangerous substances
- prevention and reduction of environmental pollution,
- Sustainable use of natural resources,
- Energy efficiency and promotion of the use of renewable energy,
- Elimination of the impacts of environmental pollution,
- Improvement of the disturbed natural balance and restoration of its ability to regenerate,
- achievement of sustainable production and consumption,
- Ceasing of use and substitution of hazardous and toxic substances,
- Ensuring long-term sustainability and development,
- Improving the environment and ensuring a healthy environment.

The Act sets the principles for environmental protection, according to each environmental issue, as well as the main principles for environmental impact protection and strategic environmental impact protection. The SEA process is according to the Regulation on Strategic Environmental Assessment on Plans and Programmes (OG 64/2008).



The **Strategy and Action Plan for the Protection of Biological and Landscape Diversity of the Republic of Croatia** (OG 143/2008) is the fundamental document for nature protection. It sets the principal objectives for the protection of natural environment of the country:

1. conserve overall biological, landscape and geological diversity as an underlying value and potential for further development of the Republic of Croatia;
2. meet all obligations arising from the process of integration into the European Union and alignment of the national legislation with the relevant EU directives and regulations (Habitats Directive, Birds Directive, CITES Regulations);
3. fulfil the obligations arising from international treaties in the field of nature protection, biosafety, access to information, etc.;
4. ensure integral nature protection through co-operation with other sectors;
5. establish and evaluate the state of the biological, landscape and geological diversity, set up a nature protection information system with a database connected to the state's information system;
6. encourage promotion of institutional and non-institutional ways to educate the public about biodiversity, and improve public participation in decision-making processes;
7. develop legislation implementation mechanisms by strengthening legislative and institutional capacities, education, development of scientific resources, information, and the development of funding mechanisms.

Especially for the transport sector, the Strategy sets the strategic objective "Reduce the impact of transport infrastructure on wild taxa and natural habitats" and foresees two strategic guidelines:

- Systematically monitor the impact of roads, railways and other communications on taxa and habitats
- Ensure permeability of constructed and planned roads for wildlife in order to enable daily movements and seasonal migration

The new **Nature Protection Act** (Official Gazette No. 80/2013) sets the main objectives and tasks for nature protection:

- To preserve and / or restore biodiversity, landscape diversity and geo-diversity in the state of natural balance and coordinated relationships with human activities,
- Identify and monitor the state of nature,
- Provide a system of nature protection for its permanent preservation,
- To ensure sustainable use of natural resources without significantly damaging the parts of nature and with the least possible disruption of its components,
- Contribute to the conservation of the natural soil, safeguarding the quality, quantity and availability of water, preserving the atmosphere and producing oxygen and protect our climate,
- Prevent or mitigate adverse human activities and disturbances in nature as a result of technological development and activities.

The **Waste Management Strategy** (OG 130/2005) sets the principal objectives for waste management in Croatia:

- harmonize national legislation with the EU legislation and take measures to ensure its enforcement/implementation;

- provide for proper education in the sphere of environment and waste management;
- avoid generation of waste - reduce quantities and harmful properties of waste;
- make greater use of fees charged for environmental impacts of waste generation;
- allocate greater funding for waste management;
- encourage separate collection of waste;
- improve the existing landfill sites;
- increase the quality and volume of data about the quantity of waste and waste streams;
- build waste treatment facilities and installations;
- increase the proportion of controlled collection and disposal of waste.

Especially for construction/ demolition waste (which are produced during construction phase of transport infrastructure) the Waste Management Strategy sets the following guidelines:

- educate and inform all participants in the construction waste management process,
- prevent uncontrolled disposal of construction waste in municipal landfills and elsewhere,
- establish full control over construction waste streams, from the place of waste generation to the place of final use/disposal, including improvement of the information system,
- introduce recovery systems for all types of construction waste and for up to 80 percent of total quantities,
- encourage use of construction materials that are environment-friendly,
- regulate construction waste management through implementation regulations and namely:
  - specify the obligation to plan construction waste management in the period following removal of a built facility, and
  - specify the obligation to also plan such management for other construction waste situated on the same lot,
- inspect, at the county level, all landfills in which construction waste is disposed of; based on the analysis of data about all landfills, use appropriate landfills for the disposal of inert waste, while other landfills must be improved and closed down,
- make sure that maximum quantities of construction waste are submitted to recovery and/or recycling so as to obtain new construction materials which are, by their quality, equal to other construction materials,
- inert landfill sites will be opened in individual counties and in the City of Zagreb - either as separate sites or next to municipal waste landfills; as a rule, they will be organized in the scope of waste management centres and will have mobile or stationary treatment facilities; in the transition period, portions of municipal landfills may be used for sorted and recovered construction waste as needed for some parts of landfills (subject to approval by the competent authority),
- advance and improve the system for the separate collection and recycling of individual types of construction waste, and establish centres for the recovery and disposal of construction waste.

Concerning **water**, Croatian **water management strategy** ("Official Gazette" No. 91/08.) and the Water Act ("Official Gazette" No. 153/09. and 130/11.) and the Law on Financing Water Management ("Official Gazette" No. 153/09.) are the legal framework of water policy in Croatia. The framework includes long-term measures in the provision of water services to public water supply and public sanitation through the implementation of water-utility Directives (Council Directive on Waste Water Treatment (91/271/EEC of 21 May 1991.) and Council Directive on the

quality of water intended for human consumption 98/83/EC of 3 November 1998.). The Decision on the adoption of River Basin Management Plans (OG 82/2013) sets the principles and guidelines for River Basin Management Plans according to the Water Framework Directive. Furthermore, the Regulation of water quality standards (Official Gazette 73/2013 ) lays down the standard of water quality in surface waters, including coastal waters and territorial sea water and groundwater according to the provisions of the Directives 2000/60/EC (water framework Directive), 2008/105/EC (on Environmental Quality Standards), 2006/118/EC (on the protection of groundwater against pollution and deterioration).

The **National Strategic Plan for the development of aquaculture** for the period 2014-2020 aims at an economically, socially and environmentally sustainable aquaculture till 2020 and sets goals for aquaculture production.

The **Energy Strategy** of the Republic of Croatia was adopted by the Croatian Parliament in 2009 for the period until 2020 in order to harmonize national energy goals with goals and time framework of strategic documents of the European Union. The adoption of the Energy Strategy Implementation Program with associated measures is still in process. The goal of the Strategy was to create sustainable energy system that will make a balanced contribution to the security of energy supply, competitiveness and environmental protection in Croatia. Specifically for transport, the Strategy foresees a 10% share of renewable energy sources in 2020 used in all types of transport in comparison with final gasoline and diesel fuel, biofuel consumption in road and railway transport and total electricity consumption in transport.

#### 3.3.2.2. Operational Program "Transport" 2007-2013

The overall objective of the Operational Program Transport (TOP) is the development of modern transportation networks and increased accessibility of the regions.

The TOP foresees three priority axes within ERDF allocation of 236.98 million Euros. The axes are:

**Priority Axis 1:** Modernisation of railway infrastructure and Project preparation in transport sector

The goal of the Priority Axis 1 is to develop and upgrade Croatian transport network for the TEN-T in order to enable Croatia to connect more comprehensively and effectively with European transport networks and at the same time to harmonize technical standards and operability standards with those of the European Union. The activities will be performed in the following areas:

- Upgrade of Croatian railway network in parts which are located on or connected to the TEN-T corridors.
- Development of multi-modal transport network and improvement of its connection with the TEIY-T corridors

**Priority Axis 2:** Upgrading Croatia's inland waterway system

The goal of Priority Axis 2 is to restore and improve connection of Croatia inland waterway network and ports with the European inland waterway network. The activities related to the development of inland waterways will be focused on:

- improving the traffic control system and safety of the Croatian inland waterway network with the implementation of Sava river information system (RIS),
- preparing of the project with the aim of upgrading the class of the Sava river international waterway which is currently at a lower class than that that required;
- preparing of projects with the aim of modernizing and reconstructing the inland waterway port infrastructure in ports Vukovar, Osijek, Slavonski Brod and Sisak.

### **Priority Axis 3: Technical Assistance**

The goal of Priority Axis 3 is to ensure complete, effective and efficient use of instruments allocated for the TOP, in conformity with relevant regulations and procedures in the EU. The activities planned for this axis should provide the necessary level of technical assistance in implementation of other priority axes and procedures mentioned in the TOP.

The TOP envisaged the following list of major projects:

- Upgrade and construction of the second track on Dugo Selo – Križevci railway section
- Construction of a new suburban traffic railway line on Gradec - Sv. Ivan Žabno railway section
- Construction of a new electrified single-track railway line, Podsused - Samobor railway section

## 4. ENVIRONMENTAL OBJECTIVES

### 4.1 Critical Environmental Issues in Croatia

The assessment of the current state of the environment (Chapter 3) shows that environment of Croatia is in general terms at a good state with no extreme problems.

Air quality is generally good with some exceedences occurring in cities or near large point sources. The most widespread problem is the atmospheric pollution of particulate matter, due to transport, large combustion plants and large point sources. Air quality is systematically monitored by a network of monitoring stations.

Noise is not systematically monitored in Croatia, with the exception of measurements having been made at local level by local authorities as well as by Zagreb airport. Areas with increased noise levels include highways, urban agglomerations (due to traffic), ports and airports. The strategic noise mapping is under development. The main disadvantage of conducting systematic noise protection measures and reduce the harmful effects of noise on human health is the lack of funding for noise mapping at the local level and at the level of other taxpayers noise mapping, as well as the inclusion of data from noise maps and action plans in space planning documents.

The Republic of Croatia is abundant in water resources available for use for various purposes, and the quality of ground water is characterized as good / moderate compared to the oxygen and nutrients, and in some cases the problem is in relation to microbiological contamination. The main pressures are discharging untreated waste water, pollution, hazardous substances, excessive water use in individual cases and water pollution by nitrates from agricultural sources. State waters are regularly monitored. Croatia continues with the implementation of the provisions of the Water Framework Directive and other water directives in accordance with the River Basin Management Plan.

Sea bathing is in most cases of excellent quality. The main pressures to Adriatic Sea are the disposal of solid waste and wastewater by municipal and industrial sources.

Although there are limited relevant data, soil faces threats such as erosion, increased soil acidity, reduced nutrient bioavailability, contamination by heavy metals etc., while there still mine suspected areas, although their total area decrease due to mine clearance programs. Contaminated lands generally include landfills, industrial sites and power generation facilities (black spots).

Concerning biodiversity, Croatia possesses a great diversity of terrestrial, marine and underground habitats and is home to a considerable part of the populations of many species endangered at the European level. The main threats are conversion of natural habitats into building or agricultural land, as well as construction of roads and other communications, which frequently causes habitat fragmentation. Croatia has many protected areas, categorised under 10 different categories, of a total area of 689.709,65 ha . The final list of Natura 2000 sites contains 744 pSCIs (proposed Sites of Community Interest) (of which 208



sites are caves and pits) and 40 SPAs (Special Protection Areas), while Croatia has 5 sites designated as Wetlands of International Importance (RAMSAR list).

Croatia has important cultural heritage of all periods of the European history with 6 cultural sites inscribed in the World Heritage List, while 17 more are in the Tentative List.

Although the population of Croatia is declining there is a trend of urbanisation. Tourist sector is increasing and poses additional pressure to the environment especially at the coastal areas.

Croatia's legislation is compliant to the EU. The country, through sectorial strategies developed in the last years, has set environmental targets according to the EU principles.

Taking into consideration the environmental state of Croatia, the priorities for assessing the Transport Strategy are:

- Preservation and / or improvement of quality of inland waters
- Preservation and / or improvement of quality of sea water (with special emphasis on the degradation of the coastal waters at ports due to water stagnation and eutrophication)
- Preservation of biodiversity, protection of species and habitats
- Achievement of low noise levels especially in urban areas
- Low levels of particulate matter emissions both during construction and operation of the transport infrastructure

## 4.2 Determination of environmental objectives

The SEA objectives have been set in the framework of the Scoping Report taking into account the following issues:

- Current state and future trends of the environment in Croatia – Priority environmental issues, i.e.
  - Preservation and / or improvement of the significant natural environment of the country
    - Preservation and / or improvement of quality of inland waters
    - Preservation and / or improvement of quality of sea water (with special emphasis on the degradation of the coastal waters at ports due to water stagnation and eutrophication)
    - Preservation of biodiversity, protection of species and habitats
  - Protection of the cultural / historical heritage
  - Protection of the human health and well-being
    - Achievement of low noise levels especially in urban areas

- Low levels of particulate matter emissions both during construction and operation of the transport infrastructure
- Potential impacts of the transport activities
- EU and National environmental objectives
  - Compliance with the EU strategies and policies, as well as with commitments related to international agreements (e.g. Kyoto protocol)
  - Coherence with the objectives of Croatian environmental policy

Table 4-1 presents the SEA objectives, as well as the indicators that will be used for assessing the impacts. Quantification of indicators is not always possible; however, impacts will be quantified to the most possible extent.

**Table 4-1: Environmental objectives and indicators for Strategic Environmental Assessment of the Transport Development Strategy in Croatia**




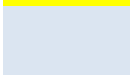

CATEGORY	OBJECTIVE	INDICATOR	TARGET
Air quality	Preservation of good air quality and reduction of transport emitted PM10	NOx emitted PM10 emitted Number of exceedences	Directive 2008/50/EC on ambient air quality and cleaner air for Europe  Directive 2001/81/EC on National Emission Ceilings (NECD) (EC, 2001a).
Climate change	Reduction of GHG emissions	CO2-eq emitted Application of Sustainable Urban Drainage Systems in new and improved infrastructure projects	Reduction of GHG emissions by 20% in comparison to 1990 For the application of drainage systems: To be defined by the National Strategy for Climate Change
Energy	Promote sustainable energy use	Total energy consumption of transport Fuel consumption per passenger-km Alternative fuel consumption	Decrease of final energy consumption by 10% in relation to average consumption for the period 2001-2005  10 % share of renewable energy in the transport sector, final energy consumption for each Member State (Directive 2009/28/EC on renewable energy (RED)  White Paper on Energy

			strategy of the Republic of Croatia (2009)
<b>Water</b>	Minimise pollution of surface waters and groundwater	Evaluation of water state	Directive 2000/60/EC
<b>Sea Water</b>	Minimise pollution on marine waters	Sea bathing water class	Directive 2006/7/EC
<b>Biodiversity and habitats, flora and fauna</b>	Minimise negative impacts on biodiversity & habitats	Land take in sensitive areas (km <sup>2</sup> ) Changes in traffic (pass.-km) in sensitive areas  Number of biodiversity enhancement schemes implemented through transport related activities (e.g. native species planting on roadsides, implementation of green/bio bridges)	0 land take in sensitive areas, excluding foreseen and regulated activities
<b>Noise</b>	Avoidance of exposure to levels which endanger health or quality of life	Population exposed to transport noise	Directive 2002/49/EC on environmental noise
<b>Soil</b>	Reduce negative impacts on soil damage (pollution, displacement)	The number of cases of pollutions	Agricultural Land Act (Official Gazette, 39/13) and safety measures of projects The goals for the Regulations on the methodology for monitoring the status of agricultural land
<b>Cultural heritage</b>	Minimise impact on cultural and historic environment	Proximity of transport infrastructure Number of designated buildings and cultural monuments at risk from transport	Minimisation of visual and aesthetic impact
<b>Land use</b>	Minimise adverse effects on land use- change of use	Land take by transport infrastructure mode (km <sup>2</sup> )	The goals are set by the Law on Agricultural Land (Official Gazette, 39/13) Objectives are set zoning and urban planning
<b>Material assets</b>	Make best use of existing infrastructure and promote the sustainable development of new infrastructure	Rate of reuse and recycle of materials Ratio of environmental friendly construction materials Land property affected (km <sup>2</sup> )	Targets of waste management strategy of Croatia
<b>Waste production</b>	Minimisation of waste production Adoption of integrated environmental friendly waste	Change of quantity of construction waste Proportion of construction /	Targets set by EU waste management directives. Targets of waste management strategy of

	management practices (including hazardous waste management, such as asphaltic material)	deconstruction waste that is reused / recycled. Increase of the service rate of the waste / wastewater infrastructure	Croatia
<b>Population</b>	Promotion of sustainable transport modes	Population using Public Transport and environmental friendly transport means. % of freight being transported by sustainable transport modes such as rail or water.	50% shift of medium distance intercity passenger and freight journeys from road to rail and waterborne transport (EU White paper on Transport)
<b>Human health</b>	Protection against recognised health risk for air pollution Minimise transport accidents	Population exposed to air pollution  Traffic accidents involving personal injury	Targets of the Directive 2008/50

The internal compatibility of the Strategic Environmental Objectives has been examined to identify potential areas of conflict in relation to each objective so that subsequent decisions can be well based. The internal compatibility of the SEA objectives is presented in the

Table 4-2, where:

	The objectives are strongly compatible (they have direct relationship, i.e the fulfilment of one target directly leads to the fulfilment of the other)
	The objectives are partly compatible (they have indirect relationship, i.e the fulfilment of one target has results that promote the fulfilment of the other )
	The compatibility is uncertain (i.e the compatibility depends on way the target in examination is fulfilled, may have positive or negative results)
	There is no obvious relationship between the objectives
	The objectives are incompatible

In general the SEA objectives are either compatible or irrelevant. There is uncertainty depending on how the objectives will be fulfilled in the case of promotion of new infrastructure that may have negative impacts on the land use, biodiversity, soil and cultural heritage.



Table 4-2: Internal compatibility of SEA objectives

Preservation of good air quality and reduction of transport emitted PM <sub>10</sub>																
Reduction of GHG emissions																
Promote sustainable energy use																
Minimise pollution of fresh surface waters and groundwater																
Minimise pollution on sea water																
Minimise negative impacts on biodiversity & habitats																
Avoidance of exposure to noise levels which endanger health or quality of life																
Minimise negative impacts on soil																
Minimise impact on cultural and historic environment																
Minimise adverse effects on land use																
Make best use of existing infrastructure and promote the sustainable development of new infrastructure																
Minimisation of waste production																
Adoption of integrated environmental friendly waste management practices (including hazardous waste management, such as asphaltic material)																
Promotion of sustainable transport modes																
Protection against recognised health risk for air pollution																
Minimise transport accidents																
	Preservation of good air quality and reduction of transport emitted PM <sub>10</sub>	Reduction of GHG emissions	Promote sustainable energy use	Minimise pollution of fresh surface waters and groundwater	Minimise pollution on sea water	Minimise negative impacts on biodiversity & habitats	Avoidance of exposure to noise levels which endanger health or quality of life	Minimise negative impacts on soil	Minimise impact on cultural and historic environment	Minimise adverse effects on land use	Make best use of existing infrastructure and promote the sustainable development of new infrastructure	Minimisation of waste production	Adoption of integrated environmental friendly waste management practices (including hazardous waste management, such as asphaltic material)	Promotion of sustainable transport modes	Protection against recognised health risk for air pollution	Minimise transport accidents

### 4.3 Assessment of TDS objectives against SEA objectives

The SEA assessment process involves testing of the TDS objectives against the SEA objectives. This is a preliminary “assessment” of the TDS. It is used as an indicator of consistency and to highlight any areas where there is the potential for conflict. The assessment does not include, or take into consideration, any measures that will be developed under the TDS objectives.

The vision of the TDS is the enhancement of the country's economy and development through the provision of an intermodal, sustainable, efficient and safe transport system. The TDS has the following general objectives:

OBJECTIVES	SUB-OBJECTIVES
<b>1 Improvement of transport connectivity and coordination with neighbouring countries</b>	1a Border bottlenecks elimination
	1b Improvement of international passengers long distance accessibility (including transit traffic)
	1c Improvement of international freight accessibility (including transit traffic)
<b>2 Improvement of passengers long distance accessibility inside Croatia</b>	2a Improvement of passengers long distance accessibility - Central Croatia (Zagreb)
	2b Improvement of passengers long distance accessibility - Northern Adriatic (Rijeka)
	2c Improvement of passengers long distance accessibility - Eastern Croatia (Osijek - Slavonski Brod)
	2d Improvement of passengers long distance accessibility - Northern and Central Dalmatia (Split - Zadar)
	2e Improvement of passengers long distance accessibility - Southern Dalmatia (Dubrovnik)
<b>3 Improvement of the passenger regional connectivity in Croatia enhancing territorial cohesion</b>	3a Improving the regional connectivity on the mainland
	3b Improving the regional connectivity to/from/between the islands
<b>4 Improvement of the passengers accessibility to and within the main urban agglomerations</b>	4a Improvement of the passengers accessibility - Zagreb node
	4b Improvement of the passengers accessibility - Rijeka node
	4c Improvement of the passengers accessibility - Zadar node
	4d Improvement of the passengers accessibility - Split node
	4e Improvement of the passengers accessibility - Osijek node
	4f Improvement of the passengers accessibility - Dubrovnik node
<b>5 Improvement of freight accessibility inside Croatia</b>	5a Improvement of freight accessibility - Central Croatia (Zagreb)
	5b Improvement of freight accessibility - Northern Adriatic (Rijeka)
	5c Improvement of freight accessibility - Eastern Croatia (Osijek - Slavonski Brod)

<b>6 Improvement of the Transport System Organisational and Operational setup to ensure the efficiency and sustainability of the system</b>	5d Improvement of freight accessibility - Northern and Central Dalmatia (Split - Zadar)
	5e Improvement of freight accessibility - Southern Dalmatia (Dubrovnik)
	6a Adaptation of the legislation, rules and standards to the European requirements and best practice
	6b Improvement of the system organisational setup and cooperation between relevant stakeholders
	6c Improvement of the system operational setup
	6d Improvement of the safety of the transport system
	6e Reduction/mitigation of the environmental impact
	6f Improvement of the energy efficiency
	6g Financial sustainability of the transport system

The assessment of the TDS Objectives against the SEA objectives has been done with the use of a 5-stage scale:

	The objective of the TDS is strongly compatible with the objective of the SEA, i.e the objective of the TDS directly promotes the fulfilment of the SEA objective
	The objective of the TDS is partly compatible with the objective of the SEA, i.e the fulfilment of the TDS objective indirectly results to the fulfilment of the SEA objective
	The compatibility of the objective of the TDS with the objective of the SEA is uncertain, i.e they may be compatible or incompatible according to the way of implementation of the measures serving the TDS objective
	The objective of the TDS has no obvious relationship with the objective of the SEA
	The objective of the TDS is incompatible with the objective of the SEA, i.e the fulfilment of the TDS objective threatens the fulfilment of the SEA objective.

The overall assessment of the objectives of the TDS against the SEA objectives (i.e taking into account all combinations of assessment TDS-SEA) is presented in the Table 4-3 (see detailed table in the end of the chapter –Table 4-5).

**Table 4-3: Overall Compatibility of TDS objectives with SEA objectives**

Characterization		%
	The objectives are strongly compatible	9%
	The objectives are partly compatible	34%
	The compatibility of objectives is uncertain	41%
	The objectives have no obvious relationship	17%
	The objectives are incompatible	0%

The assessment results for each objective are presented in the following table:

Table 4-4: Compatibility assessment of TDS objectives against SEA objectives

TDS OBJECTIVES						
<b>1</b>	<b>Improvement of transport connectivity and coordination with neighbouring countries</b>					
<b>1a</b>	<i>Border bottlenecks elimination</i>	20%	7%	0%	73%	0%
<b>1b</b>	<i>Improvement of international passengers long distance accessibility (including transit traffic)</i>	0%	47%	60%	0%	0%
<b>1c</b>	<i>Improvement of international freight accessibility (including transit traffic)</i>	0%	47%	53%	7%	0%
<b>2</b>	<b>Improvement of passengers long distance accessibility inside Croatia</b>					
<b>2a</b>	<i>2a Improvement of passengers long distance accessibility - Central Croatia (Zagreb)</i>	0%	47%	53%	0%	0%
<b>2b</b>	<i>Improvement of passengers long distance accessibility - Northern Adriatic (Rijeka)</i>	0%	47%	53%	0%	0%
<b>2c</b>	<i>Improvement of passengers long distance accessibility - Eastern Croatia (Osijek - Slavonski Brod)</i>	0%	47%	53%	0%	0%
<b>2d</b>	<i>Improvement of passengers long distance accessibility - Northern and Central Dalmatia (Split - Zadar)</i>	0%	47%	53%	0%	0%
<b>2e</b>	<i>Improvement of passengers long distance accessibility - Southern Dalmatia (Dubrovnik)</i>	0%	47%	53%	7%	0%
<b>3</b>	<b>Improvement of the passenger regional connectivity in Croatia enhancing territorial cohesion</b>					
<b>3a</b>	<i>Improving the regional connectivity on the mainland</i>	0%	31%	56%	13%	0%
<b>3b</b>	<i>Improving the regional connectivity to/from/between the islands</i>	0%	6%	88%	0%	0%
<b>4</b>	<b>Improvement of the passengers accessibility to and within the main urban agglomerations</b>					
<b>4a</b>	<i>Improvement of the passengers accessibility - Zagreb node</i>	0%	38%	56%	0%	0%
<b>4b</b>	<i>Improvement of the passengers accessibility - Rijeka node</i>	0%	38%	56%	0%	0%

TDS OBJECTIVES						
4c	Improvement of the passengers accessibility - Zadar node	0%	38%	56%	0%	0%
4d	Improvement of the passengers accessibility - Split node	0%	38%	56%	0%	0%
4e	Improvement of the passengers accessibility - Osijek node	0%	38%	56%	0%	0%
4f	Improvement of the passengers accessibility - Dubrovnik node	0%	38%	56%	0%	0%
5	<b>Improvement of freight accessibility inside Croatia</b>					
5a	Improvement of freight accessibility - Central Croatia (Zagreb)	0%	38%	56%	0%	0%
5b	Improvement of freight accessibility - Northern Adriatic (Rijeka)	0%	38%	56%	0%	0%
5c	Improvement of freight accessibility - Eastern Croatia (Osijek - Slavonski Brod)	0%	38%	56%	0%	0%
5d	Improvement of freight accessibility - Northern and Central Dalmatia (Split - Zadar)	0%	38%	56%	0%	0%
5e	Improvement of freight accessibility - Southern Dalmatia (Dubrovnik)	0%	38%	63%	0%	0%
6	<b>Improvement of the Transport System Organisational and Operational setup to ensure the efficiency and sustainability of the system</b>					
6a	Adaptation of the legislation, rules and standards to the European requirements and best practice	94%	0%	0%	0%	0%
6b	Improvement of the system organisational setup and cooperation between relevant stakeholders	0%	44%	6%	44%	0%
6c	Improvement of the system operational setup	13%	19%	0%	63%	0%
6d	Improvement of the safety of the transport system	6%	50%	0%	38%	0%
6e	Reduction/mitigation of the environmental impact	81%	6%	0%	6%	0%
6f	Improvement of the energy efficiency	13%	38%	0%	44%	0%
6g	Financial sustainability of the transport system	6%	0%	0%	88%	0%

The main conclusions that are derived by this assessment are the following:

- ❖ In general, the TDS objectives are in the spirit of development of sustainable transport and compliant to the European relevant policy.
- ❖ None of the TDS objectives is incompatible with the SEA objectives.
- ❖ All objectives are partly compatible with the SEA objective of the promotion of sustainable transport modes, since they promote accessibility and territorial cohesion.
- ❖ There is a high percentage of uncertainty, especially for the TDS objectives 2, 3, 4 and 5 due to the fact that the fulfilment of these objectives will most likely entail the construction and/or expansion of transport infrastructure, and thus will probably have negative impacts on the biodiversity, habitats and land uses, as well as impacts (positive or negative) on air quality, noise and climate change that cannot be foreseen at this stage. The potential impact of these interventions strongly depends on several factors, such as how the intervention will be realized, the modal shift that is probably promoted by them, the new transport pattern after the completion of them, etc. More detailed analysis that would reduce the level of uncertainty is not feasible at this stage, since the measures servicing these objectives should be assessed. This assessment is done at a further stage (see Chapters 5 and 6). Measures for addressing / offsetting the adverse impacts of the TDS measures are presented in the Chapter 7. By the adoption of such measures these objectives of the TDS can be fulfilled in an environmental friendly way.
- ❖ Objective 6 is fully or partly compliant with the SEA objectives, since it refers to ensuring the sustainability of the transport in the country, the adoption of European Standards and the improvement of the organization structure of the sector. Objective 6 is an “horizontal objective”, which one could say presents the spirit of the TDS, which is the improvement of the transport system of the country, according to the EU legislation, standards and best practice.
- ❖ In conclusion, even though a level of uncertainty exists (which can be offset by the specification of the interventions to be promoted), the TDS is focusing on the improvement of the Croatian transport in a sustainable way.



Table 4-5: Compatibility of TDS general objectives and SEA objectives






		SEA OBJECTIVES															
		Air Quality	Climate Change	Energy	Inland Water	Sea water	Biodiversity and habitats, flora & fauna	Noise	Soil	Cultural heritage	Land use	Material assets	Waste production	Population	Human health		
TDS OBJECTIVES		Preservation of good air quality and reduction of transport emitted PM10	Reduction of GHG emissions	Promote sustainable energy use	Minimise pollution of fresh surface waters and groundwater	Minimise pollution of sea water	Minimise negative impacts on biodiversity & habitats	Minimise exposure to noise levels which endanger health or quality of life	Minimise negative impacts on soil	Minimise impact on cultural and historic environment	Minimise adverse effects on land use	Minimise adverse effects and promote the sustainable development of new infrastructure	Minimisation of waste production	Promotion of integrated environmental friendly waste management practices	Promotion of sustainable transport modes	Protection against recognised health risk for air pollution	Minimise transport accidents
1	Improvement of transport connectivity and coordination with neighbouring countries																
1a	Border bottlenecks elimination																
1b	Improvement of international passengers long distance accessibility (including transit traffic)																
1c	Improvement of international freight accessibility (including transit traffic)																
2	Improvement of passengers long distance accessibility inside Croatia																
2a	2a Improvement of passengers long distance accessibility - Central Croatia (Zagreb)																
2b	Improvement of passengers long distance accessibility - Northern Adriatic (Rijeka)																
2c	Improvement of passengers long distance accessibility - Eastern Croatia (Osijek - Slavonski Brod)																
2d	Improvement of passengers long distance accessibility - Northern and Central Dalmatia (Split - Zadar)																
2e	Improvement of passengers long distance accessibility - Southern Dalmatia (Dubrovnik)																
3	Improvement of the passenger regional connectivity in Croatia enhancing territorial cohesion																
3a	Improving the regional connectivity on the mainland																
3b	Improving the regional connectivity to/from/between the islands																
4	Improvement of the passengers accessibility to and within the main urban agglomerations																
4a	Improvement of the passengers accessibility - Zagreb node																
4b	Improvement of the passengers accessibility - Rijeka node																
4c	Improvement of the passengers accessibility - Zadar node																

TDS OBJECTIVES		SEA OBJECTIVES														
		Air Quality	Climate Change	Energy	Inland Water	Sea water	Biodiversity and habitats, flora & fauna	Noise	Soil	Cultural heritage	Land use	Material assets	Waste production	Population	Human health	
		Preservation of good air quality and reduction of transport emitted PM10	Reduction of GHG emissions	Promote sustainable energy use	Minimise pollution of fresh surface waters and groundwater	Minimise pollution of sea water	Minimise negative impacts on biodiversity & habitats	Minimise negative impacts on noise levels which endanger health or quality of life	Minimise negative impacts on soil	Minimise impact on cultural and historic environment	Minimise adverse effects on land use	Minimise adverse effects on material assets and promote the sustainable development of new infrastructure	Minimisation of waste production	Promotion of sustainable transport modes	Protection against recognised health risk for air pollution	Minimise transport accidents
4d	Improvement of the passengers accessibility - Split node															
4e	Improvement of the passengers accessibility - Osijek node															
4f	Improvement of the passengers accessibility - Dubrovnik node															
5	Improvement of freight accessibility inside Croatia															
5a	Improvement of freight accessibility - Central Croatia (Zagreb)															
5b	Improvement of freight accessibility - Northern Adriatic (Rijeka)															
5c	Improvement of freight accessibility - Eastern Croatia (Osijek - Slavonski Brod)															
5d	Improvement of freight accessibility - Northern and Central Dalmatia (Split - Zadar)															
5e	Improvement of freight accessibility - Southern Dalmatia (Dubrovnik)															
6	Improvement of the Transport System Organisational and Operational setup to ensure the efficiency and sustainability of the system															
6a	Adaptation of the legislation, rules and standards to the European requirements and best practice															
6b	Improvement of the system organisational setup and cooperation between relevant stakeholders															
6c	Improvement of the system operational setup															
6d	Improvement of the safety of the transport system															
6e	Reduction/mitigation of the environmental impact															
6f	Improvement of the energy efficiency															
6g	Financial sustainability of the transport system															

## 5. ASSESSMENT OF ALTERNATIVES

The methodology applied for the preparation of the TDS has led to the definition of measures which can contribute to the fulfilment of each TDS objective. For each objective, measures that clearly show a high degree of internal compatibility, are complementary with each other and proved to be necessary independently of the final decision on the preferred(s) mode(s), will be implemented since they do not compete with any other group of measures. These measures were grouped under the name "GENERAL". There are however, other measures that could allow progress to the fulfilment of a TDS objective. These constitute a second group of measures (alternatives) per transport mode.

In the framework of the SEA, these "alternative packages" per TDS objective are examined in order to comment on their compatibility with the SEA objectives, and to formulate recommendations for their implementation. The assessment is done according to the following scale:

	Totally in line with SEA objectives – the alternative package of measures is the one with the best environmental performance –Should be considered as the best alternative
	The alternative package is in line with SEA objectives. It promotes the implementation of the TDS objectives in an environmental friendly way.
	It is uncertain whether the implementation of the alternative package will promote the fulfilment of SEA objectives (may have positive or negative impacts depending on the way of implementation)
	No relationship with SEA objectives
	In contradiction with SEA objectives

The results are presented in the tables (5-1 to 5-28), while Table 5-29 presents the consolidated results of all alternatives.

Table 5-1 : Assessment of alternatives – Objective 1b

Objective	1b Improvement of international passengers long distance accessibility (including transit traffic)							
Alternatives	General Measures	Aviation Alternative		Public Transport (Rail and Road) Alternative		Road Alternative	Maritime Alternative	
Related TDS Measures	R.25, R.34, R.35, R.36, R.39, Ro.17, Ro.20, Ro.29, Ro.30, A.25, M.5, M.20, M.21, M.27, M.29, M.31 Potentially Ro.21, Ro.23, Ro.24, M.22	A.1, A.2, A.3, A.4, A.5, A.6, A.7, A.8, A.9, A.10		R.1, R.5, R.6, R.7, R.8, R.16, R.23, R.31, Ro.13		Ro.1, Ro.2, Ro.3, Ro.6, Ro.7, Ro.11, Ro.16	M.1, M.6, M.7, M.8, M.10, M.11, M.12, M.13, M.28	
SEA Review		A.9 A.10	A.1, A.2, A.3, A.4, A.5, A.6, A.7, A.8	R.31	R.1, R.5, R.6, R.7, R.8, R.16, R.23, Ro.13	Ro.1, Ro.2, Ro.3 Ro.6, Ro.7, Ro.11, Ro.16	M.28	M.1 M.6, M.7, M.8, M.10, M.11, M.12, M.13
SEA Comment		Implementation may have adverse effects on the environment		The alternative is general in line with the SEA objectives.		The alternative entails construction works that may have adverse effects on the environment.	The alternative comprises of measures that are in line with the SEA objectives (Such as modernization of vessels and improvement of intermodality). However, the creation of specialized ports and the development of other ports may have adverse (and cumulative) effects on the environment.	
Recommendations		The necessity of the infrastructure should be assessed by the use of specialized studies		Should be considered as priority alternative		The necessity of the infrastructure should be assessed	Measures referring to specialization of ports (M.8, M.9, M.12) should be examined within an integrated model of development of the coastal area, in order to avoid phenomena of over-exploitation and adverse effects mainly on water, landscape, cultural heritage	

Table 5-2: Assessment of alternatives – Objective 1c

Objective	1c Improvement of international freight accessibility (including transit traffic)									
Alternatives	General Measures	Aviation Alternative	Inland Waterways Alternative		Road Alternative	Maritime Alternative			Rail Alternative	
Related TDS Measures	<b>R.25, R.34, R.35, R.37, R.39, Ro.17, Ro.20, Ro.29, Ro.30, A.20, A.25, I.8, I.21, M.5, M.20, M.21, M.27, M.29, M.31</b> Potentially Ro.21, M.22	<b>A.10</b>	<b>I.1, I.2, I.3, I.4, I.7</b> Potentially I.5, I.6, I.11		<b>Ro.1, Ro.2, Ro.3, Ro.9, Ro.11, Ro.16</b> Potentially Ro.6, Ro.7	<b>M.1, M.2, M.8, M.9, M.12, M.28</b> Potentially M.4			<b>R.1, R.2, R.3, R.5, R.6, R.7, R.8, R.9, R.10, R.16, R.17, R.18, R.20, R.24, R.32</b>	
SEA Review		A.10	I.11	I.1, I.2, I.3, I.4, I.7 I.5, I.6	Ro.1, Ro.2, Ro.3, Ro.9, Ro.11, Ro.16 Ro.6, Ro.7	M.2, M.28, M.4	M.1	M.8, M.9, M.12	R.17, R.32	R.1, R.2, R.3, R.5, R.6, R.7, R.8, R.9, R.10, R.16, R.18, R.20, R.24
SEA Comment		The alternative comprises one additional measure which is in line with the SEA objectives as it promotes the PT for the access to the airports.	Promotion of inland water is within the priorities of EU transport policy. Additionally, the creation of dangerous goods terminal and waste management facilities is necessary for safety and environmental protection in ports		The alternative refers to infrastructure development and may have adverse effects on the environment, both during construction phase as well as during operation (land use, increased traffic etc.)	Within this alternative, measures referring to specialization of ports (M.8, M.9, M.12) should be examined within an integrated model of development of the coastal area, in order to avoid phenomena of over-exploitation and adverse effects mainly on water, landscape, cultural heritage. On the other hand, measures increasing intermodality (M.1, M.2) and promoting new vessel technologies and fuels (M.4, M.28) are totally in line with the SEA objectives			Rail alternative is in line with the SEA objectives and the EU transport policy	
Recommendations		It can be considered as additional alternative to inland	Should be considered as priority alternative		The necessity and feasibility of the road network	Under the condition of elaboration of the studies foreseen for the M8., M.9 and M.12 in the TDS, the alternative			Should be considered as priority alternative	

		water and rail.		elements should be assessed in the framework of relative studies. The alternative promotes road transport and consequently, taking into account the potential effects it is considered as less environmentally friendly.	promotes the fulfillment of the TDS objective	
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Table 5-3: Assessment of alternatives – Objective 2a

Objective	2a Improvement of passengers long distance accessibility - Central Croatia (Zagreb)				
Alternatives	General Measures	Aviation Alternative	Public Transport (Rail and Road) Alternative		Road Alternative
Related TDS Measures	R.25, R.34, R.35, R.36, R.39, Ro.17, Ro.20, Ro.21, Ro.29, Ro.30, A.20  Potentially Ro.8, Ro.23, Ro.24	A.9, A.10	R.7, R.8, R.14, R.15, R.16, R.23, R.31, Ro.12, Ro.13		Ro.33
SEA Review		A.9, A.10	R.31	R.7, R.8, R.14, R.15, R.16, R.23 Ro.12, Ro.13	Ro.33
SEA Comment		The alternative promotes sustainable transport and access to airports by PT	The improvement of infrastructure and services of rail sector promote the switch to a more sustainable and environmental friendly transport mode.		Promotes sustainability of the system
Recommendations		Should be considered as priority alternative	The alternative could be considered as a priority alternative after the assessment of the feasibility of the measures Ro12, Ro13 (as suggested in the TDS)		The relative study proposed in the TDS is a prerequisite.

Table 5-4: Assessment of alternatives – Objective 2b

Objective	2b Improvement of passengers long distance accessibility - Northern Adriatic (Rijeka)				
Alternatives	General Measures	Aviation Alternative		Road Alternative	
Related TDS Measures	<b>Ro.10, Ro.17, Ro.20, Ro.21, Ro.29, Ro.30, A.20</b> Potentially Ro.23, Ro.24	<b>A.2, A.6, A.10</b> Potentially A.4		<b>Ro.4, Ro.33</b>	
SEA Review		<b>A.10</b>	<b>A.2, A.6, A.4</b>	<b>Ro.33</b>	<b>Ro.4</b>
SEA Comment		The promotion of PT for the access to airports is in line with the SEA objectives. Development of the airports may have adverse effects		Ro.33 promotes sustainability of the system, while infrastructure development (Ro.4) may have adverse effects on the environment	
Recommendations		The necessity of the infrastructure should be assessed as proposed in the TDS		The relative studies proposed in the TDS are prerequisite.	

Table 5-5: Assessment of alternatives – Objective 2c

Objective	2c Improvement of passengers long distance accessibility - Eastern Croatia (Osijek - Slavonski Brod)					
Alternatives	General Measures	Aviation Alternative		Public Transport (Rail) Alternative		Road Alternative
Related TDS Measures	R.25,R.34, R.35, R.36,R.39, Ro. 17, Ro.20, Ro. 21, Ro.29, Ro.30, A.20  Potentially Ro.23, Ro.24	A.5, A.10		R.7, R.8, R.10, R.16, R.23, R.31		Ro.33
SEA Review		A.10	A.5	R.31	R.7, R.8, R.10, R.23, R.16	Ro.33
SEA Comment		The promotion of PT for the access to airports is in line with the SEA objectives. Development of the airport may have adverse effects		The improvement of infrastructure and services of rail sector promote the switch to a more sustainable and environmental friendly transport mode		Promotes sustainability of the system
Recommendations		The necessity of the infrastructure should be assessed as proposed in the TDS		Should be considered as priority alternative		The relative study proposed in the TDS is a prerequisite.

Table 5-6: Assessment of alternatives – Objective 2d

Objective	2d Improvement of passengers long distance accessibility - Northern and Central Dalmatia (Split - Zadar)				
Alternatives	General Measures	Aviation Alternative		Road Alternative	
Related TDS Measures	Ro. 15, Ro. 17, Ro.20, Ro.21, Ro. 29, Ro.30, A.20 Potentially Ro.23, Ro.24	<b>A.3, A.7, A.8, A.10</b> <b>Potentially A.4</b>		<b>Ro.4, Ro.16, Ro.33</b>	
SEA Review		A.10	A.3, A.7, A.8, A.4	Ro.33	Ro.4, Ro.16
SEA Comment		The promotion of PT for the access to airports is in line with the SEA objectives. Development of the airport may have adverse effects		Ro.33 promotes sustainability of the system, while infrastructure development (Ro.4) may have adverse effects on the environment	
Recommendations		The necessity of the infrastructure should be assessed as proposed in the TDS		The relative studies proposed in the TDS are prerequisite.	

Table 5-7: Assessment of alternatives – Objective 2e

Objective	2e Improvement of passengers long distance accessibility - Southern Dalmatia (Dubrovnik)				
Alternatives	General Measures	Aviation Alternative		Road Alternative	
Related TDS Measures	Ro.17, Ro.20, Ro.21, Ro.29, Ro.30, A.20 Potentially Ro.23, Ro.24	<b>A.1, A.10</b>		<b>Ro. 16, Ro.33</b>	
SEA Review		A.10	A.1	Ro.33	Ro. 16
SEA Comment		The promotion of PT for the access to airports is in line with the SEA objectives. Development of the airport may have adverse effects, but measure A.1 foresees the implementation of environmental protection and energy efficiency measures.		Ro.33 promotes sustainability of the system. Ro.16 is not yet mature for implementation	
Recommendations		Priority alternative for the achievement of the objective.		Elaboration of the studies considering Ro.16 as suggested in the TDS	

Table 5-8: Assessment of alternatives – Objective 3a

Objective	3a Improving the regional connectivity on the mainland						
Alternatives	General Measures	Aviation Alternative	Inland Waterways Alternative	Public Transport (Rail, Road and Urban) Alternative		Road Alternative	
Related TDS Measures	R.25, R.28, R.36, R.39, Ro.8, Ro.10, Ro.15, Ro. 17, Ro.20, Ro.21, Ro.23, Ro.24, I.8, U.1, U.4, U.5, U.11, U.13, U.15, U.18, U.21 Potentially I.9	<b>A.13</b>	<b>I.1, I.2</b>  <b>Potentially I.3, I.4, I.5, I.6, I.7</b>	<b>R.1, R.2, R.4, R.5, R.7, R.10, R.12, R.14, R.15, R.16, R.17, R.18, R.19, R.23, R.31, Ro.12, Ro13, U.2, U.3, U.14, U.17</b>		<b>Ro.1, Ro.2, Ro.3, Ro.5, Ro.9, Ro.16, Ro.18, Ro.33</b>  <b>Potentially Ro.6, Ro.7</b>	
SEA Review				<b>R.17, R.31, U.17</b>	R.1, R.2, R.4, R.5, R.7, R.10, R.12, R.14, R.15, R.16, R.18, R.19, R.23, U.2, U.3, U.14 Ro.12, Ro13	Ro.18, Ro.33	<b>Ro.1, Ro.2, Ro.3, Ro.5, Ro.9, Ro.16, Ro.6, Ro.7</b>
SEA Comment		The compatibility with the SEA depends on the way of implementation.	The alternative is in line with the SEA objectives as it promotes inland waterways	The alternative is in line with the SEA objectives, since it promotes PT		The alternative comprises infrastructure development that may have adverse impacts on the environment.	
Recommendations		Needs to be clarified.	Priority alternative. Promotes the fulfillment of the TDS objective in an environmentally friendly way	The alternative could be considered as a priority alternative after the assessment of the feasibility of the measures Ro12, Ro13 (as suggested in the TDS)		As it promotes road transport, this alternative is not considered to be of priority.	

Table 5-9: Assessment of alternatives – Objective 3b

Objective	3b Improving the regional connectivity to/from/between the islands						
Alternatives	General Measures	Aviation Alternative	Public Transport (Urban and Maritime) Alternative			Road Alternative	Maritime Alternative
Related TDS Measures	Ro.10, Ro.15, Ro.17, Ro.21, Ro.23, Ro.24 M.5, M.20, M.21, M.26, M.27, M.31, U.1, U.11, U.13, U.15, U.18, U.21 Potentially M.22, U.5	A.13	U.14, U.17, M.6 Potentially U.2, U.3			Ro.18, Ro.33	M.1, M.7, M.8, M.10, M.11, M.12, M.13, M.28 Potentially M.14
SEA Review		A.13	U.17, U.2, U.3	U.14	M.6	Ro.18, Ro.33	M.1, M.28 M.7, M.8, M.10, M.11, M.12, M.13, M.14
SEA Comment		The compatibility with the SEA depends on the way of implementation.	The alternative promotes intermodality and combination of on demand PT services and development of port infrastructure. In general it is in line with the SEA objectives			The alternative comprises measures that are in line with the SEA objectives	The alternative comprises interventions that promote intermodality and maritime transport, modernization of vessels (M.1, M.28) as well as measures about specialization of ports that should be carefully examined due to the potential effects that they may have.
Recommendations		Needs to be clarified.	Under the condition of careful design of interventions at ports(M.6), this alternative is considered as the most environmental friendly.			The relative study (Ro.33) proposed in the TDS is a prerequisite.	The necessity and feasibility of the measures for port specialization should be carefully examined, in order to avoid over-exploitation of the coastal area



Table 5-10: Assessment of alternatives – Objective 4a

Objective	4a Improvement of the passengers accessibility - Zagreb node				
Alternatives	General Measures	Public Transport (Rail, Road, Urban) Alternative		Road Alternative	
Related TDS Measures	R.25, R.28, R.36, R.39, Ro.9, Ro.17, Ro.20, Ro.21, Ro.23, Ro.24, U.1, U.4, U.5, U.11, U.13, U.15, U.18, U.21	<b>R.1, R.2, R.5, R.7, R.11, R.14, R.15, R.16, R.17, R.18, R.23, R.31, Ro.12, Ro.13, U.2, U.3, U.17</b> <b>Potentially U.14</b>		<b>Ro.5, Ro.18, Ro.33</b>	
SEA Review		R.17, U.17	<b>R.1, R.2, R.5, R.7, R.11, R.14, R.15, R.16, R.18, R.23, U.2, U.3, Ro.12, Ro.13</b>	<b>Ro.18, Ro.33</b>	<b>Ro.5</b>
SEA Comment		The alternative promotes PT and is in line with the SEA objectives.		Ro.5 entails infrastructure development and thus may have adverse effects on the environment, both during construction phase as well as during operation (land use, changes of transport needs etc.)	
Recommendations		Priority alternative. Promotes PT and therefore results to the fulfillment of the target in a more environmental friendly way		It is recommended that the feasibility of measures is assessed.	

Table 5-11: Assessment of alternatives – Objective 4b

Objective	4b Improvement of the passengers accessibility - Rijeka node							
Alternatives	General Measures	Public Transport (Rail, Urban and Maritime) Alternative			Road Alternative	Maritime Alternative		
Related TDS Measures	R.25, R.28, R.36, R.39, Ro.10, Ro.17, Ro.20, Ro.21, Ro.23, Ro.24, , M.5, M.20, M.21, M.26, M.27, M.31, U.1, U.4, U.5, U.11, U.13, U.15, U.18, U.21 Potentially M.22	<b>R.4, R.16, R.17, R.18, R.23, R.31, U.2, U.3, U.17, M.6</b> <b>Potentially U.14</b>			<b>Ro.18 Ro.33</b>	<b>M.1, M.8, M.28</b> <b>Potentially M.7</b>		
SEA Review		<b>R.17, R.31</b>	R.4, R.16, R.18, R.23, U.2, U.3, U.14	<b>M.6</b>	<b>Ro.18, Ro.33</b>	<b>M.28</b>	M.1	<b>M.7 M.8</b>
SEA Comment		In general in line with the SEA objectives			Rehabilitation of existing roads is in line with SEA objectives, as it promotes the use of existing infrastructure.	Modernisation of vessels (M.28) and increasing of intermodality (M.1) are in line with the SEA objectives		
Recommendations		Implementation of M.6 should be carefully designed. However, it is considered as priority alternative			It is necessary to examine (through transport modeling) whether the implementation of this alternative is enough for the accomplishment of the TDS objective.	The necessity especially of M.7 should be assessed through specialized studies		

Table 5-12: Assessment of alternatives – Objective 4c

Objective	4c Improvement of the passengers accessibility - Zadar node							
Alternatives	General Measures	Public Transport ( Urban and Maritime) Alternative			Road Alternative	Maritime Alternative		
Related TDS Measures	Ro.17, Ro.20, Ro.21, Ro.23, Ro.24, M.5, M.20, M.21, M.26, M.27, M.31, U.1, U.4, U.5, U.11, U.13, U.15, U.18, U.21, Potentially M.22	<b>U.2, U.3, U.17, M.6</b> <b>Potentially U.14</b>			<b>Ro.18 Ro.33</b>	<b>M.1, M.12, M.28</b> <b>Potentially M.7</b>		
SEA Review		<b>U.17</b>	<b>U.2, U.3, U.14</b>	<b>M.6</b>	<b>Ro.18 Ro.33</b>	<b>M.28</b>	<b>M.1</b>	<b>M.12, M.7</b>
SEA Comment		In general the alternative is in line with the SEA objectives.			Rehabilitation of existing roads is in line with SEA objectives, as it promotes the use of existing infrastructure.	M.12 and M.7 may have adverse impacts.		
Recommendations		Implementation of M.6 should be carefully designed. However, it is considered as priority alternative			It is necessary to examine (through transport modeling) whether the implementation of this alternative is enough for the accomplishment of the TDS objective.	It is necessary to examine the feasibility of M.12 and M.7, for avoiding over exploitation of the coastal areas.		

Table 5-13: Assessment of alternatives – Objective 4d

Objective	4d Improvement of the passengers accessibility - Split node							
Alternatives	General Measures	Public Transport (Rail, Urban and Maritime) Alternative			Road Alternative	Maritime Alternative		
Related TDS Measures	R.25, R.28, R.36, R.39, Ro.15, Ro.17, Ro.20, Ro.21, Ro.23, Ro.24, M.5, M.20, M.21, M.26, M.27, M.31, U.1, U.4, U.5, U.11, U.13, U.15, U.18, U.21 Potentially M.22	<b>R.16, R.17, R.18, R.19, R.23, R.31, U.2, U.3, U.17, M.6</b>  <b>Potentially U.14</b>			<b>Ro.18, Ro.33,</b>	<b>M.1, M.11, M.28</b> <b>Potentially M.7</b>		
SEA Review		<b>R.17, R.31, U.17</b>	<b>R.16, R.18, R.19, R.23, U.2, U.3</b>	<b>M.6</b>	<b>Ro.18, Ro.33</b>	<b>M.28</b>	<b>M.1</b>	<b>M.11, M.7</b>
SEA Comment		In general the alternative is in line with the SEA objectives.			Rehabilitation of existing roads is in line with SEA objectives, as it promotes the use of existing infrastructure.	M.11 and M.7 may have adverse impacts.		
Recommendations		Implementation of M.6 should be carefully designed. However, it is considered as priority alternative			It is necessary to examine (through transport modeling) whether the implementation of this alternative is enough for the accomplishment of the TDS objective.	It is necessary to examine the feasibility of M.11 and M.7, for avoiding over exploitation of the coastal areas.		

Table 5-14: Assessment of alternatives – Objective 4e

Objective	4e Improvement of the passengers accessibility - Osijek node					
Alternatives	General Measures	Inland Waterways Alternative	Public Transport (Rail, and Urban) Alternative		Road Alternative	
Related TDS Measures	R.25, R.28, R.36, R.39, Ro.17, Ro.20, Ro.21, Ro.23, Ro.24, , U.1, U.4, U.5, U.11, U.13, U.15, U.18, U.21  Potentially I.8	<b>I.9</b> <b>Potentially</b> <b>I.1, I.4</b>	<b>R.16, R.17, R.18, R.19, R.23, R.31, ,</b> <b>U.2, U.3, U.17</b> <b>Potentially</b> <b>U.14</b>		<b>Ro.2</b> <b>Ro.9</b> <b>Ro.18</b> <b>Ro.33</b>	
SEA Review		<b>I.9, I.1, I.4</b>	<b>U.17</b>	<b>U.2, U.3, U.14,</b>	<b>Ro.18 Ro.33</b>	<b>Ro.2, Ro.9</b>
SEA Comment		The alternative of the inland waterways is in line with the EU policy promoting inland water vs. road transport.	In line with the SEA objectives		Measures Ro.2 and Ro.9 may have adverse effects on the environment.	
Recommendations		The way of implementation of I.1 and I.4 should be more thoroughly examined.	Promotes the fulfillment of the objective in a more environmental way. Should be considered as the priority alternative		Measures Ro.2 and Ro.9 should be studied	

Table 5-15: Assessment of alternatives – Objective 4f

Objective	4f Improvement of the passengers accessibility - Dubrovnik node								
Alternatives	General Measures	Public Transport (Urban and Maritime) Alternative			Road Alternative		Maritime Alternative		
Related TDS Measures	Ro.17, Ro.20, Ro.21, Ro.23, Ro.24, M.5, M.20, M.21, M.26, M.27, M.31, U.1, U.4, U.5, U.11, U.13, U.15, U.18, U.21 Potentially M.22	<b>U.2, U.3, U.17, M.6</b> <b>Potentially U.14</b>			<b>Ro.16, Ro.18, Ro.33</b>		<b>M.1, M.10, M.28</b> <b>Potentially M.7</b>		
SEA Review		U.17	U.2, U.3, U.14	M.6	Ro.18, Ro.33	Ro.16	M.28,	M.1	M.10 M.7
SEA Comment		Promotes public transport. It is mainly in line with the SEA objectives			May have adverse effects according to the way of implementation.		M.1 and M.28 are in line with the SEA objectives. The other components of the alternative must be examined within an integrated model of development of the coastal area, in order to avoid phenomena of over-exploitation and adverse effects mainly on water, landscape, cultural heritage.		
Recommendations		It must be considered as priority alternative . The way of implementation of M.6 should be further examined.			It is necessary to further examine the way of implementation of the alternative. TDS propose the elaboration of relevant studies.		It can be implemented as supplementary to the public transport alternative		



Table 5-16: Assessment of alternatives – Objective 5a

Objective	5a Improvement of freight accessibility - Central Croatia (Zagreb)					
Alternatives	General Measures	Inland Waterways Alternative	Road Alternative		Rail Alternative	
Related TDS Measures	R.25, R.34, R.35, R.37, R.39, Ro.17, Ro.20, Ro.21, Ro.29, Ro.30, I.8	<b>I.2, I.6, I.7, I.9</b>	<b>Ro.6, Ro.7, Ro.9, Ro.33</b> <b>Potentially</b> <b>Ro.8</b>		<b>R.1, R.2, R.3, R.7, R.8, R.13 R.16, R.17, R.18, R.20, R.24, R.32</b> <b>Potentially</b> <b>R.5, R.6</b>	
SEA Review		I.2, I.6, I.7, I.9	Ro.33	Ro.6, Ro.7, Ro.9, Ro.8	R.32, R.17,	R.1, R.2, R.3, R.7, R.8, R.13, R.20, R.24, R.5, R.6, R.16, R.18
SEA Comment		The alternative is in line with the SEA objectives	The adoption of this alternative may have adverse impacts.		The alternative is in line with the SEA objectives and the EU transport policy	
Recommendations		Can be considered as supplementary to the rail alternative	It is necessary to further examine the feasibility and way of implementation of the alternative. Transport modeling is necessary		Should be considered as priority objective.	

Table 5-17: Assessment of alternatives – Objective 5b

Objective	5b Improvement of freight accessibility - Northern Adriatic (Rijeka)							
Alternatives	General Measures	Road Alternative		Maritime Alternative			Rail Alternative	
Related TDS Measures	R.25, R.34, R.35, R.37, R.39, Ro.17, Ro.20, Ro.21, Ro.29, Ro.30, M.5, M.20, M.21, M.27, M.31 Potentially M.22	<b>Ro.4, Ro.10, Ro.33</b>		<b>M.1, M.2, M.28</b> <b>Potentially</b> <b>M.4, M.14</b>			<b>R.2, R.3, R.16, R.17, R.18, R.20, R.24, R.32</b>	
SEA Review		Ro.33	Ro.4, Ro.10	M.2, M.28, M.4	M.1	M.14	R.32, R.17	R.2, R.3, R.20, R.24, R.16, R.18
SEA Comment		The measures comprising construction may have negative impacts.		Mostly in line with the SEA. M.14 may have negative impacts according to the way of implementation			In line with the SEA objectives	
Recommendations		It is necessary to further examine the feasibility and way of implementation of the alternative. Transport modeling should be necessary		Can be considered as priority alternative, under the condition that the M.14 (Development of special purpose ports) is implemented after adequate feasibility studies, taking into account environmental considerations in order to avoid excess use of ports.			Should be considered as priority alternative	

Table 5-18: Assessment of alternatives – Objective 5c

Objective	5c Improvement of freight accessibility - Eastern Croatia (Osijek - Slavonski Brod)						
Alternatives	General Measures	Inland Waterways Alternative		Road Alternative		Rail Alternative	
Related TDS Measures	R.25, R.34, R.35, R.37, R.39, Ro.17, Ro.20, Ro.21, Ro.29, Ro.30, I.8	<b>I.1, I.2, I.3, I.4, I.5, I.7, I.9, I.21</b> <b>Potentially</b> <b>I.11</b>		<b>Ro.9, Ro.14, Ro.33</b> <b>Potentially</b> <b>Ro.2</b>		<b>R.7, R.8, R.9, R.10, R.16, R.17,</b> <b>R.18, R.20, R.24, R.32</b>	
SEA Review		<b>I.11</b>	I.1, I.2, I.3, I.4, I.5, I.7, I.9	Ro.33	Ro.9, Ro.14, Ro.2	R.17, R.32	R.7, R.8, R.9, R.10, R.20, R.24 R.16, R.18
SEA Comment		The alternative is in line with the SEA objectives as it promotes inland waterways as well as environmental protection in ports.		The alternative consists of measures that may have adverse impacts.		The alternative promotes rail and is in line with the SEA objectives, as well as the EU policy concerning transport.	
Recommendations		Should be considered as priority alternative, along with the alternative of rail		The feasibility and examination of the implementation should be considered, as already proposed in the TDS		Should be considered as priority alternative, along with the alternative of maritime	

Table 5-19: Assessment of alternatives – Objective 5d

Objective	5d Improvement of freight accessibility - Northern and Central Dalmatia (Split - Zadar)							
Alternatives	General Measures	Road Alternative		Maritime Alternative			Rail Alternative	
Related TDS Measures	R.25, R.34, R.35, R.37, R.39, Ro.17, Ro.20, Ro.21, Ro.29, Ro.30, M.5, M.20, M.21, M.27, M.31 Potentially M.22	<b>Ro.4, Ro.15, Ro.16, Ro.33</b>		<b>M.1, M.2, M.28</b> <b>Potentially</b> <b>M.4, M.14</b>			<b>R.16, R.20, R.24, R.32</b> <b>Potentially</b> <b>R.17, R.18</b>	
SEA Review		Ro.33	Ro.4, Ro.15, Ro.16	M.2, M.28, M.4	M.1	M.14	R.32, R.17	R.16, R.20, R.24, R.18
SEA Comment		The measures comprising construction may have negative impacts.		The alternative is mostly in line with the SEA.			The alternative is in line with the SEA objectives and the EU policy on transport	
Recommendations		It is necessary to further examine the feasibility and way of implementation of the alternative. Transport modeling should be necessary		The performance of the alternative can be improved according to the findings of the studies foreseen for M.14			Should be considered as priority alternative	

Table 5-20: Assessment of alternatives – Objective 5e

Objective	5e Improvement of freight accessibility - Southern Dalmatia (Dubrovnik)		
Alternatives	General Measures	Road Alternative	
Related TDS Measures	Ro.17, Ro.20, Ro.21, Ro.29, Ro.30	<b>Ro.11, Ro.16, Ro.33</b>	
SEA Review		Ro.33	Ro.11, Ro.16
SEA Comment		The measures Ro.11 and Ro 16 may have adverse effects on the environment	
Recommendations		The relative study (Ro.33) proposed in the TDS is a prerequisite.	

Table 5-21: Assessment of alternatives – Objective 6a

Objective	6a Adaptation of the legislation, rules and standards to the European requirements and best practice	
Alternatives	General Measures	Rail Alternative
Related TDS Measures	R.27, R.28, R.33, R.34, R.35, R.36, R.37, Ro.20, Ro.27, Ro.29, Ro.30, A.14, A.20, I.8, I.13, M.19, M.21, M.26, U.11	<b>R.16</b>
SEA Review		R.16
SEA Comment		The measure promotes the improvement of services of the rail sector and promotes the switch to a more sustainable and environmental friendly transport mode
Recommendations		It is recommended to consider the implementation of the measure as a priority.



Table 5-22: Assessment of alternatives – Objective 6b

Objective	6b Improvement of the system organisational setup and cooperation between relevant stakeholders	
Alternatives	General Measures	Urban Alternative
Related TDS Measures	R.25, R.27, R.28, R.30, R.33, R.38, R.40, R.42, Ro.28, Ro.34, Ro.35, A.15, A.16, A.18, A.19, A.24, A.25, A.26, A.27, I.14, I.16, I.18, , I.19, I.21, I.22, M.17, M.18, M.23, M.24, M.26, M.29, M.32, U.9, U.10, U.11, U.13, U.16, U.19, U.20, U.21, U.22	<b>U.14</b>
SEA Review		U.14
SEA Comment		The alternative promotes the efficient use of public transport.
Recommendations		It is recommended to study the feasibility of the measure

Table 5-23: Assessment of alternatives – Objective 6c

Objective	6c Improvement of the system operational setup					
Alternatives	General Measures	Aviation Alternative	Public Transport (Urban) Alternative	Road Alternative	Maritime Alternative	Rail Alternative
Related TDS Measures	R.25, R.27, R.28, R.30, R.36, R.37, R.38, R.39, R.40, R.42, Ro.17, Ro.20, Ro.28, Ro.32, Ro.33, Ro.34, Ro.35, A.17, A.18, A.20, A.21, A.24, A.25, A.26, A.27, I.8, I.14, I.17, I.19, I.21, I.22, M.5, M.18, M.20, M.21, M.23, M.24, M.25, M.26, M.29, M.31, M.32, U.9, U.10, U.11, U.13, U.15, U.16, U.18, U.19, U.21, U.22, Potentially M.22	<b>A.13</b>	<b>U.14</b>	<b>Ro.19</b>	<b>M.16</b>	<b>R.16, R.22</b>
SEA Review		<b>A.13</b>	<b>U.14</b>	<b>Ro.19</b>	<b>M.16</b>	<b>R.16, R.22</b>
SEA Comment		The compatibility with the SEA depends on the way of implementation.	The alternative promotes the efficient use of public transport.	The alternative is in line with SEA objectives concerning safety	May have adverse effects on the environment.	The alternative promotes the rail transport and is in line with SEA objectives.
Recommendations		Needs to be clarified.	It is recommended to study the feasibility of the measure	It is recommended to consider the alternative as priority	The implementation should be examined in relevant studies as suggested in the TDS.	It is recommended to consider the alternative as priority

Table 5-24: Assessment of alternatives – Objective 6d

Objective	6d Improvement of the safety of the transport system						
Alternatives	General Measures	Inland Waterways Alternative	Public Transport (Urban) Alternative	Road Alternative	Maritime Alternative	Rail Alternative	
Related TDS Measures	R.21, R.40, R.42, Ro.17, Ro.20, Ro.22, Ro.34, Ro.35, A.11, A.20, A.27, I.8, I.22, M.21, M.27, M.31, M.32, U.8, U.10, U.18, U.19  Potentially M.22	I.20	U.17	Ro.18, Ro.19	M.4, M.28	R.16, R.31, R.32	
SEA Review		I.20	U.17	Ro.18, Ro.19	M.4, M.28	R.31, R.32	R.16
SEA Comment		Necessary for increasing safety in the inland water sector	Modernization of the fleet has positive impacts on safety	The alternative is in line with the SEA objective and has positive impacts on road safety	The alternative foresees the modernization of vessels and use of cleaner fuels. It is in line with the SEA objectives	Modernization of the rolling stock has positive impacts on safety	
Recommendations		All alternatives are in line with the SEA objectives and promote the fulfillment of the TDS objective 6d. It is recommended to promote the elaboration of the studies for the R.16 as foreseen in the TDS					

Table 5-25: Assessment of alternatives – Objective 6e

Objective	6e Reduction/mitigation of the environmental impact					
Alternatives	General Measures	Aviation Alternative	Inland Waterways Alternative	Public Transport (Urban) Alternative	Maritime Alternative	Rail Alternative
Related TDS Measures	R.41, Ro.25, A.23, I.12, M.3, U.7, U.18	<b>A.13</b>	<b>I.11</b>	<b>U.17</b>	<b>M.28</b>	<b>R.31, R.32</b>
SEA Review		<b>A.13</b>	<b>I.11</b>	<b>U.17</b>	<b>M.28</b>	<b>R.31, R.32</b>
SEA Comment		The compatibility with the SEA depends on the way of implementation.	The creation of dangerous goods terminal and waste management facilities is necessary for environmental protection in ports	The alternative is in line with the SEA objectives, as new rolling stock is more environmental friendly	Modern vessels are more environmental friendly - The alternative is in line with the SEA objectives	The alternative is in line with the SEA objectives, as new rolling stock is more environmental friendly
Recommendations		Needs to be clarified.	All alternatives are in line with the SEA objectives and promote the fulfillment of the TDS objective 6f.			

Table 5-26: Assessment of alternatives – Objective 6f

Objective	6f Improvement of the energy efficiency			
Alternatives	General Measures	Public Transport (Urban) Alternative	Maritime Alternative	Rail Alternative
Related TDS Measures	R.26, Ro.26, A.12, I.10, M.15, U.6	<b>U.17</b>	<b>M.28</b>	<b>R.31, R.32</b>
SEA Review		<b>U.17</b>	<b>M.28</b>	<b>R.31, R.32</b>
SEA Comment		The alternative is in line with the SEA objectives, as new rolling stock is more energy efficient	Modern vessels are more energy efficient - The alternative is in line with the SEA objectives	The alternative is in line with the SEA objectives, as new rolling stock is more energy efficient
Recommendations		All three alternatives are in line with the SEA objectives and promote the fulfillment of the TDS objective 6f.		

Table 5-27: Assessment of alternatives – Objective 6g

Objective	6g Financial sustainability of the transport system		
Alternatives	General Measures	Public Transport (Urban) Alternative	Maritime Alternative
Related TDS Measures	R.27, R.28, R.29, R.30, R.33, R.36, R.37, Ro.17 Ro.31, A.22, I.15, M.30, M.31, U.9, U.11, U.12, U.13, U.21	<b>U.14</b>	<b>M.16</b>
SEA Review		<b>U.14</b>	<b>M.16</b>
SEA Comment		The alternative promotes the efficient use of public transport.	May have adverse effects on the environment.
Recommendations		It should be considered as priority alternative. It is recommended to study the feasibility	The implementation should be examined in relevant studies as suggested in the TDS.



Although no direct conclusion can be derived for the fulfilment of all objectives of the TDS, since no alternative refers to all objectives of the TDS, it is obvious that the public transport, the rail and the inland waterways alternative are the ones with the better environmental performance.

Public Transport alternative is the one that should be considered as priority alternative. It promotes the fulfilment of most of the TDS objectives and has the better environmental performance, presenting uncertainty only as far as maritime transport and especially M.6 which refers to improvement of accessibility of the islands and port development, which should be examined through specialized studies as proposed in the TDS.

Rail transport is the most environmental friendly alternative for the fulfilment of objectives where no PT alternative exists, while it can be synergistic to the PT where such alternative exists.

Inland water alternative has in general good performance and can act synergistically to the rail alternative.

Maritime transport alternative should be carefully examined. Although it has a relative good environmental performance, it should be considered within a broader perspective for the development of the coastal zone, in order to avoid overexploitation of the coastal area.

Road alternative presents uncertainty. It comprises infrastructure construction works that may have adverse effects on the environment.

Aviation alternative is not a “stand - alone” alternative and should be considered mainly as a supplementary to the other alternatives, as it mainly covers different transport needs.

In general, it is necessary to examine different alternatives and their impact on the transport sector evolution with the use of a proper transport model, in order to assure that the alternatives are equivalent for the satisfaction of the transport needs in the country. A more thorough environmental assessment of the alternatives will, then, be feasible.

An overall view of the assessment is summarized the following table.

Table 5-28: Overall comparison of alternatives

Objective	Rail alternative	Aviation Alternative	Public Transport Alternative	Road Alternative	Maritime Alternative	Inland Waterways Alternative
1b Improvement of international passengers long distance accessibility (including transit traffic)						
1c Improvement of international freight accessibility (including transit traffic)						
2a Improvement of passengers long distance accessibility - Central Croatia (Zagreb)						
2b Improvement of passengers long distance accessibility - Northern Adriatic (Rijeka)						
2c Improvement of passengers long distance accessibility - Eastern Croatia (Osijek - Slavonski Brod)						
2d Improvement of passengers long distance accessibility - Northern and Central Dalmatia (Split - Zadar)						
2e Improvement of passengers long distance accessibility - Southern Dalmatia (Dubrovnik)						
3a Improving the regional connectivity on the mainland						
3b Improving the regional connectivity to/from/between the islands						
4a Improvement of the passengers accessibility - Zagreb node						
4b Improvement of the passengers accessibility - Rijeka node						

Objective	Rail alternative	Aviation Alternative	Public Transport Alternative	Road Alternative	Maritime Alternative	Inland Waterways Alternative
4c Improvement of the passengers accessibility - Zadar node						
4d Improvement of the passengers accessibility - Split node						
4e Improvement of the passengers accessibility - Osijek node						
4f Improvement of the passengers accessibility - Dubrovnik node						
5a Improvement of freight accessibility - Central Croatia (Zagreb)						
5b Improvement of freight accessibility - Northern Adriatic (Rijeka)						
5c Improvement of freight accessibility - Eastern Croatia (Osijek - Slavonski Brod)						
5d Improvement of freight accessibility - Northern and Central Dalmatia (Split - Zadar)						
5e Improvement of freight accessibility - Southern Dalmatia (Dubrovnik)						
6a Adaptation of the legislation, rules and standards to the European requirements and best practice						
6b Improvement of the system organisational setup and cooperation between relevant stakeholders						
6c Improvement of the system operational setup						
6d Improvement of the safety of the transport system						

Objective	Rail alternative	Aviation Alternative	Public Transport Alternative	Road Alternative	Maritime Alternative	Inland Waterways Alternative
6e Reduction/mitigation of the environmental impact						
6f Improvement of the energy efficiency						
6g Financial sustainability of the transport system						

## 6. ASSESSMENT OF ENVIRONMENTAL IMPACTS OF THE TDS

### 6.1 Approach of assessment

The aim of this step of the SEA is to assess the significant positive and/or negative effects of specific proposals contained in the TDS on the relevant environmental objectives. It is obvious, that, for measures foreseeing construction works, the impacts strongly depend on the specificities of the sites and the works that will be needed and which cannot be determined at this level. At strategic level, the anticipated types of impacts are presented for all measures of the strategy (based on the description of the proposed measures and relative experience). The assessment covers all measures (i.e infrastructure construction, technological, organisational, operational measures). It is obvious that for construction measures, a more detailed analysis is within the scope of the environmental permitting process of every intervention.

The impacts of all measures proposed in the TDS (presented in Chapter 2, Tables 2-2 to 2-7) are assessed according to the scale (positive / negative), their probability, duration, reversibility and transboundary dimension. The methodology of assessment is presented in the Table 6-1.

**Table 6-1: Assessment Legend**

Impact character	Symbols	Explanation
<b>Probability</b>	!!	Very probable
	!	Probable
<b>Scale</b>	--	Large scale negative
	-	Negative
	++	Large scale positive
	+	Positive
	0	Neutral
<b>Frequency / duration</b>	>>	Frequent to constant / Long Term to Permanent
	>	Occasional / Short term
<b>Reversibility</b>	IR	Irreversible
	R	Reversible
<b>Uncertainty (in any of the above cases)</b>	?	Possible impact totally depends on the implementation arrangements (may be positive or negative)

Source: Handbook on SEA of Cohesion Policy 2007-2013, Greening Regional Development Programmes Network, February 2006

## 6.2 Results of assessment

The following paragraphs summarise the results of the assessment procedure according to SEA objectives. The detailed results for all measures are presented in the end of the present chapter.

### 6.2.1 Impacts on air quality

#### SEA OBJECTIVE: Preservation of good air quality and reduction of transport emitted PM10

##### ***Rail Transport***

Most of the negative impacts are expected during the construction phase of the infrastructure proposed (expansion / rehabilitation of existing infrastructure or creation of new one), when exhaust emissions of construction equipment and dust emissions by excavations are foreseen. These impacts are however short-term (during construction period) and reversible.

As far as operation of rail infrastructure is concerned, infrastructure development in the rail sector has rather positive impacts since it targets to the improvement of services and consequently to a modal shift from road transport to rail transport.

Positive impacts are also expected by measures such as modernization of the passenger and freight rolling stock and the electrification of the lines, although, for the latter, the overall impact depends on the electricity generation (may result to increase of local air pollution in the area of the power plants if they are using fossil fuels for electricity generation).

##### ***Road Transport***

In the road transport sector negative impacts on air quality are expected during the period of construction works (new roads or rehabilitation of existing network), with the main issue being the emissions of PM. However, these impacts are short-term and reversible.

During the operation phase, the overall impacts present important uncertainty, depending on the implementation of the measures. Amelioration of the quality of the road network, elimination of bottlenecks and increase of the speed usually lead to lower emissions. However, the creation of new road networks as well as the improvement of the “attractiveness” of the existing network if it is freed-up by the removal of bottlenecks and traffic congestion issues, often creates induced traffic, which results to increase of emissions in areas that had no such problem before the named intervention.

Positive impacts are expected by the implementation of measures for traffic management and environmental protection.

##### ***Air Transport***

The negative impacts of interventions in the air transport sector concern emissions during both the construction and the operation phase.

During construction phase emissions (mainly NO<sub>x</sub> and PM) are expected from excavations and construction equipment.

The emissions during the operation phase are NO<sub>x</sub>, CO, unburnt hydrocarbons (CH<sub>4</sub> and VOCs); SO<sub>2</sub>, PM<sub>10</sub>, PM<sub>2.5</sub>, Odour. These are produced by aircraft engines, auxiliary power units, apron vehicles, de-icing, and apron spillages of fuel and chemicals. Often NO<sub>x</sub> is by far the most abundant and is often considered the most significant pollutant from an air quality

standpoint. Consequently, in case the expansion and amelioration of the airports according to the TDS is accompanied by important increase in air traffic (which is rather probable), negative impacts concerning air quality in the surrounding area are anticipated.

Positive impacts are expected by the implementation of energy efficiency plans and the implementation of international and European standards and plans, such as SESAR, one of the main targets of which is the reduction of air emissions by aviation.

### ***Inland navigation***

Construction works on ports are the main cause of negative air quality impacts in the sector of inland navigation.

During operation emissions such as CO, NO<sub>x</sub>, SO<sub>2</sub>, PM, VOC are expected by port operations (manoeuvring, loading and unloading, land traffic etc.) as well as by fuel combustion in the ships.

However, the upgrade of the inland navigation and the modal shift from road to inland transport will have positive impacts in overall air quality. Additional positive impacts are expected by the implementation of measures such as the modernisation of the fleet, the switch to alternative fuels, the implementation of energy efficiency measures, as well as the adoption of European standards.

### ***Maritime transport***

As for all the sectors, air emissions from construction equipment are expected during the construction phase, with the impacts being short term and reversible (lasting during construction phase).

During the operation phase the anticipated effects are:

In the ports: Air emissions such as CO, NO<sub>x</sub>, SO<sub>2</sub>, PM, VOC from manoeuvring of ships, loading and unloading operations in terminals, land traffic (passenger cars as well as heavy vehicles), ship building/maintenance/dismantling activities.

At the sea: emissions such as CO, NO<sub>x</sub>, SO<sub>2</sub>, PM from fuel combustion.

### ***Urban, sub-urban and regional transport***

The measures of the TDS concerning the urban, sub-urban and regional transport are in general in the spirit of amelioration public transport services and the promotion of the intermodality. This results to positive effects on air quality, due to the increase of the attractiveness of the public transport and the modal shift from private cars to public transport. Further additional effects are expected by the implementation of measures of fleet modernisation, elimination of bottlenecks and promotion of use of alternative fuels in public transport.

Since the measures proposed entail construction of limited and small-scale infrastructure, slight negative effects (emissions from construction works) are anticipated during construction period, but of short-term and reversible character.

In general, the overall impacts of the TDS on air quality are considered to be positive, taking into account the spirit of promotion public transport, rail, inland and water navigation. However, it is very important that the foreseen transport modes changes and the anticipated transport pattern resulting from the implementation of the TDS, is assessed by a transport model.



## 6.2.2 Impacts on climate change

### SEA OBJECTIVE: Reduction of GHG emissions

#### ***Rail Transport***

The measures of TDS related to rail transport have in general positive or neutral impact on the Climate Change. The promotion of railway transport, through the improvement of connectivity and railway services leads to modal shift from road transport to rail and consequently to GHG emissions reduction.

Additionally, the electrification of the railway usually leads to reduction of GHG emissions, although the result strongly depends on the fuel used for the electricity generation.

Furthermore, the modernization of the rolling stock (passenger and freight) will have positive impacts, since new stock is more energy efficient and has lower GHG emissions.

Negative impacts can be expected from the GHG emissions of construction equipment during the construction works.

#### ***Road Transport***

Impacts by the interventions in road sector on GHG emissions present important uncertainty. Apart from the emissions that are expected during construction phase of the proposed infrastructure, there is a strong possibility that the development of new roads will create additional journeys and will lead to the increase of the GHG emissions by the road sector, which represented around 95% of the transport (including urban transport) GHG emissions and around 20% of the total country's emissions in 2011 and of which the emissions have an increasing trend according to the 5th National Communication of the country. However, the evolution of the emissions depends on various factors (transport pattern that will be resulted by the combination of all measures foreseen in the strategy, evolution of technology, economic conditions etc.).

#### ***Air Transport***

As for the case of air quality, the negative impacts of interventions in the air transport sector focus on the GHG emissions during the construction phase. There is uncertainty on the impacts during operation phase. In case the expansion and amelioration of the airports is accompanied by an important increase in air traffic, negative impacts concerning Climate Change are anticipated. However, taking into account that the share of aviation in the GHG emissions of the country is very low (around 1.5% of the transport emissions and 0.32% of the total emissions of the country according to National Inventory Report 2013 – Greenhouse gas inventory for the years 1990-2011), the negative impacts could be considered as negligible relatively to other sectors contributing to greenhouse effect in Croatia. However, the GHG being an important global problem, the contribution of the aviation is to be considered..

Positive impacts are expected by the implementation of energy efficiency plans and the implementation of international and European standards and plans, such as SESAR, one of the main targets of which is the reduction of GHG emissions by aviation.

#### ***Inland navigation***

Apart from the negative impacts (GHG emissions) that are expected during the construction phase of the infrastructure of the inland navigation sector, the overall promotion of

transport by inland waters will have positive impacts concerning climate change, taking into account the potential shift from road to inland water transport.

### ***Maritime transport***

GHG emissions are expected during construction works in ports etc. The overall promotion of the maritime transport will have positive impacts in case it is accompanied by a modal shift from road to maritime transport.

### ***Urban, sub-urban and regional transport***

As the measures concerning urban, suburban and regional transport strongly promote the more sustainable public transport against the use of private cars, the impacts are expected to be positive. Very important positive results will be also achieved by the modernization of the public transport fleet and the promotion of alternative fuels.

Slight negative impacts are expected due to GHG emissions during infrastructure construction, but they are negligible comparing to the positive results expected by the successful implementation of the proposed measures.

In general, the overall impacts of the TDS on climate change are considered to be positive, However, as for the case of air quality it is necessary to assess the impacts after the modelling of the new transport pattern in Croatia.

## **6.2.3 Impacts on energy**

### **SEA OBJECTIVE: Promote sustainable energy use**

The TDS is expected to have positive impacts on energy efficiency, since it promotes Public Transport (rail, urban, inland water, maritime transport). Consequently, it may result to a significant modal shift from road transport both for passengers and freight to more energy efficient transport modes.

Furthermore, the foreseen measures for alternative fuel use, promotion of energy efficiency and modernisation of fleets will have significant additional positive effects on energy efficiency of the transport sector in Croatia.

## **6.2.4 Impacts on inland water**

### **SEA OBJECTIVE: Minimise pollution of fresh surface waters and groundwater**

For rail, road, air, urban, suburban and regional transport, the impacts on water resources (either positive or negative) are limited. The main negative impact may be the contamination of the groundwater because of spillages as well as run-off of hazardous substances.

Inland navigation has significant impacts on water bodies, related both to construction and operation phase. The TDS contains several measures for development/ upgrading of river ports and consequently engineering works in ports. Dredging poses a threat to the aquatic environment through not only the disposal of dredged material but also the dispersal of pollutants into surface waters during dredging. Additionally, it may create faster flowing water affecting the natural characteristics of the water body.

The main impacts expected by inland water navigation during operation phase are:

- Pollution of water due to fuel or chemical leakages
- Storm water run-off that may have contaminants.

- Water thermal pollution
- Water eutrophication, due to weak water turnover.

The above mentioned impacts have secondary effects on the biodiversity of the water bodies (examined in 6.2.6)

### 6.2.5 Impacts on sea water

#### SEA OBJECTIVE: Minimise pollution of sea water

As for the case of inland waters, for rail, road, air, urban, suburban and regional transport, the impacts on water resources (either positive or negative) are limited. The main negative impact may be the contamination of the groundwater because of spillages as well as run-off of hazardous substances

Maritime transport is expected to have negative impacts on the sea, such as:

- Dispersal of pollutants into surface waters during dredging
- Pollution of water due to fuel leakages, or to accidental leakages of oil and chemicals during loading and unloading of products
- pollution from slop (residual of chemical products contained in the tanks and of the product used in the washing operations) either in the case in which it is treated and in the case in which it is unauthorized discharged (tanks washing close to the coast);
- leaching of antifouling paints (particularly containing organotin tributyltin) used to coat the bottoms of ships to prevent sea life such as algae and mollusks attaching themselves to the hull thereby slowing down the ship and increasing fuel consumption;
- dumping of black (sewage) and gray (shower, sink, and galley) water;
- operations on terminals and fuel deposits, causing accidental discharge of oil in the sea, loss from deposit tankers and pipeline;
- dry docks operations causing accidental discharge of oil and other chemicals in the sea;
- ships demolition causing accidental discharge of oil and other chemicals in the sea;
- Storm water runoff from port parking lots (organic compounds, fine particulate, heavy metals, etc.);
- water thermal pollution;
- water stagnation and eutrophication and anoxia risks due to weak water turnover;
- Illegal waste and waste water dumping.

Pollution of the maritime environment has additionally secondary effects on the biodiversity (examined in 6.2.6)

On the other hand, the measures of TDS promoting environmental protection and implementation of national and international regulations and standards will have positive impacts on the water quality.

### 6.2.6 Impacts on biodiversity / flora and fauna

#### SEA OBJECTIVE: Minimise negative impacts on biodiversity & habitats

The measures foreseen for rail, road, urban, suburban & regional transport, as well as for aviation mainly focus on the rehabilitation and upgrading of existing infrastructure. Consequently, no major additional direct impacts are expected. Nevertheless, taking into account that the foreseen interventions comprise new construction works such as expansion, widening of network elements etc, the main potential impact anticipated by **surface transport (road, rail, urban)**, is species fragmentation. These effects can be particularly important for some groups, such as large carnivores, amphibians and reptiles. Additional impact is the disturbance of birds and wildlife due to the lighting during the construction and operation of transport infrastructure for all transport modes.

As far as the aviation is concerned, negative effects may arise by the disturbances of bird migration paths, land take by expansion of airports, bird collisions with aircraft which endangers the safety of air traffic.

### ***Inland navigation***

Negative Impacts on biodiversity and habitats include:

- ❖ The physical modification of water bodies can, if not planned properly, affect the normal hydrological processes of freshwater systems, disconnect rivers from floodplains and wetlands, and change the water and sediment flow and thus result to habitat loss, degradation and fragmentation. Direct physical destruction of the habitats themselves can result from land take, removing riparian vegetation or river islands, shingle banks, draining floodplain areas or stabilising the riverbed, disposal of spoil and dredged material etc.
- ❖ Species disturbance and displacement caused by river engineering works and increased shipping traffic. Additionally, species may be disturbed by a range of factors such as noise, water turbidity, pollution, human presence, sedimentation, regular movements (e.g. wave action and propeller suction) etc.
- ❖ Barriers to migration and dispersal of species (dams, canals)
- ❖ Straightening river courses can accelerate water velocity causing severe erosion of the riverbed and the shoreline as well as any other shallow habitat features such as gravel bars which are important for a range of species.
- ❖ Introduction of non-native or invasive species

New infrastructure measures on the inland waterway network are likely to have impacts on biodiversity and the network of protected sites. This must be carefully addressed at the project level.

### ***Maritime transport***

The main impacts anticipated by maritime transport are strongly linked with the impacts on water quality.

For the measures entailing engineering works (improvement of ports, rehabilitation, change of use of ports etc) negative impacts are expected during both construction and operation phase.

During construction phase, certain loss of biodiversity during construction works in ports due to land take and/or dredging.

During operation phase, the anticipated impacts may be disturbance of species due to pollution, noise, water turbidity, human presence, sedimentation etc. This is particularly

important for vulnerable species such as dolphins, sea turtles and Mediterranean monk seals. Eutrophication is another factor of ecosystem degradation in ports. Additionally introduction of non-native or invasive species may occur.

### 6.2.7 Impacts on acoustic environment

**SEA OBJECTIVE: Avoidance of exposure to noise levels which endanger health or quality of life**

For all sectors negative impacts are expected during construction period of the foreseen infrastructure, due to construction equipment. These impacts are short term and reversible. As far as the operation is concerned, the main impacts are described hereafter:

#### ***Rail Transport***

Increased noise levels and vibrations levels are expected in the areas neighbouring the rail lines. Rail noise is usually considered as less annoying than other modes. However, this depends on the time of day and the frequency of trains. Vibrations cause annoyance to residential areas.

#### ***Road Transport***

Negative effects on the acoustic environment are expected in the areas neighbouring the road axes.

#### ***Air Transport***

Increase in air traffic will have negative impacts on the acoustic environment at proximity of the airports.

#### ***Inland navigation***

Increased noise levels are expected in ports, due to the port operation. Vessels on the waterway are not in general a serious source of noise.

#### ***Maritime transport***

Increased noise levels are expected in the ports area due to passenger car and heavy vehicle (trucks) road traffic, goods movement, deriving from machinery such as quay-crane, pumps, etc., rail traffic noise.

#### ***Urban, sub-urban and regional transport***

Transport noise is a major issue in urban areas. The measures foreseen in the TDS concerning urban, suburban and regional transport promote the use of public transport against the private transport and this will result to lower noise levels.

### 6.2.8 Impacts on soil

**SEA OBJECTIVE: Minimise negative impacts on soil**

The main impact that are expected by the implementation of the TDS measures concerning rail, road, urban, suburban and regional transport, as well as aviation is the contamination of soil by accidental spillages both during construction phase and operation phase. Additionally, negative impacts may arise by the use of salt for de-icing the roads, as salt influences the chemistry of soils. This may have secondary effects on water (due to infiltration in the groundwater and run-off) as well as on vegetation and animals. Secondary effects on soil may also result by deposition and precipitation of the air pollutants produced

from the various transport modes. Soil erosion is not expected to be significant by land transport, since the TDS mainly refers to existing infrastructure.

The most significant effects on soil are expected by the inland navigation and maritime transport.

#### ***Inland navigation***

The impacts of inland navigation measures strongly depend on the extent of the interventions and are site specific. Adverse effects on soil are expected due to spillages, and sedimentation of contaminated sediments. River bank erosion is also one possible impact.

#### ***Maritime transport***

The operation of maritime ports may have negative effects on the soil, mainly through spillages of oil and chemicals. Sedimentation of contaminated sediments is another possible impact, linked with the water pollution caused by the navigation.

Additionally, soil erosion is another impact of the maritime transport. The flow induced by the passage of the vessels generates erosive forces that may damage harbour basins, navigable channels, beaches and seaside properties. It must be noted that erosive impacts are more significant when high speed crafts are used.

### **6.2.9 Impacts on cultural heritage**

#### **SEA OBJECTIVE: Minimise impact on cultural and historic environment**

Since most of the measures foreseen in the TDS concern the rehabilitation, improvement and modernisation of existing infrastructure, no significant additional effects on cultural and historic environment are anticipated.

However, negative Impacts may occur in the phase of construction of the infrastructure, which should be carefully assessed during the environmental permitting phase of the works.

Additionally, improvement of accessibility of cultural and historical areas leads to increase of visitors and consequently to secondary impacts, such as waste generation, noise, etc.

### **6.2.10 Impacts on land use**

#### **SEA OBJECTIVE: Minimise adverse effects on land use**

The adverse effects of the TDS, on the land use are twofold:

- ❖ Negative effects are expected in the terms of land take for development of new transport infrastructure. Taking into account, however, that most of the infrastructure already exists and the TDS foresees its upgrade, rehabilitation and modernisation, the additional effects are not considered to be very significant. Nevertheless, the design of the specific projects, especially for road transport and expansion and development of ports, should take into account the land take and avoid land take of the most valuable agricultural land, particularly valuable arable (P1) and valuable arable (P2) agricultural land (according the provisions of the under Article 20 of the Law on Agricultural Land)
- ❖ The most important negative effect may arise from the fact that the improvement of the transport services and of the accessibility of certain areas will lead to a

significant increase of transport demand in these areas, as well as to a change of land uses (development of new agglomerations and uses). This is an issue that should be very carefully examined in combination with the desired model of spatial development in Croatia. Impacts on material assets

**SEA OBJECTIVE: Make best use of existing infrastructure and promote the sustainable development of new infrastructure**

Most of the measures foreseen in the TDS concern the rehabilitation, improvement and modernisation of existing infrastructure. This is in line with the SEA objective of make best use of existing infrastructure and thus the impact is considered positive.

On the other hand, the promotion of sustainable new infrastructure depends on the way that the measures will be implemented (especially during the design of the new infrastructure and the specifications that will be set). The impacts might be negative, due to the fact that the necessity of construction materials will result to an increase of the demand of construction primary materials (such as sand, limestone etc.), that may downgrade certain areas (quarrying areas).

### 6.2.11 Waste production

**SEA OBJECTIVE:**

**Minimisation of waste production**

**Adoption of integrated environmental friendly waste management practices (including hazardous waste management, such as asphaltic material)**

The main impacts on waste production concern the construction of the foreseen infrastructure for all sectors, during which large quantities of construction/ demolition waste will be produced.

Apart the production of waste during construction phase, the anticipated wastes by **rail sector** are municipal wastes in stations and rails, equipment waste from rail elements, lubricants etc. Furthermore, the purchase of new rolling stock both for passenger and freight transport will result to important quantities of waste (ELVs) that will need special management. Maintenance activities are another source of waste.

As far as **road transport** is concerned, waste production is anticipated in resting areas, but they are not considered as significant. Waste are also produced in maintenance areas.

Waste production in **inland navigation** is generally linked to the port activities. Thus, during the operation of the port infrastructure foreseen in the TDS, important waste quantities are expected in the ports. These wastes include sludge from fuels deposits, waste generated on-board, wastewater by vessels, etc.

Respectively, the operation of **maritime ports** is expected to have important negative results concerning waste production. The main sources of waste identified in port and in its neighbourhood are:

- oil terminals and fuel deposits, producing oily and toxic sludge;
- dry docks operations, producing oily and toxic sludge.

Additionally, during ship operations, important quantities of waste are anticipated onboard. These include glass, tin, plastic, paper, cardboard, steel cans, kitchen grease, kitchen waste and food waste. Ships are also a source of wastewater.



Finally, waste, and sometimes contaminated or hazardous, is expected by ship maintenance activities in the ports.

As far as the **urban, suburban and regional transport** is concerned, the measures foreseen in the TDS are not expected to have significant impacts on the waste production, with the exception of the measures foreseeing the purchase of new public transport fleet, which will result to important quantities of ELV waste. In this respect, the relative measure of the TDS should foresee the management of these wastes according to the provisions of the EU legislation. Additionally, waste is expected in public transport maintenance areas.

#### 6.2.12 Impacts on population

##### SEA OBJECTIVE: Promotion of sustainable transport modes

In general the TDS measures are in the spirit of development of sustainable transport, compliant to the European relevant policy and promote the use of public transport. Consequently the overall impacts are expected to be positive related to the SEA objective on sustainable transport.

Strongly positive impacts are expected by the measures that directly aim at the environmental protection, the increase of energy efficiency, the modernisation of the fleets, the introduction of alternative fuels, the improvement of public transport services etc.

Additionally, especially for the urban, suburban and regional transport, the measures foreseen for promotion of bicycles, pedestrian areas, P&R result to the improvement of quality of life in urban areas.

However, the interventions on road sector might increase the traffic and transport needs for private transport.

#### 6.2.13 Impacts on human health

##### SEA OBJECTIVE: Protection against recognised health risk from air pollution

As already mentioned, the TDS is in the spirit of the EU policy promoting modes such as rail, maritime and inland navigation, which are considered more environmental friendly, especially as far as the air pollution is concerned. Consequently, the anticipated overall impacts on air pollution are expected to be positive.

Negative effects are expected in “hot spots” such as:

- ❖ Construction sites
- ❖ Areas in the vicinity of roads and airports
- ❖ Inland and maritime ports

The measures of the TDS that relate to modernisation of fleets, promotion of alternative or less polluting fuels, modernisation of rail rolling stock, electrification of rails will have positive impacts on local air quality and will reduce the exposure of population on high level of air pollution.

At urban level, the promotion of shift to walking (pedestrian streets and mainly availability of adequate public transport that discourages the use of private car) and cycling has additional positive effects on human health, as it promotes the physical activity of the population.

Finally, the implementation of the TDS will increase safety of the transport sector in Croatia (as described in 7.2.14)

#### 6.2.14 Impacts on safety

##### **SEA OBJECTIVE: Minimise transport accidents**

According to the assessment, none of the measures has clear negative impacts on the transport safety.

##### ***Rail Transport***

In the rail transport, the measures aiming at the rehabilitation and improvement of the railway network, the modernisation of the freight and passenger rolling stock, the improvement of signalling, the development of crossings and the implementation of maintenance programs have positive impacts concerning safety. Additionally, there are measures directly targeting the improvement of safety in the sector.

##### ***Road Transport***

The measures concerning road transport aiming at the rehabilitation of the existing road network have positive impacts regarding road safety. The development of new road transport presents uncertainty, as the result depends on the way the measures will be implemented. The issue of safety must be considered in design, construction and operation phase.

Strong positive impacts are also expected by the development of road maintenance plans, resting stations, traffic management and monitoring and enforcement measures.

##### ***Air Transport***

The expansion and amelioration of the airports according to European and international standards will lead to an improvement of the safety in airports.

Furthermore, the provision for measures directly targeting the issue of safety (improvement of legal framework, education and training), as well as the development of action plan for the implementation of SESAR, will also have positive impact on the safety of the sector.

##### ***Inland navigation***

The improvement of inland navigation infrastructure according to the transportation needs as well as their modernisation and upgrade with safety system will have positive impacts on safety. Furthermore, the implementation of targeted measures, such as RIS, signalisation, safety fleet etc will result to an improvement of the safety of the sector.

##### ***Maritime transport***

Accordingly to the inland navigation sector, the improvement of port infrastructure will have positive effects on safety. Additionally, the implementation of measures for maintenance, modernisation of fleet, application of international standards will play an important role on the upgrade the safety of the sector.

##### ***Urban, sub-urban and regional transport***

In general, promotion of public transport has positive effects on citizen safety. In the TDS, positive effects are expected by measures for elimination of bottlenecks and prioritization of Public Transport, modernization of PT fleet, traffic management, education programs etc. Positive effects may arise by the increase of driving conscience by the users of vehicles, after

the implementation of measures promoting walking and cycling (as drivers get accustomed to co-existing with alternative modes of transport).

Finally, the development of modern infrastructure may have positive impacts in terms of security of the population towards crime. This can be achieved by the adequate design of the infrastructure (proper lighting, surveillance systems etc.) and is of great importance especially in places where criminal acts occur (such as railway and bus stations etc.). This issue should be addressed in the design phase of the infrastructure.

### 6.3 Transboundary effects

The main transboundary effects of the implementation of the TDS are the following:

- ❖ **Air quality:** Transboundary negative effects on air quality are expected by the implementation of measures concerning road access to the Croatian border with other countries, i.e:
  - Ro.1: Gradiška bridge connection
  - Ro.2: A5 Osijek - HU border Pecs (comprehensive/Vc)
  - Ro.3: A5 from A3 to BIH border (comprehensive/Vc)
  - Ro.6: DC 10 Vrbovec - Križevci - Koprivnica - Hungarian border towards Kaposvar
  - Ro. 7: DC 12 Vrbovec 2 interchange - Ivanja Reka - Vrbovec - Bjelovar - Virovitica - Hungarian border towards Barcsu
  - Ro.9: D2 from SLO border to SRB border
  - Ro.11: Dubrovnik - ME border

These effects concern both construction and operation phase of the infrastructure

- ❖ **Noise:** Transboundary negative effects are expected by the same measures as for air quality and they concern mainly the construction phase.
- ❖ **Inland water navigation:** Transboundary negative impacts may arise by the navigation of the Danube, Drava and Sava River and concern mainly the operation phase. Downgrading of the water quality of the waterways will have impacts on the neighbouring countries downstream (Hungary, Serbia, Bulgaria, Romania, Bosnia-Herzegovina).
- ❖ **Maritime transport:** The main transboundary negative impact is the potential pollution of the Adriatic Sea due to the navigation and the operation of the ports. The countries that may be affected are the countries of the Adriatic (Italy, Albania, Montenegro, Slovenia, Bosnia-Herzegovina; Kosovo and Greece).

Positive effects to the international mobility are expected by the measures for adoption and facilitation of Schengen. This could have a secondary positive effect, which is the facilitation of transboundary movement of the waste, for proper treatment in countries that possess adequate facilities.

### 6.4 Cumulative effects

The cumulative effects on a Plan or Program usually refer to air quality, climate change, noise, land use and biodiversity loss.

The cumulative effect of the TDS measures on air quality and climate change is positive, since the TDS promotes the use of public transport against private transport, as well as modes such as inland and rail against road transport. Concerning acoustic environment, the effects mainly concern construction phase and are reversible. Cumulative effects may arise by concurrent construction infrastructure in the framework of other plans.

The impacts on land use and biodiversity should be thoroughly examined in combination with other potential plans and programs in Croatia (such as local and regional spatial plans).

An integrated approach must be adopted in order to avoid the phenomenon of excess of the carrying capacity of the regions under development..

Table 6-2: Assessment of the environmental impacts of the Strategy – Rail sector

	Relative measures	Air quality	Climate Change	Energy	Inland Water	Sea	Biodiversity, Habitats	Noise	Soil	Cultural heritage	Land use	Material assets	Waste production	Population	Human health	Safety
<b>RAIL</b>																
Measures foreseeing infrastructure construction	R1, R2, R3, R4, R5, R6, R7, R8, R9, R10, R11, R12, R13, R14, R15, R18, R19, R20															
Construction phase		-, !!, >, R	-, !!, >, R	0	-, !!, >, R	-, !!, >, R	-, !!, >, R	--, !!, >, R	-, >, R	?	0	?	--, !!, >>, R	0	-, !!, >, R	0
Operation phase		++, !!, >>, R	++, !!, >>, IR	++, !!, >>, IR	0	-, !!, >, R	-, !!, >, R	-, ! >>, R	-, !, >, R	?	0	++, !, >>, IR	+, ! >>, R	++, !!, >>, IR	++, !!, >>, IR	++, !!, >>, IR
Technological measures (interventions in transport technology and energy)	R.17, R25, R26, R31, R32	++, !!, >>, IR	++, !!, >>, IR	++, !!, >>, IR	0	0	0	0	0	0	0	0	0	++, !!, >>, IR	++, !!, >>, IR	++, !!, >>, IR
Transport management measures	R.16, R21, R22, R23, R24, R27, R28, R30, R34 R35, R39	++, !!, >>, IR	++, !!, >>, IR	++, !!, >>, IR	0	0	0	0	0	0	0	0	0	++, !!, >>, IR	++, !!, >>, IR	++, !!, >>, IR
Legislative/administration measures	R33, R36, R37, R38, R40, R42	+, >, IR	+, !, >>, IR	+, !, >>, IR	+, !, >>, IR	+, !, >>, IR	+, !, >>, IR	+, !, >>, IR	+, !, >>, IR	+, !, >>, IR	+, !, >>, IR	+, !, >>, IR	+, !, >>, IR	+, !, >>, IR	+, !, >>, IR	+, !, >>, IR
Environmental protection measures	R41	++, >>, IR	++, !!, >>, IR	++, !!, >>, IR	0	0	0	0	0	0	0	0	0	++, !!, >>, IR	++, !!, >>, IR	0
Financial measures	R29	0	0	0	0	0	0	0	0	0	0	0	0	+, !, >>, IR	0	0

Probability		Scale		Frequency / duration		Reversibility	
!!	Very probable	--	Large scale negative	>>	Frequent to constant / Long Term to Permanent	IR	Irreversible
!	Probable	-	Negative	>	Occasional / Short term	R	Reversible
		++	Large scale positive	Uncertainty			
		+	Positive	?	Possible impact totally depends on the implementation arrangements		
		0	Neutral				

Table 6-3: Assessment of the environmental impacts of the Strategy – Road Transport

	Relative measures	Air quality	Climate Change	Energy	Inland Water	Sea	Biodiversity, Habitats	Noise	Soil	Cultural heritage	Land use	Material assets	Waste production	Population	Human health	Safety
ROAD TRANSPORT																
Measures foreseeing infrastructure construction	Ro1, Ro2, Ro3, Ro4, Ro5, Ro6, ro7, Ro8, Ro9, Ro10, Ro11, Ro12, Ro13, Ro14, Ro15, Ro16, Ro18															
Construction phase		-, !!, >, R	-, !!, >, R	0	-, !!, >, R	-, !!, >, R	-, !!, >, R	--,!!, >, R	-, !!, >, R	?	0	?	--,!!, >, R	0	-, !!, >, R	0
Operation phase																
		-, !!, >>, R	-, !!, >>, R	-, !!, >>, R	-, !!, >>, ?	-, !!, >>, ?	-, !!, >, R	-, !, >>, R	-, !!, >>, ?	?	?	+, !, >>, IR	0	?	-, !!, >>, R	+, !, >>, IR
Technological measures (interventions in transport technology and energy)	Ro17, Ro26															
		Ro19, Ro20, Ro21, Ro23, Ro24, Ro29, Ro30														
Transport management measures																
		Ro27, Ro28, Ro32, Ro33, Ro34, Ro35														
Legislative/ administration measures																
Safety measures	Ro22	0	0	0	0	0	0	0	0	0	0	0	0	++, !!, >>, IR	0	++, !!, >>, IR
Environmental protection measures	Ro25	++, >>, IR	++, !!, >>, IR	0	0	0	0	++, !!, >>, IR	0	0	0	0	0	++, !!, >>, IR	++, !!, >>, IR	0
Financial measures	Ro31	0	0	0	0	0	0	0	0	0	0	0	0	++, !!, >>, IR	0	0
Probability		Scale		Frequency / duration					Reversibility							
!!	Very probable	--	Large scale negative	>>	Frequent to constant / Long Term to Permanent				IR	Irreversible						
!	Probable	-	Negative	>	Occasional / Short term				R	Reversible						
		++	Large scale positive	Uncertainty												
		+	Positive	?	Possible impact totally depends on the implementation arrangements											
		0	Neutral													



Table 6-4: Assessment of the environmental impacts of the Strategy – Aviation

	Relative measures	Air quality	Climate Change	Energy	Inland Water	Sea	Biodiversity, Habitats	Noise	Soil	Cultural heritage	Land use	Material assets	Waste production	Population	Human health	Safety	
AVIATION																	
Measures foreseeing infrastructure construction	A1, A2, A3, A4, A5, A6, A7, A8,																
Construction phase	A9	-, !!, >, R	-, !!, >, R	0	-, !!, >, R	-, !!, >, R	0	--,!!, >, R	-, !!, >, R	?	0	?	--,!!, >, R	0	-, !!, >, R	0	
Operation phase	A9	-, !!, >>, R	-, !!, >>, IR	+, >, IR	0	0	0	-, !!, >>, R	-, !, >>, R	0	0	?	0	?	-, !!, >>, R	+, >, IR	
Technological measures (interventions in transport technology and energy)	A12																
Transport management measures	A10, A13																
Legislative/ administration measures	A14, A15, A16, A17, A18, A19, A20, A21, A24, A25, A26, A27																
Safety measures	A11																
Environmental protection measures	A23																
Financial measures	A22																
Probability		Scale		Frequency / duration						Reversibility							
!!	Very probable	--	Large scale negative	>>	Frequent to constant / Long Term to Permanent						IR	Irreversible					
!	Probable	-	Negative	>	Occasional / Short term						R	Reversible					
		++	Large scale positive	Uncertainty													
		+	Positive	?	Possible impact totally depends on the implementation arrangements												
		0	Neutral														

Table 6-5: Assessment of the environmental impacts of the Strategy – Inland Navigation

	Relative measures	Air quality	Climate Change	Energy	Inland Water	Sea	Biodiversity, Habitats	Noise	Soil	Cultural heritage	Land use	Material assets	Waste production	Population	Human health	Safety
<b>INLAND NAVIGATION</b>																
Measures foreseeing infrastructure construction	I1, I2, I3, I4, I5, I6, I7															
Construction phase		-, !!, >, R	-, !!, >, R	0	--, !!, >, ?	0	-, !!, >, ?	--, !!, >, R	--, !!, >, ?	?	0	?	--, !!, >, R	0	-, !!, >, R	0
Operation phase		++, >>, IR	++, >>, IR	++, >>, IR	--, >>, ?	0	-, >>, ?	-, >>, R	-, >, ?	0	0	?	-, >>, R	++, !!, >>, IR	++, !!, >>, IR	+, !!, >>, IR
Technological measures (interventions in transport technology and energy)	I10	++, !!, >>, IR	++, !!, >>, IR	++, !!, >>, IR	0	0	0	0	0	0	0	0	0	++, !!, >>, IR	++, !!, >>, IR	0
Transport management measures	I9	0	0	0	?	0	0	0	0	0	0	0	0	++, !!, >>, IR	0	0
Legislative/ administration measures	I13, I14, I16, I17, I18, I19, I21, I22	+, !!, >>, IR	+, !!, >>, IR	+, !!, >>, IR	+, !!, >>, IR		+, !!, >>, IR	+, !!, >>, IR	+, !!, >>, IR	0	0	0	0	++, !!, >>, IR	+, !!, >>, IR	+, !!, >>, IR
Safety measures	I8, I20	0	0	0	+, !!, >>, IR		+, !!, >>, IR	0	+, !!, >>, IR	0	0	0	0	++, !!, >>, IR	0	++, !!, >>, IR
Environmental protection measures	I11, I12, I20	0	0	0	++, !!, >>, IR	+, !!, >>, IR	++, !!, >>, IR	0	++, !!, >>, IR	0	0	0	+, !, >>, IR	++, !!, >>, IR	0	++, !!, >>, IR
Financial measures	I15	0	0	0			0	0	0	0	0	0	0	++, !!, >>, IR	0	0

Probability		Scale		Frequency / duration		Reversibility	
!!	Very probable	--	Large scale negative	>>	Frequent to constant / Long Term to Permanent	IR	Irreversible
!	Probable	-	Negative	>	Occasional / Short term	R	Reversible
		++	Large scale positive	Uncertainty			
		+	Positive	?	Possible impact totally depends on the implementation arrangements		
		0	Neutral				

Table 6-6: Assessment of the environmental impacts of the Strategy – Maritime Transport

	Relative measures	Air quality	Climate Change	Energy	Inland Water	Sea	Biodiversity, Habitats	Noise	Soil	Cultural heritage	Land use	Material assets	Waste production	Population	Human health	Safety
<b>MARITIME TRANSPORT</b>																
Measures foreseeing infrastructure construction	M1, M2, M5, M6, M7, M8, M9, M10, M11, M12, M13, M14, M16															
Construction phase		-, !!, >, R	-, !!, >, R	0	0	--, !!, >, ?	-, !!, >, ?	--, !!, >, R	--, !!, >, ?	?	0	?	--, !!, >, R	0	-, !!, >, R	0
Operation phase		++, !!, >>, IR	++, !!, >>, IR	++, !!, >>, IR	0	--, >>, ?	-, >>, ?	-, >>, R	-, >, ?	0	0	?	-, >>, R	++, !!, >>, IR	++, !!, >>, IR	+, !!, >>, IR
Technological measures (interventions in transport technology and energy)	M15, M31	++, !!, >>, IR	++, !!, >>, IR	++, !!, >>, IR	+, !!, >>, IR		+, !!, >>, IR	+, !!, >>, IR	+, !!, >>, IR	0	0	+, !!, >>, IR	0	++, !!, >>, IR	++, !!, >>, IR	++, !!, >>, IR
Transport management measures	M20, M21	0	0	0	0	0	0	0	0	0	0	0	0	++, !!, >>, IR	0	++, !!, >>, IR
Legislative/ administration measures	M17, M18, M19, M22, M23, M24, M25, M26, M29, M32															
Safety measures	M27, M28	+, !!, >>, IR	+, !!, >>, IR	+, !!, >>, IR	+, !!, >>, IR	+, !!, >>, IR	+, !!, >>, IR	+, !!, >>, IR	+, !!, >>, IR	0	0	0	0	++, !!, >>, IR	+, !!, >>, IR	++, !!, >>, IR
Environmental protection measures	M3, M4, M28	+, !!, >>, IR	+, !!, >>, IR	+, !!, >>, IR	+, !!, >>, IR	+, !!, >>, IR	+, !!, >>, IR	+, !!, >>, IR	+, !!, >>, IR	0	0	0	0	++, !!, >>, IR	++, !!, >>, IR	++, !!, >>, IR
Financial measures	M30	0	0	0	0		0	0	0	0	0	0	0	++, !!, >>, IR	0	0

Probability		Scale		Frequency / duration		Reversibility	
!!	Very probable	--	Large scale negative	>>	Frequent to constant / Long Term to Permanent	IR	Irreversible
!	Probable	-	Negative	>	Occasional / Short term	R	Reversible
		++	Large scale positive	Uncertainty			
		+	Positive	?	Possible impact totally depends on the implementation arrangements		
		0	Neutral				

Table 6-7: Assessment of the environmental impacts of the Strategy – Urban, suburban and regional transport

	Relative measures	Air quality	Climate Change	Energy	Inland Water	Sea	Biodiversity, Habitats	Noise	Soil	Cultural heritage	Land use	Material assets	Waste production	Population	Human health	Safety
<b>URBAN, SUBURBAN AND REGIONAL TRANSPORT</b>																
Measures foreseeing infrastructure construction	U2, U3															
Construction phase		-, !!, >, R	-, !!, >, R	0	-, !!, >, R	-, !!, >, R	0	--, !!, >, R	-, !!, >, R	?	0	?	--, !!, >, R	0	-, !!, >, R	0
Operation phase		++, !!, >>, IR	++, !!, >>, IR	++, !!, >>, IR	0	0	0	++, !!, >>, IR	-, !!, >, R	?	0	+, !, >>, IR	0	++, !!, >>, IR	++, !!, >>, IR	++, !!, >>, IR
Technological measures (interventions in transport technology and energy)	U6, U17	++, !!, >>, IR	++, !!, >>, IR	++, !!, >>, IR	0	0	0	0	0	0	0	0	0	++, !!, >>, IR	++, !!, >>, IR	0
Transport management measures	U1, U4, U5, U13, U14, U15, U18, U21, U22	++, !!, >>, IR	++, !!, >>, IR	++, !!, >>, IR	0	0	0	+, !!, >>, IR	0	0	0	0	0	++, !!, >>, IR	++, !!, >>, IR	++, !!, >>, IR
Legislative/administration measures	U9, U10, U11, U16, U19, U20	+, !!, >>, IR	+, !!, >>, IR	+, !!, >>, IR	0	0	0	+, !!, >>, IR	0	0	0	0	0	++, !!, >>, IR	+, !!, >>, IR	+, !!, >>, IR
Safety measures	U8	++, !!, >>, IR	++, !!, >>, IR	++, !!, >>, IR	0	0	0	+, !!, >>, IR	0	0	0	0	0	++, !!, >>, IR	++, !!, >>, IR	++, !!, >>, IR
Environmental protection measures	U7	++, !!, >>, IR	++, !!, >>, IR	++, !!, >>, IR	0	0	0	++, !!, >>, IR	0	0	0	0	0	++, !!, >>, IR	++, !!, >>, IR	+, !!, >>, IR
Financial measures	U12	0	0	0	0	0	0	0	0	0	0	0	0	++, !!, >>, IR	0	0

Probability		Scale		Frequency / duration		Reversibility	
!!	Very probable	--	Large scale negative	>>	Frequent to constant / Long Term to Permanent	IR	Irreversible
!	Probable	-	Negative	>	Occasional / Short term	R	Reversible
		++	Large scale positive	Uncertainty			
		+	Positive	?	Possible impact totally depends on the implementation arrangements		
		0	Neutral				

## 7. MITIGATION OF THE ENVIRONMENTAL IMPACTS OF THE TDS

The SEA directive foresees the determination of measures to prevent, reduce or offset the adverse impacts on the environment. The present chapter presents the possible measures to be applied to mitigate the negative effects of the TDS. The measures proposed are based on the impacts assessed in the previous chapter and the international experience in similar conditions. However, since the present is a strategic document the measures proposed provide general guidance for addressing the adverse impacts, while detailed measures must be examined case by case during the development of specific projects and incorporated in the EIA and the environmental permitting process.

Besides the mitigation of negative effects, in the present chapter measures to enhance the positive effects of the strategy are proposed where applicable.

### 7.1 Measures to mitigate impacts on air quality

As described in the previous chapter, the overall impact of the TDS on air quality is expected to be positive.

The most significant impacts of the TDS measures on air quality concern the emission of air pollutants during the construction of the foreseen infrastructure and concern all the transport subsectors.

Mitigation measures to reduce air pollution during construction phase (for all subsectors) are the following:

#### ***PM abatement***

- Watering of all exposed surfaces (soil piles, graded areas, unpaved parking areas, staging areas, and access roads).
- Covering or maintaining at least two feet of free board space on haul trucks transporting soil, sand, or other loose material on the site. Any haul trucks that would be traveling along freeways or major roadways should be covered.
- Use wet power vacuum street sweepers to remove any visible trackout mud or dirt onto adjacent public roads at least once a day.
- Limit vehicle speeds on unpaved roads to 25km/hr.
- All roadways, driveways, sidewalks, parking lots to be paved should be completed as soon as possible. In addition, building pads should be laid as soon as possible after grading unless seeding or soil binders are used.

#### ***Exhaust emissions abatement***

- Minimization of idling time
- Maintenance of all construction equipment in proper working condition according to manufacturer's specifications. The equipment must be checked by a certified mechanic and determine to be running in proper condition before it is operated.

For assuring the minimisation of construction on air quality, it is suggested that **Construction Environmental Management Plans** are in place in construction sites, encompassing the above mentioned measures.

As far as the operation phase is concerned:

#### ***Road sector***

The use of the more environmental friendly transport modes (rail, inland water, and public transport), which is promoted by the TDS is by itself an important factor that will contribute to the reduction of air emissions of road transport. Furthermore, the measures already foreseen in the TDS, i.e. Ro 25- Reduce environmental impact Ro 26- Energy efficiency will contribute to the reduction of the air emissions by road transport. It is suggested that the additional measures (may be included in Ro26) for alternative fuel stations will encourage the use of alternative fuels (as foreseen for the urban transport sector). Furthermore, tolling of new roads can reduce the effects of induced demand.

Finally, adverse impacts may be minimised by:

- Proper maintenance of the road axes in order to prevent dust emissions (foreseen in Ro 17)
- Vegetation on the side of the axes

### ***Rail transport***

As presented in the previous chapter, the overall impact of rail on air quality will be positive due to the modal shift. Furthermore, measures to further improve the performance of the rail sector are already included in the TDS (R26 – Energy efficiency and R41-Reduce environmental impact). Electrification of lines (R.17) further enhances the reduction of air pollution resulting from rail transport. Although this depends on the way the electricity is generated, it is usually more efficient to control emissions from one source (power plant) than from many dispersed ones.

### ***Inland navigation and maritime transport***

The overall impact of the two subsectors is positive. Further development can be achieved by:

- Increasing energy efficiency and use of cleaner fuels (already foreseen in I.10 and M.15)
- Avoiding or minimizing traffic jams.
- Establishing a port clean air program
- Fugitive emission controls at maintenance operations

### ***Aviation***

Indicative measures to reduce air emissions by aviation are

- Low fuel/emission aircraft departure procedures;
- Continuous Descent Approach and Low Power - Low Drag techniques
- avoiding aircraft queuing on the ground
- avoiding unnecessary use of aircraft Auxiliary Power Units
- increasing the use of public transport access to an airport
- supporting and encouraging staff to “car share” or to use more sustainable transport access;
- the use of electric vehicles or less polluting fuels (liquid and natural gas) in airports
- use less polluting fuels in airport buildings
- ensure adequate vehicle maintenance
- avoiding combustion equipment running when not required
- energy management in buildings and for airfield systems (very often the most cost effective opportunity)
- fugitive emission controls.

This kind of measures could be part of Environmental Management Plans of airports.

For **urban, suburban and regional transport**, the overall impact is considered positive due to improvement of the attractiveness of public transport on which the TDS focuses (measures U1-U5). Furthermore other measures already foreseen (promotion of alternative fuels, modernization of the fleet, energy efficiency, accompanying policies and organizational measures to limit private car usage and stipulate public transport) will enhance the performance of the sector. Competitive pricing of the public transport should be considered (may be included in the framework of U12) as well as Workplace Parking Levies, the revenues of which could be used for the amelioration of the improvement of PT services. Other additional measures that could be considered is the promotion of the use of electric vehicles, especially in the case of services of pre-determined and/or short trajectories (such as public utility vehicles, goods delivery / distribution vehicles, rental cars for use in the cities. Public awareness (U.19) can play an important role in the promotion of PT. Besides the advantages of the PT, public awareness campaigns can also promote car sharing.

However, specific measures might be necessary at urban level, according to the results of the air quality mapping (Directive 2008/50), where the air pollution by all sources will be assessed and “hot spots” can be identified.

## 7.2 Measures to mitigate impacts on climate change

Measures to mitigate impacts on climate change for all construction works (for all sectors) include:

- Materials should be (if possible) locally sourced and /or recycled – reused
- Good construction practices, such as should be adopted on site:
  - Minimization of idling time
  - Maintenance of all construction equipment in proper working condition according to manufacturer's specifications. The equipment must be checked by a certified mechanic and determine to be running in proper condition before it is operated.
  - Use of equipment with new technologies (repowered engines, electric drive trains).
  - Use alternative fuels for generators at construction sites such as propane, solar, or use electrical power.
  - Reduce electricity use in the construction office by using compact fluorescent bulbs, powering off computers every day, and replacing heating and cooling units with more efficient ones.

As far as climate change adaption is concerned, the following are suggested:

- Ensure that new infrastructure projects include operational strategies for managing extreme weather events and changes in climatic conditions such as rainfall and temperatures.
- Sustainable design and construction techniques including climate change adaptation techniques and Sustainable Urban Drainage Systems

For **road, rail, inland and maritime transport**, the measures foreseen for improvement of energy efficiency and use of alternative fuels will contribute to the performance concerning the climate change issue.



As far as **aviation** is concerned, indicative measures to reduce the impact of the sector on climate change are:

- Making routes more direct;
- Aiming for a fuel optimised flight profile;
- Increasing load factor and the capacity (and use) of more fuel optimised routes;
- Operating more fuel efficient aircraft;
- Avoid holding and queuing aircraft with engines running (in the air and on the ground);
- Using effective fuel optimised speeds when circumstances change

For **urban, suburban and regional transport**, the overall impact is considered positive due to promotion of public transport. Measures already foreseen (promotion of alternative fuels, modernization of the fleet) will enhance the performance of the sector.

### 7.3 Measures to mitigate impacts on energy

As presented in the previous chapter, the overall impacts of the TDS are expected to be positive. Further enhancement could be achieved by further promotion of alternative fuels (as proposed in the paragraphs 8.1 and 8.2), use of renewable energy (e.g. photovoltaic) for the street lighting, or lighting of stations, airports and ports

### 7.4 Measures to mitigate impacts on water

As shown in the previous section, the most significant negative impacts on state water is water pollution in regular use, especially in the case of accidents related to traffic which can lessen or prevent:

- Proper planning of transport routes outside the protected areas of special protection waters
- The implementation of appropriate construction measures building protection system to control sewage and waste water from roads.

Inland navigation can also have a significant negative impact on the status of surface water bodies especially in terms of hydromorphological and biological deterioration which can be prevented or mitigated by the following measures:

- Proper planning of the waterways in the relevant surface water bodies for which the tolerance of achieving the objectives for water protection
- Prevention of pollution from vessels
- increasing the standard equipment of vessels

In inland navigation, measures for mitigating impacts on riparian zones or intertidal areas, for example due to shore parallel structures, bank protection works, or bank erosion resulting from boat wash include:

- creation of a submerged or partly-submerged berm or placement of another structure in front of the embankment to absorb wave energy and hence reduce erosion
- use of alternative 'green' bank protection techniques including geotextiles, willow spilling or other products/systems which promote the establishment of riparian vegetation

- Design modifications to vessels. For example the design of the hull and/or propulsion system to reduce boat wash

Impacts of the other sectors mainly are due to spillages and run-off. This can be faced with the improvement of the drainage system.

## 7.5 Measures to mitigate impacts on sea

The main measures to mitigate adverse impacts on sea are:

- Using adequate dredging techniques, as those described for the case of inland water.
- Take appropriate measures to:
  - prevent spillages and accidents
  - prevent illegal waste and wastewater dumping
  - prevent eutrophication in ports and marines by adequate construction that permits renewal and circulation of water and by preventing disposal of not treated wastewater.

## 7.6 Measures to mitigate impacts on biodiversity, flora and fauna

The main impact of the land transport measures (and mainly rail and road transport) is the potential fragmentation of habitats. In order to minimise this impact, the adequate wildlife crossings must be established according to the provisions of the Ordinance on wildlife crossings (OG 5/07).

Furthermore, especially for birds, special emphasis should be given to the avoidance of excessive lighting in order to minimise bird disturbance, as well as to the avoidance of disturbances of the birds' migration paths by aviation.

Special emphasis should be given at project level in case of proximity with areas under protection status. The impacts should be carefully assessed and mitigation measures should be proposed taking into account the characteristics of each area.

Additional measure to protect flora could be to reassure that new and improved infrastructure projects should include adequate planting plans (including street trees, road-side planting etc). Such plants should be native and drought / cold resistant.

Measures to mitigate impacts of **inland navigation** to river habitats include<sup>1</sup>:

- removal of obsolete infrastructures or the modernisation of these infrastructures in a way that helps to improve the river's ecology;
- restoration or removal of hard reinforcement structures along riverbank and the use of more natural embankment techniques;
- use of alternative groyne types leading to higher dynamics along the river bank;
- re-connection of side arms, floodplains and ox-bows to restore riverine habitats;
- creation of a bypasses or floodways to improve structural diversity of the river ecosystems and encourage the passage of fish;

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<sup>1</sup> Guidance document on inland waterway transport and Natura 2000

- use of ecologically orientated maintenance dredging and sediment management techniques;
- recreation of typical riverine habitats such as floodplain islands or the creation of soft side channels to increase the range of natural habitats available for local wildlife.

Additional measures to protect the flora and fauna include:

- Prohibit recreational traffic and traffic of high-speed boats in the vicinity of bird protection areas, as well as the anchoring and berthing in special nature reserve during the period March – July.
- Prohibit boat traffic through resting areas for migrating birds.

The PIANC (The World Association for Waterborne Transport Infrastructure) document “Working with Nature” provides an approach for finding “win-win” solutions for the inland navigation sector and biodiversity protection.

Concerning the maritime navigation, indicative mitigation measures include:

- Measures to prevent spillages and accidents
- Measures to prevent illegal waste and wastewater dumping
- Measures to prevent eutrophication in ports and marines by adequate construction that permits renewal and circulation of water and by preventing disposal of not treated wastewater.
- Use of ecologically orientated maintenance dredging and sediment management techniques

The measures foreseen for protection of flora and fauna will also minimise potential impacts on aquaculture.

## 7.7 Measures to mitigate impacts on the acoustic environment

As mentioned in the previous chapter, for all sectors negative impacts are expected during construction phase. Possible mitigation measures, which could be part of the **Construction Environmental Management Plans** are:

- Use of low-noise construction equipment
- Only machines in good working order shall be used and their proper functioning shall be regularly checked.
- Works near residential buildings shall be performed only during daytime and evening hours
- Use of personal protective equipment by the site personnel
- Construction of temporary barriers/ enclosures around noisy equipment.

As far as operation phase of the foreseen infrastructure is concerned, possible mitigation measures are the following:

### **Road transport**

- Speed limitations in sensitive areas (especially at night)
- Installation of noise barriers
- Roadside vegetation
- Use of low noise road surface
- Maintenance of the roads

### ***Rail transport***

- Modernisation of the rolling stock (R.31, R.32)
- Maintenance of the rails and the rolling stock
- Installation of noise barriers
- Vegetation alongside of the rail tracks
- Reducing speed especially at night in cases where no other alternative exists

### ***Aviation***

- Adoption of measures such as foreseen in the Directive 2002/30 “on the establishment of rules and procedures with regard to the introduction of noise-related operating restrictions at Community airports”

### ***Inland and maritime transport***

Noise is an important environmental problem at ports. It is necessary to develop Noise Management Plans for ports (inland or maritime)

- Covering of sound intensive components with insulation
- Planting trees as a barrier
- Use of Electricity instead of diesel or diesel-electric moving equipment
- Avoid night-open terminal (Allow seaside or riverside activities but no land-operations with trailers through gates)

For ***urban, suburban and regional transport***, the foreseen reduction of the private car will lead to reduction of noise. Additional effects will have the creation of pedestrian zones and the modernization of the public transport fleet.

Apart from all the above, it is necessary for Croatia to complete the Strategic noise mapping and noise management plans as foreseen by the Environmental Noise Directive 2002/49/EC in order to tackle the problem in an integrated way.

## **7.8 Measures to mitigate impacts on soil**

Accidental spillages on soil can be prevented with good maintenance of all vehicles and equipment. Additionally, contamination of soil by spillages can be avoided by good maintenance of transport network as well as by improvement of the drainage system. It is also recommended to avoid the over use of salt for de-icing of the transport network.

Measures concerning soil erosion have been presented in paragraph 7.3 It is recommended to develop Erosion and Sediment Control Plans for the inland and coastal port construction activities.

## **7.9 Measures to mitigate impacts on cultural heritage**

The impacts on cultural heritage are not expected to be significant. However, in order to avoid visual and aesthetic impacts, the issue must be carefully examined during the environmental permitting process of the foreseen infrastructure. Furthermore new development should avoid designated areas and other sensitive sites. Archaeological investigations may be necessary where appropriate. In case of archaeological findings during construction works the competent authorities should be informed immediately. Specific mitigation measures should be identified at project level assessments.

## 7.10 Measures to mitigate impacts on land use

As presented in the previous chapter, since the TDS mainly foresees upgrading and rehabilitation of existing infrastructure, no significant additional impacts on land use are anticipated.

However, the issue of the changes in land uses due to the improvement of accessibility must be examined in spatial plans and Transport Master plans for urban areas.

Furthermore, conversion of most valuable agricultural land, particularly valuable arable (P1) and valuable arable (P2) of agricultural land must be constrained.

It is necessary to limit redevelopment, particularly valuable arable (P1) and valuable arable (P2) of agricultural land transport infrastructure interventions

## 7.11 Measures to mitigate impacts on material assets

Although, no major impacts are anticipated, indicative practices to promote the performance of the TDS concerning the issue of material assets include:

- Use of recycled or secondary aggregates should be encouraged where possible.
- Locally sourced sustainable materials should be used for construction.

Furthermore, quarry rehabilitation plans should be elaborated for the quarrying areas.

## 7.12 Measures to mitigate impacts on waste production

An important impact of the TDS is the production of large quantities of construction / demolition waste during the construction phase of the foreseen infrastructure. Potential mitigation measures include:

- Reuse of excavation material for construction
- Segregation of waste and proper treatment & disposal of hazardous waste
- Require a **Site Waste Management Plan** for all infrastructure construction projects

Especially for the waste generated by dredging activities, the mitigation measures may include use of the dredging material (after analysis to assess chemical and physical suitability) for:

- coastal protection, e.g. beach nourishment, onshore/offshore feeding, managed retreat;
- agriculture, horticulture, forestry;
- habitat development or enhancement, e.g. aquatic habitats, bird habitats, mudflats, wetlands;
- amenity development or enhancement, e.g. landscaping;
- raising low-lying land;
- land reclamation, e.g. for industrial development, housing, infrastructure;
- production of construction material, e.g. bricks, clay, aggregates;
- construction works, e.g. foundation fill, dikes

As far as the operation of the infrastructure is concerned, it is necessary to implement **Waste Management Plans**, including waste prevention, segregation, reuse, recycle and disposal activities for hazardous and non-hazardous waste in inland and maritime ports and airports.

Furthermore, the management of **ELV** must be done according to the provisions of the ELV Directive 2000/53/EC.

### **7.13 Measures to mitigate impacts on population and human health**

The measures for mitigating adverse impacts on human health by air pollution are similar to those concerning air quality (see paragraph 7.1). Air quality mapping according to the Ambient Air Quality Directive 2008/50/EC is necessary for assessing the exposure of the population in high levels of air pollution. Furthermore, the promotion of additional measures such as those described in 7.2.13 will enhance the positive impacts on human health.

## 8. MONITORING PROGRAM

Monitoring the environmental effects of the TDS is a key stage in the SEA process. The information gathered as a result of monitoring will enable MMATI to track the environmental effects of the TDS, gauge the effectiveness of the mitigation measures employed, identify unforeseen effects and manage any uncertainty encountered in the assessment process e.g. in the prediction of certain environmental effects.

For the definition of the monitoring procedure the following have been taken into account:

- The environmental objectives and indicators of the SEA
- The likely significant effects identified in the SEA
- The mitigation measures.

The monitoring procedure that is proposed in this report takes advantage of procedures that already exist in the country in the framework of other policy and legislation requirements. Additionally, the measures for improvement of the data collection in the TDS will facilitate the capability of monitoring the implementation and effects of the TDS.

**Table 8-1: Monitoring procedures of the environmental effects of the TDS**

CATEGORY	OBJECTIVE	INDICATOR	MONITORING PROCEDURE
<b>Air quality</b>	Preservation of good air quality and reduction of transport emitted PM10	NOx emitted PM10 emitted Number of exceedences	Make noise mapping in accordance with the provisions of Directive 2002/49/EC on the assessment and management of environmental noise and the Law on Noise Protection ("Official Gazette", no. 30/09, 55/13 and 153/13) Transportation Model / air quality modelling.
<b>Climate change</b>	Reduction of GHG emissions	CO2-eq emitted Application of Sustainable Urban Drainage Systems in new and improved infrastructure projects	National Inventory of GHG emissions National Strategy
<b>Energy</b>	Promote sustainable energy use	Total energy consumption of transport Fuel consumption per passenger-km Alternative fuel consumption	Energy balance of the country
<b>Water</b>	Minimise pollution of fresh surface waters and groundwater	Water status	Monitoring the status of water quality and the recipient of emission to water
<b>Sea</b>	Minimise pollution on marine waters	Sea bathing water class	Sea bathing water monitoring according to the Directive 2006/7/EC



CATEGORY	OBJECTIVE	INDICATOR	MONITORING PROCEDURE
<b>Biodiversity and habitats, flora and fauna</b>	Minimise negative impacts on biodiversity & habitats	Land take in sensitive areas (km <sup>2</sup> ) Changes in traffic (pass.-km) in sensitive areas Number of biodiversity enhancement schemes implemented through transport related activities (e.g. native species planting on roadsides, implementation of green/bio bridges)	Spatial plans. Monitoring of the requirements of the EU legislation on natural environment (Habitat directive, Bird Directive) and the EU strategy on Biodiversity Satellite photos of the areas and creation of relative archive Forest management plans Hunting economic plans Pseudo-color imagery for an area of floodplain forests
<b>Noise</b>	Avoidance of exposure to levels which endanger health or quality of life	Population exposed to transport noise	Noise mapping according to the provisions of the Noise Directive
<b>Soil</b>	Reduce negative impacts on soil damage (pollution, displacement)	The number of cases of pollutions	Keeping a register of pollution Soil monitoring
<b>Cultural heritage</b>	Minimise impact on cultural and historic environment	Proximity of transport infrastructure Number of designated buildings and cultural monuments at risk from transport	Enforcement of relative minimum requirements in environmental permitting of each project
<b>Land use</b>	Reduce the negative effects of changes in land use by restriction on transport infrastructure location in a particularly valuable (P1) and valuable (P2) agricultural land	Land take by transport infrastructure mode (km <sup>2</sup> )	Agricultural Land Act (Official Gazette, 39/13) Ortho-photo images of areas and creating archives Spatial plans Satellite photos of the areas and creation of relative archive
<b>Material assets</b>	Make best use of existing infrastructure and promote the sustainable development of new infrastructure	Rate of reuse and recycle of materials Ratio of environmental friendly construction materials Land property affected (km <sup>2</sup> )	Enforcement of relative minimum requirements in environmental permitting of each project.
<b>Waste</b>	Minimisation of waste	Change of quantity	Enforcement of relative minimum

CATEGORY	OBJECTIVE	INDICATOR	MONITORING PROCEDURE
<b>production</b>	production Adoption of integrated environmental friendly waste management practices (including hazardous waste management, such as asphaltic material)	of construction waste Proportion of construction / deconstruction waste that is reused / recycled. Increase of the service rate of the waste / wastewater infrastructure	requirements in environmental permitting of each project. Respect of the EU legislation requirements on waste management, recycling and construction waste management.
<b>Population</b>	Promotion of sustainable transport modes	Population using Public Transport and environmental friendly transport means. % of freight being transported by sustainable transport modes such as rail or water.	Transport statistics
<b>Human health</b>	Protection against recognised health risk for air pollution  Minimise transport accidents	Population exposed to air pollution  Traffic accidents involving personal injury	Air quality mapping according to the 2008/50 directive  Transport accident statistics

## 9. SEA CONCLUSIONS - RECOMMENDATIONS

The main conclusions and recommendations that arise by the SEA process of the TDS are the following:

- **Compatibility with EU policy:** In general the TDS is in line with the EU transport policy which focuses on the promotion of public transport, rail and inland navigation. Furthermore, the TDS has environmental objectives that are in line with the EU and international environmental policy.
- **Compatibility of the TDS objectives with the SEA objectives:** There is good level of compatibility of the TDS objectives with the SEA objectives. Even though a level of uncertainty exists (which can be offset by the specification of the interventions to be promoted), the TDS is focusing on the improvement of the Croatian transport in a sustainable way. The fulfilment of the objectives 1 (Improvement of transport connectivity and coordination with neighbouring countries), 2 (Improvement of passengers long distance accessibility inside Croatia), 3 (Improvement of the passenger regional connectivity in Croatia enhancing territorial cohesion), 4 (Improvement of the passengers accessibility to and within the main urban agglomerations) and 5 (Improvement of freight accessibility inside Croatia) depends on several factors, such as how interventions will be realized, the modal shift that is probably promoted by them, the new transport pattern after the completion of them, etc. By the adoption of adequate provisions, aiming at preventing and mitigating adverse effects on the environment, at the stage of planning the interventions, these objectives of the TDS can be fulfilled in an environmental friendly way.
- **Assessment of alternatives:** Public Transport alternative is the one that should be considered as priority alternative. It promotes the fulfilment of most of the TDS objectives and has the better environmental performance. Rail transport is the most environmental friendly alternative for the fulfilment of objectives where no PT alternative exists. Inland water alternative has in general good performance and can act synergistically to the rail alternative. Maritime transport alternative should be carefully examined. Although it has a relative good environmental performance, it should be considered within a broader perspective for the development of the coastal zone, in order to avoid overexploitation of the coastal area. Road alternative presents uncertainty, since it comprises infrastructure construction works that may have adverse effects on the environment. Aviation alternative is not a “stand - alone” alternative and should be considered mainly as a supplementary to the other alternatives, as it mainly covers different transport needs.
- **Impacts of the TDS:** The significant environmental impacts of the TDS can be concluded as follows:
  - Air quality: In general, the overall impacts of the TDS on air quality are considered to be positive, taking into account the spirit of promotion public transport, rail, inland and water navigation. Air emissions (mainly PM10 and exhaust emissions) are expected during the construction phase of the infrastructure.

- Climate change: In general, the overall impacts of the TDS on air quality are considered to be positive, taking into account the spirit of promotion public transport, rail, inland and water navigation. GHG emissions during the construction phase of the infrastructure
- Energy: the TDS has positive impacts on energy efficiency, since it promotes measures such as modernisation of fleets, use of alternative fuels
- Inland water: The most significant adverse impacts expected during construction and operation of measures concerning inland navigation relate to dredging and other engineering works, water pollution due to spillages or discharges,, sedimentation, water thermal pollution, etc. Land transport modes may have adverse impacts due to spillages and run-off of hazardous substances
- Sea water: The most significant adverse impacts are expected during construction and operation of measures and relate to dredging and other engineering works, water pollution due to spillages or discharges,, sedimentation, water thermal pollution, etc.
- Biodiversity, flora and fauna: Inland water and maritime navigation will have adverse impacts on habitats mainly due to physical modification of water bodies, species disturbance and displacement caused by river engineering works and increased shipping traffic, barriers to migration and dispersal of species, introduction of invasive and non-native species. For land transport, the most important impact is the species fragmentation due to construction of transport network elements.
- Acoustic environment: Increased noise levels are anticipated during the construction phase of the foreseen infrastructure. Additionally, increased noise levels are expected in the vicinity of transport infrastructure and at ports.
- Soil: Negative impacts are expected because of soil contamination by hazardous substances during construction and operation of infrastructure, as well as for the deposition of fugitive emissions from air pollution on the soil. All new projects in the area of transport infrastructure can cause displacement of the soil (soil erosion). Increased erosive processes are possible in inland navigation and maritime affairs..
- Cultural heritage: Since the TDS mainly foresees the rehabilitation and expansion of existing infrastructure no significant additional effects are anticipated. Negative Impacts may occur in the phase of construction of the infrastructure, which should be carefully assessed during the environmental permitting phase of the works.
- Additionally, improvement of accessibility of cultural and historical areas leads to increase of visitors and consequently to secondary impacts, such as waste generation, noise, etc.
- Land use: Since the TDS mainly foresees the rehabilitation and expansion of existing infrastructure no significant additional effects are anticipated. However, the effects on land use should be examined in combination with other development policies such as tourism development policy.
- Material assets: Most of the measures foreseen in the TDS concern the rehabilitation, improvement and modernisation of existing infrastructure. This is in line with the SEA objective of make best use of existing infrastructure and thus the impact is considered positive. Concerning the promotion of sustainable development of new infrastructure, the impacts might be negative, due to the fact that the necessity of construction

materials will result to an increase of the demand of construction primary materials (such as sand, limestone etc.), that may downgrade certain areas (quarrying areas).

- Waste production: The main impacts on waste production concern the construction of the foreseen infrastructure for all sectors, during which large quantities of construction/ demolition waste will be produced. Negative impacts are also anticipated by the operation of rail transport, as well as inland and maritime port activities.
- Population: The TDS promotes sustainable transport modes and it is expected to reduce the risk on human health due to air pollution.
- Safety: The TDS has positive effects on the transport safety due to amelioration and rehabilitation of the transport network, renewal of fleets, as well as the promotion of specific measures that ensure transport safety.
- **Prevention / Mitigation of adverse impacts:**
  - Careful design of all planned infrastructure. The provisions of the TDS for studies assessing the necessity and feasibility of infrastructure (especially for the road sector) should be prioritised.
  - Measures of the TDS enhancing the environmental performance, such measures promoting energy efficiency, use of alternative fuels as well as measures for the reorganisation of the transport sector must be prioritised.
  - The TDS and its implementation should be in coordination with other development strategies of the country such as Spatial Development and Tourism Development strategy.
  - Adoption of good construction management practices for all construction works, in order to minimise air emissions, greenhouse emissions, contamination of water and soil by spillages, excessive noise levels etc.
  - Adoption of European and international environmental standards and know-how on the prevention and mitigation of the adverse environmental impacts
  - Adoption of measures to prevent / minimise the impacts on protected areas and cultural heritage. The protection of the outstanding natural and cultural environment of Croatia should be the corner stone for the interventions.
  - Detailed mitigation measures should be presented at the environmental permitting phase of each intervention resulting by the TDS implementation. Special emphasis should be given in case of proximity to protected areas.
- **Monitoring:** The TDS and its environmental performance must be monitored via a monitoring program that:
  - Takes advantage of procedures that already exist in the country in the framework of other policy and legislation requirements
  - Makes best use of the implementation of the foreseen measures for data collection
  - Is compliant to the provisions of the Croatian and EU environmental legislation.
- **Further recommendations:**
  - In urban areas, revisions of the TDS should focus on promotion of the avoidance of private car, by promoting the increase of share of walking and cycling, the intermodality among different modes of public transport and the amelioration of PT services.

- At national level, freight and passenger transport with other measures than road should be prioritised.
- It is necessary that the provisions of the TDS and its revisions should be assessed by adequate transport modelling that will:
  - Examine whether the TDS provisions cover the future transport needs in a satisfactory way
  - Compare various scenarios for alternative transport patterns.
  - Provide input to perform quantitative assessment of the environmental impacts of the different scenarios.

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**ANNEX**

**APPROPRIATE ASSESSMENT ACCORDING TO THE NATURE PROTECTION  
ACT (OG, 80/2013) AND REGULATIONS ASSESSMENT FOR PLANS,  
PROGRAMS AND PROJECTS FOR THE ECOLOGICAL NETWORK**

**(OG 124/2013)**

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## APPROPRIATE ASSESSMENT ACCORDING TO THE NATURE PROTECTION ACT (OG, 80/2013) AND REGULATIONS ASSESSMENT FOR PLANS, PROGRAMS AND PROJECTS FOR THE ECOLOGICAL NETWORK (OG 124/2013)

### 1. Introduction

According to the Regulation on the assessments for plans, programs and projects for the ecological network (OG 118/2009), the rating of a plan or program consists of:

- Preliminary assessment of a plan or program,
- The main assessment of a plan or program with the assessment of suitable alternatives (hereinafter: The main assessment plan and program).

The Regulation foresees that for plans and programs for which the law governing environmental protection prescribed strategic assessment, and for the plans and programs for which is the need of a strategic assessment has been identified the Main assessment plan or program shall be carried out in the framework of the strategic assessment.

The Ministry of Environment and Nature Protection, Nature Protection Department issued a Decision on the obligation to carry out the Appropriate Assessment of the Strategy for the ecological network that must accompany the Study. In line with this decision, the Strategic Environmental Assessment Study includes an Appropriate Assessment according to the contents of Annex II of the Regulation "Rules on assessing the acceptability of plans, programs and projects for the ecological network (Official Gazette No. 118/2009)".

### 2. Characteristics of the ecological network

The recent **Regulation on Ecological network** (OG 124/2013) sets the ecological network (NATURA 2000) for Croatia. The Regulation contains 744 proposed Sites of Community Interest - pSCIs and 40 SPAs (Special Protection Areas) for Birds. Analytically, the habitat types, the sites of Community interest and the sites according to the Birds directive are presented in the tables at the end of the present document.

The ecological network is presented in the following maps.

**Map 1: Special Protection Areas (SPAs) – Bird Directive 2009/147/EC**



Source: Regulation on Ecological network (OG 124/2013)

**Map 2: Conservation areas important for species and habitat types – Habitats Directive 92/43/EEC**



Source: Regulation on Ecological network (OG 124/2013)

### 3. Description of the conservation objectives

The main nature protection legislation in the Republic of Croatia is the following:

- The new **Nature Protection Act** (Official Gazette No. 80/2013), which sets the main objectives and tasks for nature protection:
  - To preserve and / or restore biodiversity, landscape diversity and geo-diversity in the state of natural balance and coordinated relationships with human activities,

- Identify and monitor the state of nature,
  - Provide a system of nature protection for its permanent preservation,
  - To ensure sustainable use of natural resources without significantly damaging the parts of nature and with the least possible disruption of its components,
  - Contribute to the conservation of the natural soil, safeguarding the quality, quantity and availability of water, preserving the atmosphere and producing oxygen and protect our climate,
  - Prevent or mitigate adverse human activities and disturbances in nature as a result of technological development and activities.
- The ***Strategy and action plan for the protection of biological and landscape diversity of the Republic of Croatia***, which identifies the following general strategic objectives:
- conserve overall biological, landscape and geological diversity as an underlying value and potential for further development of the Republic of Croatia;
  - meet all obligations arising from the process of integration into the European Union and alignment of the national legislation with the relevant EU directives and regulations (Habitats Directive, Birds Directive, CITES Regulations);
  - fulfil the obligations arising from international treaties in the field of nature protection, biosafety, access to information, etc.;
  - ensure integral nature protection through co-operation with other sectors;
  - establish and evaluate the state of the biological, landscape and geological diversity, set up a nature protection information system with a database connected to the state's information system;
  - encourage promotion of institutional and non-institutional ways to educate the public about biodiversity, and improve public participation in decision-making processes;
  - develop legislation implementation mechanisms by strengthening legislative and institutional capacities, education, development of scientific resources, information, and the development of funding mechanisms.

Site specific conservation objectives for all Natura sites of Croatia must be developed after the final inclusion of the sites in the Natura network.



## 4. Characteristics of impacts arising from implementation of the TDS on the ecological network

This paragraph describes the main impacts arising from the implementation of the TDS to the ecological network of Croatia. It must be stressed that at this phase (development of the Strategy), where the individual projects that will be implemented in the framework of the TDS have not yet been specified, the impacts described are those generally arising by such interventions. The impacts must be thoroughly examined in the framework of specific projects.

### 4.1. Methodology

The impacts of all measures proposed in the TDS are assessed according to the scale (positive / negative), their probability, duration, reversibility and transboundary dimension. The methodology of assessment is presented in the following table.

**Table 1: Assessment Legend**

Impact character	Symbols	Explanation
<b>Probability</b>	!!	Very probable
	!	Probable
<b>Scale</b>	-2	Large scale negative
	-1	Negative
	2	Large scale positive
	1	Positive
	0	Neutral
<b>Frequency / duration</b>	>>	Frequent to constant / Long Term to Permanent
	>	Occasional / Short term
<b>Reversibility</b>	IR	Irreversible
	R	Reversible
<b>Uncertainty (in any of the above cases)</b>	?	Possible impact totally depends on the implementation arrangements

*Source: Handbook on SEA of Cohesion Policy 2007-2013, Greening Regional Development Programmes Network, February 2006*

### 4.2. Impact Assessment

The assessment of the impacts of all measures of the TDS according to the previous methodology is presented in the table hereafter.

Table 2: Impacts of TDS on the ecological network

	Relative measures	Impact
<b>RAIL</b>		
Measures foreseeing infrastructure construction	R1, R2, R3, R4, R5, R6, R7, R8, R9, R10, R11, R12, R13, R14, R15, R18, R19, R20	
Construction phase		-1, !, >, R
Operation phase		-1, !, >, R
Technological measures (interventions in transport technology and energy)	R.17, R25, R26, R31, R32	0
Transport management measures	R.16. R21, R22, R23, R24, R27, R28, R30, R34 R35, R39	0
Legislative/ administration measures	R33, R36, R37, R38, R40, R42	1, !, >>, IR
Environmental protection measures	R41	0
Financial measures	R29	0
<b>ROAD TRANSPORT</b>		
Measures foreseeing infrastructure construction	Ro1, Ro2, Ro3, Ro4, Ro5, Ro6, Ro7, Ro8, Ro9, Ro10, Ro11, Ro12, Ro13, Ro14, Ro15, Ro16, Ro18	
Construction phase		-1, !, >, R
Operation phase		-1, !, >, R
Technological measures (interventions in transport technology and energy)	Ro17, Ro26	0
Transport management measures	Ro19, Ro20, Ro21, Ro23, Ro24, Ro29, Ro30	0
Legislative/ administration measures	Ro27, Ro28, Ro32, Ro33, Ro34, Ro35	0
Safety measures	Ro22	0
Environmental portection measures	Ro25	0
Financial measures	Ro31	0
<b>AVIATION</b>		
Measures foreseeing infrastructure construction	A1, A2, A3, A4, A5, A6, A7, A8, A9	
Construction phase		0
Operation phase		0
Technological measures (interventions in transport technology and energy)	A12	0
Transport management measures	A10, A13	0
Legislative/ administration measures	A14, A15, A16, A17, A18, A19, A20, A21, A24, A25, A26, A27	0
Safety measures	A11	0
Environmental portection measures	A23	2 !, >>, IR
Financial measures	A22	0

	Relative measures	Impact
<b>INLAND NAVIGATION</b>		
Measures foreseeing infrastructure construction	I1, I2, I3, I4, I5, I6, I7	
Construction phase		-1 !!, >, ?
Operation phase		-1, !!, >>, ?
Technological measures (interventions in transport technology and energy)	I10	0
Transport management measures	I9	0
Legislative/ administration measures	I13, I14, I16, I17, I18, I19, I21, I22	1, !!, >>, IR
Safety measures	I8, I20	1, !!, >>, IR
Environmental portection measures	I11, I12, I20	2, !!, >>, IR
Financial measures	I15	0
<b>MARITIME TRANSPORT</b>		
Measures foreseeing infrastructure construction	M1, M2, M5, M6, M7, M8, M9, M10, M11, M12, M13, M14, M16	
Construction phase		-1, !!, >, ?
Operation phase		-1, !!, >>, ?
Technological measures (interventions in transport technology and energy)	M15, M31	1, !!, >>, IR
Transport management measures	M20, M21	0
Legislative/ administration measures	M17, M18, M19, M22, M23, M24, M25, M26, M29, M32	1, !!, >>, IR
Safety measures	M27, M28	1, !!, >>, IR
Environmental portection measures	M3, M4, M28	1, !!, >>, IR
Financial measures	M30	0
<b>URBAN, SUBURBAN AND REGIONAL TRANSPORT</b>		
Measures foreseeing infrastructure construction	U2, U3	
Construction phase		0
Operation phase		0
Technological measures (interventions in transport technology and energy)	U6, U17	0
Transport management measures	U1, U4, U5, U13, U14, U15, U18, U21, U22	0
Legislative/ administration measures	U9, U10, U11, U16, U19, U20	0
Safety measures	U8	0
Environmental portection measures	U7	0
Financial measures	U12	0

Table 3, Assesemnt matrix

Code	Measure	Measure Description	NATURA sites that may be affected	Impact	Mitigation measure	Impact after mitigation measure
R.2	Zagreb - Karlovac (core/Vb/Mediterranean)	The corridor connecting Zagreb and Rijeka is mainly relevant for freight and partially for commuter traffic. The analysis shows that this commuter activity is mainly related to the section from Zagreb to Karlovac. At present, this part of the line M202 runs on single track, which is limiting the potential to increase in capacity. It is expected that the importance of this line for freight will increase in the medium to long term due to the fact that Rijeka has been defined as the TEN-T core port of Croatia. Further studies should analyse the design speed and capacity requirements taking into account economic and environmental aspects. Besides increase in capacity, freight traffic requires that the line meets the following technical criteria: 22.5 axle load, 750 m siding length,	It passes through POVS : HR5000019 Gorski kotar i sjeverna Lika (having wild species, such as wolf, brown bear, lynx etc), and HR2001353 Lokve-Sunger-Fužine near POVS HR2001042 Lič polje  POVS HR2001351 Područje oko Kupice POVS HR2001345 Vražji prolaz i Zeleni vir POVS HR2001351 Područje oko Kupice POP:HR1000019 Gorski kotar i sjeverna Lika	The interventions refer to amelioration of existing lines. The main impact is species fragmentation. Additional impacts: disturbance of species by noise, vibration	Adequate wildlife crossings must be established according to the provisions of the Ordinance on wildlife crossings (OG 5/07). Speed control	Prevention / minimisation of species fragmentation

Code	Measure	Measure Description	NATURA sites that may be affected	Impact	Mitigation measure	Impact after mitigation measure
		ETRMS.				
<b>R.3</b>	<b>Karlovac+ to Rijeka (core/Vb/Mediterranean)</b>	The analysis shows that that this part of the corridor connecting Zagreb and Rijeka is mainly used for freight. At present, this part of the line M202 runs on single track which is electrified and some sections have speed limits of 50 km/h. Rijeka has been defined as the TEN-T core port of Croatia and consequently, the importance of this line for freight will increase in the medium to long term perspective. Therefore this section needs to meet the	POVS HR5000019 Gorski kotar i sjeverna Lika POVS HR2001413 Šume kod Skrada POVS HR2000592 Ogulinsko- plašćansko područje (though) near POVS HR2000593 Mrežnica - Tounjčica	The interventions refer to amelioration of existing lines. The main impact is species fragmentation. Additional impacts: disturbance of species by	Adequate wildlife crossings must be established according to the provisions of the Ordinance on wildlife crossings (OG 5/07).	Prevention / minimisation of species fragmentation

Code	Measure	Measure Description	NATURA sites that may be affected	Impact	Mitigation measure	Impact after mitigation measure
		following technical criteria: 22.5 axle load, 750 m siding length, ETRMS. Further studies will analyse the design speed and capacity requirements taking into account economic and environmental aspects.	near POP:HR1000001 Pokupski bazen near POVS HR2000450 Ribnjaci Draganići through HR2001335 Jastrebarski lugovi border POVS HR2000589 Stupnički lug	noise and vibrations		
R.5	<b>Zagreb - Križevci (core/Vb/Mediterranean)</b>	The corridor connecting Rijeka and Zagreb to East Europe via Hungary is mainly used for freight and partially for commuter traffic. The analysis shows that in this part of the corridor, commuter activity is mainly related to Dugo Selo (15,568 passenger trains in 2012) and Križevci (11,516 passenger trains in 2012). At present, this part of the line M201 runs on double track to Dugo Selo and single track to Križevci. This fact is limiting the potential of increase in capacity,	It borders with POVS HR2001320 Crna gora Passes through POP:HR1000014 Gornji tok Drave (od Donje Dubrave do Terezinog polja) and POVS HR5000014 Gornji tok Drave (od Donje Dubrave do Terezinog polja) which has otters, beavers.	The interventions refer to amelioration of existing lines. The main impact is species fragmentation. Additional impacts: disturbance of species by noise or	Adequate wildlife crossings must be established according to the provisions of the Ordinance on wildlife crossings (OG 5/07).	Prevention / minimisation of species fragmentation

Code	Measure	Measure Description	NATURA sites that may be affected	Impact	Mitigation measure	Impact after mitigation measure
		<p>especially taking into consideration that the importance of this line for freight will increase in the medium to long term due to the fact that Rijeka has been defined as the TEN-T core port of Croatia. Besides the increase in capacity, as the line is as well relevant for freight traffic, it will have to meet the following minimum technical criteria: 22.5 axle load, 750 m siding length, ERTMS.</p>		vibration		
R.6	<b>Križevci -HU border towards Budapest (core/Vb/Mediterranean)</b>	<p>The analysis shows that this part of the corridor connecting Zagreb and Rijeka to East Europe via Hungary is mainly relevant for freight and partially for commuter traffic. Complementary developments are currently under implementation on the Hungarian side (Gysev network development and Szekesfehervar - Boba line development). At present, this part of the line M201 runs on single track which is electrified and some sections have speed limits of 80 km/h. Rijeka has been defined as</p>	<p>POP:HR1000008 Bilogora i Kalničko gorje POVS HR2001320 Crna gora (butterfly species)</p>	Disturbance by noise, vibration	Use of antivibrating materials	Minimisation of disturbance



Code	Measure	Measure Description	NATURA sites that may be affected	Impact	Mitigation measure	Impact after mitigation measure
		the TEN-T core port of Croatia and consequently, the importance of this line for freight will increase in the medium to long term perspective. Therefore, and taking into account that this section belongs to the TEN-T core network, it needs to meet the following technical criteria: 22.5 axle load, 750 m siding length, ERTMS.				
R.1	Zagreb - SI border towards Ljubljana (core/X/Mediterranean)	Line M101 belongs to the TEN-T core network and to RH1 and is one of the main international connections to Zagreb, the only urban node of the rail TEN-T core network in Croatia. As a result, RH1 historically has been the most relevant corridor in terms of long distance passenger traffic. Future scenarios like Croatia entering the Schengen area will increase the volume of traffic on this line. Although some specific activities for the improvement of this line are being developed, the fact is that at present, some sections of M101 line	POVS HR2001070 Sutla (river species)	Pollution	Proper maintenance of rolling stock and rail, in order to prevent apillages	No disturbance

Code	Measure	Measure Description	NATURA sites that may be affected	Impact	Mitigation measure	Impact after mitigation measure
		have a speed limit of 60 Km/h. Further studies will assess the technical requirements to be achieved in terms of capacity, permissible speed, taking into account also economic and environmental aspects. As the line is as well relevant for freight traffic, it will have to meet the following minimum technical criteria: 22.5 axle load, 750 m siding length, ERTMS				
R.7	Zagreb - Novska (core/X)	Lines M102 and M103 belong to the TEN-T core network and to RH1, one of the main international connections of Zagreb, the only urban node of the rail TEN-T core network in Croatia. As a result, RH1 historically has been the most important corridor in terms of long distance passenger traffic (between Zagreb and Dugo Selo over 59,000 passenger trains in 2012). Future scenarios like Croatia entering the Schengen area will increase the volume of traffic in this line.	POP:HR1000004 Donja Posavina POVS HR2000416 Lonjsko polje	The interventions refer to amelioration of existing lines. The main impact is species fragmentation. Additional impacts: disturbance of species by noise or	Adequate wildlife crossings must be established according to the provisions of the Ordinance on wildlife crossings (OG 5/07).	Prevention / minimisation of species fragmentation

Code	Measure	Measure Description	NATURA sites that may be affected	Impact	Mitigation measure	Impact after mitigation measure
		Although some specific activities for the improvement of line from Dugo Selo to Novska are being developed, the fact is that at present, some sections of both lines have a speed limit of 50 Km/h. Further studies should analyse the design speed and capacity requirements taking into account economic and environmental aspects. As the line is as well relevant for freight traffic, it will have to meet the following minimum technical criteria: 22.5 axle load, 750 m siding length, ERTMS.		vibration		
R.8	Novska - SRB border towards Belgrade (core/X)	Line M105 belongs to the TEN-T core network and to RH1 one of the main international connections of Zagreb. RH1 historically has been the most important corridor in terms of long distance passenger traffic. Future scenarios like Croatia entering the Schengen area, or other surrounding countries like Serbia entering EU will increase the volume of traffic in this line. At	POP:HR1000005 Jelas polje	Disturbance by noise, vibrations	Speed control, use of antivibrating materials	Minimisation of disturbance

Code	Measure	Measure Description	NATURA sites that may be affected	Impact	Mitigation measure	Impact after mitigation measure
		present, M105 runs on double track between Novska and Tovarnik, which has been designed as the core rail network crossing point between Croatia and Serbia. Further studies should assess the technical requirements to be achieved, taking into account also economic and environmental aspects. As the line is as well relevant for freight traffic, it will have to meet the following minimum technical criteria: 22.5 axle load, 750 m siding length, ERTMS.				
R.10	<b>Regional connection Vinkovci - Vukovar (core/access to corridor X)</b>	Railway line M601 Vinkovci – Vukovar will serve as the railway line connection of RH1 and the only inland core port on the Danube within Croatia, Vukovar. Further studies will assess the technical requirements to be achieved, taking into account also economic and environmental aspects. As the line is as well relevant for freight traffic, it will have to meet the following	POVS HR2000372 Dunav - Vukovar (river species)	Pollution	Proper maintenance of rolling stock and rail, in order to prevent apillages	No disturbance

Code	Measure	Measure Description	NATURA sites that may be affected	Impact	Mitigation measure	Impact after mitigation measure
		minimum technical criteria: 22.5 axle load, 750 m siding length, ETRMS.				
R.9	HU border - Osijek - BIH border (comprehensive/core/Vc)	Line M303 belongs to the TEN-T core network in Croatia, and Slavonski Šamac is the railways core network border crossing point to Bosnia and Herzegovina. Lines M301 and M203 belong to the comprehensive network but serve as a link Bosnia Herzegovina-Croatia Hungary link, following the Pan European corridor Vc. The potential of this international connection will increase in future scenarios in which Schengen borders will vary from its present configuration. Further studies will analyse the design speed and capacity requirements taking into account economic and environmental aspects. As the line is as well relevant for freight traffic, it will have to meet the following minimum technical criteria: 22.5 axle load, 750 m siding length,	POVS HR2001308 Donji tok Drave POP:HR1000016 Podunavlje i donje Podravlje POVS HR2000372 Dunav - Vukovar	Disturbance by noise, vibrations	Speed control, use of antivibrating materials	Minimisation of disturbance

Code	Measure	Measure Description	NATURA sites that may be affected	Impact	Mitigation measure	Impact after mitigation measure
		ERTMS.				
R.11	Zagreb local	The present configuration of the Croatian rail network and the fact that Zagreb is the only urban node of the core transport network, outline the importance of the capital city of Croatia within the entire transport system. In order to enhance the role of railways in the urban transport system of Zagreb, matching time schedules, accessibility and travel times, existing stations must be adapted, new stations might be needed and dedicated tracks implemented. Further studies will analyse specific requirements to be fulfilled.	—			

Code	Measure	Measure Description	NATURA sites that may be affected	Impact	Mitigation measure	Impact after mitigation measure
R.12	Zagreb regional	The present configuration of the Croatian rail network and the fact that Zagreb is the only urban node of the core transport network, outline the importance of the capital city of Croatia within the entire transport system. In order to enhance the role of railways in the regional connectivity with the rest of main cities in Croatia, enough capacity and competitive travel times must be achieved. Further studies should analyse specific requirements to be fulfilled in each case.	–			
R.13	Zagreb freight	Zagreb is the only urban node of the rail TEN-T core network in Croatia. At the same time Zagreb is the distribution point of freight traffic in East-West direction and North-South direction. The transmissibility of the node is a key aspect for the attractiveness of the railway network in Croatia. Therefore the parts of its railway network focusing on freight will have to meet the following	–			



Code	Measure	Measure Description	NATURA sites that may be affected	Impact	Mitigation measure	Impact after mitigation measure
		minimum technical criteria: 22.5 axle load, 750 m siding length, ETRMS. Further studies will analyse the potential creation of multimodal logistic centre(s).				
R.14	Zagreb airport connection	Zagreb plays an important role as a business and tourist destination within Croatia, and its airport represents one of the main accesses to the city from abroad. A direct railway connection to the City centre could contribute to increase the modal split in favor of public transport and thus reduce congestion and ease regional and local connectivity. Further studies will assess if this railway connection is required, and in each case the required operational characteristics, capacity, design speed, configuration and location of stops.	–			
R.15	Zagreb main station	Zagreb Main Station must play a key role not only in long distance traffic but also in local and regional traffic. Adaptation of the existing accesses	–			

Code	Measure	Measure Description	NATURA sites that may be affected	Impact	Mitigation measure	Impact after mitigation measure
		and platforms, organization of passenger flows inside and outside the station, favouring modal interchange, are likely to be required Specific technical requirements will be a result of further studies, which will take into consideration economic, social and environmental aspects.				
<b>R.4</b>	<b>Rijeka regional</b>	The development of the Port of Rijeka, which includes new rail terminals, creates opportunities for complementary measures to enhance the role of railways both in urban transport and in regional connectivity. Current preliminary analyses show that there might be a potential for a reorganisation of the Rijeka railway node with introduction of commuters services, thus favoring modal shift from private cars. All these issues will be analysed in the context of a multimodal city transport plan, which takes into consideration all the relevant economic, social and	Proximity with POP: HR1000019 Gorski kotar i sjeverna Lika and POVS HR5000019 Gorski kotar i sjeverna Lika	Impacts such as disturbance of species from noise, vibration etc. The impacts depend on the magnitude of interventions and must be examined analytically on a project basis.	Speed control, use of antivibrating materials	Minimisation of disturbance

Code	Measure	Measure Description	NATURA sites that may be affected	Impact	Mitigation measure	Impact after mitigation measure
		environmental aspects.				
R.18	Rehabilitation, upgrading of other lines	Case by case studies will identify the need to rehabilitate and upgrade lines other than the ones described in the previous measures, taking into account the operational concept and also economic and environmental aspects.	N/A	Depending on specific projects. The assessment will be done on a project basis	Good construction practices (avoidance of excessive light, and noise during construction phase) Adequate wildlife crossings must be established according to the provisions of the Ordinance on wildlife crossings (OG 5/07). Use of anti-vibrating materials, speed control	Minimisation of disturbance Prevention / minimisation of fragmentation

Code	Measure	Measure Description	NATURA sites that may be affected	Impact	Mitigation measure	Impact after mitigation measure
R.19	Regional traffic other than Zagreb and Rijeka (Split, Varaždin, Osijek, etc.)	Rail transport can play as well an important role in regional transport in regional centres outside the railway TEN-T core network, due to the existing configuration of the network in these areas. Specific studies will analyse this potential in cities such as Split, Varaždin and Osijek. These studies will also assess case by case the necessary technical parameters.	<p><b>Split</b> is in vicinity with POVS HR2000931 Jadro, POP:HR1000027Mosor; Kozjak i Trogirska zagora, POVS HR2001352Mosor, POVS HR2001376Područje oko Stražnice, POVS HR2001363Zaleđe Trogira</p> <p><b>Varaždin</b> is in vicinity with POP:HR1000013 Dravske akumulacije POVS HR2001307 Drava - akumulacije</p> <p><b>Osijek</b> is in vicinity with POVS HR2001308 Donji tok Drave POP:HR1000016 Podunavlje i donje</p>	Depending on specific projects. The assessment will be done on a project basis	Good construction practices (avoidance of excessive light, and noise during construction phase) Adequate wildlife crossings must be established according to the provisions of the Ordinance on wildlife crossings (OG 5/07).	Minimisation of disturbance Prevention / minimisation of fragmentation

Code	Measure	Measure Description	NATURA sites that may be affected	Impact	Mitigation measure	Impact after mitigation measure
			Podravlje, POVS HR2000394 Kopački rit POP:HR1000016 Podunavlje i donje Podravlje, POVS HR2000372 Dunav - Vukovar, POP:HR1000016 Podunavlje i donje Podravlje			
R.20	Improvements and new marshalling yards	Specific studies will analyse, based on demand forecasts, the necessity to develop new marshalling yards or improve the existing ones to increase the potential of railways for freight.	N/A	Depending on specific projects. Probably within urban / suburban		

Code	Measure	Measure Description	NATURA sites that may be affected	Impact	Mitigation measure	Impact after mitigation measure
				areas. Disturbance is rather low.		
<b>Ro.1</b>	<b>Gradiška bridge connection</b>	Gradiška bridge over the river Sava is part of the road corridor HU border - Virovitica - Okučani – BiH border (Stara Gradiška). This road is located in the corridor of the existing D 5 road, being the bridge part of international agreement between Croatia and Bosnia. The Republic of Bosnia and Herzegovina has already finished the motorway from Banja Luka (B&H) to Gradiška, however, the planned bridge is required for the connection of motorway from Banja Luka to the existing Zagreb – Beograd Motorway. GP Gradiška is one of two major border crossings between the Croatia/EU and Bosnia and Herzegovina for all types of traffic.	POP:HR1000004 Donja Posavina POVS HR2001311 Sava nizvodno od Hrušćice	Disturbance by noise, light Loss of bedside flora and fauna Change in water hydraulic characteristics	Noise barriers, avoidance of excessive light use of alternative 'green' bank protection techniques for the establishment of riparian vegetation Relocation of riparian vegetation to unaffected area Avoidance of change of hydraulic characteristics	Minimisation of riparian vegetation disturbance Unobstructed water flow characteristics Minimisation of disturbance from noise and light

Code	Measure	Measure Description	NATURA sites that may be affected	Impact	Mitigation measure	Impact after mitigation measure
Ro.2	<b>A5 Osijek - HU border Pecs (comprehensive/Vc)</b>	The A5 motorway is a part of the comprehensive TEN-t network and corridor Vc. The total length of the A5 motorway is 86.8 km, and it goes from the B&H border towards Osijek, Beli Manastir, to the HU border. Several sections of the motorway are at different stages of development. The motorway section at the lowest stage of development is the one from Osijek to the HU border, section Osijek – Beli Manastir 24.6 km and Beli Manastir – HU border 5 km. Other sections, like the bridge over River Drava (length 2.4 km) are part of planned corridor and are under construction. Further studies will analyse the phasing and timing of the remaining sections, as well as the required technical parameters, taking into consideration the expected demand and economical and environmental aspects, e.g. the planned section passes through some “Natura 2000” areas.	Through POP:HR1000016 Podunavlje i donje Podravlje, POVS HR2001308 Donji tok Drave	Disturbance by noise, light Pollution from spillages	Noise barriers, avoidance of excessive light	Minimisation of disturbance



Code	Measure	Measure Description	NATURA sites that may be affected	Impact	Mitigation measure	Impact after mitigation measure
Ro.3	<b>A5 from A3 to BiH border (comprehensive/Vc)</b>	The A5 motorway is part of the comprehensive TEN-t network, and corridor Vc, being Svilaj included in the list of border crossing points of the EU core network. The total length of motorway A5 is 86.8 km, and it goes from the Bosnia and Herzegovina border toward Osijek, Beli Manastir to the Hungarian border. Several sections of the motorway are at different stages of development. The section from Sredanci (motorway A3) to the B&H border is 3.5 km long and is under construction. The section includes a bridge over the river Sava (660m in length). The contract for the construction of the bridge is currently in the tendering process. The continuation on the BiH side is already constructed.	Vicinity with POVS HR2001354 Područje oko jezera Borovik (toad)	Disturbance by noise, light	Noise barriers, avoidance of excessive light	Minimisation of disturbance

Code	Measure	Measure Description	NATURA sites that may be affected	Impact	Mitigation measure	Impact after mitigation measure
Ro.4	<b>A7 Križišće to Žuta Lokva (comprehensive/Adriatic Ionian corridor)</b>	The A7 motorway (SLO border - Rupa – Rijeka – Žuta Lokva (A7)) is part of the comprehensive TEN-t network, and the Adriatic Ionian corridor. The total length of the A7 is 99 km, being several sections of the motorway are at different stages of development. Almost half of the total length of the A7 motorway that runs from Rupa (Slovenian border) to Križišće is completed, while the sub section from Križišće to Žuta Lokva, is at an earlier phase of the project development phase. A7 motorway plays an important role in linking the Croatian motorway network, the A8 motorway (Istrian Y), A6 motorway (Rijeka -Bosiljevo) and A1 motorway (Zagreb – Split). In addition, given the international importance of the A7 motorway, it might become, at regional and local level a driver for the development of the coast, the islands and Adriatic-ionian regions, and as a link	Through POVS : HR5000022 Park prirode Velebit POVS HR5000019 Gorski kotar i sjeverna Lika POVS točke: HR2001154 Orlovac špilja POP: HR1000022 Velebit POVS : HR2000605 Nacionalni park Sjeverni Velebit POVS : HR2001301 Podbilo POVS : HR3000030 M. Draga - Žrnovnica POP:HR1000019 Gorski kotar i sjeverna Lika POVS : HR2001302 Krmpotsko	Fragmentation Disturbance by noise, light	Good construction practices (avoidance of excessive light, and noise during construction phase) Adequate wildlife crossings must be established according to the provisions of the Ordinance on wildlife crossings (OG 5/07). Noise barriers Avoidance of excessive light	Minimisation of disturbance and fragmentation

Code	Measure	Measure Description	NATURA sites that may be affected	Impact	Mitigation measure	Impact after mitigation measure
		between Adriatic towns and harbours. Further studies will analyse the phasing and timing of the remaining sections, as well as the required technical parameters, taking into consideration the expected demand and economical and environmental aspects, especially orographical features due to very complex coastal relief terrain, and international coordination with Slovenia.				
Ro.5	A11 Lekenik - Sisak	The A11Motorway (Zagreb – Sisak) is under construction, with one section already completed. The total length of the highway, between Zagreb and Sisak is 48, 1 km. The next planned section Lekenik – Sisak is 10.8 km long. The last section would be Sisak - Mošćenica, which will be considered after finishing of the previous sections. Further studies will analyse the phasing and timing of the remaining sections in the light of inter-modality, as well as	POVS : HR2000642 Kupa (river species) POP:HR1000003 Turopolje POVS : HR2000415 Odransko polje	Fregmentatio n Distrurbance by noise, light	Good construction practices (avoidance of excessive light, and noise during construction phase) Adequate wildlife crossings must be established according to the provisions of the Ordinance on wildlife crossings (OG 5/07). Noise barriers	Minimisation of disturbance and fregmentatio n

Code	Measure	Measure Description	NATURA sites that may be affected	Impact	Mitigation measure	Impact after mitigation measure
		the required technical parameters, taking into consideration the expected demand and economical and environmental aspects.			Avoidance of excessive light	
Ro.6	<b>DC 10 Vrbovec - Križevci - Koprivnica - Hungarian border towards Kaposvar</b>	The DC10 State road was previously categorized as a motorway, the A12. The A12 motorway is a partially built motorway in central Croatia, northeast from Zagreb, extending towards the city of Vrbovec. A 23 km dual carriageway exists between the A4 motorway and Sveta Helena.	POP:HR1000008 Bilogora i Kalničko gorje POP:HR1000014 Gornji tok Drave (od Donje Dubrave do Terezinog polja) POVS : HR5000014 Gornji tok Drave (od Donje Dubrave do Terezinog polja)	The interventions refer to amelioration of existing lines. The main impact is species fregmentation . Additional impacts: disturbace of species by noise or light		

Code	Measure	Measure Description	NATURA sites that may be affected	Impact	Mitigation measure	Impact after mitigation measure
Ro.7	<b>DC 12 Vrbovec 2 interchange - Ivanja Reka - Vrbovec - Bjelovar - Virovitica - Hungarian border towards Barcsu</b>	DC12 represents the eastern arm of the so-called Podravina Y, as the western arm is planned to be the DC10 and will finally connect Zagreb with the Hungarian border towards Pecs. Only the Vrbovec 2 interchange, the starting (western) terminus of the D12 has been completed. The rest of the corridor is divided into several sectors, and the stage of project documentation (project design and permits) varies from sector to sector. Further studies will assess on the phasing and timing of the remaining sections, as well as the required technical parameters, taking into consideration economic and environmental aspects.	POP:HR1000008 Bilogora i Kalničko gorjePOP:HR1000009 Ribnjaci uz ČesmuPOVS : HR2000441 Ribnjaci NartaPOP:HR1000008 Bilogora i Kalničko gorjePOVS : HR2001281 BilogoraPOP:HR1000014 Gornji tok Drave (od Donje Dubrave do Terezinog polja)POVS : HR5000014 Gornji tok Drave (od Donje Dubrave do Terezinog polja)	Species fregmentation	Good construction practices (avoidance of excessive light, and noise during construction phase)Adequate wildlife crossings must be established according to the provisions of the Ordinance on wildlife crossings (OG 5/07).	

Code	Measure	Measure Description	NATURA sites that may be affected	Impact	Mitigation measure	Impact after mitigation measure
Ro.9	D2 from SLO border to SRB border	D2 is the existing state road for transit traffic in the northern areas of Croatia, and spans from the border crossing with Slovenia at Dubrava Križovljanska in the west via Varaždin, Osijek, Vukovar, ending at the Ilok–Bačka Palanka Bridge border crossing to Serbia. Most of the D2 route runs parallel to the Drava River (Podravska magistrala). Relevant intensity of very high heavy traffic, is affecting the features of the existing lanes and thus level of security is clearly decreasing. A new corridor for the D2 is planned, but studies should assess on the phasing and timing of the of its development, as well as the required technical parameters, taking into consideration the expected demand economic and environmental aspects.	POP: HR1000013 Dravske akumulacije POVS : HR2001307 Drava - akumulacije POP: HR1000016 Podunavlje i donje Podravlje POVS : HR2001308 Donji tok Drave POVS : HR2000372 Dunav - Vukovar	The Natura areas are mainly river areas. No significant impacts anticipated		

Code	Measure	Measure Description	NATURA sites that may be affected	Impact	Mitigation measure	Impact after mitigation measure
<b>Ro.1 0</b>	<b>Rijeka network reorganization</b>	The Rijeka road junction is one of Croatian main traffic junctions, and plays an important role in linking the Croatian motorway network: A7 motorway links A8 motorway (Istrian Y) and A6 motorway (Rijeka – Bosiljevo). The Port of Rijeka is the main Croatian port (core port), and the development of the port must be harmonised with road development. The planned west container terminal in Rijeka port is connected with the planned state road D403.	Proximity with POP:HR1000019 Gorski kotar i sjeverna Lika POVS : HR5000019 Gorski kotar i sjeverna Lika	The interventions are outside the Natura area. No significant impacts anticipated		
<b>Ro.1 1</b>	<b>Dubrovnik - ME border</b>	The Corridor Dubrovnik – ME border is at different stages of development per sections. The development would bypass the Dubrovnik airport. Further studies will assess on the phasing and timing of its development, as well as the required technical parameters, taking into consideration the expected demand and economical and environmental aspects.	POVS : HR2001010 Paleombla - Ombla POVS : HR2000946 Snježnica i Konavosko polje POVS točke: HR2001248 Izvor Duboka Ljuta POVS : HR3000170 Akvatorij uz Konavoske stijene	No significant impacts anticipated		



Code	Measure	Measure Description	NATURA sites that may be affected	Impact	Mitigation measure	Impact after mitigation measure
Ro.1 2	<b>Increase of capacity - dedicated PT lane between Zagreb and Karlovac</b>	Road corridor from Zagreb to Karlovac is included in the EU core network because of international and regional relevance of the traffic coming from Rijeka to inland. The PT accessibility of Istria and Dalmatia is dependent on regional bus providers and the prioritization of PT services on the road. There has been a constant increase in commuter traffic between Zagreb and Karlovac, while the existing motorway has two traffic lanes in each direction plus an emergency lane. Further studies analysing several options of increasing the capacity for public transport are necessary to identify the final solution. These studies will take into consideration the expected demand and economic, social and environmental aspects, as well as the developments planned in other modes of transport.	POP:HR1000001 Pokupski bazen POVS : HR2000450 Ribnjaci Draganići POVS : HR2000589 Stupnički lug	disturbance from noise and light		

Code	Measure	Measure Description	NATURA sites that may be affected	Impact	Mitigation measure	Impact after mitigation measure
Ro.8	Zagreb main network reorganization	Zagreb is the capital of Croatia and the interchange of main road corridors. Currently all the motorway corridors are connected through the Zagreb bypass, the road with the highest traffic load in Croatia. A new "Zagreb ring" motorway, Pojatno - Horvati-Ivanić Grad - Sveti Ivan Zelina is considered for the redirecting of transit traffic. Additional studies for "Zagreb ring" are necessary, assessing on the capacity, connections and technical parameters to be implemented, taking into consideration the expected demand and economic, environmental and social aspects. The main road network inside the city should be reorganised as well taking into account the outcomes of the Transport Masterplan to be developed which will consider the introduction of integrated public transport systems emphasising the prioritisation of public transport and soft modes against private cars.	Vicinity with POVS : HR2000583 Medvednica	No significant impacts anticipated		

Code	Measure	Measure Description	NATURA sites that may be affected	Impact	Mitigation measure	Impact after mitigation measure
Ro.1 3	<b>Increase of capacity - dedicated PT lane Zagreb bypass</b>	The Zagreb bypass is the busiest traffic route in Croatia, and the level of traffic is constantly increasing. Some sections of the Zagreb bypass need upgrade with a new PT lane. This needs to be seen in relation to competing projects like the Zagreb ring road. Additional studies are needed to decide if it is better to upgrade the existing bypass or build a new "Zagreb ring" motorway: Pojatno - Horvati-Ivanić Grad - Sveti Ivan Zelina. These studies will analyse the existing options to increase the capacity, assess on the phasing and timing of its development, as well as the required technical parameters, taking into consideration the expected demand and economic, social and environmental aspects, as well as the developments planned in other modes of transport.	Vicinity with POVS : HR2000583 Medvednica	No significant impacts anticipated		

Code	Measure	Measure Description	NATURA sites that may be affected	Impact	Mitigation measure	Impact after mitigation measure
Ro.1 4	Slavonski Brod port access improvement	Slavonski Brod, as the main port on the river Sava, is the only inland port in Croatia in the Sava river included in the list of nodes of the EU core network. The development of port and the additional business zone must be accompanied with the improvement of other transport infrastructure, especially road. Further studies will define actual needs and analyse the required technical parameters, taking into consideration the expected demand and economical and environmental aspects.	POP: HR1000005 Jelas polje POVS : HR2001311 Sava nizvodno od Hrušćice	No significant impacts anticipated		
Ro.1 5	Split network reorganization	Split is one of the main centres of tourism in Croatia. Of special relevance for the road network is the tourism linked to the cruises as it creates a heavy seasonal burden on the road network. It is necessary to reorganise the road network in Split taking into account as well the public transport system and planned developments in the city, the port and other relevant transport	Split is in vicinity with POVS : HR2000931 Jadro, POP :HR1000027Mosor; Kozjak i Trogirska zagora, POVS : HR2001352 Mosor, POVS : HR2001376 Područje oko	No significant impacts anticipated		

Code	Measure	Measure Description	NATURA sites that may be affected	Impact	Mitigation measure	Impact after mitigation measure
		systems such as rail. One of the potential measures is the Split bypass : Trogir – Split – Omiš which has been planned for regional and local traffic, being several sections at different stages of development: the section Trogir – Split has been already completed, while the connection road from Split to the A1 motorway is under construction. Further studies are necessary to define the final set of interventions as well as the required technical parameters, taking into consideration the expected demand and economical and environmental aspects.	Stražnice POVS : HR2001363 Zaleđe Trogira POVS : HR3000126 Ušće Cetine			
Ro.1 6	Preparation for accessibility of Dubrovnik when Croatia joins Schengen	In order to maintain the accessibility of Dubrovnik and the surrounding area to the rest of the country taking into account the possible scenario of Croatia entering the Schengen area, it is necessary to analyse all the options taking into account all the transport modes and functionalities. Long distance	POVS : HR4000028Elafiti POVS : HR2001010Paleoombl a - Ombla Natura areas in Dubrovnik (mainly caves)	No significant impacts anticipated		

Code	Measure	Measure Description	NATURA sites that may be affected	Impact	Mitigation measure	Impact after mitigation measure
		accessibility will be mainly solved through the airport connection in the mid-term scenario but for the local and regional needs and for freight, several options, like the Pelješac bridge will be considered. Further studies will analyse the full range of existing options (in a multimodal way and considering specific functionalities), as well as the required technical parameters, taking into consideration the expected demand and economic, social and environmental aspects, as well as the developments planned in other modes of transport.				
Ro.1 8	Secondary and tertiary road rehabilitation and realignment	To ensure the cohesion of the territory and provide the proper accessibility to the high level network, the status of the existing secondary and tertiary roads will be analysed to identify the needs for their rehabilitation. The main problem affecting these categories of roads is lack of maintenance and funding. It is necessary to provide	N/A	Depending on specific projects. The assessment will be done on a project basis	Good construction practices (avoidance of excessive light, and noise during construction phase) Adequate wildlife crossings must be established according to the provisions of the Ordinance on	Minimisation of disturbance and fragmentation

Code	Measure	Measure Description	NATURA sites that may be affected	Impact	Mitigation measure	Impact after mitigation measure
		the conditions for proper maintenance, especially taking into account the existing and forecasted levels of traffic on these roads.			wildlife crossings (OG 5/07). Noise barriers Avoidance of excessive light	
<b>A.1</b>	<b>Dubrovnik airport development (comprehensive)</b>	Dubrovnik is one of the main destinations on the Dalmatian coast. The airport suffers from bottlenecks due to seasonal peaks. Given the characteristics and meteorological environment of the surrounding territory, an enclave, transport links must be maintained and enhanced to ensure the proper accessibility. The planned measures include expansion of existing transport/infrastructure capacity in order to maintain existing service quality levels, reduction/elimination of bottlenecks, reconstruction of existing and construction of new	POVS : HR2000946 Snježnica i Konavosko polje POVS : HR3000170 Akvatorij uz Konavoske stijene	Disturbance by noise and light.	Airport operational measures (avoidance of night flights, avoidance of excessive light)	Minimisation of disturbance



Code	Measure	Measure Description	NATURA sites that may be affected	Impact	Mitigation measure	Impact after mitigation measure
		pavement structures and facilities necessary for the safe and smooth operation of the airport, implementation of environmental protection measures, implementation of measures aimed at improving energy efficiency and acquisition of necessary equipment and devices.				
A.2	<b>Pula airport development (comprehensive)</b>	Pula airport is relevant for the long distance accessibility of the region. Traffic at the airport is seasonal which may lead to bottlenecks given the limited facilities. Two important operational aspects which must be considered include:	POVS : HR5000032 Akvatorij zapadne Istre POP:HR1000032 Akvatorij zapadne Istre POVS : HR2000522 Luka Budava - Istra	Disturbance by noise and light. Disturbance of migratory birds	Airport operational measures (avoidance of night flights, avoidance of excessive light). Planning of adequate flight paths	Minimisation of disturbance
A.3	<b>Brač airport development</b>	The development of Brač Airport is planned to eventually increase the long distance connectivity of the Island of Brač and therefore the Centre of Dalmatia; while complying with a variety of different safety and traffic demand requirements. The analyses show the need to achieve the ICAO 3C Code and to comply	POVS : HR2000521 Brač - Baljenik POVS : HR2000937 Vidova gora POVS : HR3000475 Brač - podmorje od Rta Gališnjak do Druge vale	Disturbance by noise and light.	Airport operational measures (avoidance of night flights, avoidance of excessive light)	

Code	Measure	Measure Description	NATURA sites that may be affected	Impact	Mitigation measure	Impact after mitigation measure
		with ICAO, EASA and national standards. Further analyses will identify the feasible measures and prioritise them, taking into account environmental requirements and the real needs and potential according to the expected demand.				
A.4	Mali Lošinj airport development	The development of Mali Lošinj Airport is planned to eventually increase the long distance connectivity of the Island of Lošinj and therefore the North of Dalmatia; while complying with traffic demand requirements. The analyses show the potential necessity to extend the runway, apron and terminal area. Further analyses will identify the feasibility of these measures and prioritise them, taking into account environmental requirements and the real needs and potential according to the expected demand.	Inside POP:HR1000033 Kvarnerski otociNear POVS : HR3000161 Cres - Lošinj	Disturbance by noise and light. Disturbance of migratory birds	Airport operational measures (avoidance of night flights, avoidance of excessive light). Planning of adequate flight paths	

Code	Measure	Measure Description	NATURA sites that may be affected	Impact	Mitigation measure	Impact after mitigation measure
A.5	<b>Osijek airport development (comprehensive)</b>	Regional and long distance connectivity, apart from national cohesion, is the main reason for the expansion of Osijek airport considering cargo as well due to synergies with other modes of transport. Further analyses will identify the feasible measures and prioritise them, taking into account environmental requirements and the real needs and potential according to the expected demand.	Near POVS : HR2000394 Kopački rit and POP: HR1000016 Podunavlje i donje Podravlje	Disturbance by noise and light. Disturbance of migratory birds	Airport operational measures (avoidance of night flights, avoidance of excessive light). Planning of adequate flight paths	
A.6	<b>Rijeka airport development (comprehensive)</b>	Airport Rijeka presents large passenger traffic growth and has additional cargo potential due to the synergy with the Port of Rijeka. As part of the airports plans for development and alignment with ICAO, EASA and national standards, the reconstruction/expansion/displacement of apron and operations and control tower equipment planning is in progress. In order to achieve energy efficiency and environment protection it is planned to realize	Near POP:HR1000019Gorsk i kotar i sjeverna Lika POVS : HR5000019Gorski kotar i sjeverna Lika POVS : HR2000658Rječina	Disturbance by noise and light. Disturbance of migratory birds	Airport operational measures (avoidance of night flights, avoidance of excessive light). Planning of adequate flight paths	

Code	Measure	Measure Description	NATURA sites that may be affected	Impact	Mitigation measure	Impact after mitigation measure
		projects related to the solar power plant, terminal building facade and waste liquids separator. Further analyses will identify the feasibility of these measures and prioritise them, taking into account environmental requirements and the real needs and potential according to the expected demand.				
<b>A.7</b>	<b>Split airport development (comprehensive)</b>	With a level of traffic similar to Dubrovnik airport, Split is the other main gate to the Dalmatian coast in term of passengers. The airport also suffers from bottlenecks due to seasonal peaks. Included in its master plan, the expansion of both landside and airside facilities is planned, tackling the issues of seasonality and quality of the service. Further analyses will identify the feasibility of these measures and prioritise them, taking into account environmental requirements and the real needs and potential according to the expected demand.	Near POVS : HR2001363Zaleđe Trogira POP:HR1000027Moso r; Kozjak i Trogirska zagora POVS : HR3000430Pantan POVS : HR3000459Pantan - Divulje	Disturbance by noise and light. Disturbance of migratory birds	Airport operational measures (avoidance of night flights, avoidance of excessive light). Planning of adequate flight paths	

Code	Measure	Measure Description	NATURA sites that may be affected	Impact	Mitigation measure	Impact after mitigation measure
A.8	<b>Zadar airport development (comprehensive)</b>	Long distance connectivity of Central Dalmatia is the main driver for the expansion of the airport. The analyses show that the investment should be focused on the improvement of the airports transport and infrastructure capacities for the operation of ICAO 4E Code airplanes. Further analyses will identify the feasible measures and prioritise them, taking into account environmental requirements and the real needs and potential according to the expected demand.	Very close to POP: HR1000024 Ravni kotari POVS : HR2001361 Ravni kotari	Disturbance by noise and light. Disturbance of migratory birds	Airport operational measures (avoidance of night flights, avoidance of excessive light). Planning of adequate flight paths	
A.9	<b>Zagreb airport development (core)</b>	Zagreb Airport is the main gateway to Croatia operating as a hub for domestic and international destinations. At present, it is operated by a concessionaire who established a new company Zagreb International Airport Jsc., whose investment plan is reviewed periodically with the MMATI. Zagreb Airport Ltd. company is still active, now having the role of an	POP: HR1000002 Sava kod Hrušćice POVS : HR2001311 Sava nizvodno od Hrušćice	No significant impacts anticipated		

Code	Measure	Measure Description	NATURA sites that may be affected	Impact	Mitigation measure	Impact after mitigation measure
		intermediary between the Government of the Republic of Croatia and the concessionaire, with the aim of further development of the infrastructure and all the transport segments that are not subject to the concessionaire contract. Should the concessionaire withdraw from the project and operation of the airport, Zagreb Airport Ltd. will immediately takeover the airport from the concessionaire to ensure continuous and uninterrupted operation of Zagreb Airport.				

Code	Measure	Measure Description	NATURA sites that may be affected	Impact	Mitigation measure	Impact after mitigation measure
I.1	<b>Maintaining Danube and Drava until Osijek</b>	The Danube and Drava are part of the Rhine-Danube Corridor (TEN-T network). The total length of the Danube running through the Republic of Croatia is 137.5 km. A tributary of the Danube, the Drava is also considered an international waterway up to Osijek. As such, it is necessary to ensure the navigability in these international rivers in line with the required navigability level according to the European Agreement on Main Inland Waterways of International Importance (AGN), VIc class for the Danube and IV for the Drava up to the port of Osijek. To achieve that navigability requirements the dimensions of the waterway will be increased and the bottlenecks eliminated (through among others dredging and/or construction of new waterways structures).	POVS : HR2000372 Dunav - Vukovar POP: HR100001 6 Podunavlje i donje Podravlje POVS : HR2000394 Kopački rit POVS : HR2001308 Donji tok Drave	Change of water body characteristics resulting by dredging Pollution species disturbance Loss of bedside flora and fauna	Use of environmental friendly dredging techniques use of alternative 'green' bank protection techniques for the establishment of riparian vegetation Relocation of riparian vegetation to unaffected area Avoidance of change of hydraulic characteristics Prevention of spillages -good maintenance of vessels	Minimisation of riparian vegetation disturbance Unobstructed water flow characteristics Preservation of water quality



Code	Measure	Measure Description	NATURA sites that may be affected	Impact	Mitigation measure	Impact after mitigation measure
I.4	<b>Osijek port development (comprehensive)</b>	The Osijek Port is located on the Drava river and has been classified as a TEN-T comprehensive port. The traffic of goods and passengers in port is increasing. The Osijek port has a great opportunity to become intermodal logistics centre due to large port area and excellent potential from the point of view road and rail connections with hinterland	POVS : HR2000372 Dunav - Vukovar POP: HR1000016 Podunavlje i donje Podravlje POVS : HR2000394 Kopački rit POVS : HR2001308 Donji tok Drave	Change of water body characteristics resulting by dredging Pollution Water thermal pollution eutrophication species disturbance Loss of bedside flora and fauna noise and light disturbance	Use of environmental friendly dredging techniques use of alternative 'green' bank protection techniques for the establishment of riparian vegetation Use of stagnant water renewal systems Noise management plans Implementatuin of Environmental Managment Plans Implementation of waste management plans	Minimisation of riparian vegetation disturbance Unobstracted water flow characteristics Preservation of water quality Minimisation of noise disturbance

Code	Measure	Measure Description	NATURA sites that may be affected	Impact	Mitigation measure	Impact after mitigation measure
I.2	Upgrading Sava	Sava river does not meet the international waterways navigability requirements on its entire length in the territory of the Republic of Croatia according to AGN. Further analyses will determine the feasibility of upgrading the Sava river navigability to the required standards: (Va class) from the border with Serbia (rkm 210,8) to Gunja (rkm 234); (IV class) from Gunja (rkm 234) to Sisak (rkm 594). To achieve that navigability requirements the dimensions of the waterway will be increased and the bottlenecks eliminated (among others dredging and/or construction of new waterways structures).	POVS : HR2001311 Sava nizvodno od Hrušćice POVS : HR2000642 Kupa POVS : HR2000416 Lonjsko polje POP:HR1000004 Donja Posavina POVS : HR2000420 Sunjsko polje POP:HR1000005 Jelas polje POVS : HR2001379 Vlakanac-Radinje POVS : HR2000426 Dvorina	Change of water body characteristics resulting by dredging Pollution species disturbance Loss of bedside flora and fauna	Use of environmental friendly dredging techniques use of alternative 'green' bank protection techniques for the establishment of riparian vegetation Relocation of riparian vegetation to unaffected area Avoidance of change of hydraulic characteristics Prevention of spillages -good maintenance of vessels	Minimisation of riparian vegetation disturbance Unobstructed water flow characteristics Preservation of water quality

Code	Measure	Measure Description	NATURA sites that may be affected	Impact	Mitigation measure	Impact after mitigation measure
I.5	<b>Slavonski Brod port development (core)</b>	The Slavonski Brod Port is located on the Sava river and has been classified as a TEN-T core port. The potential of Slavonski Brod, which is of particular importance for BiH, is largely dependent on the development of navigability of the Sava river in BiH and Serbia and/or on the construction of the Danube - Sava canal through Slavonia. Reliability and safety of navigation on the river Sava are crucial factors which influence the attractiveness of the port. The main goods transported are trans-shipment of crude oil together with general cargo. The current tendency shows that the crude oil traffic is decreasing, even though the general cargo is increasing. The port area Slavonski Brod is closely linked to international road and rail corridors (X and Vc) and is situated on the border with Bosnia and Herzegovina. Due to that, this port is also becoming an intermodal	POVS : HR2001311 Sava nizvodno od Hrušćice POP:HR1000005 Jelas polje POVS : HR2001326 Jelas polje s ribnjacima	Change of water body characteristics resulting by dredging Pollution Water thermal pollution eutrophication species disturbance Loss of bedside flora and fauna noise and light disturbance	Use of environmental friendly dredging techniques use of alternative 'green' bank protection techniques for the establishment of riparian vegetation Use of stagnant water renewal systems Noise management plans Implementation of Environmental Management Plans Implementation of waste management plans	Minimisation of riparian vegetation disturbance Unobstructed water flow characteristics Preservation of water quality Minimisation of noise disturbance

Code	Measure	Measure Description	NATURA sites that may be affected	Impact	Mitigation measure	Impact after mitigation measure
		node. In order to develop and upgrade the port of Slavonski Brod the following measures have been identified: developing the complete port area and the business zone, modernization of the basic port infrastructure (including water supply, gas supply, waste-water, sewage systems, etc.) and safety systems, modernization of the passenger pier, construction of a dangerous cargo terminal and modernization of the road and rail connections. Further analyses will identify the feasibility of these measures and prioritise them, taking into account environmental requirements and the real needs and potential according to the expected demand.				

Code	Measure	Measure Description	NATURA sites that may be affected	Impact	Mitigation measure	Impact after mitigation measure
I.6	<b>Sisak port development (comprehensive)</b>	The Sisak port is located on the Sava river, and has been classified as a TEN-T comprehensive port. Reliability and safety of navigation on the river Sava are crucial factors which influence the attractiveness of the port. It is based on three locations: in the town on the river Kupa, on location of Crnac on the river Sava, and in Galdovo zone on the river Sava. The potential of Sisak is largely dependent on the development of navigability of the Sava river in BiH and Serbia and/or on the construction of the Danube - Sava canal through Slavonia. A new port of Sisak is planned south of the Crnac settlement. Cargo transport in the port is mainly related to the Sisak oil refinery, i.e. transportation of crude oil. In order to develop and upgrade the port of Sisak the following measures have been identified: upgrading the existing port, developing the business zone, modernization of the basic port	POVS : HR2001311Sava nizvodno od Hrušćice POP:HR1000004Donja Posavina POVS : HR2000642Kupa	Change of water body characteristics resulting by dredging Pollution Water thermal pollution eutrophication species disturbance Loss of bedside flora and fauna noise and light disturbance	Use of environmental friendly dredging techniques use of alternative 'green' bank protection techniques for the establishment of riparian vegetation Use of stagnant water renewal systems Noise management plans Implementatuin of Environmental Management Plans Implementation of waste management plans	Minimisation of riparian vegetation disturbance Unobstructed water flow characteristics Preservation of water quality Minimisation of noise disturbance

Code	Measure	Measure Description	NATURA sites that may be affected	Impact	Mitigation measure	Impact after mitigation measure
		infrastructure (including electricity, water supply, gas supply, sewage systems, etc.) and safety systems, building the New port of Sisak with assuring the necessary connectivity to the road and rail network. Further analyses will identify the feasibility of these measures and prioritise them, taking into account environmental requirements and the real needs and potential according to the expected demand.				
1.7	<b>Building the Danube Sava canal</b>	Multipurpose channel Danube – Sava is planned to have four equally important functions: shipping, irrigation, drying out and equalization of low water level. Due to its multiple functions, the channel will have an important impact on the Croatian economy. Regarding its potential transport functionality, besides connecting the Croatian network of inland waterways, construction of the canal will help connecting the	POVS : HR2001311 Sava nizvodno od Hrušćice POVS : HR2000372 Dunav - Vukovar POP:HR1000006 Spačvanski bazen POVS : HR2001414 Spačvanski bazen	Change of water body hydraulic characteristics species disturbance Loss of bedside flora and fauna Possible replacement of endemic species	Use of environmental friendly dredging techniques use of alternative 'green' bank protection techniques for the establishment of riparian vegetation Relocation of riparian vegetation to unaffected area Avoidance of change of hydraulic	Minimisation of modification of the water body

Code	Measure	Measure Description	NATURA sites that may be affected	Impact	Mitigation measure	Impact after mitigation measure
		Croatian maritime ports with the Danube and, therefore, with Central Europe. The feasibility of the canal will be analysed in further studies which will consider all the expected functionalities and take into account environmental requirements, and the real needs and potential according to the expected demand.			characteristicsSpecialised River Basin Management Plan	
I.3	<b>Vukovar port development (core)</b>	The Vukovar Port is located on the Danube river, and has been classified as a TEN-T core port. Vukovar is an inland port that can service class 5 vessels. It has a VIc class of navigability. The traffic of goods and passengers in port is increasing. In order to develop and upgrade the port of Vukovar the following measures have been identified: modernization and construction of new facilities to increase the capacity of the existing port; developing and building a New East Port; modernization of road and rail infrastructure connections;	POVS : HR2001088 Mala Dubrava - Vučedol	Change of water body characteristics resulting by dredging Pollution Water thermal pollution eutrophication species disturbance Loss of bedside flora and fauna noise and light	Use of environmental friendly dredging techniques use of alternative 'green' bank protection techniques for the establishment of riparian vegetation Use of stagnant water renewal systems Noise management plans Implementation of Environmental Management Plans Implementation of	Minimisation of riparian vegetation disturbance Unobstructed water flow characteristics Preservation of water quality Minimisation of noise disturbance



Code	Measure	Measure Description	NATURA sites that may be affected	Impact	Mitigation measure	Impact after mitigation measure
		building of an industrial pier in Ilok; and developing passengers port facilities. Further analyses will identify the feasibility of these measures and prioritise them, taking into account environmental requirements and the real needs and potential according to the expected demand.		disturbance	waste management plans	
<b>M.8</b>	<b>Specialise Rijeka port (container, liquid cargo transport and LNG terminal)</b>	Rijeka has been classified as the TEN-T core port of Croatia. It is a port open to public traffic of special (international) economic interest for the Republic of Croatia. It is the largest port in Croatia and benefits from the deepest natural channel in the Adriatic. The major part of the traffic is transit cargo to/from its wider hinterland in Central Europe, and is dominated in volume terms by liquid and bulk cargo followed by container and general cargoes. Further development is focused on	POVS : HR3000467 Podmorje Kostrene POVS : HR2000891 Jezero Njivice na Krku POVS : HR2001357 Otok Krk POP:HR1000033 Kvarnerski otoci POVS : HR2001358 Otok Cres POVS : HR2000601 Park prirode Učka POP:HR1000018 Učka i Čićarija	loss of biodiversity during construction works disturbance of species due to pollution, noise, water turbidity, human presence, sedimentation etc	Measures to prevent spillages and accidents Measures to prevent illegal waste and wastewater dumping Measures to prevent eutrophication in ports and marines by adequate construction that permits renewal and circulation of water and by preventing disposal of not treated	Preservation of sea water quality Minimisation of disturbance of benthic habitats

Code	Measure	Measure Description	NATURA sites that may be affected	Impact	Mitigation measure	Impact after mitigation measure
		the specialisation to container and liquid cargo transport. For the success of the port it is necessary to ensure interoperability and accessibility of the port and ensure that the port development is complemented by the necessary developments of the road and railway infrastructure, as well as logistic areas. Further analyses will identify the necessary project to achieve this specialisation and prioritise them, taking into account environmental requirements and the real needs and potential according to the expected demand.		introduction of non-native or invasive species	wastewater. Use of ecologically orientated maintenance dredging and sediment management techniques	

Code	Measure	Measure Description	NATURA sites that may be affected	Impact	Mitigation measure	Impact after mitigation measure
M.9	<b>Specialise Ploče port (container and bulk cargo)</b>	The Ploče port has been classified as a TEN-T comprehensive port of Croatia, and is of specific importance for BiH. Further development of the port will be focussed on the specialisation to container and bulk cargo transport. According to the development plans, the focus will be on the construction of a new dry bulk cargo terminal, a container terminal, modernisation of existing port infrastructure and a new logistic area. Although outside the scope of this strategy, it is necessary to mention that the success of the port is clearly linked to the development of the road and railway infrastructure across the Republic of Bosnia and Herzegovina. Further analyses will identify the feasibility of these measures and prioritise them, taking into account environmental requirements and the real needs and potential according to the expected demand.	POP: HR1000031 Delta Neretve POVS : HR5000031 Delta Neretve	loss of biodiversity during construction works disturbance of species due to pollution, noise, water turbidity, human presence, sedimentation etc introduction of non-native or invasive species	Measures to prevent spillages and accidents Measures to prevent illegal waste and wastewater dumping Measures to prevent eutrophication in ports and marines by adequate construction that permits renewal and circulation of water and by preventing disposal of not treated wastewater. Use of ecologically orientated maintenance dredging and sediment management techniques	Preservation of sea water quality Minimisation of disturbance of benthic habitats

Code	Measure	Measure Description	NATURA sites that may be affected	Impact	Mitigation measure	Impact after mitigation measure
M.10	<b>Specialise Dubrovnik port (cruising vessels)</b>	The Dubrovnik port has been defined as a TEN-T comprehensive port of Croatia. It is a port open to public traffic of special (international) economic interest for the Republic of Croatia. The port of Dubrovnik has become in recent years one of the most popular destinations for cruise voyages in Europe, so its development is directed to cruising passenger transport. Planned developments include the modernisation and reconstruction of the passenger terminal and the expansion of ferry traffic facilities. Further analyses will identify the feasibility of these measures and prioritise them, taking into account environmental requirements and the real needs and potential according to the expected demand.	POVS : HR4000017 Lokrum POVS : HR2001047 Bobara; Mrkan i Supetar	loss of biodiversity during construction works disturbance of species due to pollution, noise, water turbidity, human presence, sedimentation etc introduction of non-native or invasive species	Measures to prevent spillages and accidents Measures to prevent illegal waste and wastewater dumping Measures to prevent eutrophication in ports and marines by adequate construction that permits renewal and circulation of water and by preventing disposal of not treated wastewater. Use of ecologically orientated maintenance dredging and sediment management techniques	Preservation of sea water quality Minimisation of disturbance of benthic habitats

Code	Measure	Measure Description	NATURA sites that may be affected	Impact	Mitigation measure	Impact after mitigation measure
M.11	<b>Specialise Split port (Ro-Ro, passenger and cruising)</b>	The Split port has been classified as a TEN-T comprehensive port of Croatia. It is a port open to public traffic of special (international) economic interest for the Republic of Croatia. The port of Split, also called gateway to the islands, is the largest passenger port in Croatia, therefore, its development is mainly directed to passenger and cruising transport. Planned developments will be focussed on the construction of new berths for ferry, Ro-Ro and cruise vessels including the extension of the passenger wharves. Further analyses will identify the feasibility of these measures and prioritise them, taking into account environmental requirements and the real needs and potential according to the expected demand.	POVS : HR3000466 Čiovo od uvale Orlice do rta Čiova POVS : HR3000455 Rt Gomilica - Brač POVS : HR3000112 Mrduja POVS : HR4000024 Južna obala Šolte POVS : HR3000110 Fumija II - podmorje POVS : HR3000108 Fumija I - podmorje POVS : HR3000109 Krknjaši POVS : HR3000107 Otoci Orud i Mačaknar	loss of biodiversity during construction works disturbance of species due to pollution, noise, water turbidity, human presence, sedimentation etc introduction of non-native or invasive species	Measures to prevent spillages and accidents Measures to prevent illegal waste and wastewater dumping Measures to prevent eutrophication in ports and marines by adequate construction that permits renewal and circulation of water and by preventing disposal of not treated wastewater. Use of ecologically orientated maintenance dredging and sediment management techniques	Preservation of sea water quality Minimisation of disturbance of benthic habitats

Code	Measure	Measure Description	NATURA sites that may be affected	Impact	Mitigation measure	Impact after mitigation measure
M.12	<b>Specialise Zadar port (Ro-Ro, passenger and cruising)</b>	The Zadar port has been classified as a TEN-T comprehensive port of Croatia. It is a port open to public traffic of special (international) economic interest for the Republic of Croatia. The port of Zadar is the second largest Croatian port for passengers. Cargo traffic is limited due to physical constraints and proximity to Rijeka. The port development is directed to Ro-Ro, passenger and cruising transport. The construction of a new passenger port outside old town, in Gaženica is in progress. The new port will provide an extended berthing capacity for larger international ferries and modern cruise ships ("home port") and international standard on-shore facilities for passengers and vehicles. Further analyses will identify the necessary projects to achieve this specialisation and prioritise them, taking into account environmental requirements and	POVS : HR3000419J. Molat-Dugi-Kornat-Murter-Pašman-Ugljan-Rivanj-Sestrunj-Molat	loss of biodiversity during construction works disturbance of species due to pollution, noise, water turbidity, human presence, sedimentation etc introduction of non-native or invasive species	Measures to prevent spillages and accidents Measures to prevent illegal waste and wastewater dumping Measures to prevent eutrophication in ports and marines by adequate construction that permits renewal and circulation of water and by preventing disposal of not treated wastewater. Use of ecologically orientated maintenance dredging and sediment management techniques	Preservation of sea water quality Minimisation of disturbance of benthic habitats

Code	Measure	Measure Description	NATURA sites that may be affected	Impact	Mitigation measure	Impact after mitigation measure
		the real needs and potential according to the expected demand.				
<b>M.13</b>	<b>Specialise Šibenik port (small capacity cruising and super-yachts)</b>	<p>The Šibenik port has been defined as a TEN-T comprehensive port of Croatia. It is a port open to public traffic of special (international) economic interest for the Republic of Croatia. Further development of the port will be focussed on the specialisation to passenger traffic, as a port for exclusive cruising vessels of smaller capacities (boutique vessels) and super-yachts. Further analyses will identify the necessary projects to achieve this specialisation and prioritise them, taking into account environmental</p>	POVS : HR3000171 Ušće Krke	<p>loss of biodiversity during construction works</p> <p>disturbance of species due to pollution, noise, water turbidity, human presence, sedimentation etc</p> <p>introduction</p>	<p>Measures to prevent spillages and accidents</p> <p>Measures to prevent illegal waste and wastewater dumping</p> <p>Measures to prevent eutrophication in ports and marines by adequate construction that permits renewal and circulation of water and by preventing disposal of not treated wastewater.</p>	<p>Preservation of sea water quality</p> <p>Minimisation of disturbance of benthic habitats</p>

Code	Measure	Measure Description	NATURA sites that may be affected	Impact	Mitigation measure	Impact after mitigation measure
		requirements and the real needs and potential according to the expected demand.		of non-native or invasive species	Use of ecologically orientated maintenance dredging and sediment management techniques	
<b>M.14</b>	<b>Development of special purpose ports (shipbuilding ports, nautical ports, military ports, industrial ports, fishing ports, sport ports)</b>	Depending on activities carried out, special purpose ports are classified as shipbuilding ports, nautical ports, military ports, industrial ports, fishing ports, and sport ports.	Natura sites on islands and coastal areas. To be defined	loss of biodiversity during construction works disturbance of species due to pollution, noise, water turbidity, human presence, sedimentation etc introduction	Measures to prevent spillages and accidents Measures to prevent illegal waste and wastewater dumping Measures to prevent eutrophication in ports and marines by adequate construction that permits renewal and circulation of water and by preventing disposal of not treated wastewater.	Preservation of sea water quality Minimisation of disturbance of benthic habitats



Code	Measure	Measure Description	NATURA sites that may be affected	Impact	Mitigation measure	Impact after mitigation measure
				of non-native or invasive species	Use of ecologically orientated maintenance dredging and sediment management techniques	
<b>M.1</b>	<b>Increase intermodality and accessibility</b>	The modal share of maritime transport is still very low, against road transport. It can be increased by increasing the intermodality and accessibility of ports. The development of national ports must be followed by the development of intermodal infrastructure (road and railway connections and logistics areas). The planning of expansion and development of port (new berths and terminals) must take in consideration, all the possibilities offered by the location for further development.	Natura sites on islands and coastal areas. To be defined	Disturbance from noise and air pollution Pollution by spillages	Noise management plans Implementation of Environmental Management Plans Implementation of waste management plans	Minimisation of the disturbance Preservation of water quality

Code	Measure	Measure Description	NATURA sites that may be affected	Impact	Mitigation measure	Impact after mitigation measure
M.2	Implementation of the "Motorways of the sea" projects	Although there are RO-RO lines connecting Croatian and Italian ports, "Motorways of the Sea" has yet to be implanted in Croatia. The stages for implementation of the "motorways of the sea" projects in Croatia are:- together with EC, establish the main corridors (combined "land-maritime" routes)- upgrade the Croatian ports on the corridors to receive ro-ro traffic				
M.5	Navigability	The Croatian coastline is 1,880 km (6,287 km including islands) and includes 718 islands and 467 coastal reefs. It is one of the most indented coastal regions in Europe. Navigability on the east Adriatic coast is constrained by islands and reefs, but the sea is mainly deep. The advantage of main Croatian ports is depth; therefore, the only limitation to receiving big ocean ships is port infrastructure.				

Code	Measure	Measure Description	NATURA sites that may be affected	Impact	Mitigation measure	Impact after mitigation measure
M.6	Improve the accessibility of islands, port development	Public transport in the coastal line passenger transport is considered to be the key factor in the maritime transport segment, given that it ensures permanent and regular connection between the islands with the mainland and between the islands, without which there would be no sustainable development of inhabited islands. For the proper provision of maritime public transport it is necessary to ensure safety, regularity, reliability and comfort and to coordinate the services among them and with the integrated transport systems in the mainland. The ports must be upgraded for coastal line passenger transport, and the accessibility and connectivity to the ports improved.				

Code	Measure	Measure Description	NATURA sites that may be affected	Impact	Mitigation measure	Impact after mitigation measure
M.7	Other ports development (ex. Korčula, Pula...)	Croatia has 409 ports open for public traffic, 95 of which have at least one shipping line. Apart from the 6 main ports of special (international) economic interest, there are numerous county and local ports. Their development is important for the sustainability development of the islands themselves, as well as tourism. The existing public ports in the county must be upgraded to receive coastal line passenger ships, and in the case of ports of interest to tourists, to receive smaller cruise ships. Further studies will identify the need to upgrade and reconstruct the existing county and local public ports for the needs of the local population, and for tourists.	Natura sites on islands and coastal areas. To be defined	loss of biodiversity during construction works disturbance of species due to pollution, noise, water turbidity, human presence, sedimentation etc introduction of non-native or invasive species	Measures to prevent spillages and accidents Measures to prevent illegal waste and wastewater dumping Measures to prevent eutrophication in ports and marines by adequate construction that permits renewal and circulation of water and by preventing disposal of not treated wastewater. Use of ecologically orientated maintenance dredging and sediment management techniques	Preservation of sea water quality Minimisation of disturbance of benthic habitats
M.16	Closure or change of role/ownership of unused ports	Some military, industrial and shipbuilding ports are unused. It is necessary to how to make use of these unused ports for the purpose of economic development (tourism, fishing and small industries). Further				

Code	Measure	Measure Description	NATURA sites that may be affected	Impact	Mitigation measure	Impact after mitigation measure
		analyses will identify the feasible measures in this regard and prioritise them, taking into account environmental requirements and the real needs and potential according to the expected demand.				

Code	Measure	Measure Description	NATURA sites that may be affected	Impact	Mitigation measure	Impact after mitigation measure
R.2	Zagreb - Karlovac (core/Vb/Mediterranean)	The corridor connecting Zagreb and Rijeka is mainly relevant for freight and partially for commuter traffic. The analysis shows that this commuter activity is mainly related to the section from Zagreb to Karlovac. At present, this part of the line M202 runs on single track, which is limiting the potential to increase in capacity. It is expected that the importance of this line for freight will increase in the medium to long term due to the fact that Rijeka has been defined as the TEN-T core port of Croatia. Further studies should analyse the design speed and capacity requirements taking into account economic and environmental aspects. Besides increase in capacity, freight traffic requires that the line meets the following technical criteria: 22.5 axle load, 750 m siding length, ETRMS.	It passes through POVS : HR5000019 Gorski kotar i sjeverna Lika (having wild species, such as wolf, brown bear, lynx etc), and HR2001353 Lokve-Sunger-Fužine near POVS HR2001042 Lič polje  POVS HR2001351 Područje oko Kupice POVS HR2001345 Vražji prolaz i Zeleni vir POVS HR2001351 Područje oko Kupice POP:HR1000019 Gorski kotar i sjeverna Lika	The interventions refer to amelioration of existing lines. The main impact is species fragmentation. Additional impacts: disturbance of species by noise, vibration	Adequate wildlife crossings must be established according to the provisions of the Ordinance on wildlife crossings (OG 5/07). Speed control	Prevention / minimisation of species fragmentation

<b>R.3</b>	<b>Karlovac+ to Rijeka (core/Vb/Mediterranean)</b>	<p>The analysis shows that that this part of the corridor connecting Zagreb and Rijeka is mainly used for freight. At present, this part of the line M202 runs on single track which is electrified and some sections have speed limits of 50 km/h. Rijeka has been defined as the TEN-T core port of Croatia and consequently, the importance of this line for freight will increase in the medium to long term perspective. Therefore this section needs to meet the following technical criteria: 22.5 axle load, 750 m siding length, ETRMS. Further studies will analyse the design speed and capacity requirements taking into account economic and environmental aspects.</p>	<p>POVS HR5000019 Gorski kotar i sjeverna Lika POVS HR2001413 Šume kod Skrada POVS HR2000592 Ogulinsko-plašćansko područje (though) near POVS HR2000593 Mrežnica - Tounjčica near POP:HR1000001 Pokupski bazen near POVS HR2000450 Ribnjaci Draganići through HR2001335 Jastrebarski lugovi border POVS HR2000589 Stupnički lug</p>	<p>The interventions refer to amelioration of existing lines. The main impact is species fragmentation . Additional impacts: disturbance of species by noise and vibrations</p>	<p>Adequate wildlife crossings must be established according to the provisions of the Ordinance on wildlife crossings (OG 5/07).</p>	<p>Prevention / minimisation of species fragmentation</p>
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R.5	<b>Zagreb - Križevci (core/Vb/Mediterranean)</b>	<p>The corridor connecting Rijeka and Zagreb to East Europe via Hungary is mainly used for freight and partially for commuter traffic. The analysis shows that in this part of the corridor, commuter activity is mainly related to Dugo Selo (15,568 passenger trains in 2012) and Križevci (11,516 passenger trains in 2012). At present, this part of the line M201 runs on double track to Dugo Selo and single track to Križevci. This fact is limiting the potential of increase in capacity, specially taking into consideration that the importance of this line for freight will increase in the medium to long term due to the fact that Rijeka has been defined as the TEN-T core port of Croatia. Besides the increase in capacity, as the line is as well relevant for freight traffic, it will have to meet the following minimum technical criteria: 22.5 axle load, 750 m siding length, ERTMS.</p>	<p>It borders with POVS HR2001320 Crna gora Pass through POP:HR1000014 Gornji tok Drave (od Donje Dubrave do Terezinog polja) and POVS HR5000014 Gornji tok Drave (od Donje Dubrave do Terezinog polja) which has otters, beavers.</p>	<p>The interventions refer to amelioration of existing lines. The main impact is species fragmentation. Additional impacts: disturbance of species by noise or vibration</p>	<p>Adequate wildlife crossings must be established according to the provisions of the Ordinance on wildlife crossings (OG 5/07).</p>	<p>Prevention / minimisation of species fragmentation</p>
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R.6	<b>Križevci -HU border towards Budapest (core/Vb/Mediterranean)</b>	<p>The analysis shows that this part of the corridor connecting Zagreb and Rijeka to East Europe via Hungary is mainly relevant for freight and partially for commuter traffic. Complementary developments are currently under implementation on the Hungarian side (Gysev network development and Szekesfehervar - Boba line development). At present, this part of the line M201 runs on single track which is electrified and some sections have speed limits of 80 km/h. Rijeka has been defined as the TEN-T core port of Croatia and consequently, the importance of this line for freight will increase in the medium to long term perspective. Therefore, and taking into account that this section belongs to the TEN-T core network, it needs to meet the following technical criteria: 22.5 axle load, 750 m siding length, ERTMS.</p>	<p>POP:HR1000008 Bilogora i Kalničko gorje POVS HR2001320 Crna gora (butterfly species)</p>	Disturbance by noise, vibration	Use of antivibrating materials	Minimisation of disturbance
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R.1	<b>Zagreb - SI border towards Ljubljana (core/X/Mediterranean)</b>	<p>Line M101 belongs to the TEN-T core network and to RH1 and is one of the main international connections to Zagreb, the only urban node of the rail TEN-T core network in Croatia. As a result, RH1 historically has been the most relevant corridor in terms of long distance passenger traffic. Future scenarios like Croatia entering the Schengen area will increase the volume of traffic on this line.</p> <p>Although some specific activities for the improvement of this line are being developed, the fact is that at present, some sections of M101 line have a speed limit of 60 Km/h. Further studies will assess the technical requirements to be achieved in terms of capacity, permissible speed, taking into account also economic and environmental aspects. As the line is as well relevant for freight traffic, it will have to meet the following minimum technical criteria: 22.5 axle load, 750 m siding length, ERTMS</p>	POVS HR2001070 Sutla (river species)	Pollution	Proper maintenance of rolling stock and rail, in order to prevent apillages	No disturbance
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R.7	<b>Zagreb - Novska (core/X)</b>	<p>Lines M102 and M103 belong to the TEN-T core network and to RH1, one of the main international connections of Zagreb, the only urban node of the rail TEN-T core network in Croatia. As a result, RH1 historically has been the most important corridor in terms of long distance passenger traffic (between Zagreb and Dugo Selo over 59,000 passenger trains in 2012). Future scenarios like Croatia entering the Schengen area will increase the volume of traffic in this line. Although some specific activities for the improvement of line from Dugo Selo to Novska are being developed, the fact is that at present, some sections of both lines have a speed limit of 50 Km/h. Further studies should analyse the design speed and capacity requirements taking into account economic and environmental aspects. As the line is as well relevant for freight traffic, it will have to meet the following minimum technical criteria: 22.5 axle load, 750 m siding length, ERTMS.</p>	<p>POP:HR1000004 Donja Posavina POVS HR2000416 Lonjsko polje</p>	<p>The interventions refer to amelioration of existing lines. The main impact is species fragmentation. Additional impacts: disturbance of species by noise or vibration</p>	<p>Adequate wildlife crossings must be established according to the provisions of the Ordinance on wildlife crossings (OG 5/07).</p>	<p>Prevention / minimisation of species fragmentation</p>
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<b>R.8</b>	<b>Novska - SRB border towards Belgrade (core/X)</b>	Line M105 belongs to the TEN-T core network and to RH1 one of the main international connections of Zagreb. RH1 historically has been the most important corridor in terms of long distance passenger traffic. Future scenarios like Croatia entering the Schengen area, or other surrounding countries like Serbia entering EU will increase the volume of traffic in this line. At present, M105 runs on double track between Novska and Tovarnik, which has been designed as the core rail network crossing point between Croatia and Serbia. Further studies should assess the technical requirements to be achieved, taking into account also economic and environmental aspects. As the line is as well relevant for freight traffic, it will have to meet the following minimum technical criteria: 22.5 axle load, 750 m siding length, ERTMS.	POP:HR1000005 Jelas polje	Disturbance by noise, vibrations	Speed control, use of antivibrating materials	Minimisation of disturbance
<b>R.10</b>	<b>Regional connection Vinkovci - Vukovar (core/access to corridor X)</b>	Railway line M601 Vinkovci – Vukovar will serve as the railway line connection of RH1 and the only inland core port on the Danube	POVS HR2000372 Dunav - Vukovar (river species)	Pollution	Proper maintenance of rolling stock and rail, in order to prevent apillages	No disturbance

		within Croatia, Vukovar. Further studies will assess the technical requirements to be achieved, taking into account also economic and environmental aspects. As the line is as well relevant for freight traffic, it will have to meet the following minimum technical criteria: 22.5 axle load, 750 m siding length, ETRMS.				
R.9	<b>HU border - Osijek - BIH border (comprehensive/core/Vc)</b>	Line M303 belongs to the TEN-T core network in Croatia, and Slavonski Šamac is the railways core network border crossing point to Bosnia and Herzegovina. Lines M301 and M203 belong to the comprehensive network but serve as a link Bosnia Herzegovina-Croatia Hungary link, following the Pan European corridor Vc. The potential of this international connection will increase in future scenarios in which Schengen borders will vary from its present configuration. Further studies will analyse the design speed and capacity requirements taking into account economic and environmental aspects. As the line is as well relevant for freight traffic, it will have to meet the following	POVS HR2001308 Donji tok Drave POP:HR1000016 Podunavlje i donje Podravlje POVS HR2000372 Dunav - Vukovar	Disturbance by noise, vibrations	Speed control, use of antivibrating materials	Minimisation of disturbance

		minimum technical criteria: 22.5 axle load, 750 m siding length, ERTMS.				
<b>R.11</b>	<b>Zagreb local</b>	The present configuration of the Croatian rail network and the fact that Zagreb is the only urban node of the core transport network, outline the importance of the capital city of Croatia within the entire transport system. In order to enhance the role of railways in the urban transport system of Zagreb, matching time schedules, accessibility and travel times, existing stations must be adapted, new stations might be needed and dedicated tracks implemented. Further studies will analyse specific requirements to be fulfilled.	—			
<b>R.12</b>	<b>Zagreb regional</b>	The present configuration of the Croatian rail network and the fact that Zagreb is the only urban node of the core transport network, outline the importance of the capital city of Croatia within the	—			

		entire transport system. In order to enhance the role of railways in the regional connectivity with the rest of main cities in Croatia, enough capacity and competitive travel times must be achieved. Further studies should analyse specific requirements to be fulfilled in each case.				
<b>R.13</b>	<b>Zagreb freight</b>	Zagreb is the only urban node of the rail TEN-T core network in Croatia. At the same time Zagreb is the distribution point of freight traffic in East-West direction and North-South direction. The transmissibility of the node is a key aspect for the attractiveness of the railway network in Croatia. Therefore the parts of its railway network focusing on freight will have to meet the following minimum technical criteria: 22.5 axle load, 750 m siding length, ETRMS. Further studies will analyse the potential creation of multimodal logistic centre(s).	—			
<b>R.14</b>	<b>Zagreb airport connection</b>	Zagreb plays an important role as a business and tourist destination within Croatia, and its airport represents one of the main accesses to the city from abroad. A direct	—			

		railway connection to the City centre could contribute to increase the modal split in favor of public transport and thus reduce congestion and ease regional and local connectivity. Further studies will assess if this railway connection is required, and in each case the required operational characteristics, capacity, design speed, configuration and location of stops.				
<b>R.15</b>	<b>Zagreb main station</b>	Zagreb Main Station must play a key role not only in long distance traffic but also in local and regional traffic. Adaptation of the existing accesses and platforms, organization of passenger flows inside and outside the station, favouring modal interchange, are likely to be required Specific technical requirements will be a result of further studies, which will take into consideration economic, social and environmental aspects.	—			
<b>R.4</b>	<b>Rijeka regional</b>	The development of the Port of Rijeka, which includes new rail terminals, creates opportunities for complementary measures to enhance the role of railways both in urban transport and in regional	Proximity with POP: HR1000019 Gorski kotar i sjeverna Lika and POVS HR5000019 Gorski kotar i sjeverna Lika	Impacts such as disturbance of species from noise, vibrations etc. The impacts	Speed control, use of antivibrating materials	Minimisation of disturbance



		connectivity. Current preliminary analyses show that there might be a potential for a reorganisation of the Rijeka railway node with introduction of commuters services, thus favoring modal shift from private cars. All these issues will be analysed in the context of a multimodal city transport plan, which takes into consideration all the relevant economic, social and environmental aspects.		depend on the magnitude of interventions and must be examined analytically on a project basis.		
R.18	Rehabilitation, upgrading of other lines	Case by case studies will identify the need to rehabilitate and upgrade lines other than the ones described in the previous measures, taking into account the operational concept and also economic and environmental aspects.	N/A	Depending on specific projects. The assessment will be done on a project basis	Good construction practices (avoidance of excessive light, and noise during construction phase) Adequate wildlife crossings must be established according to the provisions of the Ordinance on wildlife crossings (OG 5/07). Use of anti-vibrating materials, speed control	Minimisation of disturbance Prevention / minimisation of fragmentation

R.19	<b>Regional traffic other than Zagreb and Rijeka (Split, Varaždin, Osijek, etc.)</b>	Rail transport can play as well an important role in regional transport in regional centres outside the railway TEN-T core network, due to the existing configuration of the network in these areas. Specific studies will analyse this potential in cities such as Split, Varaždin and Osijek. These studies will also assess case by case the necessary technical parameters.	<p><b>Split</b> is in vicinity with POVS HR2000931 Jadro, POP:HR1000027Mosor; Kozjak i Trogirska zagora, POVS HR2001352Mosor, POVS HR2001376Područje oko Stražnice, POVS HR2001363Zaleđe Trogira</p> <p><b>Varaždin</b> is in vicinity with POP:HR1000013 Dravske akumulacije POVS HR2001307 Drava - akumulacije</p> <p><b>Osijek</b> is in vicinity with POVS HR2001308 Donji tok Drave POP:HR1000016 Podunavlje i donje Podravlje, POVS HR2000394 Kopački rit POP:HR1000016</p>	Depending on specific projects. The assessment will be done on a project basis	Good construction practices (avoidance of excessive light, and noise during construction phase) Adequate wildlife crossings must be established according to the provisions of the Ordinance on wildlife crossings (OG 5/07).	Minimisation of disturbance Prevention / minimisation of fragmentation
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			Podunavlje i donje Podravlje, POVS HR2000372 Dunav - Vukovar, POP:HR1000016 Podunavlje i donje Podravlje			
R.20	Improvements and new marshalling yards	Specific studies will analyse, based on demand forecasts, the necessity to develop new marshalling yards or improve the existing ones to increase the potential of railways for freight.	N/A	Depending on specific projects. Probably within urban / suburban areas. Disturbance is rather low.		

<b>Ro.1</b>	<b>Gradiška bridge connection</b>	Gradiška bridge over the river Sava is part of the road corridor HU border - Virovitica - Okučani – BiH border (Stara Gradiška). This road is located in the corridor of the existing D 5 road, being the bridge part of international agreement between Croatia and Bosnia. The Republic of Bosnia and Herzegovina has already finished the motorway from Banja Luka (B&H) to Gradiška, however, the planned bridge is required for the connection of motorway from Banja Luka to the existing Zagreb – Beograd Motorway. GP Gradiška is one of two major border crossings between the Croatia/EU and Bosnia and Herzegovina for all types of traffic.	POP:HR1000004 Donja Posavina POVS HR2001311 Sava nizvodno od Hrušćice	Disturbance by noise, light Loss of bedside flora and fauna Change in water hydraulic characteristics	Noise barriers, avoidance of excessive light use of alternative 'green' bank protection techniques for the establishment of riparian vegetation Relocation of riparian vegetation to unaffected area Avoidance of change of hydraulic characteristics	Minimisation of riparian vegetation disturbance Unobstructed water flow characteristics Minimisation of disturbance from noise and light
<b>Ro.2</b>	<b>A5 Osijek - HU border Pecs (comprehensive/Vc)</b>	The A5 motorway is a part of the comprehensive TEN-t network and corridor Vc. The total length of the A5 motorway is 86.8 km, and it goes from the B&H border towards Osijek, Beli Manastir, to the HU border. Several sections of the motorway are at different stages of development. The motorway section at the lowest stage of development is the one from Osijek to the HU border, section Osijek – Beli Manastir 24.6 km and Beli Manastir – HU border 5 km. Other sections, like the bridge over River	Through POP:HR1000016 Podunavlje i donje Podravlje, POVS HR2001308 Donji tok Drave	Disturbance by noise, light Pollution from spillages	Noise barriers, avoidance of excessive light	Minimisation of disturbance

		Drava (length 2.4 km) are part of planned corridor and are under construction. Further studies will analyse the phasing and timing of the remaining sections, as well as the required technical parameters, taking into consideration the expected demand and economical and environmental aspects, e.g. the planned section passes through some "Natura 2000" areas.				
Ro.3	<b>A5 from A3 to BIH border (comprehensive/Vc)</b>	The A5 motorway is part of the comprehensive TEN-t network, and corridor Vc, being Svilaj included in the list of border crossing points of the EU core network. The total length of motorway A5 is 86.8 km, and it goes from the Bosnia and Herzegovina border toward Osijek, Beli Manastir to the Hungarian border. Several sections of the motorway are at different stages of development. The section from Sredanci (motorway A3) to the B&H border is 3.5 km long and is under construction. The section includes a bridge over the river Sava (660m in length). The contract for the construction of the bridge is currently in the tendering process.	Vicinity with POVS HR2001354 Područje oko jezera Borovik (toad)	Disturbance by noise, light	Noise barriers, avoidance of excessive light	Minimisation of disturbance

		The continuation on the BiH side is already constructed.				
Ro.4	<b>A7 Križišće to Žuta Lokva (comprehensive/Adriatic Ionian corridor)</b>	The A7 motorway (SLO border - Rupa – Rijeka – Žuta Lokva (A7)) is part of the comprehensive TEN-t network, and the Adriatic Ionian corridor. The total length of the A7 is 99 km, being several sections of the motorway are at different stages of development. Almost half of the total length of the A7 motorway that runs from Rupa (Slovenian border) to Križišće is completed, while the sub section from Križišće to Žuta Lokva, is at an earlier phase of the project development phase. A7 motorway plays an important role in linking the Croatian motorway network, the A8 motorway (Istrian Y), A6 motorway (Rijeka -Bosiljevo) and A1 motorway (Zagreb – Split). In addition, given the international importance of the A7 motorway, it might become, at regional and local	Through POVS : HR5000022 Park prirode Velebit POVS HR5000019 Gorski kotar i sjeverna Lika POVS točke: HR2001154 Orlovac špilja POP: HR1000022 Velebit POVS : HR2000605 Nacionalni park Sjeverni Velebit POVS : HR2001301 Podbilo POVS : HR3000030 M. Draga - Žrnovnica POP:HR1000019 Gorski kotar i sjeverna Lika POVS : HR2001302 Krmpotsko	Fregmentatio n Distrurbance by noise, light	Good construction practices (avoidance of excessive light, and noise during construction phase) Adequate wildlife crossings must be established according to the provisions of the Ordinance on wildlife crossings (OG 5/07). Noise barriers Avoidance of excessive light	Minimisation of disturbance and fregmentatio n

		level a driver for the development of the coast, the islands and Adriatic-ian regions, and as a link between Adriatic towns and harbours. Further studies will analyse the phasing and timing of the remaining sections, as well as the required technical parameters, taking into consideration the expected demand and economical and environmental aspects, especially orographical features due to very complex coastal relief terrain, and international coordination with Slovenia.				
<b>Ro.5</b>	<b>A11 Lekenik - Sisak</b>	The A11Motorway (Zagreb – Sisak) is under construction, with one section already completed. The total length of the highway, between Zagreb and Sisak is 48, 1 km. The next planned section Lekenik – Sisak is 10.8 km long. The last section would be Sisak - Moščenica, which will be considered after finishing of the previous sections. Further studies will analyse the phasing and timing of the remaining sections in the light of inter-modality, as well as the required technical parameters, taking into consideration the	POVS : HR2000642 Kupa (river species) POP:HR1000003 Turopolje POVS : HR2000415 Odransko polje	Fregmentatio n Distrurbance by noise, light	Good construction practices (avoidance of excessive light, and noise during construction phase) Adequate wildlife crossings must be established according to the provisions of the Ordinance on wildlife crossings (OG 5/07). Noise barriers Avoidance of excessive light	Minimisation of disturbance and fregmentatio n

		expected demand and economical and environmental aspects.				
Ro.6	<b>DC 10 Vrbovec - Križevci - Koprivnica - Hungarian border towards Kaposvar</b>	<p>The DC10 State road was previously categorized as a motorway, the A12.</p> <p>The A12 motorway is a partially built motorway in central Croatia, northeast from Zagreb, extending towards the city of Vrbovec. A 23 km dual carriageway exists between the A4 motorway and Sveta Helena.</p>	<p>POP:HR1000008 Bilogora i Kalničko gorje</p> <p>POP:HR1000014 Gornji tok Drave (od Donje Dubrave do Terezinog polja)</p> <p>POVS : HR5000014 Gornji tok Drave (od Donje Dubrave do Terezinog polja)</p>	<p>The interventions refer to amelioration of existing lines. The main impact is species fregmentation . Additional impacts: disturbace of species by noise or light</p>		



Ro.7	<b>DC 12 Vrbovec 2 interchange - Ivanja Reka - Vrbovec - Bjelovar - Virovitica - Hungarian border towards Barcsu</b>	DC12 represents the eastern arm of the so-called Podravina Y, as the western arm is planned to be the DC10 and will finally connect Zagreb with the Hungarian border towards Pecs. Only the Vrbovec 2 interchange, the starting (western) terminus of the D12 has been completed. The rest of the corridor is divided into several sectors, and the stage of project documentation (project design and permits) varies from sector to sector. Further studies will assess on the phasing and timing of the remaining sections, as well as the required technical parameters, taking into consideration economic and environmental aspects.	POP:HR1000008 Bilogora i Kalničko gorjePOP:HR1000009 Ribnjaci uz ČesmuPOVS : HR2000441 Ribnjaci NartaPOP:HR1000008 Bilogora i Kalničko gorjePOVS : HR2001281 BilogoraPOP:HR1000014 Gornji tok Drave (od Donje Dubrave do Terezinog polja)POVS : HR5000014 Gornji tok Drave (od Donje Dubrave do Terezinog polja)	Species fragmentation	Good construction practices (avoidance of excessive light, and noise during construction phase)Adequate wildlife crossings must be established according to the provisions of the Ordinance on wildlife crossings (OG 5/07).	
Ro.9	<b>D2 from SLO border to SRB border</b>	D2 is the existing state road for transit traffic in the northern areas of Croatia, and spans from the border crossing with Slovenia at Dubrava Križovljanska in the west via Varaždin, Osijek, Vukovar, ending at the Ilok–Bačka Palanka Bridge border crossing to Serbia. Most of the D2 route runs parallel to the Drava River (Podravska magistrala). Relevant intensity of	POP: HR1000013 Dravske akumulacije POVS : HR2001307 Drava - akumulacije POP:HR1000016 Podunavlje i donje Podravlje POVS : HR2001308 Donji tok Drave POVS : HR2000372 Dunav - Vukovar	The Natura areas are mainly river areas. No significant impacts anticipated		

		very high heavy traffic, is affecting the features of the existing lanes and thus level of security is clearly decreasing. A new corridor for the D2 is planned, but studies should assess on the phasing and timing of the of its development, as well as the required technical parameters, taking into consideration the expected demand economic and environmental aspects.				
<b>Ro.1 0</b>	<b>Rijeka network reorganization</b>	The Rijeka road junction is one of Croatian main traffic junctions, and plays an important role in linking the Croatian motorway network: A7 motorway links A8 motorway (Istrian Y) and A6 motorway (Rijeka – Bosiljevo). The Port of Rijeka is the main Croatian port (core port), and the development of the port must be harmonised with road development. The planned west container terminal in Rijeka port is connected with the planned state road D403.	Proximity with POP:HR1000019 Gorski kotar i sjeverna Lika POVS : HR5000019 Gorski kotar i sjeverna Lika	The interventions are outside the Natura area. No significant impacts anticipated		
<b>Ro.1 1</b>	<b>Dubrovnik - ME border</b>	The Corridor Dubrovnik – ME border is at different stages of development per sections. he development would bypass the Dubrovnik airport. Further studies	POVS : HR2001010 Paleombla - Ombla POVS : HR2000946 Snježnica i Konavosko polje	No significant impacts anticipated		

		will assess on the phasing and timing of its development, as well as the required technical parameters, taking into consideration the expected demand and economical and environmental aspects.	POVS točke: HR2001248 Izvor Duboka Ljuta POVS : HR3000170 Akvatorij uz Konavoske stijene			
Ro.1 2	<b>Increase of capacity - dedicated PT lane between Zagreb and Karlovac</b>	Road corridor from Zagreb to Karlovac is included in the EU core network because of international and regional relevance of the traffic coming from Rijeka to inland. The PT accessibility of Istria and Dalmatia is dependent on regional bus providers and the prioritization of PT services on the road. There has been a constant increase in commuter traffic between Zagreb and Karlovac, while the existing motorway has two traffic lanes in each direction plus an emergency lane. Further studies analysing several options of increasing the capacity for public transport are necessary to identify the final solution. These studies will take into consideration the expected demand and economic, social and environmental aspects, as well as the developments planned in other modes of transport.	POP:HR1000001 Pokupski bazen POVS : HR2000450 Ribnjaci Draganići POVS : HR2000589 Stupnički lug	disturbance from noise and light		

Ro.8	<b>Zagreb main network reorganization</b>	<p>Zagreb is the capital of Croatia and the interchange of main road corridors. Currently all the motorway corridors are connected through the Zagreb bypass, the road with the highest traffic load in Croatia. A new "Zagreb ring" motorway, Pojatno - Horvati-Ivanić Grad - Sveti Ivan Zelina is considered for the redirecting of transit traffic. Additional studies for "Zagreb ring" are necessary, assessing on the capacity, connections and technical parameters to be implemented, taking into consideration the expected demand and economic, environmental and social aspects. The main road network inside the city should be reorganised as well taking into account the outcomes of the Transport Masterplan to be developed which will consider the introduction of integrated public transport systems emphasising the prioritisation of public transport and soft modes against private cars.</p>	<p>Vicinity with POVS : HR2000583 Medvednica</p>	<p>No significant impacts anticipated</p>		
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<b>Ro.1 3</b>	<b>Increase of capacity - dedicated PT lane Zagreb bypass</b>	The Zagreb bypass is the busiest traffic route in Croatia, and the level of traffic is constantly increasing. Some sections of the Zagreb bypass need upgrade with a new PT lane. This needs to be seen in relation to competing projects like the Zagreb ring road. Additional studies are needed to decide if it is better to upgrade the existing bypass or build a new "Zagreb ring" motorway: Pojatno - Horvati-Ivanić Grad - Sveti Ivan Zelina. These studies will analyse the existing options to increase the capacity, assess on the phasing and timing of its development, as well as the required technical parameters, taking into consideration the expected demand and economic, social and environmental aspects, as well as the developments planned in other modes of transport.	Vicinity with POVS : HR2000583 Medvednica	No significant impacts anticipated		
<b>Ro.1 4</b>	<b>Slavonski Brod port access improvement</b>	Slavonski Brod, as the main port on the river Sava, is the only inland port in Croatia in the Sava river included in the list of nodes of the EU core network. The development of port and the additional business zone must be accompanied with the	POP: HR1000005 Jelas polje POVS : HR2001311 Sava nizvodno od Hrušćice	No significant impacts anticipated		

		improvement of other transport infrastructure, especially road. Further studies will define actual needs and analyse the required technical parameters, taking into consideration the expected demand and economical and environmental aspects.				
<b>Ro.1 5</b>	<b>Split network reorganization</b>	Split is one of the main centres of tourism in Croatia. Of special relevance for the road network is the tourism linked to the cruises as it creates a heavy seasonal burden on the road network. It is necessary to reorganise the road network in Split taking into account as well the public transport system and planned developments in the city, the port and other relevant transport systems such as rail. One of the potential measures is the Split bypass : Trogir – Split – Omiš which has been planned for regional and local traffic, being several sections at different stages of development: the section Trogir – Split has been already completed, while the connection road from Split to the A1 motorway is under construction. Further studies are necessary to	Split is in vicinity with POVS : HR2000931 Jadro, POP :HR1000027Mosor; Kozjak i Trogirska zagora, POVS : HR2001352 Mosor, POVS : HR2001376 Područje oko Stražnice POVS : HR2001363 Zaleđe Trogira POVS : HR3000126 Ušće Cetine	No significant impacts anticipated		

		define the final set of interventions as well as the required technical parameters, taking into consideration the expected demand and economical and environmental aspects.				
Ro.1 6	<b>Preparation for accessibility of Dubrovnik when Croatia joins Schengen</b>	In order to maintain the accessibility of Dubrovnik and the surrounding area to the rest of the country taking into account the possible scenario of Croatia entering the Schengen area, it is necessary to analyse all the options taking into account all the transport modes and functionalities. Long distance accessibility will be mainly solved through the airport connection in the mid-term scenario but for the local and regional needs and for freight, several options, like the Pelješac bridge will be considered. Further studies will analyse the full range of existing options (in a multimodal way and considering specific functionalities), as well as the required technical parameters,	POVS : HR4000028Elafiti POVS : HR2001010Paleoombl a - Ombla Natura areas in Dubrovnik (mainly caves)	No significant impacts anticipated		

		taking into consideration the expected demand and economic, social and environmental aspects, as well as the developments planned in other modes of transport.				
<b>Ro.1 8</b>	<b>Secondary and tertiary road rehabilitation and realignment</b>	To ensure the cohesion of the territory and provide the proper accessibility to the high level network, the status of the existing secondary and tertiary roads will be analysed to identify the needs for their rehabilitation. The main problem affecting these categories of roads is lack of maintenance and funding. It is necessary to provide the conditions for proper maintenance, especially taking into account the existing and forecasted levels of traffic on these roads.	N/A	Depending on specific projects. The assessment will be done on a project basis	Good construction practices (avoidance of excessive light, and noise during construction phase) Adequate wildlife crossings must be established according to the provisions of the Ordinance on wildlife crossings (OG 5/07). Noise barriers Avoidance of excessive light	Minimisation of disturbance and fragmentation



<b>A.1</b>	<b>Dubrovnik airport development (comprehensive)</b>	Dubrovnik is one of the main destinations on the Dalmatian coast. The airport suffers from bottlenecks due to seasonal peaks. Given the characteristics and meteorological environment of the surrounding territory, an enclave, transport links must be maintained and enhanced to ensure the proper accessibility. The planned measures include expansion of existing transport/infrastructure capacity in order to maintain existing service quality levels, reduction/elimination of bottlenecks, reconstruction of existing and construction of new pavement structures and facilities necessary for the safe and smooth operation of the airport, implementation of environmental protection measures, implementation of measures aimed at improving energy efficiency and acquisition of necessary equipment and devices.	POVS : HR2000946 Snježnica i Konavosko polje POVS : HR3000170 Akvatorij uz Konavoske stijene	Disturbance by noise and light.	Airport operational measures (avoidance of night flights, avoidance of excessive light)	Minimisation of disturbance
<b>A.2</b>	<b>Pula airport development (comprehensive)</b>	Pula airport is relevant for the long distance accessibility of the region. Traffic at the airport is seasonal which may lead to bottlenecks given the limited facilities. Two important	POVS : HR5000032 Akvatorij zapadne Istre POP:HR1000032 Akvatorij zapadne	Disturbance by noise and light. Disturbance of migratory	Airport operational measures (avoidance of night flights, avoidance of excessive light). Planning of	Minimisation of disturbance

		operational aspects which must be considered include:	Istre POVS : HR2000522 Luka Budava - Istra	birds	adequate flight paths	
<b>A.3</b>	<b>Brač airport development</b>	The development of Brač Airport is planned to eventually increase the long distance connectivity of the Island of Brač and therefore the Centre of Dalmatia; while complying with a variety of different safety and traffic demand requirements. The analyses show the need to achieve the ICAO 3C Code and to comply with ICAO, EASA and national standards. Further analyses will identify the feasible measures and prioritise them, taking into account environmental requirements and the real needs and potential according to the expected demand.	POVS : HR2000521 Brač - Baljenik POVS : HR2000937 Vidova gora POVS : HR3000475 Brač - podmorje od Rta Gališnjak do Druge vale	Disturbance by noise and light.	Airport operational measures (avoidance of night flights, avoidance of excessive light)	
<b>A.4</b>	<b>Mali Lošinj airport development</b>	The development of Mali Lošinj Airport is planned to eventually increase the long distance connectivity of the Island of Lošinj and therefore the North of Dalmatia; while complying with traffic demand requirements. The analyses show the potential necessity to extend the runway, apron and terminal area. Further analyses will identify the feasibility	Inside POP:HR1000033 Kvarnerski otociNear POVS : HR3000161 Cres - Lošinj	Disturbance by noise and light. Disturbance of migratory birds	Airport operational measures (avoidance of night flights, avoidance of excessive light). Planning of adequate flight paths	

		of these measures and prioritise them, taking into account environmental requirements and the real needs and potential according to the expected demand.				
<b>A.5</b>	<b>Osijek airport development (comprehensive)</b>	Regional and long distance connectivity, apart from national cohesion, is the main reason for the expansion of Osijek airport considering cargo as well due to synergies with other modes of transport. Further analyses will identify the feasible measures and prioritise them, taking into account environmental requirements and the real needs and potential according to the expected demand.	Near POVS : HR2000394 Kopački rit and POP: HR1000016 Podunavlje i donje Podravlje	Disturbance by noise and light. Disturbance of migratory birds	Airport operational measures (avoidance of night flights, avoidance of excessive light). Planning of adequate flight paths	
<b>A.6</b>	<b>Rijeka airport development (comprehensive)</b>	Airport Rijeka presents large passenger traffic growth and has additional cargo potential due to the synergy with the Port of Rijeka. As part of the airports plans for development and alignment with ICAO, EASA and national standards, the reconstruction/expansion/displacement of apron and operations and control tower equipment planning is in progress. In order to achieve energy efficiency and environment	Near POP:HR1000019Gorski kotar i sjeverna Lika POVS : HR5000019Gorski kotar i sjeverna Lika POVS : HR2000658Rječina	Disturbance by noise and light. Disturbance of migratory birds	Airport operational measures (avoidance of night flights, avoidance of excessive light). Planning of adequate flight paths	

		protection it is planned to realize projects related to the solar power plant, terminal building facade and waste liquids separator. Further analyses will identify the feasibility of these measures and prioritise them, taking into account environmental requirements and the real needs and potential according to the expected demand.				
<b>A.7</b>	<b>Split airport development (comprehensive)</b>	With a level of traffic similar to Dubrovnik airport, Split is the other main gate to the Dalmatian coast in term of passengers. The airport also suffers from bottlenecks due to seasonal peaks. Included in its master plan, the expansion of both landside and airside facilities is planned, tackling the issues of seasonality and quality of the service. Further analyses will identify the feasibility of these measures and prioritise them, taking into account environmental requirements and the real needs and potential according to the expected demand.	Near POVS : HR2001363Zaleđe Trogira POP:HR1000027Moser; Kozjak i Trogirska zagora POVS : HR3000430Pantan POVS : HR3000459Pantan - Divulje	Disturbance by noise and light. Disturbance of migratory birds	Airport operational measures (avoidance of night flights, avoidance of excessive light). Planning of adequate flight paths	

<b>A.8</b>	<b>Zadar airport development (comprehensive)</b>	Long distance connectivity of Central Dalmatia is the main driver for the expansion of the airport. The analyses show that the investment should be focused on the improvement of the airports transport and infrastructure capacities for the operation of ICAO 4E Code airplanes. Further analyses will identify the feasible measures and prioritise them, taking into account environmental requirements and the real needs and potential according to the expected demand.	Very close to POP: HR1000024 Ravni kotari POVS : HR2001361 Ravni kotari	Disturbance by noise and light. Disturbance of migratory birds	Airport operational measures (avoidance of night flights, avoidance of excessive light). Planning of adequate flight paths	
<b>A.9</b>	<b>Zagreb airport development (core)</b>	Zagreb Airport is the main gateway to Croatia operating as a hub for domestic and international destinations. At present, it is operated by a concessionaire who established a new company Zagreb International Airport Jsc., whose investment plan is reviewed periodically with the MMATI. Zagreb Airport Ltd. company is still active, now having the role of an intermediary between the Government of the Republic of Croatia and the concessionaire, with the aim of further development of	POP: HR1000002 Sava kod Hrušćice POVS : HR2001311 Sava nizvodno od Hrušćice	No significant impacts anticipated		

		the infrastructure and all the transport segments that are not subject to the concessionaire contract. Should the concessionaire withdraw from the project and operation of the airport, Zagreb Airport Ltd. will immediately takeover the airport from the concessionaire to ensure continuous and uninterrupted operation of Zagreb Airport.				
I.1	<b>Maintaining Danube and Drava until Osijek</b>	The Danube and Drava are part of the Rhine-Danube Corridor (TEN-T network). The total length of the Danube running through the Republic of Croatia is 137.5 km. A tributary of the Danube, the Drava is also considered an international waterway up to Osijek. As such, it is necessary to ensure the navigability in these international rivers in line with the required navigability level according to the European Agreement on Main Inland Waterways of International Importance (AGN), VIc class for the Danube and IV for the Drava up to the port of Osijek. To achieve that navigability requirements the	POVS : HR2000372 Dunav - Vukovar POP: HR100001 6 Podunavlje i donje Podravlje POVS : HR2000394 Kopački rit POVS : HR2001308 Donji tok Drave	Change of water body characteristics resulting by dredging Pollution species disturbance Loss of bedside flora and fauna	Use of environmental friendly dredging techniques use of alternative 'green' bank protection techniques for the establishment of riparian vegetation Relocation of riparian vegetation to unaffected area Avoidance of change of hydraulic characteristics Prevention of spillages -good maintenance of vessels	Minimisation of riparian vegetation disturbance Unobstructed water flow characteristics Preservation of water quality

		dimensions of the waterway will be increased and the bottlenecks eliminated (through among others dredging and/or construction of new waterways structures).				
I.4	<b>Osijek port development (comprehensive)</b>	The Osijek Port is located on the Drava river and has been classified as a TEN-T comprehensive port. The traffic of goods and passengers in port is increasing. The Osijek port has a great opportunity to become intermodal logistics centre due to large port area and excellent potential from the point of view road and rail connections with hinterland	POVS : HR2000372 Dunav - Vukovar POP: HR1000016 Podunavlje i donje Podravlje POVS : HR2000394 Kopački rit POVS : HR2001308 Donji tok Drave	Change of water body characteristics resulting by dredging Pollution Water thermal pollution eutrophication species disturbance Loss of bedside flora and fauna noise and light	Use of environmental friendly dredging techniques use of alternative 'green' bank protection techniques for the establishment of riparian vegetation Use of stagnant water renewal systems Noise management plans Implementation of Environmental Management Plans Implementation of waste management	Minimisation of riparian vegetation disturbance Unobstructed water flow characteristics Preservation of water quality Minimisation of noise disturbance

				disturbance	plans	
I.2	<b>Upgrading Sava</b>	Sava river does not meet the international waterways navigability requirements on its entire length in the territory of the Republic of Croatia according to AGN. Further analyses will determine the feasibility of upgrading the Sava river navigability to the required standards: (Va class) from the border with Serbia (rkm 210,8) to Gunja (rkm 234); (IV class) from Gunja (rkm 234) to Sisak (rkm 594). To achieve that navigability requirements the dimensions of the waterway will be increased and the bottlenecks eliminated (among others dredging and/or construction of new waterways structures).	POVS : HR2001311 Sava nizvodno od Hrušćice POVS : HR2000642 Kupa POVS : HR2000416 Lonjsko polje POP:HR1000004 Donja Posavina POVS : HR2000420 Sunjsko polje POP:HR1000005 Jelas polje POVS : HR2001379 Vlakanac-Radinje POVS : HR2000426 Dvorina	Change of water body characteristics resulting by dredging Pollution species disturbance Loss of bedside flora and fauna	Use of environmental friendly dredging techniques use of alternative 'green' bank protection techniques for the establishment of riparian vegetation Relocation of riparian vegetation to unaffected area Avoidance of change of hydraulic characteristics Prevention of spillages -good maintenance of vessels	Minimisation of riparian vegetation disturbance Unobstructed water flow characteristics Preservation of water quality



I.5	<b>Slavonski Brod port development (core)</b>	<p>The Slavonski Brod Port is located on the Sava river and has been classified as a TEN-T core port. The potential of Slavonski Brod, which is of particular importance for BiH, is largely dependent on the development of navigability of the Sava river in BiH and Serbia and/or on the construction of the Danube - Sava canal through Slavonia. Reliability and safety of navigation on the river Sava are crucial factors which influence the attractiveness of the port. The main goods transported are trans-shipment of crude oil together with general cargo. The current tendency shows that the crude oil traffic is decreasing, even though the general cargo is increasing. The port area Slavonski Brod is closely linked to international road and rail corridors (X and Vc) and is situated on the border with Bosnia and Herzegovina. Due to that, this port is also becoming an intermodal node. In order to develop and upgrade the port of Slavonski Brod the following measures have been identified: developing the complete</p>	<p>POVS : HR2001311 Sava nizvodno od Hrušćice POP:HR1000005 Jelas polje POVS : HR2001326 Jelas polje s ribnjacima</p>	<p>Change of water body characteristics resulting by dredging Pollution Water thermal pollution eutrophication species disturbance Loss of bedside flora and fauna noise and light disturbance</p>	<p>Use of environmental friendly dredging techniques use of alternative 'green' bank protection techniques for the establishment of riparian vegetation Use of stagnant water renewal systems Noise management plans Implementation of Environmental Management Plans Implementation of waste management plans</p>	<p>Minimisation of riparian vegetation disturbance Unobstructed water flow characteristics Preservation of water quality Minimisation of noise disturbance</p>
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		port area and the business zone, modernization of the basic port infrastructure (including water supply, gas supply, waste-water, sewage systems, etc.) and safety systems, modernization of the passenger pier, construction of a dangerous cargo terminal and modernization of the road and rail connections. Further analyses will identify the feasibility of these measures and prioritise them, taking into account environmental requirements and the real needs and potential according to the expected demand.				
I.6	<b>Sisak port development (comprehensive)</b>	The Sisak port is located on the Sava river, and has been classified as a TEN-T comprehensive port. Reliability and safety of navigation on the river Sava are crucial factors which influence the attractiveness of the port. It is based on three locations: in the town on the river Kupa, on location of Crnac on the river Sava, and in Galdovo zone on the river Sava. The potential of Sisak is largely dependent on the development of navigability of the Sava river in BiH and Serbia and/or	POVS : HR2001311Sava nizvodno od Hrušćice POP:HR1000004Donja Posavina POVS : HR2000642Kupa	Change of water body characteristics resulting by dredging Pollution Water thermal pollution eutrophication species disturbance Loss of bedside flora	Use of environmental friendly dredging techniques use of alternative 'green' bank protection techniques for the establishment of riparian vegetation Use of stagnant water renewal systems Noise management plans Implementatuin of Environmental	Minimisation of riparian vegetation disturbance Unobstructed water flow characteristics Preservation of water quality Minimisation of noise disturbance

		<p>on the construction of the Danube - Sava canal through Slavonia. A new port of Sisak is planned south of the Crnac settlement. Cargo transport in the port is mainly related to the Sisak oil refinery, i.e. transportation of crude oil. In order to develop and upgrade the port of Sisak the following measures have been identified: upgrading the existing port, developing the business zone, modernization of the basic port infrastructure (including electricity, water supply, gas supply, sewage systems, etc.) and safety systems, building the New port of Sisak with assuring the necessary connectivity to the road and rail network. Further analyses will identify the feasibility of these measures and prioritise them, taking into account environmental requirements and the real needs and potential according to the expected demand.</p>		and fauna noise and light disturbance	Management Plans Implementation of waste management plans	
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I.7	<b>Building the Danube Sava canal</b>	Multipurpose channel Danube – Sava is planned to have four equally important functions: shipping, irrigation, drying out and equalization of low water level. Due to its multiple functions, the channel will have an important impact on the Croatian economy. Regarding its potential transport functionality, besides connecting the Croatian network of inland waterways, construction of the canal will help connecting the Croatian maritime ports with the Danube and, therefore, with Central Europe. The feasibility of the canal will be analysed in further studies which will consider all the expected functionalities and take into account environmental requirements, and the real needs and potential according to the expected demand.	POVS : HR2001311 Sava nizvodno od Hrušćice POVS : HR2000372 Dunav - Vukovar POP:HR1000006 Spačvanski bazen POVS : HR2001414 Spačvanski bazen	Change of water body hydraulic characteristics species disturbanceLoss of bedside flora and faunaPossible replacement of endemic species	Use of environmental friendly dredging techniquesuse of alternative 'green' bank protection techniques for the establishment of riparian vegetationRelocation of riparian vegetation to unaffected areaAvoidance of change of hydraulic characteristicsSpecialised River Basin Management Plan	Minimisation of modification of the water body
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I.3	<b>Vukovar port development (core)</b>	<p>The Vukovar Port is located on the Danube river, and has been classified as a TEN-T core port. Vukovar is an inland port that can service class 5 vessels. It has a VIc class of navigability. The traffic of goods and passengers in port is increasing. In order to develop and upgrade the port of Vukovar the following measures have been identified: modernization and construction of new facilities to increase the capacity of the existing port; developing and building a New East Port; modernization of road and rail infrastructure connections; building of an industrial pier in Ilok; and developing passengers port facilities. Further analyses will identify the feasibility of these measures and prioritise them, taking into account environmental requirements and the real needs and potential according to the expected demand.</p>	POVS : HR2001088 Mala Dubrava - Vučedol	<p>Change of water body characteristics resulting by dredging Pollution Water thermal pollution eutrophication species disturbance Loss of bedside flora and fauna noise and light disturbance</p>	<p>Use of environmental friendly dredging techniques use of alternative 'green' bank protection techniques for the establishment of riparian vegetation Use of stagnant water renewal systems Noise management plans Implementation of Environmental Management Plans Implementation of waste management plans</p>	<p>Minimisation of riparian vegetation disturbance Unobstructed water flow characteristics Preservation of water quality Minimisation of noise disturbance</p>

M.8	<b>Specialise Rijeka port (container, liquid cargo transport and LNG terminal)</b>	<p>Rijeka has been classified as the TEN-T core port of Croatia. It is a port open to public traffic of special (international) economic interest for the Republic of Croatia. It is the largest port in Croatia and benefits from the deepest natural channel in the Adriatic. The major part of the traffic is transit cargo to/from its wider hinterland in Central Europe, and is dominated in volume terms by liquid and bulk cargo followed by container and general cargoes. Further development is focused on the specialisation to container and liquid cargo transport. For the success of the port it is necessary to ensure interoperability and accessibility of the port and ensure that the port development is complemented by the necessary developments of the road and railway infrastructure, as well as logistic areas. Further analyses will identify the necessary project to achieve this specialisation and prioritise them, taking into account environmental requirements and the real needs and potential according to the expected demand.</p>	<p>POVS : HR3000467 Podmorje Kostrene POVS : HR2000891 Jezero Njivice na Krku POVS : HR2001357 Otok Krk POP:HR1000033 Kvarnerski otoci POVS : HR2001358 Otok Cres POVS : HR2000601 Park prirode Učka POP:HR1000018 Učka i Ćićarija</p>	<p>loss of biodiversity during construction works disturbance of species due to pollution, noise, water turbidity, human presence, sedimentation etc introduction of non-native or invasive species</p>	<p>Measures to prevent spillages and accidents Measures to prevent illegal waste and wastewater dumping Measures to prevent eutrophication in ports and marines by adequate construction that permits renewal and circulation of water and by preventing disposal of not treated wastewater. Use of ecologically orientated maintenance dredging and sediment management techniques</p>	<p>Preservation of sea water quality Minimisation of disturbance of benthic habitats</p>
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M.9	<b>Specialise Ploče port (container and bulk cargo)</b>	<p>The Ploče port has been classified as a TEN-T comprehensive port of Croatia, and is of specific importance for BiH. Further development of the port will be focussed on the specialisation to container and bulk cargo transport. According to the development plans, the focus will be on the construction of a new dry bulk cargo terminal, a container terminal, modernisation of existing port infrastructure and a new logistic area. Although outside the scope of this strategy, it is necessary to mention that the success of the port is clearly linked to the development of the road and railway infrastructure across the Republic of Bosnia and Herzegovina. Further analyses will identify the feasibility of these measures and prioritise them, taking into account environmental requirements and the real needs and potential according to the expected demand.</p>	<p>POP: HR1000031 Delta Neretve POVS : HR5000031 Delta Neretve</p>	<p>loss of biodiversity during construction works disturbance of species due to pollution, noise, water turbidity, human presence, sedimentation etc introduction of non-native or invasive species</p>	<p>Measures to prevent spillages and accidents Measures to prevent illegal waste and wastewater dumping Measures to prevent eutrophication in ports and marines by adequate construction that permits renewal and circulation of water and by preventing disposal of not treated wastewater. Use of ecologically orientated maintenance dredging and sediment management techniques</p>	<p>Preservation of sea water quality Minimisation of disturbance of benthic habitats</p>
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M.10	<b>Specialise Dubrovnik port (cruising vessels)</b>	The Dubrovnik port has been defined as a TEN-T comprehensive port of Croatia. It is a port open to public traffic of special (international) economic interest for the Republic of Croatia. The port of Dubrovnik has become in recent years one of the most popular destinations for cruise voyages in Europe, so its development is directed to cruising passenger transport. Planned developments include the modernisation and reconstruction of the passenger terminal and the expansion of ferry traffic facilities. Further analyses will identify the feasibility of these measures and prioritise them, taking into account environmental requirements and the real needs and potential according to the expected demand.	POVS : HR4000017 Lokrum POVS : HR2001047 Bobara; Mrkan i Supetar	loss of biodiversity during construction works disturbance of species due to pollution, noise, water turbidity, human presence, sedimentation etc introduction of non-native or invasive species	Measures to prevent spillages and accidents Measures to prevent illegal waste and wastewater dumping Measures to prevent eutrophication in ports and marines by adequate construction that permits renewal and circulation of water and by preventing disposal of not treated wastewater. Use of ecologically orientated maintenance dredging and sediment management techniques	Preservation of sea water quality Minimisation of disturbance of benthic habitats
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M.11	<b>Specialise Split port (Ro-Ro, passenger and cruising)</b>	The Split port has been classified as a TEN-T comprehensive port of Croatia. It is a port open to public traffic of special (international) economic interest for the Republic of Croatia. The port of Split, also called gateway to the islands, is the largest passenger port in Croatia, therefore, its development is mainly directed to passenger and cruising transport. Planned developments will be focussed on the construction of new berths for ferry, Ro-Ro and cruise vessels including the extension of the passenger wharves. Further analyses will identify the feasibility of these measures and prioritise them, taking into account environmental requirements and the real needs and potential according to the expected demand.	POVS : HR3000466 Čiovo od uvale Orlice do rta Čiova POVS : HR3000455 Rt Gomilica - Brač POVS : HR3000112 Mrduja POVS : HR4000024 Južna obala Šolte POVS : HR3000110 Fumija II - podmorje POVS : HR3000108 Fumija I - podmorje POVS : HR3000109 Krknjaši POVS : HR3000107 Otoci Orud i Mačaknar	loss of biodiversity during construction works disturbance of species due to pollution, noise, water turbidity, human presence, sedimentation etc introduction of non-native or invasive species	Measures to prevent spillages and accidents Measures to prevent illegal waste and wastewater dumping Measures to prevent eutrophication in ports and marines by adequate construction that permits renewal and circulation of water and by preventing disposal of not treated wastewater. Use of ecologically orientated maintenance dredging and sediment management techniques	Preservation of sea water quality Minimisation of disturbance of benthic habitats
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M.12	<b>Specialise Zadar port (Ro-Ro, passenger and cruising)</b>	<p>The Zadar port has been classified as a TEN-T comprehensive port of Croatia. It is a port open to public traffic of special (international) economic interest for the Republic of Croatia. The port of Zadar is the second largest Croatian port for passengers. Cargo traffic is limited due to physical constraints and proximity to Rijeka. The port development is directed to Ro-Ro, passenger and cruising transport. The construction of a new passenger port outside old town, in Gaženica is in progress. The new port will provide an extended berthing capacity for larger international ferries and modern cruise ships ("home port") and international standard on-shore facilities for passengers and vehicles. Further analyses will identify the necessary projects to achieve this specialisation and prioritise them, taking into account environmental requirements and the real needs and potential according to the expected demand.</p>	POVS : HR3000419J. Molat-Dugi-Kornat- Murter-Pašman- Ugljan-Rivanj- Sestrunj-Molat	<p>loss of biodiversity during construction works disturbance of species due to pollution, noise, water turbidity, human presence, sedimentation etc introduction of non-native or invasive species</p>	<p>Measures to prevent spillages and accidents Measures to prevent illegal waste and wastewater dumping Measures to prevent eutrophication in ports and marines by adequate construction that permits renewal and circulation of water and by preventing disposal of not treated wastewater. Use of ecologically orientated maintenance dredging and sediment management techniques</p>	<p>Preservation of sea water quality Minimisation of disturbance of benthic habitats</p>
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<b>M.13</b>	<b>Specialise Šibenik port (small capacity cruising and super-yachts)</b>	<p>The Šibenik port has been defined as a TEN-T comprehensive port of Croatia. It is a port open to public traffic of special (international) economic interest for the Republic of Croatia. Further development of the port will be focussed on the specialisation to passenger traffic, as a port for exclusive cruising vessels of smaller capacities (boutique vessels) and super-yachts. Further analyses will identify the necessary projects to achieve this specialisation and prioritise them, taking into account environmental requirements and the real needs and potential according to the expected demand.</p>	POVS : HR3000171 Ušće Krke	<p>loss of biodiversity during construction works</p> <p>disturbance of species due to pollution, noise, water turbidity, human presence, sedimentation etc</p> <p>introduction of non-native or invasive species</p>	<p>Measures to prevent spillages and accidents</p> <p>Measures to prevent illegal waste and wastewater dumping</p> <p>Measures to prevent eutrophication in ports and marines by adequate construction that permits renewal and circulation of water and by preventing disposal of not treated wastewater.</p> <p>Use of ecologically orientated maintenance dredging and sediment management techniques</p>	<p>Preservation of sea water quality</p> <p>Minimisation of disturbance of benthic habitats</p>
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<b>M.14</b>	<b>Development of special purpose ports (shipbuilding ports, nautical ports, military ports, industrial ports, fishing ports, sport ports)</b>	Depending on activities carried out, special purpose ports are classified as shipbuilding ports, nautical ports, military ports, industrial ports, fishing ports, and sport ports.	Natura sites on islands and coastal areas. To be defined	loss of biodiversity during construction works disturbance of species due to pollution, noise, water turbidity, human presence, sedimentation etc introduction of non-native or invasive species	Measures to prevent spillages and accidents Measures to prevent illegal waste and wastewater dumping Measures to prevent eutrophication in ports and marines by adequate construction that permits renewal and circulation of water and by preventing disposal of not treated wastewater. Use of ecologically orientated maintenance dredging and sediment management techniques	Preservation of sea water quality Minimisation of disturbance of benthic habitats
<b>M.1</b>	<b>Increase intermodality and accessibility</b>	The modal share of maritime transport is still very low, against road transport. It can be increased by increasing the intermodality and accessibility of ports. The development of national ports must be followed by the development of intermodal infrastructure (road and railway connections and logistics	Natura sites on islands and coastal areas. To be defined	Disturbance from noise and air pollution Pollution by spillages	Noise management plans Implementation of Environmental Management Plans Implementation of waste management plans	Minimisation of the disturbance Preservation of water quality

		areas). The planning of expansion and development of port (new berths and terminals) must take in consideration, all the possibilities offered by the location for further development.				
<b>M.2</b>	<b>Implementation of the "Motorways of the sea" projects</b>	Although there are RO-RO lines connecting Croatian and Italian ports, "Motorways of the Sea" has yet to be implanted in Croatia. The stages for implementation of the "motorways of the sea" projects in Croatia are:- together with EC, establish the main corridors (combined "land-maritime" routes)- upgrade the Croatian ports on the corridors to receive ro-ro traffic				
<b>M.5</b>	<b>Navigability</b>	The Croatian coastline is 1,880 km (6,287 km including islands) and includes 718 islands and 467 coastal reefs. It is one of the most indented coastal regions in Europe. Navigability on the east Adriatic coast is constrained by islands and reefs, but the sea is mainly deep. The advantage of main Croatian ports is depth; therefore, the only limitation to receiving big ocean ships is port infrastructure.				

<b>M.6</b>	<b>Improve the accessibility of islands, port development</b>	Public transport in the coastal line passenger transport is considered to be the key factor in the maritime transport segment, given that it ensures permanent and regular connection between the islands with the mainland and between the islands, without which there would be no sustainable development of inhabited islands. For the proper provision of maritime public transport it is necessary to ensure safety, regularity, reliability and comfort and to coordinate the services among them and with the integrated transport systems in the mainland. The ports must be upgraded for coastal line passenger transport, and the accessibility and connectivity to the ports improved.				
<b>M.7</b>	<b>Other ports development (ex. Korčula, Pula...)</b>	Croatia has 409 ports open for public traffic, 95 of which have at least one shipping line. Apart from the 6 main ports of special (international) economic interest, there are numerous county and local ports. Their development is important for the sustainability development of the islands themselves, as well as tourism. The	Natura sites on islands and coastal areas. To be defined	loss of biodiversity during construction works disturbance of species due to pollution, noise, water turbidity,	Measures to prevent spillages and accidents Measures to prevent illegal waste and wastewater dumping Measures to prevent eutrophication in ports and marines by adequate construction that permits renewal	Preservation of sea water quality Minimisation of disturbance of benthic habitats

		existing public ports in the county must be upgraded to receive coastal line passenger ships, and in the case of ports of interest to tourists, to receive smaller cruise ships. Further studies will identify the need to upgrade and reconstruct the existing county and local public ports for the needs of the local population, and for tourists.		human presence, sedimentation etc introduction of non-native or invasive species	and circulation of water and by preventing disposal of not treated wastewater. Use of ecologically orientated maintenance dredging and sediment management techniques	
M.16	Closure or change of role/ownership of unused ports	Some military, industrial and shipbuilding ports are unused. It is necessary to how to make use of these unused ports for the purpose of economic development (tourism, fishing and small industries). Further analyses will identify the feasible measures in this regard and prioritise them, taking into account environmental requirements and the real needs and potential according to the expected demand.				

The measures foreseen for rail, road, urban, suburban & regional transport, as well as for aviation mainly focus on the rehabilitation and upgrading of existing infrastructure. Consequently, no major additional direct impacts are expected. Nevertheless, taking into account that the foreseen interventions comprise new construction works such as expansion, widening of network elements etc, the main potential impact anticipated by **land transport (road, rail, urban)**, is species fragmentation and interruption of migratory routes. These effects can be particularly important for some groups, such as large carnivores, amphibians and reptiles

Additional impact is the disturbance of birds due to the lighting during the construction and operation of transport infrastructure for all transport modes.

As far as the aviation is concerned, negative effects may arise by the disturbances of bird migration paths, land take by expansion of airports, bird collisions with aircraft which endangers the safety of air traffic.

Negative Impacts on biodiversity and habitats by **inland navigation** include:

- ❖ The physical modification of water bodies can, if not planned properly, affect the normal hydrological processes of freshwater systems, disconnect rivers from floodplains and wetlands, and change the water and sediment flow and thus result to habitat loss, degradation and fragmentation. Direct physical destruction of the habitats themselves can result from land take, removing riparian vegetation or river islands, shingle banks, draining floodplain areas or stabilising the riverbed, disposal of spoil and dredged material etc.
- ❖ Species disturbance and displacement caused by river engineering works and increased shipping traffic. Additionally, species may be disturbed by a range of factors such as noise, water turbidity, pollution, human presence, sedimentation, regular movements (e.g. wave action and propeller suction) etc.
- ❖ Barriers to migration and dispersal of species (dams, canals)
- ❖ Straightening river courses can accelerate water velocity causing severe erosion of the riverbed and the shoreline as well as any other shallow habitat features such as gravel bars which are important for a range of species.
- ❖ Introduction of non-native or invasive species

The main impacts anticipated by **maritime transport** are strongly linked with the impacts on water quality (pollution of waters) and disturbance of species by the infrastructure construction and operation.

For the measures entailing engineering works (improvement of ports, rehabilitation, change of use of ports etc) negative impacts are expected during both construction and operation phase.

During construction phase, certain loss of biodiversity during construction works in ports due to land take and/or dredging.

During operation phase, the anticipated impacts may be disturbance of species due to pollution, noise, water turbidity, human presence, sedimentation etc. This is particularly important for vulnerable species such as dolphins, sea turtles and Mediterranean monk



seals. Eutrophication is another factor of ecosystem degradation in ports. Additional impact is the possible introduction of invasive species.

Cumulative impacts are expected in especially in the case of implementation of the inland water navigation and maritime transport measures in combination with other potential plans and programs in Croatia (such as local and regional spatial plans and tourism development strategy).

As it is obvious by maps 1 and 2, the proposed NATURA areas cover an important part of the area of the country and especially in the central and coastal side. The interventions planned in Drava, Sava, Danube waterways, as well as in the coastal areas affect the NATURA 2000 areas and the species within. The significance of the impacts cannot be assessed in detail on the strategic level and all interventions should be properly assessed during the environmental permitting process according to the legislation.

Therefore, the areas that may be affected by the implementation of the TDS cover a large part of the country as well. The magnitude and areas of impacts should be examined in a more detailed way after the finalisation of the procedure for the integration of the proposed natura areas in the European Network. The detailed impacts in case by case approach must be thoroughly examined in the framework of a lower level analysis (planning and permitting of the individual projects).

## 5. Overview and impacts of alternative solutions

The TDS is a Strategy document that sets the main objectives and groups of measures for the development of the Transport sector for the forthcoming period in Croatia. As presented in the main SEA report, the TDS comprises for each TDS objective a list of measures that should be implemented, as well as "alternative packages" per transport mode that promote the fulfilment of each TDS objective.

In this framework the alternatives examined are:

- Rail
- Aviation
- Public Transport
- Road
- Maritime
- Inland waterways

The assessment of these packages has been done in the framework of the SEA study (Chapter 5). The main conclusions are the following:

- The alternative promoting public transport should be considered as priority alternative.
- It is necessary to examine the different alternatives and their impact on the transport sector evolution with the use of a proper transport model, in order to assure that the alternatives are equivalent for the satisfaction of the transport needs in the country. A more thorough environmental assessment of the alternatives will, then, be feasible.

Furthermore, as at this stage the measures set the general framework of the strategy, specific alternatives should be examined and assessed in the framework of the project development phase.

## 6. Mitigation measures

The Regulation on the assessments for plans, programs and projects for the ecological network (OG 118/2009) foresees the determination of measures to prevent, reduce or offset the adverse impacts on the ecological network. The present chapter presents the possible measures to be applied to mitigate the negative effects of the TDS. The measures proposed are based on the impacts assessed in the previous paragraph and the international experience in similar conditions. However, since the present is a strategic document the measures proposed provide general guidance for addressing the adverse impacts, while detailed measures must be examined case by case during the development of specific projects and incorporated in the EIA and the environmental permitting process.

As described in the impacts section (paragraph 2), the main impact of the **land transport measures** (and mainly rail and road transport) is the potential fragmentation of habitats. In order to minimise this impact, the adequate wildlife crossings must be established according to the provisions of the Ordinance on wildlife crossings (OG 5/07).

Furthermore, especially for birds, special emphasis should be given to the avoidance of excessive lighting in order to minimise bird disturbance, as well as to the avoidance of disturbances of the birds' migration paths by aviation.

Measures to mitigate impacts of **inland navigation** to river habitats include<sup>1</sup>:

- removal of obsolete infrastructures or the modernisation of these infrastructures in a way that helps to improve the river's ecology;
- restoration or removal of hard reinforcement structures along riverbank and the use of more natural embankment techniques;
- use of alternative groyne types leading to higher dynamics along the river bank;
- re-connection of side arms, floodplains and ox-bows to restore riverine habitats;
- creation of a bypasses or floodways to improve structural diversity of the river ecosystems and encourage the passage of fish;
- use of ecologically orientated maintenance dredging and sediment management techniques;
- recreation of typical riverine habitats such as floodplain islands or the creation of soft side channels to increase the range of natural habitats available for local wildlife.
- Measures to prevent accidental spillages and accidents
- Measures to prevent illegal waste and wastewater dumping

Additional measures to protect the flora and fauna include:

- Prohibit recreational traffic and traffic of high-speed boats in the vicinity of bird protection areas, as well as the anchoring and berthing in special nature reserve during the period March – July.
- Prohibit boat traffic through resting areas for migrating birds.

Concerning the **maritime navigation**, indicative mitigation measures include:

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<sup>1</sup> *Guidance document on inland waterway transport and Natura 2000*

- Measures to prevent accidental spillages and accidents
- Measures to prevent illegal waste and wastewater dumping
- Measures to prevent eutrophication in ports and marines by adequate construction that permits renewal and circulation of water and by preventing disposal of not treated wastewater.
- Use of ecologically orientated maintenance dredging and sediment management techniques

## 7. Conclusions

The TDS foresees the development of transport infrastructure throughout the country. Adverse impacts may be encountered, during both construction and operation phases and should be adequately managed. This becomes even more significant, if one takes into account that a great part of the Mediterranean corridor passes through Natura 2000 areas, The same accounts for the case of inland water navigation.

The fact that, in the case of land transport, the TDS mainly focuses on improvement, rehabilitation and expansion of existing infrastructure, reduces the potential **additional** impacts on the ecological network by land transport modes. However, protection of natural environment and the minimization of impacts should play a predominant role during the specification and design of the projects.

In case of inland water and maritime transport, the implementation of the TDS can result to more significant effects. It is necessary that a case-by-case approach is adopted during planning phase of the measures, taking into account the feasibility of the foreseen infrastructure and the specific conditions of the area of implementation, and incorporating all necessary provisions for protection of the natural environment.

In conclusion, in order to prevent and/ or minimize the potential impacts, the following must take place:

- The new pattern of transport resulting by the implementation of the TDS must be examined and evaluated with the help of an adequate transport model.
- The alternative of the TDS promoting Public Transport is the most environmental friendly alternative for the fulfilment of the TDS objectives.
- The necessity and feasibility of certain measures should be assessed, as proposed in the TDS, in order to avoid implementation of measures and projects that are not necessary for the fulfilment of the TDS objectives
- Conservation measures and management plans for the Natura sites must be developed.
- The foreseen infrastructure must be carefully designed and all the adequate mitigation measures should be determined during EIA process and adequately implemented.

Table 4: Natural habitat types of Community interest represented on the Croatian territory (reference list of habitat types)

Natura code	Name of the habitat type in Annex I of the Habitats Directive	Croatian name of the habitat type	Biogeographical region - Continental	Biogeographical region - Alpine	Biogeographical region - Mediterranean
1110	Sandbanks which are slightly covered by sea water all the time	Pješčana dna trajno prekrivena morem			x
1120	Posidonia beds (Posidonion oceanicae)*	Naselja posidonije (Posidonion oceanicae)*			x
1130	Estuaries	Estuariji			x
1140	Mudflats and sandflats not covered by seawater at low tide	Muljevita i pješčana dna izložena zraku za vrijeme oseke			x
1150	Coastal lagoons*	Obalne lagune*			x
1160	Large shallow inlets and bays	Velike plitke uvale i zaljevi			x
1170	Reefs	Grebeni			x
1210	Annual vegetation of drift lines	Vegetacija pretežno jednogodišnjih halofita na obalama s organskim nanosima (Cakiletea maritima p.)			x
1240	Vegetated sea cliffs of the Mediterranean coasts with endemic Limonium spp.	Stijene i strmci (klifovi) mediteranskih obala obrasli endemičnim vrstama Limonium spp.			x
1310	Salicornia and other annuals colonizing mud and sand	Muljevite obale obrasle vrstama roda Salicornia i drugim jednogodišnjim halofitima			x
1410	Mediterranean salt meadows (Juncetalia maritimi)	Mediteranske sitine (Juncetalia maritimi)			x
1420	Mediterranean and thermo-Atlantic halophilous scrubs (Sarcocornetea)	Mediteranska i termoatlantska vegetacija halofilnih grmova (Sarcocornetea fruticosi)			x

Natura code	Name of the habitat type in Annex I of the Habitats Directive	Croatian name of the habitat type	Biogeographical region - Continental	Biogeographical region - Alpine	Biogeographical region - Mediterranean
	fruticosi)				
1530	Pannonic salt steppes and salt marshes*	Panonske slane stepe i slane močvare*	x		
2110	Embryonic shifting dunes	Embrionske obalne sipine – prvi stadij stvaranja sipina			x
2340	Pannonic inland dunes*	Kontinentalne panonske sipine*	x		
3130	Oligotrophic to mesotrophic standing waters with vegetation of the Littorelletea uniflorae and/or of the Isoëto-Nanojuncetea	Amfibijaska staništa Isoeto-Nanojuncetea	x	x	x
3140	Hard oligo-mesotrophic waters with benthic vegetation of Chara spp.	Tvrde oligo-mezotrofne vode s dnom obraslim parožinama (Characeae)		x	x
3150	Natural eutrophic lakes with Magnopotamion or Hydrocharition-type vegetation	Prirodne eutrofne vode s vegetacijom Hydrocharition ili Magnopotamion	x	x	x
3170	Mediterranean temporary ponds*	Mediteranske povremene lokve*			x
3180	Turloughs*	Povremena krška jezera (Turloughs)*		x	x
3230	Alpine rivers and their ligneous vegetation with Myricaria germanica	Obale planinskih rijeka s Myricaria germanica	x		
3260	Water courses of plain to montane levels with the Ranunculon fluitantis and Callitricho-Batrachion vegetation	Vodni tokovi s vegetacijom Ranunculon fluitantis i Callitricho-Batrachion	x	x	x

Natura code	Name of the habitat type in Annex I of the Habitats Directive	Croatian name of the habitat type	Biogeographical region - Continental	Biogeographical region - Alpine	Biogeographical region - Mediterranean
3270	Rivers with muddy banks with <i>Chenopodium rubri</i> p.p. and <i>Bidention</i> p.p. vegetation	Rijeke s muljevitim obalama obraslim s <i>Chenopodium rubri</i> p.p. i <i>Bidention</i> p.p.	x		
4030	European dry heaths	Europske suhe vrištine	x	x	
4060	Alpine and Boreal heaths	Planinske i borealne vrištine		x	
4070	Bushes with <i>Pinus mugo</i> and <i>Rhododendron hirsutum</i> (Mugo-Rhododendretum hirsuti)*	Klekovina bora krivulja ( <i>Pinus mugo</i> ) s dlakavim pjenišnikom ( <i>Rhododendron hirsutum</i> )*		x	
5130	<i>Juniperus communis</i> formations on heaths or calcareous grasslands	Sastojine <i>Juniperus communis</i> na kiseljoj ili bazičnoj podlozi		x	
5210	Arborescent matorral with <i>Juniperus</i> spp.	Mediterranske makije u kojima dominiraju borovice <i>Juniperus</i> spp.		x	x
5330	Thermo-Mediterranean and pre-steppe scrub	Termo-mediterranske (stenomediterranske) grmolike formacije s <i>Euphorbia dendroides</i>			x
6110	Rupicolous calcareous or basophilic grasslands of the Alysso-Sedion albi*	Otvorene kserotermofilne pionirske zajednice na karbonatnom kamenitom tlu*		x	x
6170	Alpine and subalpine calcareous grasslands	Planinski i pretplaninski vapnenački travnjaci			
6210	Semi-natural dry grasslands and scrubland facies on calcareous substrates ( <i>Festuco-Brometalia</i> )(*important orchid sites)	Suhi kontinentalni travnjaci ( <i>Festuco-Brometalia</i> ) (*važni lokaliteti za kačune)	x	x	
6220	Pseudo-steppe with grasses and annuals of the Thero-Brachypodietea*	Eumediterranski travnjaci Thero-Brachypodietea*			x

Natura code	Name of the habitat type in Annex I of the Habitats Directive	Croatian name of the habitat type	Biogeographical region - Continental	Biogeographical region - Alpine	Biogeographical region - Mediterranean
6230	Species-rich <i>Nardus</i> grasslands, on siliceous substrates in mountain areas (and submountain areas, in Continental Europe)*	Travnjaci tvrdače ( <i>Nardus</i> ) bogati vrstama*	x	x	
6240	Sub-continental steppic grasslands*	Subpanonski stepski travnjaci ( <i>Festucion vallesiaceae</i> )*	x		
6250	Pannonic loess steppic grasslands*	Panonski stepski travnjaci na praporu*	x		
6260	Pannonic sand steppes*	Panonski travnjaci na pijesku*	x		
62A0	Eastern sub-mediterranean dry grasslands ( <i>Scorzoneretalia villosae</i> )	Istočno submediteranski suhi travnjaci ( <i>Scorzoneretalia villosae</i> )		x	x
6410	<i>Molinia</i> meadows on calcareous, peaty or clayey-silt-laden soils ( <i>Molinion caeruleae</i> )	Travnjaci beskoljenke ( <i>Molinion caeruleae</i> )	x	x	
6420	Mediterranean tall humid grasslands of the <i>Molinio-Holoschoenion</i>	Mediteranski visoki vlažni travnjaci <i>Molinio-Holoschoenion</i>			x
6430	Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels	Hidrofilni rubovi visokih zeleni uz rijeke i šume ( <i>Convolvulion sepium</i> , <i>Filipendulion</i> , <i>Senecion fluvialis</i> )	x	x	
6440	Alluvial meadows of river valleys of the <i>Cnidion dubii</i>	Livade <i>Cnidion dubii</i>	x		
6510	Lowland hay meadows ( <i>Alopecurus pratensis</i> , <i>Sanguisorba officinalis</i> )	Nizinske košnice ( <i>Alopecurus pratensis</i> , <i>Sanguisorba officinalis</i> )	x	x	
6520	Mountain hay meadows	Brdske košnice	x	x	

Natura code	Name of the habitat type in Annex I of the Habitats Directive	Croatian name of the habitat type	Biogeographical region - Continental	Biogeographical region - Alpine	Biogeographical region - Mediterranean
7130	Blanket bog (*active only)	Gorski tresetni cret*		x	
7140	Transition mires and quaking bogs	Prijelazni cretovi	x	x	
7150	Depressions on peat substrates of the Rhynchosporion	Depresije na tresetnoj podlozi (Rhynchosporion)	x	x	
7220	Petrifying springs with tufa formation (Cratoneurion)*	Izvori uz koje se taloži sedra (Cratoneurion) – točkaste ili vrpčaste formacije na kojima dominiraju mahovine iz sveze Cratoneurion commutati*	x	x	
7230	Alkaline fens	Bazofilni cretovi	x	x	
8120	Calcareous and calcshist screes of the montane to alpine levels (Thlaspietea rotundifolii)	Karbonatna točila Thlaspietea rotundifolii		x	
8140	Eastern Mediterranean screes	Istočnomediterranska točila			x
8210	Calcareous rocky slopes with chasmophytic vegetation	Karbonatne stijene sa hazmofitskom vegetacijom		x	x
8310	Caves not open to the public	Špilje i jame zatvorene za javnost	x	x	x
8330	Submerged or partly submerged sea caves	Preplavljene ili dijelom preplavljene morske špilje			x
9110	Luzulo-Fagetum beech forests	Bukove šume Luzulo-Fagetum	x	x	
9130	Asperulo-Fagetum beech forests	Bukove šume Asperulo-Fagetum	x	x	
9160	Sub-Atlantic and medio-European oak or oak-hornbeam forests of the Carpinion betuli	Subatlantske i srednjoeuropske hrastove i hrastovo-grabove šume Carpinion betuli	x		x



Natura code	Name of the habitat type in Annex I of the Habitats Directive	Croatian name of the habitat type	Biogeographical region - Continental	Biogeographical region - Alpine	Biogeographical region - Mediterranean
9180	Tilio-Acerion forest of slopes, scree and ravines*	Šume velikih nagiba i klanaca Tilio-Acerion*	x	x	
9.10E+01	Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> (Alno-Padion, Alnion incanae, Salicion albae)*	Aluvijalne šume (Alno-Padion, Alnion incanae, Salicion albae)*	x	x	
91F0	Riparian mixed forest of <i>Quercus robur</i> , <i>Ulmus laevis</i> and <i>Ulmus minor</i> , <i>Fraxinus excelsior</i> or <i>Fraxinus angustifolia</i> along the great rivers ( <i>Ulmion minoris</i> )	Poplavne miješane šume <i>Quercus robur</i> , <i>Ulmus laevis</i> , <i>Ulmus minor</i> , <i>Fraxinus excelsior</i> ili <i>Fraxinus angustifolia</i>	x	x	x
91H0	Pannonian woods with <i>Quercus pubescens</i> *	Panonske šume s <i>Quercus pubescens</i> *	x		
91K0	Illyrian <i>Fagus sylvatica</i> forests (Aremonio-Fagion)	Ilirske bukove šume (Aremonio-Fagion)	x	x	x
91L0	Illyrian oak-hornbeam forests ( <i>Erythronio-carpinion</i> )	Ilirske hrastovo-grabove šume ( <i>Erythronio-Carpinion</i> )	x	x	
91M0	Pannonian-Balkan turkey oak-sessile oak forests	Panonsko-balkanske šume kitnjaka i sladuna	x		
91R0	Dinaric dolomite Scots pine forests ( <i>Genisto januensis-Pinetum</i> )	Dinarske borove šume na dolomitu ( <i>Genisto januensis-Pinetum</i> )		x	
9260	<i>Castanea sativa</i> woods	Šume pitomog kestena ( <i>Castanea sativa</i> )	x		x
92D0	Southern riparian galleries and thickets ( <i>Nerio-Tamaricetea</i> and <i>Securinegion tinctoriae</i> )	Mediterranske galerije i šikare ( <i>Nerio-Tamaricetea</i> )			x

Natura code	Name of the habitat type in Annex I of the Habitats Directive	Croatian name of the habitat type	Biogeographical region - Continental	Biogeographical region - Alpine	Biogeographical region - Mediterranean
9320	Olea and Ceratonia forests	Šume divlje masline i rogača (Olea i Ceratonia)			x
9340	Quercus ilex and Quercus rotundifolia forests	Vazdazeleni šume česmine (Quercus ilex)			x
9410	Acidophilous Picea forests of the montane to alpine levels (Vaccinio-Piceetea)	Acidofilne šume smreke brdskog i planinskog pojasa (Vaccinio-Piceetea)		x	
9530	(Sub-)Mediterranean pine forest with endemic black pines*	(Sub-) mediteranske šume endemičnog crnog bora*		x	x
9540	Mediterranean pine forests with endemic Mesogean pines	Mediteranske šume endemičnih borova			x
32A0	Tufa cascades of karstic rivers of the Dinaric Alps	Sedrene barijere krških rijeka Dinarida	x	x	x
6540	Sub-Mediterranean grasslands of the Molinio-Hordeion secalinii	Submediteranski travnjaci sveze Molinio-Hordeion secalinii			x

Table 5: Special protection Areas for Birds

Identification of areas	Name	Category for the target type	Scientific name	Croatian name	Status (G= nesting P = migratory Z = birds wintering)		
HR1000001	Pokupski bazen	1	<i>Acrocephalus melanopogon</i>	crnoprugasti trstenjak		P	
		1	<i>Alcedo atthis</i>	vodomar	G		
		1	<i>Anas strepera</i>	patka kreketaljka	G		
		1	<i>Aquila pomarina</i>	orao kliktaš	G		
		1	<i>Ardea purpurea</i>	čaplja danguba		P	
		1	<i>Ardeola ralloides</i>	žuta čaplja		P	
		1	<i>Aythya nyroca</i>	patka njorka	G	P	
		1	<i>Botaurus stellaris</i>	bukavac	G	P	Z
		1	<i>Casmerodius albus</i>	velika bijela čaplja		P	Z
		1	<i>Chlidonias hybrida</i>	bjelobrada čigra	G	P	
		1	<i>Chlidonias niger</i>	crna čigra		P	
		1	<i>Ciconia ciconia</i>	roda	G		
		1	<i>Ciconia nigra</i>	crna roda	G	P	
		1	<i>Circus aeruginosus</i>	eja močvarica	G		
		1	<i>Circus cyaneus</i>	eja strnjarica			Z
		1	<i>Circus pygargus</i>	eja livadarka	G		
		1	<i>Crex crex</i>	kosac	G		
		1	<i>Dendrocopos medius</i>	crvenoglavi djetlić	G		
		1	<i>Dryocopus martius</i>	crna žuna	G		

Identification of areas	Name	Category for the target type	Scientific name	Croatian name	Status (G= nesting P = migratory Z = birds wintering)		
		1	<i>Egretta garzetta</i>	mala bijela čaplja		P	
		1	<i>Falco vespertinus</i>	crvenonoga vjetruša		P	
		1	<i>Ficedula albicollis</i>	bjelovrata muharica	G		
		1	<i>Grus grus</i>	ždral		P	
		1	<i>Haliaeetus albicilla</i>	štekavac	G		
		1	<i>Ixobrychus minutus</i>	čapljica voljak	G	P	
		1	<i>Lanius collurio</i>	rusi svračak	G		
		1	<i>Lanius minor</i>	sivi svračak	G		
		1	<i>Luscinia svecica</i>	modrovoljka		P	
		1	<i>Milvus migrans</i>	crna lunja	G		
		1	<i>Netta rufina</i>	patka gogoljica	G		
		1	<i>Numenius arquata</i>	veliki pozviždač		P	
HR1000001	Pokupski bazen	1	<i>Nycticorax nycticorax</i>	gak		P	
		1	<i>Pandion haliaetus</i>	bukoč		P	
		1	<i>Pernis apivorus</i>	škanjac osaš	G		
		1	<i>Philomachus pugnax</i>	pršljivac		P	
		1	<i>Picus canus</i>	siva žuna	G		
		1	<i>Platalea leucorodia</i>	žličarka		P	
		1	<i>Porzana parva</i>	siva štijoka	G	P	
		1	<i>Porzana porzana</i>	riđa štijoka	G	P	

Identification of areas	Name	Category for the target type	Scientific name	Croatian name	Status (G= nesting P = migratory Z = birds wintering)		
		1	<i>Porzana pusilla</i>	mala štijoka		P	
		1	<i>Strix uralensis</i>	jastrebača	G		
		1	<i>Sylvia nisoria</i>	pjegava grmuša	G		
		1	<i>Tringa glareola</i>	prutka migavica		P	
		2	<b>značajne negniježdeće (selidbene) populacije ptica</b> (patka lastarka <i>Anas acuta</i> , patka žličarka <i>Anas clypeata</i> , kržulja <i>Anas crecca</i> , zviždara <i>Anas penelope</i> , divlja patka <i>Anas platyrhynchos</i> , patka pupčanica <i>Anas querquedula</i> , patka kreketaljka <i>Anas strepera</i> , divlja guska <i>Anser anser</i> , glavata patka <i>Aythya ferina</i> , krunata patka <i>Aythya fuligula</i> , patka batoglavica <i>Bucephala clangula</i> , crvenokljuni labud <i>Cygnus olor</i> , liska <i>Fulica atra</i> , šljuka kokošica <i>Gallinago gallinago</i> , crnorepa muljača <i>Limosa limosa</i> , kokošica <i>Rallus aquaticus</i> , crna prutka <i>Tringa erythropus</i> , krivokljuna prutka <i>Tringa nebularia</i> , crvenonoga prutka <i>Tringa totanus</i> , vivak <i>Vanellus vanellus</i> , veliki pozviždač <i>Numenius arquata</i> )				
HR1000002	Sava kod Hrušćice	1	<i>Alcedo atthis</i>	vodomar	G		
		1	<i>Sterna albifrons</i>	mala čigra	G		
		1	<i>Sterna hirundo</i>	crvenokljuna čigra	G		
		1	<i>Actitis hypoleucos</i>	mala prutka	G		
		1	<i>Riparia riparia</i>	bregunica	G		
HR1000003	Turopolje	1	<i>Alcedo atthis</i>	vodomar	G		
		1	<i>Aquila pomarina</i>	orao kliktaš	G		
		1	<i>Ciconia ciconia</i>	roda	G		
		1	<i>Ciconia nigra</i>	crna roda	G		
		1	<i>Circus cyaneus</i>	eja strnjarica			Z
		1	<i>Crex crex</i>	kosac	G		
		1	<i>Dendrocopos</i>	crvenoglavi djetlić	G		

Identification of areas	Name	Category for the target type	Scientific name	Croatian name	Status (G= nesting P = migratory Z = birds wintering)		
			<i>medius</i>				
		1	<i>Dryocopus martius</i>	crna žuna	G		
HR1000003	Turopolje	1	<i>Ficedula albicollis</i>	bjelovrata muharica	G		
		1	<i>Haliaeetus albicilla</i>	štekavac	G		
		1	<i>Lanius collurio</i>	rusi svračak	G		
		1	<i>Lanius minor</i>	sivi svračak	G		
		1	<i>Pernis apivorus</i>	škanjac osaš	G		
		1	<i>Picus canus</i>	siva žuna	G		
		1	<i>Strix uralensis</i>	jastrebača	G		
		1	<i>Sylvia nisoria</i>	pjegava grmuša	G		
HR1000004	Donja Posavina	1	<i>Acrocephalus melanopogon</i>	crnoprugasti trstenjak		P	
		1	<i>Actitis hypoleucos</i>	mala prutka	G		
		1	<i>Alcedo atthis</i>	vodomar	G		
		1	<i>Anas strepera</i>	patka kreketaljka	G		
		1	<i>Aquila clanga</i>	orao klokotaš			Z
		1	<i>Aquila pomarina</i>	orao kliktaš	G		
		1	<i>Ardea purpurea</i>	čaplja danguba	G	P	
		1	<i>Ardeola ralloides</i>	žuta čaplja	G	P	
		1	<i>Aythya nyroca</i>	patka njorka	G	P	Z
		1	<i>Casmerodius albus</i>	velika bijela čaplja	G	P	Z

Identification of areas	Name	Category for the target type	Scientific name	Croatian name	Status (G= nesting P = migratory Z = birds wintering)		
		1	<i>Chlidonias hybrida</i>	bjelobrada čigra	G	P	
		1	<i>Chlidonias niger</i>	crna čigra		P	
		1	<i>Ciconia ciconia</i>	roda	G		
		1	<i>Ciconia nigra</i>	crna roda	G	P	
		1	<i>Circus aeruginosus</i>	eja močvarica	G		
		1	<i>Circus cyaneus</i>	eja strnjarica			Z
		1	<i>Circus pygargus</i>	eja livadarka	G		
		1	<i>Crex crex</i>	kosac	G		
		1	<i>Dendrocopos medius</i>	crvenoglavi djetlić	G		
		1	<i>Dendrocopos syriacus</i>	sirijski djetlić	G		
		1	<i>Dryocopus martius</i>	crna žuna	G		
		1	<i>Egretta garzetta</i>	mala bijela čaplja	G	P	
		1	<i>Falco columbarius</i>	mali sokol			Z
		1	<i>Falco vespertinus</i>	crvenonoga vjetruša		P	
HR1000004	Donja Posavina	1	<i>Ficedula albicollis</i>	bjelovrata muharica	G		
		1	<i>Gallinago gallinago</i>	šljuka kokošica	G		
		1	<i>Grus grus</i>	ždral		P	
		1	<i>Haliaeetus albicilla</i>	štekavac	G		
		1	<i>Ixobrychus minutus</i>	čapljica voljak	G	P	
		1	<i>Lanius collurio</i>	rusi svračak	G		

Identification of areas	Name	Category for the target type	Scientific name	Croatian name	Status (G= nesting P = migratory Z = birds wintering)		
		1	<i>Lanius minor</i>	sivi svračak	G		
		1	<i>Milvus migrans</i>	crna lunja	G		
		1	<i>Netta rufina</i>	patka gogoljica	G		
		1	<i>Numenius arquata</i>	veliki pozviždač		P	
		1	<i>Nycticorax nycticorax</i>	gak	G	P	
		1	<i>Pandion haliaetus</i>	bukoč		P	
		1	<i>Pernis apivorus</i>	škanjac osaš	G		
		1	<i>Phalacrocorax pygmaeus</i>	mali vranac	G		
		1	<i>Philomachus pugnax</i>	pršljivac		P	
		1	<i>Picus canus</i>	siva žuna	G		
		1	<i>Platalea leucorodia</i>	žličarka	G	P	
		1	<i>Porzana parva</i>	siva štijoka	G	P	
		1	<i>Porzana porzana</i>	riđa štijoka	G	P	
		1	<i>Porzana pusilla</i>	mala štijoka		P	
		1	<i>Riparia riparia</i>	bregunica	G		
		1	<i>Strix uralensis</i>	jastrebača	G		
		1	<i>Sylvia nisoria</i>	pjegava grmuša	G		
		1	<i>Tringa glareola</i>	prutka migavica		P	
		2	<b>značajne negniježdeće (selidbene) populacije ptica</b> (patka lastarka <i>Anas acuta</i> , patka žličarka <i>Anas clypeata</i> , kržulja <i>Anas crecca</i> , zviždara <i>Anas penelope</i> , divlja patka <i>Anas platyrhynchos</i> ,				



Identification of areas	Name	Category for the target type	Scientific name	Croatian name	Status (G= nesting P = migritory Z = birds wintering)		
			patka pupčanica <i>Anas querquedula</i> , patka kreketaljka <i>Anas strepera</i> , lisasta guska <i>Anser albifrons</i> , divlja guska <i>Anser anser</i> , guska glogovnjača <i>Anser fabalis</i> , glavata patka <i>Aythya ferina</i> , krunata patka <i>Aythya fuligula</i> , patka batoglavica <i>Bucephala clangula</i> , crvenokljuni labud <i>Cygnus olor</i> , liska <i>Fulica atra</i> , šljuka kokošica <i>Gallinago gallinago</i> , crnorepa muljača <i>Limosa limosa</i> , patka gogoljica <i>Netta rufina</i> , kokošica <i>Rallus aquaticus</i> , crna prutka <i>Tringa erythropus</i> , krivokljuna prutka <i>Tringa nebularia</i> , crvenonoga prutka <i>Tringa totanus</i> , vivak <i>Vanellus vanellus</i> , veliki pozviždač <i>Numenius arquata</i> )				
HR1000005	Jelas polje	1	<i>Acrocephalus melanopogon</i>	crnoprugasti trstenjak		P	
		1	<i>Alcedo atthis</i>	vodomar	G		
		1	<i>Anas strepera</i>	patka kreketaljka	G		
		1	<i>Anser anser</i>	divlja guska	G		
		1	<i>Ardea purpurea</i>	čaplja danguba	G	P	
		1	<i>Ardeola ralloides</i>	žuta čaplja	G	P	
		1	<i>Aythya nyroca</i>	patka njorka	G	P	Z
		1	<i>Casmerodius albus</i>	velika bijela čaplja	G	P	Z
		1	<i>Chlidonias hybrida</i>	bjelobrađa čigra	G	P	
		1	<i>Chlidonias niger</i>	crna čigra		P	
		1	<i>Ciconia ciconia</i>	roda	G		
		1	<i>Ciconia nigra</i>	crna roda	G	P	
		1	<i>Circus aeruginosus</i>	eja močvarica	G		
		1	<i>Circus cyaneus</i>	eja strnjarica			Z
		1	<i>Dendrocopos medius</i>	crvenoglavi djetlić	G		

Identification of areas	Name	Category for the target type	Scientific name	Croatian name	Status (G= nesting P = migratory Z = birds wintering)		
		1	<i>Dendrocopos syriacus</i>	sirijski djetlić	G		
		1	<i>Dryocopus martius</i>	crna žuna	G		
		1	<i>Egretta garzetta</i>	mala bijela čaplja	G	P	
		1	<i>Ficedula albicollis</i>	bjelovrata muharica	G		
		1	<i>Grus grus</i>	ždral		P	Z
		1	<i>Haliaeetus albicilla</i>	štekavac	G		
		1	<i>Ixobrychus minutus</i>	čapljica voljak	G	P	
		1	<i>Lanius collurio</i>	rusi svračak	G		
		1	<i>Lanius minor</i>	sivi svračak	G		
		1	<i>Milvus migrans</i>	crna lunja	G		
		1	<i>Netta rufina</i>	patka gogoljica	G		
		1	<i>Numenius arquata</i>	veliki pozviždač		P	
		1	<i>Nycticorax nycticorax</i>	gak	G	P	
		1	<i>Pandion haliaetus</i>	bukoč		P	
		1	<i>Pernis apivorus</i>	škanjac osaš	G		
		1	<i>Phalacrocorax pygmaeus</i>	mali vranac	G		Z
		1	<i>Philomachus pugnax</i>	pršljivac		P	
HR1000005	Jelas polje	1	<i>Picus canus</i>	siva žuna	G		

Identification of areas	Name	Category for the target type	Scientific name	Croatian name	Status (G= nesting P = migratory Z = birds wintering)		
		1	<i>Platalea leucorodia</i>	žličarka	G	P	Z
		1	<i>Plegadis falcinellus</i>	blistavi ibis	G		
		1	<i>Porzana parva</i>	siva štijoka	G		
		1	<i>Porzana porzana</i>	riđa štijoka		P	
		1	<i>Riparia riparia</i>	bregunica	G		
		1	<i>Sterna hirundo</i>	crvenokljuna čigra	G		
		1	<i>Sylvia nisoria</i>	pjegava grmuša	G		
		1	<i>Tringa glareola</i>	prutka migavica		P	
		2	<b>značajne negniježdeće (selidbene) populacije ptica</b> (patka lastarka <i>Anas acuta</i> , patka žličarka <i>Anas clypeata</i> , kržulja <i>Anas crecca</i> , zviždara <i>Anas penelope</i> , divlja patka <i>Anas platyrhynchos</i> , patka pupčanica <i>Anas querquedula</i> , patka kreketaljka <i>Anas strepera</i> , lisasta guska <i>Anser albifrons</i> , divlja guska <i>Anser anser</i> , guska glogovnjača <i>Anser fabalis</i> , glavata patka <i>Aythya ferina</i> , krunata patka <i>Aythya fuligula</i> , patka batoglavica <i>Bucephala clangula</i> , crvenokljuni labud <i>Cygnus olor</i> , liska <i>Fulica atra</i> , šljuka kokošica <i>Gallinago gallinago</i> , crnorepa muljača <i>Limosa limosa</i> , patka gogoljica <i>Netta rufina</i> , kokošica <i>Rallus aquaticus</i> , crna prutka <i>Tringa erythropus</i> , krivokljuna prutka <i>Tringa nebularia</i> , crvenonoga prutka <i>Tringa totanus</i> , vivak <i>Vanellus vanellus</i> , veliki pozviždač <i>Numenius arquata</i> )				
HR1000006	Spačvanski bazen	1	<i>Aquila pomarina</i>	orao kliktaš	G		
		1	<i>Ciconia nigra</i>	crna roda	G		
		1	<i>Dendrocopos medius</i>	crvenoglavi djetlić	G		
		1	<i>Dryocopus martius</i>	crna žuna	G		
		1	<i>Ficedula albicollis</i>	bjelovrata muharica	G		
		1	<i>Haliaeetus albicilla</i>	štekavac	G		

Identification of areas	Name	Category for the target type	Scientific name	Croatian name	Status (G= nesting P = migratory Z = birds wintering)		
		1	<i>Pernis apivorus</i>	škanjac osaš	G		
		1	<i>Picus canus</i>	siva žuna	G		
HR1000008	Bilogora i Kalničko gorje	1	<i>Caprimulgus europaeus</i>	leganj	G		
		1	<i>Ciconia ciconia</i>	roda	G		
		1	<i>Ciconia nigra</i>	crna roda	G		
		1	<i>Circus cyaneus</i>	eja strnjara			Z
		1	<i>Dendrocopos medius</i>	crvenoglavi djetlić	G		
		1	<i>Dendrocopos syriacus</i>	sirijski djetlić	G		
		1	<i>Dryocopus martius</i>	crna žuna	G		
HR1000008	Bilogora i Kalničko gorje	1	<i>Ficedula albicollis</i>	bjelovrata muharica	G		
		1	<i>Ficedula parva</i>	mala muharica	G		
		1	<i>Hieraaetus pennatus</i>	patuljasti orao	G		
		1	<i>Lanius collurio</i>	rusi svračak	G		
		1	<i>Lanius minor</i>	sivi svračak	G		
		1	<i>Lullula arborea</i>	ševa krunica	G		
		1	<i>Pernis apivorus</i>	škanjac osaš	G		
		1	<i>Picus canus</i>	siva žuna	G		
		1	<i>Strix uralensis</i>	jastrebača	G		
		1	<i>Sylvia nisoria</i>	pjegava grmuša	G		

Identification of areas	Name	Category for the target type	Scientific name	Croatian name	Status (G= nesting P = migratory Z = birds wintering)		
		1	<i>Columba oenas</i>	golub dupljaš	G		
HR1000009	Ribnjaci uz Česmu	1	<i>Acrocephalus melanopogon</i>	crnoprugasti trstenjak		P	
		1	<i>Alcedo atthis</i>	vodomar	G		
		1	<i>Anas strepera</i>	patka kreketaljka	G		
		1	<i>Aquila pomarina</i>	orao kliktaš	G		
		1	<i>Ardea purpurea</i>	čaplja danguba	G	P	
		1	<i>Ardeola ralloides</i>	žuta čaplja		P	
		1	<i>Aythya nyroca</i>	patka njorka	G	P	
		1	<i>Casmerodius albus</i>	velika bijela čaplja		P	Z
		1	<i>Chlidonias hybrida</i>	bjelobrađa čigra		P	
		1	<i>Chlidonias niger</i>	crna čigra		P	
		1	<i>Ciconia ciconia</i>	roda	G		
		1	<i>Ciconia nigra</i>	crna roda	G	P	
		1	<i>Circus cyaneus</i>	eja strnjarica			Z
		1	<i>Dendrocopos medius</i>	crvenoglavi djetlić	G		
		1	<i>Dendrocopos syriacus</i>	sirijski djetlić	G		
		1	<i>Dryocopus martius</i>	crna žuna	G		
		1	<i>Egretta garzetta</i>	mala bijela čaplja		P	
		1	<i>Ficedula albicollis</i>	bjelovrata muharica	G		

Identification of areas	Name	Category for the target type	Scientific name	Croatian name	Status (G= nesting P = migratory Z = birds wintering)		
HR1000009	Ribnjaci uz Česmu	1	<i>Haliaeetus albicilla</i>	štekavac	G		
		1	<i>Ixobrychus minutus</i>	čapljica voljak	G	P	
		1	<i>Lanius collurio</i>	rusi svračak	G		
		1	<i>Lanius minor</i>	sivi svračak	G		
		1	<i>Luscinia svecica</i>	modrovoljka		P	
		1	<i>Milvus migrans</i>	crna lunja	G		
		1	<i>Numenius arquata</i>	veliki pozviždač		P	
		1	<i>Nycticorax nycticorax</i>	gak		P	
		1	<i>Pandion haliaetus</i>	bukoč		P	
		1	<i>Pernis apivorus</i>	škanjac osaš	G		
		1	<i>Philomachus pugnax</i>	pršljivac		P	
		1	<i>Picus canus</i>	siva žuna	G		
		1	<i>Platalea leucorodia</i>	žličarka		P	
		1	<i>Porzana parva</i>	siva štijoka	G		
		1	<i>Tringa glareola</i>	prutka migavica		P	
		2	značajne negnijezdeće (selidbene) populacije ptica (patka lastarka <i>Anas acuta</i> , patka žličarka <i>Anas clypeata</i> , kržulja <i>Anas crecca</i> , zviždara <i>Anas penelope</i> , divlja patka <i>Anas platyrhynchos</i> , patka pupčanica <i>Anas querquedula</i> , patka kreketaljka <i>Anas strepera</i> , divlja guska <i>Anser anser</i> , glavata patka <i>Aythya ferina</i> , krunata patka <i>Aythya fuligula</i> , patka batoglavica <i>Bucephala clangula</i> , crvenokljuni labud <i>Cygnus olor</i> , liska <i>Fulica atra</i> , šljuka kokošica <i>Gallinago gallinago</i> , crnorepa muljača <i>Limosa limosa</i> , patka gogoljica <i>Netta rufina</i> , kokošica <i>Rallus aquaticus</i> , crna prutka <i>Tringa erythropus</i> , krivokljuna prutka <i>Tringa nebularia</i> , crvenonoga prutka <i>Tringa totanus</i> , vivak <i>Vanellus</i>				

Identification of areas	Name	Category for the target type	Scientific name	Croatian name	Status (G= nesting P = migritory Z = birds wintering)			
			vanellus, veliki pozviždač Numenius arquata)					
HR1000010	Poilovlje ribnjacima	s	1	Acrocephalus melanopogon	crnoprugasti trstenjak		P	
			1	Alcedo atthis	vodomar	G		
			1	Anas strepera	patka kreketaljka	G		
			1	Aquila pomarina	orao kliktaš	G		
			1	Ardea purpurea	čaplja danguba		P	
			1	Ardeola ralloides	žuta čaplja		P	
			1	Aythya nyroca	patka njorka	G	P	
			1	Botaurus stellaris	bukavac	G	P	Z
			1	Casmerodius albus	velika bijela čaplja		P	Z
			1	Chlidonias hybrida	bjelobrada čigra	G	P	
			1	Chlidonias niger	crna čigra		P	
			1	Ciconia ciconia	roda	G		
HR1000010	Poilovlje ribnjacima	s	1	Ciconia nigra	crna roda	G	P	
			1	Circus aeruginosus	eja močvarica	G		
			1	Circus cyaneus	eja strnjarica			Z
			1	Circus pygargus	eja livadarka	G		
			1	Dendrocopos medius	crvenoglavi djetlić	G		
			1	Dendrocopos syriacus	sirijski djetlić	G		

Identification of areas	Name	Category for the target type	Scientific name	Croatian name	Status (G= nesting P = migratory Z = birds wintering)		
		1	<i>Dryocopus martius</i>	crna žuna	G		
		1	<i>Ficedula albicollis</i>	bjelovrata muharica	G		
		1	<i>Haliaeetus albicilla</i>	štekavac	G		
		1	<i>Ixobrychus minutus</i>	čapljica voljak	G	P	
		1	<i>Lanius collurio</i>	rusi svračak	G		
		1	<i>Lanius minor</i>	sivi svračak	G		
		1	<i>Luscinia svecica</i>	modrovoljka		P	
		1	<i>Milvus migrans</i>	crna lunja	G		
		1	<i>Numenius arquata</i>	veliki pozviždač		P	
		1	<i>Nycticorax nycticorax</i>	gak		P	
		1	<i>Pandion haliaetus</i>	bukoč		P	
		1	<i>Pernis apivorus</i>	škanjac osaš	G		
		1	<i>Philomachus pugnax</i>	pršljivac		P	
		1	<i>Picus canus</i>	siva žuna	G		
		1	<i>Platalea leucorodia</i>	žličarka		P	
		1	<i>Porzana parva</i>	siva štijoka	G		
		1	<i>Porzana porzana</i>	riđa štijoka		P	
		1	<i>Sterna hirundo</i>	crvenokljuna čigra	G		
		1	<i>Tringa glareola</i>	prutka migavica		P	
		2	<b>značajne negnijezdeće (selidbene) populacije ptica</b> (patka lastarka <i>Anas acuta</i> , patka žličarka)				



Identification of areas	Name	Category for the target type	Scientific name	Croatian name	Status (G= nesting P = migritory Z = birds wintering)		
			<i>Anas clypeata</i> , kržulja <i>Anas crecca</i> , zviždara <i>Anas penelope</i> , divlja patka <i>Anas platyrhynchos</i> , patka pupčanica <i>Anas querquedula</i> , patka kreketaljka <i>Anas strepera</i> , divlja guska <i>Anser anser</i> , glavata patka <i>Aythya ferina</i> , krunata patka <i>Aythya fuligula</i> , patka batoglavica <i>Bucephala clangula</i> , crvenokljuni labud <i>Cygnus olor</i> , liska <i>Fulica atra</i> , šljuka kokošica <i>Gallinago gallinago</i> , crnorepa muljača <i>Limosa limosa</i> , patka gogoljica <i>Netta rufina</i> , kokošica <i>Rallus aquaticus</i> , crna prutka <i>Tringa erythropus</i> , krivokljuna prutka <i>Tringa nebularia</i> , crvenonoga prutka <i>Tringa totanus</i> , vivak <i>Vanellus vanellus</i> , veliki pozviždač <i>Numenius arquata</i> )				
HR1000011	Ribnjaci Grudnjak i Našice	1	<i>Acrocephalus melanopogon</i>	crnoprugasti trstenjak		P	
		1	<i>Alcedo atthis</i>	vodomar	G		
		1	<i>Anas strepera</i>	patka kreketaljka	G		
		1	<i>Anser anser</i>	divlja guska	G		
		1	<i>Ardea purpurea</i>	čaplja danguba	G	P	
		1	<i>Ardeola ralloides</i>	žuta čaplja	G	P	
		1	<i>Aythya nyroca</i>	patka njorka	G	P	
		1	<i>Botaurus stellaris</i>	bukavac	G	P	Z
		1	<i>Casmerodius albus</i>	velika bijela čaplja	G	P	Z
		1	<i>Chlidonias hybrida</i>	bjelobrađa čigra	G	P	
		1	<i>Chlidonias niger</i>	crna čigra		P	
		1	<i>Ciconia nigra</i>	crna roda	G		
		1	<i>Circus aeruginosus</i>	eja močvarica	G		
		1	<i>Circus cyaneus</i>	eja strnjarica			Z
		1	<i>Dendrocopos medius</i>	crvenoglavi djetlić	G		

Identification of areas	Name	Category for the target type	Scientific name	Croatian name	Status (G= nesting P = migratory Z = birds wintering)		
		1	<i>Dryocopus martius</i>	crna žuna	G		
		1	<i>Egretta garzetta</i>	mala bijela čaplja	G	P	
		1	<i>Ficedula albicollis</i>	bjelovrata muharica	G		
		1	<i>Haliaeetus albicilla</i>	štekavac	G		
		1	<i>Ixobrychus minutus</i>	čapljica voljak	G	P	
		1	<i>Milvus migrans</i>	crna lunja	G		
		1	<i>Netta rufina</i>	patka gogoljica	G		
		1	<i>Numenius arquata</i>	veliki pozviždač		P	
		1	<i>Nycticorax nycticorax</i>	gak	G	P	
		1	<i>Pandion haliaetus</i>	bukoč		P	
		1	<i>Panurus biarmicus</i>	brkata sjenica	G		
		1	<i>Pernis apivorus</i>	škanjac osaš	G		
		1	<i>Phalacrocorax pygmaeus</i>	mali vranac	G		
		1	<i>Philomachus pugnax</i>	pršljivac		P	
		1	<i>Picus canus</i>	siva žuna	G		
		1	<i>Platalea leucorodia</i>	žličarka	G	P	Z
		1	<i>Porzana parva</i>	siva štijoka	G		
HR1000011	Ribnjaci Grudnjak i Našice	1	<i>Tringa glareola</i>	prutka migavica		P	
		2	<b>značajne negniježdeće (selidbene) populacije ptica</b> (patka lastarka <i>Anas acuta</i> , patka žličarka <i>Anas clypeata</i> , kržulja <i>Anas crecca</i> , zviždara <i>Anas penelope</i> , divlja patka <i>Anas platyrhynchos</i> ,				

Identification of areas	Name	Category for the target type	Scientific name	Croatian name	Status (G= nesting P = migritory Z = birds wintering)		
			patka pupčanica <i>Anas querquedula</i> , patka kreketaljka <i>Anas strepera</i> , lisasta guska <i>Anser albifrons</i> , divlja guska <i>Anser anser</i> , guska glogovnjača <i>Anser fabalis</i> , glavata patka <i>Aythya ferina</i> , krunata patka <i>Aythya fuligula</i> , patka batoglavica <i>Bucephala clangula</i> , crvenokljuni labud <i>Cygnus olor</i> , liska <i>Fulica atra</i> , šljuka kokošica <i>Gallinago gallinago</i> , crnorepa muljača <i>Limosa limosa</i> , patka gogoljica <i>Netta rufina</i> , kokošica <i>Rallus aquaticus</i> , crna prutka <i>Tringa erythropus</i> , krivokljuna prutka <i>Tringa nebularia</i> , crvenonoga prutka <i>Tringa totanus</i> , vivak <i>Vanellus vanellus</i> , veliki pozviždač <i>Numenius arquata</i> )				
HR1000012	Taložnice Virovitičke šećerane	1	<i>Himantopus himantopus</i>	vlastelica	G		
HR1000013	Dravske akumulacije	1	<i>Actitis hypoleucos</i>	mala prutka	G		
		1	<i>Alcedo atthis</i>	vodomar	G		
		1	<i>Anas strepera</i>	patka kreketaljka	G		
		1	<i>Casmerodius albus</i>	velika bijela čaplja		P	Z
		1	<i>Ciconia nigra</i>	crna roda	G		
		1	<i>Circus aeruginosus</i>	eja močvarica	G		
		1	<i>Circus cyaneus</i>	eja strnjarica			Z
		1	<i>Egretta garzetta</i>	mala bijela čaplja	G	P	
		1	<i>Falco columbarius</i>	mali sokol			Z
		1	<i>Ixobrychus minutus</i>	čapljica voljak	G	P	
		1	<i>Nycticorax nycticorax</i>	gak	G	P	
		1	<i>Phalacrocorax pygmaeus</i>	mali vranac			Z

Identification of areas	Name	Category for the target type	Scientific name	Croatian name	Status (G= nesting P = migritory Z = birds wintering)		
		2	značajne negniježdeće (selidbene) populacije ptica (patka lastarka <i>Anas acuta</i> , kržulja <i>Anas crecca</i> , zviždara <i>Anas penelope</i> , divlja patka <i>Anas platyrhynchos</i> , patka pupčanica <i>Anas querquedula</i> , patka kreketaljka <i>Anas strepera</i> , lisasta guska <i>Anser albifrons</i> , divlja guska <i>Anser anser</i> , guska glogovnjača <i>Anser fabalis</i> , glavata patka <i>Aythya ferina</i> , krunata patka <i>Aythya fuligula</i> , patka batoglavica <i>Bucephala clangula</i> , crvenokljuni labud <i>Cygnus olor</i> , liska <i>Fulica atra</i> , patka gogoljica <i>Netta rufina</i> , kokošica <i>Rallus aquaticus</i> )				
HR1000014	Gornji tok Drave	1	<i>Actitis hypoleucos</i>	mala prutka	G		
		1	<i>Alcedo atthis</i>	vodomar	G		
		1	<i>Anas strepera</i>	patka kreketaljka	G		
		1	<i>Ardea purpurea</i>	čaplja danguba		P	
HR1000014	Gornji tok Drave	1	<i>Botaurus stellaris</i>	bukavac	G	P	Z
		1	<i>Casmerodius albus</i>	velika bijela čaplja		P	Z
		1	<i>Ciconia ciconia</i>	roda	G		
		1	<i>Ciconia nigra</i>	crna roda	G		
		1	<i>Circus cyaneus</i>	eja strnjarica			Z
		1	<i>Dendrocopos medius</i>	crvenoglavi djetlić	G		
		1	<i>Dryocopus martius</i>	crna žuna	G		
		1	<i>Egretta garzetta</i>	mala bijela čaplja		P	
		1	<i>Falco columbarius</i>	mali sokol			Z
		1	<i>Ficedula albicollis</i>	bjelovrata muharica	G		
		1	<i>Haliaeetus albicilla</i>	štekavac	G		
		1	<i>Ixobrychus minutus</i>	čapljica voljak	G	P	
		1	<i>Luscinia svecica</i>	modrovoljka	G	P	

Identification of areas	Name	Category for the target type	Scientific name	Croatian name	Status (G= nesting P = migratory Z = birds wintering)		
		1	<i>Nycticorax nycticorax</i>	gak		P	
		1	<i>Pernis apivorus</i>	škanjac osaš	G		
		1	<i>Phalacrocorax pygmaeus</i>	mali vranac			Z
		1	<i>Picus canus</i>	siva žuna	G		
		1	<i>Riparia riparia</i>	bregunica	G		
		1	<i>Sterna albifrons</i>	mala čigra	G		
		1	<i>Sterna hirundo</i>	crvenokljuna čigra	G		
		1	<i>Sylvia nisoria</i>	pjegava grmuša	G		
		2	<b>značajne negniježdeće (selidbene) populacije ptica</b> (patka lastarka <i>Anas acuta</i> , kržulja <i>Anas crecca</i> , zviždara <i>Anas penelope</i> , divlja patka <i>Anas platyrhynchos</i> , patka pupčanica <i>Anas querquedula</i> , patka kreketaljka <i>Anas strepera</i> , glavata patka <i>Aythya ferina</i> , krunata patka <i>Aythya fuligula</i> , patka batoglavica <i>Bucephala clangula</i> , crvenokljuni labud <i>Cygnus olor</i> , liska <i>Fulica atra</i> , patka gogoljica <i>Netta rufina</i> , kokošica <i>Rallus aquaticus</i> , vivak <i>Vanellus vanellus</i> )				
HR1000015	Srednji tok Drave	1	<i>Actitis hypoleucos</i>	mala prutka	G		
		1	<i>Alcedo atthis</i>	vodomar	G		
		1	<i>Ardea purpurea</i>	čaplja danguba	G	P	
		1	<i>Casmerodius albus</i>	velika bijela čaplja		P	Z
		1	<i>Ciconia ciconia</i>	roda	G		
		1	<i>Ciconia nigra</i>	crna roda	G		
HR1000015	Srednji tok Drave	1	<i>Circus cyaneus</i>	eja strnjarica			Z
		1	<i>Dendrocopos</i>	crvenoglavi djetlić	G		

Identification of areas	Name	Category for the target type	Scientific name	Croatian name	Status (G= nesting P = migratory Z = birds wintering)		
			<i>medius</i>				
		1	<i>Egretta garzetta</i>	mala bijela čaplja		P	
		1	<i>Falco columbarius</i>	mali sokol			Z
		1	<i>Ficedula albicollis</i>	bjelovrata muharica	G		
		1	<i>Haliaeetus albicilla</i>	štekavac	G		
		1	<i>Ixobrychus minutus</i>	čapljica voljak	G	P	
		1	<i>Luscinia svecica</i>	modrovoljka	G	P	
		1	<i>Milvus migrans</i>	crna lunja	G		
		1	<i>Nycticorax nycticorax</i>	gak		P	
		1	<i>Phalacrocorax pygmaeus</i>	mali vranac			Z
		1	<i>Picus canus</i>	siva žuna	G		
		1	<i>Riparia riparia</i>	bregunica	G		
		1	<i>Sylvia nisoria</i>	pjegava grmuša	G		
		2	<b>značajne negniježdeće (selidbene) populacije ptica</b> (patka lastarka <i>Anas acuta</i> , kržulja <i>Anas crecca</i> , zviždara <i>Anas penelope</i> , divlja patka <i>Anas platyrhynchos</i> , patka pupčanica <i>Anas querquedula</i> , patka kreketaljka <i>Anas strepera</i> , glavata patka <i>Aythya ferina</i> , krunata patka <i>Aythya fuligula</i> , patka batoglavica <i>Bucephala clangula</i> , crvenokljuni labud <i>Cygnus olor</i> , liska <i>Fulica atra</i> , patka gogoljica <i>Netta rufina</i> , kokošica <i>Rallus aquaticus</i> , vivak <i>Vanellus vanellus</i> )				
HR1000016	Podunavlje i donje Podravlje	1	<i>Acrocephalus melanopogon</i>	crnoprugasti trstenjak	G	P	
		1	<i>Actitis hypoleucos</i>	mala prutka	G		

Identification of areas	Name	Category for the target type	Scientific name	Croatian name	Status (G= nesting P = migratory Z = birds wintering)		
		1	<i>Alcedo atthis</i>	vodomar	G		
		1	<i>Anas strepera</i>	patka kreketaljka	G		
		1	<i>Anser anser</i>	divlja guska	G		
		1	<i>Aquila clanga</i>	orao klokotaš			Z
		1	<i>Aquila pomarina</i>	orao kliktaš	G		
		1	<i>Ardea purpurea</i>	čaplja danguba	G	P	
		1	<i>Ardeola ralloides</i>	žuta čaplja	G	P	
		1	<i>Aythya nyroca</i>	patka njorka	G	P	
		1	<i>Botaurus stellaris</i>	bukavac	G	P	Z
		1	<i>Caprimulgus europaeus</i>	leganj	G		
		1	<i>Casmerodius albus</i>	velika bijela čaplja	G	P	Z
HR1000016	Podunavlje i donje Podravlje	1	<i>Chlidonias hybrida</i>	bjelobrada čigra	G	P	
		1	<i>Chlidonias niger</i>	crna čigra		P	
		1	<i>Ciconia ciconia</i>	roda	G		
		1	<i>Ciconia nigra</i>	crna roda	G	P	
		1	<i>Circus aeruginosus</i>	eja močvarica	G		
		1	<i>Circus cyaneus</i>	eja strnjarica			Z
		1	<i>Dendrocopos medius</i>	crvenoglavi djetlić	G		
		1	<i>Dendrocopos syriacus</i>	sirijski djetlić	G		

Identification of areas	Name	Category for the target type	Scientific name	Croatian name	Status (G= nesting P = migratory Z = birds wintering)		
		1	<i>Dryocopus martius</i>	crna žuna	G		
		1	<i>Egretta garzetta</i>	mala bijela čaplja	G	P	
		1	<i>Falco columbarius</i>	mali sokol			Z
		1	<i>Falco vespertinus</i>	crvenonoga vjetruša		P	
		1	<i>Ficedula albicollis</i>	bjelovrata muharica	G		
		1	<i>Grus grus</i>	ždral		P	
		1	<i>Haliaeetus albicilla</i>	štekavac	G		
		1	<i>Himantopus himantopus</i>	vlastelica	G	P	
		1	<i>Ixobrychus minutus</i>	čapljica voljak	G	P	
		1	<i>Lanius collurio</i>	rusi svračak	G		
		1	<i>Luscinia svecica</i>	modrovoljka	G	P	
		1	<i>Milvus migrans</i>	crna lunja	G		
		1	<i>Netta rufina</i>	patka gogoljica	G		
		1	<i>Numenius arquata</i>	veliki pozviždač		P	
		1	<i>Nycticorax nycticorax</i>	gak	G	P	
		1	<i>Pandion haliaetus</i>	bukoč		P	
		1	<i>Panurus biarmicus</i>	brkata sjenica	G		
		1	<i>Pernis apivorus</i>	škanjac osaš	G		
		1	<i>Phalacrocorax pygmaeus</i>	mali vranac	G		Z



Identification of areas	Name	Category for the target type	Scientific name	Croatian name	Status (G= nesting P = migratory Z = birds wintering)		
		1	<i>Philomachus pugnax</i>	pršljivac		P	
		1	<i>Picus canus</i>	siva žuna	G		
		1	<i>Platalea leucorodia</i>	žličarka		P	Z
		1	<i>Porzana parva</i>	siva štijoka	G	P	
		1	<i>Porzana porzana</i>	riđa štijoka	G	P	
HR1000016	Podunavlje i donje Podravlje	1	<i>Riparia riparia</i>	bregunica	G		
		1	<i>Sterna hirundo</i>	crvenokljuna čigra	G		
		1	<i>Sylvia nisoria</i>	pjegava grmuša	G		
		1	<i>Tringa glareola</i>	prutka migavica		P	
		2	<b>značajne negniježdeće (selidbene) populacije ptica</b> (patka lastarka <i>Anas acuta</i> , patka žličarka <i>Anas clypeata</i> , kržulja <i>Anas crecca</i> , zviždara <i>Anas penelope</i> , divlja patka <i>Anas platyrhynchos</i> , patka pupčanica <i>Anas querquedula</i> , patka kreketaljka <i>Anas strepera</i> , lisasta guska <i>Anser albifrons</i> , divlja guska <i>Anser anser</i> , guska glogovnjača <i>Anser fabalis</i> , glavata patka <i>Aythya ferina</i> , krunata patka <i>Aythya fuligula</i> , patka batoglavica <i>Bucephala clangula</i> , crvenokljuni labud <i>Cygnus olor</i> , liska <i>Fulica atra</i> , šljuka kokošica <i>Gallinago gallinago</i> , crnorepa muljača <i>Limosa limosa</i> , patka gogoljica <i>Netta rufina</i> , kokošica <i>Rallus aquaticus</i> , crna prutka <i>Tringa erythropus</i> , krivokljuna prutka <i>Tringa nebularia</i> , crvenonoga prutka <i>Tringa totanus</i> , vivak <i>Vanellus vanellus</i> , veliki pozviždač <i>Numenius arquata</i> )				
HR1000018	Učka i Čićarija	1	<i>Alectoris graeca</i>	jarebica kamenjarka	G		
		1	<i>Anthus campestris</i>	primorska trepteljka	G		
		1	<i>Aquila chrysaetos</i>	suri orao	G		
		1	<i>Bubo bubo</i>	ušara	G		
		1	<i>Caprimulgus europaeus</i>	leganj	G		

Identification of areas	Name	Category for the target type	Scientific name	Croatian name	Status (G= nesting P = migratory Z = birds wintering)		
		1	<i>Circaetus gallicus</i>	zmijar	G		
		1	<i>Crex crex</i>	kosac	G		
		1	<i>Dryocopus martius</i>	crna žuna	G		
		1	<i>Emberiza hortulana</i>	vrtna strnadica	G		
		1	<i>Falco peregrinus</i>	sivi sokol	G		
		1	<i>Glaucidium passerinum</i>	mali ćuk	G		
		1	<i>Gyps fulvus</i>	bjeloglavi sup		P	
		1	<i>Lanius collurio</i>	rusi svračak	G		
		1	<i>Lullula arborea</i>	ševa krunica	G		
		1	<i>Pernis apivorus</i>	škanjac osaš	G		
		1	<i>Picus canus</i>	siva žuna	G		
		1	<i>Strix uralensis</i>	jastrebača	G		
		1	<i>Sylvia nisoria</i>	pjegava grmuša	G		
		1	<i>Phylloscopus bonelli</i>	gorski zviždak	G		
HR1000019	Gorski kotar i sjeverna Lika	1	<i>Aegolius funereus</i>	planinski ćuk	G		
		1	<i>Alcedo atthis</i>	vodomar	G		
		1	<i>Alectoris graeca</i>	jarebica kamenjarka	G		
		1	<i>Anthus campestris</i>	primorska trepteljka	G		
		1	<i>Aquila chrysaetos</i>	suri orao	G		
		1	<i>Asio flammeus</i>	sova močvarica	G		

Identification of areas	Name	Category for the target type	Scientific name	Croatian name	Status (G= nesting P = migratory Z = birds wintering)		
		1	<i>Bonasa bonasia</i>	lještarka	G		
		1	<i>Bubo bubo</i>	ušara	G		
		1	<i>Caprimulgus europaeus</i>	leganj	G		
		1	<i>Ciconia nigra</i>	crna roda	G		
		1	<i>Circaetus gallicus</i>	zmijar	G		
		1	<i>Circus cyaneus</i>	eja strnjarica			Z
		1	<i>Crex crex</i>	kosac	G		
		1	<i>Dendrocopos leucotos</i>	planinski djetlić	G		
		1	<i>Dendrocopos medius</i>	crvenoglavi djetlić	G		
		1	<i>Dryocopus martius</i>	crna žuna	G		
		1	<i>Emberiza hortulana</i>	vrtna strnadica	G		
		1	<i>Falco peregrinus</i>	sivi sokol	G		
		1	<i>Ficedula albicollis</i>	bjelovrata muharica	G		
		1	<i>Ficedula parva</i>	mala muharica	G		
		1	<i>Glaucidium passerinum</i>	mali ćuk	G		
		1	<i>Lanius collurio</i>	rusi svračak	G		
		1	<i>Lanius minor</i>	sivi svračak	G		
		1	<i>Lullula arborea</i>	ševa krunica	G		

Identification of areas	Name	Category for the target type	Scientific name	Croatian name	Status (G= nesting P = migratory Z = birds wintering)		
		1	<i>Pernis apivorus</i>	škanjac osaš	G		
		1	<i>Picoides tridactylus</i>	troprsti djetlić	G		
		1	<i>Picus canus</i>	siva žuna	G		
		1	<i>Strix uralensis</i>	jastrebača	G		
		1	<i>Sylvia nisoria</i>	pjegava grmuša	G		
		1	<i>Tetrao urogallus</i>	tetrijeb gluhan	G		
		1	<i>Actitis hypoleucos</i>	mala prutka	G		
HR1000020	NP Plitvička jezera	1	<i>Aegolius funereus</i>	planinski čuk	G		
		1	<i>Alcedo atthis</i>	vodomar	G		
		1	<i>Asio flammeus</i>	sova močvarica	G		
		1	<i>Bonasa bonasia</i>	lještarka	G		
		1	<i>Bubo bubo</i>	ušara	G		
		1	<i>Circus pygargus</i>	eja livadarka	G		
		1	<i>Crex crex</i>	kosac	G		
		1	<i>Dendrocopos leucotos</i>	planinski djetlić	G		
		1	<i>Dryocopus martius</i>	crna žuna	G		
		1	<i>Falco peregrinus</i>	sivi sokol	G		
		1	<i>Ficedula albicollis</i>	bjelovrata muharica	G		
		1	<i>Ficedula parva</i>	mala muharica	G		

Identification of areas	Name	Category for the target type	Scientific name	Croatian name	Status (G= nesting P = migratory Z = birds wintering)		
		1	<i>Glaucidium passerinum</i>	mali ćuk	G		
		1	<i>Lanius collurio</i>	rusi svračak	G		
		1	<i>Lanius minor</i>	sivi svračak	G		
		1	<i>Lullula arborea</i>	ševa krunica	G		
		1	<i>Pernis apivorus</i>	škanjac osaš	G		
		1	<i>Picoides tridactylus</i>	troprsti djetlić	G		
		1	<i>Picus canus</i>	siva žuna	G		
		1	<i>Strix uralensis</i>	jastrebača	G		
		1	<i>Sylvia nisoria</i>	pjegava grmuša	G		
		1	<i>Tetrao urogallus</i>	tetrijeb gluhan	G		
HR1000021	Lička krška polja	1	<i>Alcedo atthis</i>	vodomar	G		
		1	<i>Anthus campestris</i>	primorska trepteljka	G		
		1	<i>Bubo bubo</i>	ušara	G		
		1	<i>Circaetus gallicus</i>	zmijar	G		
		1	<i>Circus cyaneus</i>	eja strnjarica			Z
		1	<i>Circus pygargus</i>	eja livadarka	G		
		1	<i>Crex crex</i>	kosac	G		
		1	<i>Dendrocopos medius</i>	crvenoglavi djetlić	G		
		1	<i>Falco vespertinus</i>	crvenonoga vjetruša		P	
		1	<i>Lanius collurio</i>	rusi svračak	G		

Identification of areas	Name	Category for the target type	Scientific name	Croatian name	Status (G= nesting P = migratory Z = birds wintering)		
HR1000021	Lička krška polja	1	<i>Lanius minor</i>	sivi svračak	G		
		1	<i>Lullula arborea</i>	ševa krunica	G		
		1	<i>Sylvia nisoria</i>	pjegava grmuša	G		
		1	<i>Gallinago gallinago</i>	šljuka kokošica	G		
HR1000022	Velebit	1	<i>Aegolius funereus</i>	planinski ćuk	G		
		1	<i>Alectoris graeca</i>	jarebica kamenjarka	G		
		1	<i>Anthus campestris</i>	primorska trepteljka	G		
		1	<i>Aquila chrysaetos</i>	suri orao	G		
		1	<i>Bonasa bonasia</i>	lještarka	G		
		1	<i>Bubo bubo</i>	ušara	G		
		1	<i>Caprimulgus europaeus</i>	leganj	G		
		1	<i>Circaetus gallicus</i>	zmijar	G		
		1	<i>Circus cyaneus</i>	eja strnjarica			Z
		1	<i>Crex crex</i>	kosac	G		
		1	<i>Dendrocopos leucotos</i>	planinski djetlić	G		
		1	<i>Dendrocopos medius</i>	crvenoglavi djetlić	G		
		1	<i>Dryocopus martius</i>	crna žuna	G		
		1	<i>Emberiza hortulana</i>	vrtna strnadica	G		
		1	<i>Falco peregrinus</i>	sivi sokol	G		

Identification of areas	Name	Category for the target type	Scientific name	Croatian name	Status (G= nesting P = migratory Z = birds wintering)		
		1	<i>Falco vespertinus</i>	crvenonoga vjetruša		P	
		1	<i>Ficedula albicollis</i>	bjelovrata muharica	G		
		1	<i>Glaucidium passerinum</i>	mali ćuk	G		
		1	<i>Lanius collurio</i>	rusi svračak	G		
		1	<i>Lanius minor</i>	sivi svračak	G		
		1	<i>Lullula arborea</i>	ševa krunica	G		
		1	<i>Pernis apivorus</i>	škanjac osaš	G	P	
		1	<i>Picoides tridactylus</i>	troprsti djetlić	G		
		1	<i>Picus canus</i>	siva žuna	G		
		1	<i>Strix uralensis</i>	jastrebača	G		
		1	<i>Sylvia nisoria</i>	pjegava grmuša	G		
		1	<i>Tetrao urogallus</i>	tetrijeb gluhan	G		
		1	<i>Actitis hypoleucos</i>	mala prutka	G		
		1	<i>Phylloscopus bonelli</i>	gorski zviždak	G		
HR1000023	SZ Dalmacija i Pag	1	<i>Acrocephalus melanopogon</i>	crnoprugasti trstenjak			Z
		1	<i>Alcedo atthis</i>	vodomar			Z
		1	<i>Alectoris graeca</i>	jarebica kamenjarka	G		
		1	<i>Anthus campestris</i>	primorska trepteljka	G		
		1	<i>Ardea purpurea</i>	čaplja danguba		P	

Identification of areas	Name	Category for the target type	Scientific name	Croatian name	Status (G= nesting P = migratory Z = birds wintering)		
		1	<i>Ardeola ralloides</i>	žuta čaplja		P	
		1	<i>Botaurus stellaris</i>	bukavac		P	
		1	<i>Bubo bubo</i>	ušara	G		
		1	<i>Burhinus oedicnemus</i>	ćukavica	G		
		1	<i>Calandrella brachydactyla</i>	kratkoprsta ševa	G		
		1	<i>Calidris alpina</i>	žalar cirikavac			Z
		1	<i>Caprimulgus europaeus</i>	leganj	G		
		1	<i>Charadrius alexandrinus</i>	morski kulik	G		
		1	<i>Circaetus gallicus</i>	zmijar	G		
		1	<i>Circus aeruginosus</i>	eja močvarica	G		Z
		1	<i>Circus cyaneus</i>	eja strnjarica			Z
		1	<i>Circus pygargus</i>	eja livadarka	G		
		1	<i>Egretta garzetta</i>	mala bijela čaplja		P	Z
		1	<i>Falco columbarius</i>	mali sokol			Z
		1	<i>Falco naumanni</i>	bjelonokta vjetruša		P	
		1	<i>Falco peregrinus</i>	sivi sokol	G		
		1	<i>Gavia arctica</i>	crnogrlji plijenor			Z
		1	<i>Gavia stellata</i>	crvenogrlji plijenor			Z



Identification of areas	Name	Category for the target type	Scientific name	Croatian name	Status (G= nesting P = migratory Z = birds wintering)		
		1	<i>Grus grus</i>	ždral		P	
		1	<i>Gyps fulvus</i>	bjeloglavi sup	G		
		1	<i>Haematopus ostralegus</i>	oštrigar		P	
		1	<i>Himantopus himantopus</i>	vlastelica	G	P	
		1	<i>Lanius collurio</i>	rusi svračak	G		
		1	<i>Lanius minor</i>	sivi svračak	G		
		1	<i>Larus melanocephalus</i>	crnoglavi galeb		P	
		1	<i>Lullula arborea</i>	ševa krunica	G		
		1	<i>Limnocyttus minimus</i>	mala šljuka			Z
HR1000023	SZ Dalmacija i Pag	1	<i>Melanocorypha calandra</i>	velika ševa	G		
		1	<i>Numenius arquata</i>	veliki pozviždač		P	Z
		1	<i>Numenius phaeopus</i>	prugasti pozviždač		P	
		1	<i>Phalacrocorax aristotelis desmarestii</i>	morski vranac	G		
		1	<i>Philomachus pugnax</i>	pršljivac		P	

Identification of areas	Name	Category for the target type	Scientific name	Croatian name	Status (G= nesting P = migratory Z = birds wintering)		
		1	<i>Platalea leucorodia</i>	žličarka		P	
		1	<i>Plegadis falcinellus</i>	blistavi ibis		P	
		1	<i>Pluvialis squatarola</i>	zlatar pijukavac			Z
		1	<i>Porzana parva</i>	siva štijska	G		
		1	<i>Sterna albifrons</i>	mala čigra	G		
		1	<i>Sterna hirundo</i>	crvenokljuna čigra	G		
		1	<i>Sterna sandvicensis</i>	dugokljuna čigra			Z
		1	<i>Tringa glareola</i>	prutka migavica		P	
		2	značajne negniježdeće (selidbene) populacije ptica (patka lastarka <i>Anas acuta</i> , patka žličarka <i>Anas clypeata</i> , kržulja <i>Anas crecca</i> , zviždara <i>Anas penelope</i> , divlja patka <i>Anas platyrhynchos</i> , patka pupčanica <i>Anas querquedula</i> , patka kreketaljka <i>Anas strepera</i> , glavata patka <i>Aythya ferina</i> , krunata patka <i>Aythya fuligula</i> , patka batoglavica <i>Bucephala clangula</i> , liska <i>Fulica atra</i> , šljuka kokošica <i>Gallinago gallinago</i> , oštrigar <i>Haematopus ostralegus</i> , crnorepa muljača <i>Limosa limosa</i> , mali ronac <i>Mergus serrator</i> , kokošica <i>Rallus aquaticus</i> , crna prutka <i>Tringa erythropus</i> , krivokljuna prutka <i>Tringa nebularia</i> , crvenonoga prutka <i>Tringa totanus</i> , vivak <i>Vanellus vanellus</i> , veliki pozviždač <i>Numenius arquata</i> , prugasti pozviždač <i>Numenius phaeopus</i> , zlatar pijukavac <i>Pluvialis squatarola</i> )				
HR1000024	Ravni kotari	1	<i>Alectoris graeca</i>	jarebica kamenjarka	G		
		1	<i>Anthus campestris</i>	primorska trepteljka	G		
		1	<i>Bubo bubo</i>	ušara	G		
		1	<i>Calandrella brachydactyla</i>	kratkoprsta ševa	G		
		1	<i>Caprimulgus europaeus</i>	leganj	G		

Identification of areas	Name	Category for the target type	Scientific name	Croatian name	Status (G= nesting P = migratory Z = birds wintering)		
		1	<i>Circaetus gallicus</i>	zmijar	G		
		1	<i>Circus cyaneus</i>	eja strnjarica			Z
		1	<i>Circus pygargus</i>	eja livadarka	G		
		1	<i>Coracias garrulus</i>	zlatovrana	G		
		1	<i>Dendrocopos medius</i>	crvenoglavi djetlić	G		
		1	<i>Falco columbarius</i>	mali sokol			Z
HR1000024	Ravni kotari	1	<i>Grus grus</i>	ždral		P	
		1	<i>Hippolais olivetorum</i>	voljić maslinar	G		
		1	<i>Lanius collurio</i>	rusi svračak	G		
		1	<i>Lanius minor</i>	sivi svračak	G		
		1	<i>Lullula arborea</i>	ševa krunica	G		
		1	<i>Melanocorypha calandra</i>	velika ševa	G		
HR1000025	Vransko jezero i Jasen	1	<i>Acrocephalus melanopogon</i>	crnoprugasti trstenjak			Z
		1	<i>Alcedo atthis</i>	vodomar			Z
		1	<i>Alectoris graeca</i>	jarebica kamenjarka	G		
		1	<i>Ardea purpurea</i>	čaplja danguba	G		
		1	<i>Ardeola ralloides</i>	žuta čaplja		P	
		1	<i>Aythya nyroca</i>	patka njorka			Z
		1	<i>Botaurus stellaris</i>	bukavac	G	P	Z

Identification of areas	Name	Category for the target type	Scientific name	Croatian name	Status (G= nesting P = migratory Z = birds wintering)		
		1	<i>Bubo bubo</i>	ušara	G		
		1	<i>Caprimulgus europaeus</i>	leganj	G		
		1	<i>Casmerodius albus</i>	velika bijela čaplja	G	P	Z
		1	<i>Chlidonias hybrida</i>	bjelobrada čigra		P	
		1	<i>Chlidonias niger</i>	crna čigra		P	
		1	<i>Circaetus gallicus</i>	zmijar	G		
		1	<i>Circus aeruginosus</i>	eja močvarica	G		Z
		1	<i>Circus cyaneus</i>	eja strnjarica			Z
		1	<i>Circus pygargus</i>	eja livadarka	G		
		1	<i>Egretta garzetta</i>	mala bijela čaplja		P	Z
		1	<i>Falco columbarius</i>	mali sokol			Z
		1	<i>Himantopus himantopus</i>	vlastelica		P	
		1	<i>Ixobrychus minutus</i>	čapljica voljak	G	P	
		1	<i>Lanius minor</i>	sivi svračak	G		
		1	<i>Luscinia svecica</i>	modrovoljka		P	
		1	<i>Lymnocyptes minimus</i>	mala šljuka			Z
		1	<i>Numenius arquata</i>	veliki pozviždač		P	Z
		1	<i>Nycticorax nycticorax</i>	gak		P	

Identification of areas	Name	Category for the target type	Scientific name	Croatian name	Status (G= nesting P = migratory Z = birds wintering)		
		1	<i>Phalacrocorax pygmaeus</i>	mali vranac	G		Z
HR1000025	Vransko jezero i Jasen	1	<i>Philomachus pugnax</i>	pršljivac		P	
		1	<i>Platalea leucorodia</i>	žličarka		P	
		1	<i>Plegadis falcinellus</i>	blistavi ibis		P	
		1	<i>Porzana parva</i>	siva štijoka	G	P	Z
		1	<i>Porzana porzana</i>	riđa štijoka	G	P	Z
		1	<i>Porzana pusilla</i>	mala štijoka	G	P	
		1	<i>Tringa glareola</i>	prutka migavica		P	
		2	<b>značajne negniježdeće (selidbene) populacije ptica</b> (patka lastarka <i>Anas acuta</i> , patka žličarka <i>Anas clypeata</i> , kržulja <i>Anas crecca</i> , zviždara <i>Anas penelope</i> , divlja patka <i>Anas platyrhynchos</i> , patka pupčanica <i>Anas querquedula</i> , patka kreketaljka <i>Anas strepera</i> , divlja guska <i>Anser anser</i> , glavata patka <i>Aythya ferina</i> , krunata patka <i>Aythya fuligula</i> , patka batoglavica <i>Bucephala clangula</i> , crvenokljuni labud <i>Cygnus olor</i> , liska <i>Fulica atra</i> , šljuka kokošica <i>Gallinago gallinago</i> , crnorepa muljača <i>Limosa limosa</i> , mali ronac <i>Mergus serrator</i> , kokošica <i>Rallus aquaticus</i> , crna prutka <i>Tringa erythropus</i> , krivokljuna prutka <i>Tringa nebularia</i> , crvenonoga prutka <i>Tringa totanus</i> , vivak <i>Vanellus vanellus</i> , veliki pozviždač <i>Numenius arquata</i> )				
HR1000026	Krka i okolni plato	1	<i>Acrocephalus melanopogon</i>	crnoprugasti trstenjak			Z
		1	<i>Alcedo atthis</i>	vodomar	G		Z
		1	<i>Alectoris graeca</i>	jarebica kamenjarka	G		
		1	<i>Anthus campestris</i>	primorska trepteljka	G		
		1	<i>Aquila chrysaetos</i>	suri orao	G		

Identification of areas	Name	Category for the target type	Scientific name	Croatian name	Status (G= nesting P = migratory Z = birds wintering)		
		1	<i>Botaurus stellaris</i>	bukavac	G	P	Z
		1	<i>Bubo bubo</i>	ušara	G		
		1	<i>Burhinus oedicnemus</i>	ćukavica	G		
		1	<i>Calandrella brachydactyla</i>	kratkoprsta ševa	G		
		1	<i>Caprimulgus europaeus</i>	leganj	G		
		1	<i>Circaetus gallicus</i>	zmijar	G		
		1	<i>Circus aeruginosus</i>	eja močvarica			Z
		1	<i>Circus cyaneus</i>	eja strnjarica			Z
		1	<i>Dendrocopos medius</i>	crvenoglavi djetlić	G		
		1	<i>Egretta garzetta</i>	mala bijela čaplja		P	
		1	<i>Falco columbarius</i>	mali sokol			Z
		1	<i>Falco peregrinus</i>	sivi sokol	G		
HR1000026	Krka i okolni plato	1	<i>Hippolais olivetorum</i>	voljić maslinar	G		
		1	<i>Ixobrychus minutus</i>	čapljica voljak	G	P	
		1	<i>Lanius collurio</i>	rusi svračak	G		
		1	<i>Lanius minor</i>	sivi svračak	G		
		1	<i>Lullula arborea</i>	ševa krunica	G		

Identification of areas	Name	Category for the target type	Scientific name	Croatian name	Status (G= nesting P = migratory Z = birds wintering)		
		1	<i>Melanocorypha calandra</i>	velika ševa	G		
		1	<i>Pandion haliaetus</i>	bukoč		P	
		1	<i>Pernis apivorus</i>	škanjac osaš	G		
		1	<i>Phalacrocorax pygmaeus</i>	mali vranac		P	Z
		1	<i>Porzana parva</i>	siva štijoka	G	P	
		1	<i>Porzana porzana</i>	riđa štijoka	G	P	
		1	<i>Porzana pusilla</i>	mala štijoka		P	
		2	<b>značajne negniježdeće (selidbene) populacije ptica</b> (patka žličarka <i>Anas clypeata</i> , kržulja <i>Anas crecca</i> , zviždara <i>Anas penelope</i> , divlja patka <i>Anas platyrhynchos</i> , patka pupčanica <i>Anas querquedula</i> , glavata patka <i>Aythya ferina</i> , krunata patka <i>Aythya fuligula</i> , crvenokljuni labud <i>Cygnus olor</i> , liska <i>Fulica atra</i> , kokošica <i>Rallus aquaticus</i> )				
HR1000027	Mosor, Kozjak i Trogirska zagora	1	<i>Alectoris graeca</i>	jarebica kamenjarka	G		
		1	<i>Anthus campestris</i>	primorska trepteljka	G		
		1	<i>Aquila chrysaetos</i>	suri orao	G		
		1	<i>Bubo bubo</i>	ušara	G		
		1	<i>Caprimulgus europaeus</i>	leganj	G		
		1	<i>Circaetus gallicus</i>	zmijar	G		
		1	<i>Circus cyaneus</i>	eja strnjarica			Z
		1	<i>Emberiza hortulana</i>	vrtna strnadica	G		
		1	<i>Falco peregrinus</i>	sivi sokol	G		

Identification of areas	Name	Category for the target type	Scientific name	Croatian name	Status (G= nesting P = migratory Z = birds wintering)		
		1	<i>Grus grus</i>	ždral		P	
		1	<i>Hippolais olivetorum</i>	voljić maslinar	G		
		1	<i>Lanius collurio</i>	rusi svračak	G		
		1	<i>Lanius minor</i>	sivi svračak	G		
		1	<i>Lullula arborea</i>	ševa krunica	G		
		1	<i>Pernis apivorus</i>	škanjac osaš		P	
HR1000028	Dinara	1	<i>Alectoris graeca</i>	jarebica kamenjarka	G		
		1	<i>Anthus campestris</i>	primorska trepteljka	G		
		1	<i>Aquila chrysaetos</i>	suri orao	G		
		1	<i>Bubo bubo</i>	ušara	G		
		1	<i>Calandrella brachydactyla</i>	kratkoprsta ševa	G		
		1	<i>Caprimulgus europaeus</i>	leganj	G		
		1	<i>Circaetus gallicus</i>	zmijar	G		
		1	<i>Circus cyaneus</i>	eja strnjarica			Z
		1	<i>Dendrocopos leucotos</i>	planinski djetlić	G		
		1	<i>Emberiza hortulana</i>	vrtna strnadica	G		
		1	<i>Falco peregrinus</i>	sivi sokol	G		
		1	<i>Lanius collurio</i>	rusi svračak	G		



Identification of areas	Name	Category for the target type	Scientific name	Croatian name	Status (G= nesting P = migratory Z = birds wintering)		
		1	<i>Lanius minor</i>	sivi svračak	G		
		1	<i>Lullula arborea</i>	ševa krunica	G		
		1	<i>Sylvia nisoria</i>	pjegava grmuša	G		
		1	<i>Eremophila alpestris</i>	planinska ševa	G		
HR1000029	Cetina	1	<i>Acrocephalus melanopogon</i>	crnoprugasti trstenjak	G		Z
		1	<i>Actitis hypoleucos</i>	mala prutka	G		
		1	<i>Alcedo atthis</i>	vodomar	G		
		1	<i>Alectoris graeca</i>	jarebica kamenjarka	G		
		1	<i>Anthus campestris</i>	primorska trepteljka	G		
		1	<i>Bubo bubo</i>	ušara	G		
		1	<i>Burhinus oedicephalus</i>	ćukavica	G		
		1	<i>Calandrella brachydactyla</i>	kratkoprsta ševa	G		
		1	<i>Caprimulgus europaeus</i>	leganj	G		
		1	<i>Circaetus gallicus</i>	zmijar	G		
		1	<i>Circus aeruginosus</i>	eja močvarica	G		Z
		1	<i>Circus cyaneus</i>	eja strnjarica			Z
		1	<i>Circus pygargus</i>	eja livadarka	G		
		1	<i>Crex crex</i>	kosac	G		

Identification of areas	Name	Category for the target type	Scientific name	Croatian name	Status (G= nesting P = migratory Z = birds wintering)		
		1	<i>Falco columbarius</i>	mali sokol			Z
		1	<i>Falco peregrinus</i>	sivi sokol	G		
		1	<i>Falco vespertinus</i>	crvenonoga vjetruša		P	
		1	<i>Grus grus</i>	ždral		P	
		1	<i>Ixobrychus minutus</i>	čapljica voljak	G		
		1	<i>Lanius collurio</i>	rusi svračak	G		
		1	<i>Lanius minor</i>	sivi svračak	G		
		1	<i>Lullula arborea</i>	ševa krunica	G		
		1	<i>Mergus merganser</i>	veliki ronac	G		
		1	<i>Pernis apivorus</i>	škanjac osaš	G		
		1	<i>Sylvia nisoria</i>	pjegava grmuša	G		
		1	<i>Tringa totanus</i>	crvenonoga prutka	G		
		2	<b>značajne negniježdeće (selidbene) populacije ptica</b> (divlja patka <i>Anas platyrhynchos</i> , glavata patka <i>Aythya ferina</i> , patka batoglavica <i>Bucephala clangula</i> , vivak <i>Vanellus vanellus</i> )				
HR1000030	Biokovo i Rilić	1	<i>Alectoris graeca</i>	jarebica kamenjarka	G		
		1	<i>Anthus campestris</i>	primorska trepteljka	G		
		1	<i>Aquila chrysaetos</i>	suri orao	G		
		1	<i>Bubo bubo</i>	ušara	G		
HR1000030	Biokovo i Rilić	1	<i>Caprimulgus europaeus</i>	leganj	G		
		1	<i>Circaetus gallicus</i>	zmijar	G		
		1	<i>Circus cyaneus</i>	eja strnjara			Z

Identification of areas	Name	Category for the target type	Scientific name	Croatian name	Status (G= nesting P = migratory Z = birds wintering)		
		1	<i>Dendrocopos leucotos</i>	planinski djetlić	G		
		1	<i>Dryocopus martius</i>	crna žuna	G		
		1	<i>Emberiza hortulana</i>	vrtna strnadica	G		
		1	<i>Falco peregrinus</i>	sivi sokol	G		
		1	<i>Grus grus</i>	ždral		P	
		1	<i>Lanius collurio</i>	rusi svračak	G		
		1	<i>Lullula arborea</i>	ševa krunica	G		
		1	<i>Pernis apivorus</i>	škanjac osaš		P	
		1	<i>Picus canus</i>	siva žuna	G		
HR1000031	Delta Neretve	1	<i>Acrocephalus melanopogon</i>	crnoprugasti trstenjak	G		Z
		1	<i>Alcedo atthis</i>	vodomar	G		Z
		1	<i>Alectoris graeca</i>	jarebica kamenjarka	G		
		1	<i>Anthus campestris</i>	primorska trepteljka	G		
		1	<i>Ardea purpurea</i>	čaplja danguba		P	
		1	<i>Ardeola ralloides</i>	žuta čaplja		P	
		1	<i>Aythya nyroca</i>	patka njorka	G		
		1	<i>Botaurus stellaris</i>	bukavac	G	P	Z
		1	<i>Bubo bubo</i>	ušara	G		
		1	<i>Calidris alpina</i>	žalar cirikavac			Z

Identification of areas	Name	Category for the target type	Scientific name	Croatian name	Status (G= nesting P = migratory Z = birds wintering)		
		1	<i>Caprimulgus europaeus</i>	leganj	G		
		1	<i>Casmerodius albus</i>	velika bijela čaplja		P	Z
		1	<i>Charadrius alexandrinus</i>	morski kulik	G		
		1	<i>Chlidonias niger</i>	crna čigra		P	
		1	<i>Circaetus gallicus</i>	zmijar	G		
		1	<i>Circus aeruginosus</i>	eja močvarica	G		Z
		1	<i>Circus cyaneus</i>	eja strnjarica			Z
		1	<i>Egretta garzetta</i>	mala bijela čaplja		P	Z
		1	<i>Falco columbarius</i>	mali sokol			Z
		1	<i>Grus grus</i>	ždral		P	
HR1000031	Delta Neretve	1	<i>Haematopus ostralegus</i>	oštrigar		P	
		1	<i>Himantopus himantopus</i>	vlastelica	G	P	
		1	<i>Ixobrychus minutus</i>	čapljica voljak	G	P	
		1	<i>Lanius collurio</i>	rusi svračak	G		
		1	<i>Lanius minor</i>	sivi svračak	G		
		1	<i>Larus melanocephalus</i>	crnoglavi galeb		P	
		1	<i>Larus minutus</i>	mali galeb			Z

Identification of areas	Name	Category for the target type	Scientific name	Croatian name	Status (G= nesting P = migratory Z = birds wintering)		
		1	<i>Luscinia svecica</i>	modrovoljka		P	
		1	<i>Lymnocyptes minimus</i>	mala šljuka			Z
		1	<i>Melanocorypha calandra</i>	velika ševa	G		
		1	<i>Numenius arquata</i>	veliki pozviždač		P	Z
		1	<i>Numenius phaeopus</i>	prugasti pozviždač		P	
		1	<i>Nycticorax nycticorax</i>	gak		P	
		1	<i>Pandion haliaetus</i>	bukoč		P	
		1	<i>Panurus biarmicus</i>	brkata sjenica	G		
		1	<i>Phalacrocorax pygmaeus</i>	mali vranac	G\$	P	Z
		1	<i>Philomachus pugnax</i>	pršljivac		P	
		1	<i>Platalea leucorodia</i>	žličarka		P	
		1	<i>Pluvialis squatarola</i>	zlatar pijukavac			Z
		1	<i>Porzana parva</i>	siva štijoka	G	P	Z
		1	<i>Porzana porzana</i>	riđa štijoka	G	P	Z
		1	<i>Porzana pusilla</i>	mala štijoka	G		
		1	<i>Sterna hirundo</i>	crvenokljuna čigra	G		
		1	<i>Sterna sandvicensis</i>	dugokljuna čigra			Z

Identification of areas	Name	Category for the target type	Scientific name	Croatian name	Status (G= nesting P = migritory Z = birds wintering)		
		1	<i>Tringa glareola</i>	prutka migavica		P	
HR1000031	Delta Neretve	2	značajne negnijezdeće (selidbene) populacije ptica (patka lastarka <i>Anas acuta</i> , patka žličarka <i>Anas clypeata</i> , kržulja <i>Anas crecca</i> , zviždara <i>Anas penelope</i> , divlja patka <i>Anas platyrrhynchos</i> , patka pupčanica <i>Anas querquedula</i> , patka kreketaljka <i>Anas strepera</i> , glavata patka <i>Aythya ferina</i> , krunata patka <i>Aythya fuligula</i> , patka batoglavica <i>Bucephala clangula</i> , liska <i>Fulica atra</i> , šljuka kokošica <i>Gallinago gallinago</i> , crnorepa muljača <i>Limosa limosa</i> , mali ronac <i>Mergus serrator</i> , patka gogoljica <i>Netta rufina</i> , kokošica <i>Rallus aquaticus</i> , crna prutka <i>Tringa erythropus</i> , krivokljuna prutka <i>Tringa nebularia</i> , crvenonoga prutka <i>Tringa totanus</i> , oštrigar <i>Haematopus ostralegus</i> , veliki pozviždač <i>Numenius arquata</i> , prugasti pozviždač <i>Numenius phaeopus</i> , zlatar pijukavac <i>Pluvialis squatarola</i> )				
		GŠ – tijekom sezone gniježđenja u Delti Neretve se redovito hrane ptice koje gnijezde u Hutovom blatu u BiH					
HR1000032	Akvtorij zapadne Istre	1	<i>Gavia arctica</i>	crnogri plijenor			Z
		1	<i>Gavia stellata</i>	crvenogri plijenor			Z
		1	<i>Phalacrocorax aristotelis desmarestii</i>	morski vranac	G		
		1	<i>Sterna hirundo</i>	crvenokljuna čigra	G		
		1	<i>Sterna sandvicensis</i>	dugokljuna čigra			Z
		1	<i>Alcedo atthis</i>	vodomar			Z
HR1000033	Kvarnerski otoci	1	<i>Alcedo atthis</i>	vodomar			Z
		1	<i>Alectoris graeca</i>	jarebica kamenjarka	G		
		1	<i>Anthus campestris</i>	primorska trepteljka	G		
		1	<i>Aquila chrysaetos</i>	suri orao	G		
		1	<i>Botaurus stellaris</i>	bukavac		P	

Identification of areas	Name	Category for the target type	Scientific name	Croatian name	Status (G= nesting P = migratory Z = birds wintering)		
		1	<i>Bubo bubo</i>	ušara	G		
		1	<i>Burhinus oedicnemus</i>	ćukavica	G		
		1	<i>Calandrella brachydactyla</i>	kratkoprsta ševa	G		
		1	<i>Caprimulgus europaeus</i>	leganj	G		
		1	<i>Circaetus gallicus</i>	zmijar	G		
		1	<i>Circus cyaneus</i>	eja strnjara			Z
		1	<i>Dryocopus martius</i>	crna žuna	G		
		1	<i>Egretta garzetta</i>	mala bijela čaplja		P	
		1	<i>Falco columbarius</i>	mali sokol			Z
		1	<i>Falco naumanni</i>	bjelonokta vjetruša	G		
		1	<i>Falco peregrinus</i>	sivi sokol	G		
		1	<i>Falco vespertinus</i>	crvenonoga vjetruša		P	
		1	<i>Gavia arctica</i>	crnogri plijenor			Z
		1	<i>Gavia stellata</i>	crvenogri plijenor			Z
		1	<i>Grus grus</i>	ždral		P	
		1	<i>Gyps fulvus</i>	bjeloglavi sup	G		
		1	<i>Ixobrychus minutus</i>	čaplja voljak	G	P	
		1	<i>Lanius collurio</i>	rusi svračak	G		
		1	<i>Lanius minor</i>	sivi svračak	G		

Identification of areas	Name	Category for the target type	Scientific name	Croatian name	Status (G= nesting P = migratory Z = birds wintering)		
		1	<i>Lullula arborea</i>	ševa krunica	G		
		1	<i>Lymnocyptes minimus</i>	mala šljuka			Z
HR1000033	Kvarnerski otoci	1	<i>Pernis apivorus</i>	škanjac osaš	G	P	
		1	<i>Phalacrocorax aristotelis desmarestii</i>	morski vranac	G		
		1	<i>Porzana parva</i>	siva štijoka		P	
		1	<i>Porzana porzana</i>	riđa štijoka		P	
		1	<i>Sterna albifrons</i>	mala čigra	G		
		1	<i>Sterna hirundo</i>	crvenokljuna čigra	G		
		1	<i>Sterna sandvicensis</i>	dugokljuna čigra			Z
		2	<b>značajne negnijezdeće (selidbene) populacije ptica</b> (kokošica <i>Rallus aquaticus</i> )				
HR1000034	S dio zadarskog arhipelaga	1	<i>Alectoris graeca</i>	jarebica kamenjarka	G		
		1	<i>Anthus campestris</i>	primorska trepteljka	G		
		1	<i>Caprimulgus europaeus</i>	leganj	G		
		1	<i>Falco peregrinus</i>	sivi sokol	G		
		1	<i>Gavia arctica</i>	crnogri plijenor			Z
		1	<i>Lanius collurio</i>	rusi svračak	G		



Identification of areas	Name	Category for the target type	Scientific name	Croatian name	Status (G= nesting P = migratory Z = birds wintering)		
		1	<i>Phalacrocorax aristotelis desmarestii</i>	morski vranac	G		
		1	<i>Sterna albifrons</i>	mala čigra	G		
		1	<i>Sterna hirundo</i>	crvenokljuna čigra	G		
		1	<i>Sterna sandvicensis</i>	dugokljuna čigra			Z
HR1000035	NP Kornati i PP Telaščica	1	<i>Alectoris graeca</i>	jarebica kamenjarka	G		
		1	<i>Anthus campestris</i>	primorska trepteljka	G		
		1	<i>Bubo bubo</i>	ušara	G		
		1	<i>Caprimulgus europaeus</i>	leganj	G		
		1	<i>Circaetus gallicus</i>	zmijar	G		
		1	<i>Circus cyaneus</i>	eja strnjarka			Z
		1	<i>Falco columbarius</i>	mali sokol			Z
		1	<i>Falco peregrinus</i>	sivi sokol	G		
		1	<i>Gavia arctica</i>	crnogri plijenor			Z
		1	<i>Lanius collurio</i>	rusi svračak	G		
		1	<i>Lanius minor</i>	sivi svračak	G		
		1	<i>Phalacrocorax aristotelis desmarestii</i>	morski vranac	G		
HR1000036	Srednjedalmatinski	1	<i>Alectoris graeca</i>	jarebica kamenjarka	G		

Identification of areas	Name	Category for the target type	Scientific name	Croatian name	Status (G= nesting P = migratory Z = birds wintering)		
	otoci i Pelješac	1	<i>Anthus campestris</i>	primorska trepteljka	G		
HR1000036	Srednjedalmatinski otoci i Pelješac	1	<i>Aquila chrysaetos</i>	suri orao	G		
		1	<i>Bubo bubo</i>	ušara	G		
		1	<i>Caprimulgus europaeus</i>	leganj	G		
		1	<i>Circaetus gallicus</i>	zmijar	G		
		1	<i>Circus cyaneus</i>	eja strnjara			Z
		1	<i>Falco columbarius</i>	mali sokol			Z
		1	<i>Falco peregrinus</i>	sivi sokol	G		
		1	<i>Gavia arctica</i>	crnogri plijenor			Z
		1	<i>Gavia stellata</i>	crvenogri plijenor			Z
		1	<i>Grus grus</i>	ždral		P	
		1	<i>Hippolais olivetorum</i>	voljić maslinar	G		
		1	<i>Lanius collurio</i>	rusi svračak	G		
		1	<i>Larus audouinii</i>	sredozemni galeb	G		
		1	<i>Lullula arborea</i>	ševa krunica	G		
		1	<i>Pernis apivorus</i>	škanjac osaš		P	
		1	<i>Phalacrocorax aristotelis desmarestii</i>	morski vranac	G		
		1	<i>Sterna hirundo</i>	crvenokljuna čigra	G		

Identification of areas	Name	Category for the target type	Scientific name	Croatian name	Status (G= nesting P = migratory Z = birds wintering)		
		1	<i>Sterna sandvicensis</i>	dugokljuna čigra			Z
HR1000037	SZ dio NP Mljet	1	<i>Falco peregrinus</i>	sivi sokol	G		
		1	<i>Larus audouinii</i>	sredozemni galeb	G		
		1	<i>Phalacrocorax aristotelis desmarestii</i>	morski vranac	G		
HR1000038	Lastovsko otočje	1	<i>Anthus campestris</i>	primorska trepteljka	G		
		1	<i>Calonectris diomedea</i>	veliki zovoj	G		
		1	<i>Caprimulgus europaeus</i>	leganj	G		
		1	<i>Circaetus gallicus</i>	zmijar	G		
		1	<i>Falco peregrinus</i>	sivi sokol	G		
		1	<i>Grus grus</i>	ždral		P	
		1	<i>Hippolais olivetorum</i>	voljić maslinar	G		
		1	<i>Lanius collurio</i>	rusi svračak	G		
		1	<i>Larus audouinii</i>	sredozemni galeb	G		
		1	<i>Pernis apivorus</i>	škanjac osaš		P	
		1	<i>Phalacrocorax aristotelis desmarestii</i>	morski vranac	G		

Identification of areas	Name	Category for the target type	Scientific name	Croatian name	Status (G= nesting P = migratory Z = birds wintering)		
		1	<i>Puffinus yelkouan</i>	gregula	G		
HR1000039	Pučinski otoci	1	<i>Calonectris diomedea</i>	veliki zovoj	G		
		1	<i>Caprimulgus europaeus</i>	leganj	G		
		1	<i>Circaetus gallicus</i>	zmijar	G		
		1	<i>Circus cyaneus</i>	eja strnjarica			Z
		1	<i>Falco eleonora</i>	Eleonorin sokol	G		
		1	<i>Falco peregrinus</i>	sivi sokol	G		
		1	<i>Grus grus</i>	ždral		P	
		1	<i>Lanius collurio</i>	rusi svračak	G		
		1	<i>Pernis apivorus</i>	škanjac osaš		P	
		1	<i>Phalacrocorax aristotelis desmarestii</i>	morski vranac	G		
		1	<i>Puffinus yelkouan</i>	gregula	G		
HR1000040	Papuk	1	<i>Ciconia nigra</i>	crna roda	G		
		1	<i>Crex crex</i>	kosac	G		
		1	<i>Dendrocopos leucotos</i>	planinski djetlić	G		
		1	<i>Dendrocopos medius</i>	crvenoglavi djetlić	G		

Identification of areas	Name	Category for the target type	Scientific name	Croatian name	Status (G= nesting P = migratory Z = birds wintering)		
		1	<i>Dryocopus martius</i>	crna žuna	G		
		1	<i>Ficedula albicollis</i>	bjelovrata muharica	G		
		1	<i>Ficedula parva</i>	mala muharica	G		
		1	<i>Hieraaetus pennatus</i>	patuljasti orao	G		
		1	<i>Pernis apivorus</i>	škanjac osaš	G		
		1	<i>Picus canus</i>	siva žuna	G		
		1	<i>Columba oenas</i>	golub dupljaš	G		

Table 6: Sites of Community Interest

Idendification No	Name	Common name of species	The scientific name of the species / habitat type code
HR2000004	Baraćeve špilja donja	Caves and pits closed to the public	8310
HR2000006	Bazgovača jama	Caves and pits closed to the public	8310
HR2000007	Betina velika jama	Caves and pits closed to the public	8310
HR2000011	Budina špilja	Caves and pits closed to the public	8310
HR2000018	Činjadra špilja	Caves and pits closed to the public	8310
HR2000019	Čočina jama	Caves and pits closed to the public	8310
HR2000020	Područje oko Čulumove pećine	Blasius' horseshoe bat	<i>Rhinolophus blasii</i>
		Mediterranean horseshoe bat	<i>Rhinolophus euryale</i>
		Greater horseshoe bat	<i>Rhinolophus ferrumequinum</i>
		Lesser horseshoe bat	<i>Rhinolophus hipposideros</i>
		Lesser mouse-eared bat	<i>Myotis blythii</i>
		Schreiber's Bat	<i>Miniopterus schreibersii</i>
		Long-fingered bat	<i>Myotis capaccinii</i>
		Greater mouse-eared bat	<i>Myotis myotis</i>
		Caves and pits closed to the public	8310
HR2000021	Dobra jama	Caves and pits closed to the public	8310
HR2000022	Dragića špilja II	Caves and pits closed to the public	8310
HR2000026	Dumenčića špilja	Caves and pits closed to the public	8310
HR2000030	Đutno špilja	Caves and pits closed to the public	8310
HR2000031	Golubinka kod Vučevice	Caves and pits closed to the public	8310

Idendification No	Name	Common name of species	The scientific name of the species / habitat type code
HR2000034	Gotovž	Caves and pits closed to the public	8310
HR2000038	Grota špilja	Caves and pits closed to the public	8310
HR2000050	Jama na Visokoj	Caves and pits closed to the public	8310
HR2000051	Jama nad Zasten	Leptodirus	<i>Leptodirus hochenwarti</i>
		Caves and pits closed to the public	8310
HR2000053	Jama pod Malim Kraljevcem	Caves and pits closed to the public	8310
HR2000055	Jama u Kukljici	Caves and pits closed to the public	8310
HR2000056	Jama za Mahrincem	Caves and pits closed to the public	8310
HR2000057	Jazbina jama	Caves and pits closed to the public	8310
HR2000058	Ješkalovica jama	Caves and pits closed to the public	8310
HR2000066	Kukićeva špilja gornja	Caves and pits closed to the public	8310
HR2000072	Ledenička špilja	Caves and pits closed to the public	8310
HR2000078	Luška špilja	Caves and pits closed to the public	8310
HR2000080	Mala Birnjača jama	Caves and pits closed to the public	8310
HR2000083	Markova jama	Greater horseshoe bat	<i>Rhinolophus ferrumequinum</i>
		Lesser mouse-eared bat	<i>Myotis blythii</i>
		Schreiber's Bat	<i>Miniopterus schreibersii</i>
		Greater mouse-eared bat	<i>Myotis myotis</i>
		Caves and pits closed to the public	8310
HR2000084	Markova špilja	Caves and pits closed to the public	8310
HR2000089	Milića špilja	Caves and pits closed to the public	8310

Idendification No	Name	Common name of species	The scientific name of the species / habitat type code
HR2000091	Movrica špilja	Caves and pits closed to the public	8310
HR2000092	Ostaševica špilja	Schreiber's Bat	<i>Miniopterus schreibersii</i>
		Caves and pits closed to the public	8310
HR2000093	Ostrvička špilja	Caves and pits closed to the public	8310
HR2000094	Ozaljska špilja	Caves and pits closed to the public	8310
HR2000095	Pčelina špilja	Caves and pits closed to the public	8310
HR2000096	Peć u Čulinovim raljevinama	Caves and pits closed to the public	8310
HR2000098	Pećina	Caves and pits closed to the public	8310
HR2000100	Pincinova jama	Proteus	<i>Proteus anguinus</i> *
		Caves and pits closed to the public	8310
HR2000104	Polušpilja kod Sobre	Caves and pits closed to the public	8310
HR2000106	Ponor Ponikve II	Caves and pits closed to the public	8310
HR2000108	Privis jama	Caves and pits closed to the public	8310
HR2000110	Pustinja špilja	Leptodirus	<i>Leptodirus hochenwarti</i>
		Caves and pits closed to the public	8310
HR2000111	Rabakova špilja	Caves and pits closed to the public	8310
HR2000118	Samogradić špilja	Caves and pits closed to the public	8310
HR2000119	Siničić špilja	Caves and pits closed to the public	8310
HR2000120	Sitnica špilja	Caves and pits closed to the public	8310
HR2000131	Škabac špilja	Caves and pits closed to the public	8310
HR2000132	Područje oko špilje Škarin	Mediterranean horseshoe bat	<i>Rhinolophus euryale</i>



Idendification No	Name	Common name of species	The scientific name of the species / habitat type code
	Samograd	Lesser mouse-eared bat	<i>Myotis blythii</i>
		Schreiber's Bat	<i>Miniopterus schreibersii</i>
		Long-fingered bat	<i>Myotis capaccinii</i>
		Greater mouse-eared bat	<i>Myotis myotis</i>
		Adriatic Lizard Orchid	<i>Himantoglossum adriaticum</i>
		Dalmatian Ringlet	<i>Proterebia afra dalmata</i>
		Caves and pits closed to the public	8310
		Eastern sub-mediterranean dry grasslands (Scorzoneratalia villosae)	62A0
HR2000135	Špilja iznad Velikog bresta	Caves and pits closed to the public	8310
HR2000141	Gorska jama	Caves and pits closed to the public	8310
HR2000146	Velika špilja u Peranima	Caves and pits closed to the public	8310
HR2000147	Špilja na Gradini kod Premanture	Caves and pits closed to the public	8310
HR2000149	Špilja kod Stare Sušice	Caves and pits closed to the public	8310
HR2000152	Špilja kod Vilišnice	Schreiber's Bat	<i>Miniopterus schreibersii</i>
		Greater mouse-eared bat	<i>Myotis myotis</i>
		Greater horseshoe bat	<i>Rhinolophus ferrumequinum</i>
		Caves and pits closed to the public	8310
HR2000165	Špilja pod Kapelu	Caves and pits closed to the public	8310
HR2000166	Špilja pod Krugom	Caves and pits closed to the public	8310
HR2000171	Tabaina špilja	Caves and pits closed to the public	8310
HR2000172	Špilja u Tankom Ratcu	Caves and pits closed to the public	8310

Idendification No	Name	Common name of species	The scientific name of the species / habitat type code
HR2000174	Trbušnjak – Rastik	Lesser horseshoe bat	<i>Rhinolophus hipposideros</i>
		Greater horseshoe bat	<i>Rhinolophus ferrumequinum</i>
		Schreiber's Bat	<i>Miniopterus schreibersii</i>
		Greater mouse-eared bat	<i>Myotis myotis</i>
		Caves and pits closed to the public	8310
HR2000175	Trogrlo	Caves and pits closed to the public	8310
HR2000176	Trojama	Caves and pits closed to the public	8310
HR2000179	Velika špilja kod Antunovića	Caves and pits closed to the public	8310
HR2000180	Velika špilja	Caves and pits closed to the public	8310
HR2000182	Velika špilja kod Neorića	Caves and pits closed to the public	8310
HR2000186	Vilina špilja	Caves and pits closed to the public	8310
HR2000190	Vlaška peć	Caves and pits closed to the public	8310
HR2000194	Vranjača jama kod Trilja	Caves and pits closed to the public	8310
HR2000200	Zagorska peć kod Novog Vinodolskog	Mediterranean horseshoe bat	<i>Rhinolophus euryale</i>
		Greater horseshoe bat	<i>Rhinolophus ferrumequinum</i>
		Lesser mouse-eared bat	<i>Myotis blythii</i>
		Schreiber's Bat	<i>Miniopterus schreibersii</i>
		Long-fingered bat	<i>Myotis capaccinii</i>
		Caves and pits closed to the public	8310
HR2000205	Zubanova jama	Caves and pits closed to the public	8310
HR2000206	Žejava jama	Caves and pits closed to the public	8310

Idendification No	Name	Common name of species	The scientific name of the species / habitat type code
HR2000234	Draganićka šuma – Ješevica 1	Natural eutrophic lakes with Magnopotamion or Hydrocharition -type vegetation	3150
		Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> ( <i>Alno-Padion</i> , <i>Alnion incanae</i> , <i>Salicion albae</i> )	91E0*
HR2000364	Mura	Green Snaketail	<i>Ophiogomphus cecilia</i>
		Weather-fish	<i>Misgurnus fossilis</i>
		Streber	<i>Zingel streber</i>
		Fire-bellied toad	<i>Bombina bombina</i>
		European pond terrapin	<i>Emys orbicularis</i>
		Barbastelle Bat	<i>Barbastella barbastellus</i>
		Bechstein's bat	<i>Myotis bechsteinii</i>
		European beaver	<i>Castor fiber</i>
		Eurasian otter	<i>Lutra lutra</i>
		European Mud-minnow	<i>Umbra krameri</i>
		Ornate Bluet	<i>Coenagrion ornatum</i>
		Ramshorn snail	<i>Anisus vorticulus</i>
		loach	<i>Cobitis elongatoides</i>
		bjeloperajna krkuš	<i>Romanogobio vladkovi</i>
		Kessler's gudgeon	<i>Romanogobio kessleri</i>
		Danube Gudgeon	<i>Romanogobio uranoscopus</i>

Idendification No	Name	Common name of species	The scientific name of the species / habitat type code
		Natural eutrophic lakes with Magnopotamion or Hydrocharition -type vegetation	3150
		Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae)	91E0*
		Lowland hay meadows (Alopecurus pratensis, Sanguisorba officinalis)	6510
		Sub-Atlantic and medio-European oak or oak-hornbeam forests of the Carpinion betuli	9160
HR2000368	Peteranec	veliki livadni plavac	<i>Maculinea telejus</i>
		Lowland hay meadows (Alopecurus pratensis, Sanguisorba officinalis)	6510
HR2000369	Vršni dio Ravne gore	Stag Beetle	<i>Lucanus cervus</i>
		Yellow-bellied toad	<i>Bombina variegata</i>
		gorski potočar	<i>Cordulegaster heros</i>
		Caves and pits closed to the public	8310
HR2000371	Vršni dio Ivančice	Large Copper	<i>Lycaena dispar</i>
		alpinska strizibuba	<i>Rosalia alpina</i> *
		Bechstein's bat	<i>Myotis bechsteinii</i>
		modra sasa	<i>Pulsatilla vulgaris ssp. grandis</i>
		Fenton's Wood White	<i>Leptidea morsei</i>
		gorski potočar	<i>Cordulegaster heros</i>
		Jersey Tiger	<i>Euplagia quadripunctaria</i> *

Idendification No	Name	Common name of species	The scientific name of the species / habitat type code
		Tilio-Acerion forests of slopes, screes and ravines	9180*
		Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) (* important orchid sites)	6210*
HR2000372	Dunav – Vukovar	Green Snaketail	<i>Ophiogomphus cecilia</i>
		Large Copper	<i>Lycaena dispar</i>
		Water Beetle	<i>Graphoderus bilineatus</i>
		Asp	<i>Aspius aspius</i>
		Striped Ruffe	<i>Gymnocephalus schraetser</i>
		Zingel	<i>Zingel zingel</i>
		Eurasian otter	<i>Lutra lutra</i>
		Ukrainian Brook Lamprey	<i>Eudontomyzon mariae</i>
		sabljarka	<i>Razorfish</i>
		Balon's Ruffe	<i>Gymnocephalus baloni</i>
		Rivers with muddy banks with <i>Chenopodium rubri</i> pp and <i>Bidenton</i> pp vegetation	3270
		Pannonic loess steppic grasslands	6250*
		Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> (Alno-Padion, <i>Alnion incanae</i> , <i>Salicion albae</i> )	91E0*
		Sub-Pannonic steppic grasslands	6240*
HR2000394	Kopački rit	Green Snaketail	<i>Ophiogomphus cecilia</i>
		Yellow-spotted Whiteface	<i>Leucorrhinia pectoralis</i>

Idendification No	Name	Common name of species	The scientific name of the species / habitat type code
		Large Copper	<i>Lycaena dispar</i>
		Water Beetle	<i>Graphoderus bilineatus</i>
		Stag Beetle	<i>Lucanus cervus</i>
		Asp	<i>Aspius aspius</i>
		Weather-fish	<i>Misgurnus fossilis</i>
		Striped Ruffe	<i>Gymnocephalus schraetser</i>
		Zingel	<i>Zingel zingel</i>
		Fire-bellied toad	<i>Bombina bombina</i>
		European pond terrapin	<i>Emys orbicularis</i>
		Eurasian otter	<i>Lutra lutra</i>
		četverolisna raznorotka	<i>Marsilea quadrifolia</i>
		N/A	<i>Triturus dobrogicus</i>
		Ukranian Brook Lamprey	<i>Eudontomyzon mariae</i>
		sabljarka	<i>Razorfish</i>
		Balon's Ruffe	<i>Gymnocephalus baloni</i>
		Ornate Bluet	<i>Coenagrion ornatum</i>
		bjeloperajna krkuš	<i>Romanogobio vladikov</i>
		gavčica	<i>Rhodeus amarus</i>
		Jersey Tiger	<i>Euplagia quadripunctaria*</i>
		Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> (Alno-Padion, <i>Alnion incanae</i> , <i>Salicion albae</i> )	91E0*

Idendification No	Name	Common name of species	The scientific name of the species / habitat type code
		Alluvial meadows of river valleys of the Cnidion dubii	6440
		Riparian mixed forests of Quercus robur, Ulmus laevis and Ulmus minor, Fraxinus excelsior or Fraxinus angustifolia, along the great rivers (Ulmenion minoris)	91F0
		Amphibious habitat Isoëto-Nanojuncetea	3130
		Natural eutrophic lakes with Magnopotamion or Hydrocharition -type vegetation	3150
HR2000415	Odransko polje	četverolisna raznorotka	<i>Marsilea quadrifolia</i>
		Large Copper	<i>Lycaena dispar</i>
		Marsh Fritillary	<i>Euphydryas aurinia</i>
		Water Beetle	<i>Graphoderus bilineatus</i>
		Stag Beetle	<i>Lucanus cervus</i>
		hrastova strizibuba	<i>Cerambyx cerdo</i>
		N/A	<i>Triturus carnifex</i>
		Fire-bellied toad	<i>Bombina bombina</i>
		Yellow-bellied toad	<i>Bombina variegata</i>
		European pond terrapin	<i>Emys orbicularis</i>
		Barbastelle Bat	<i>Barbastella barbastellus</i>
		Geoffroy's bat	<i>Myotis emarginatus</i>
		Greater horseshoe bat	<i>Rhinolophus ferrumequinum</i>
		European beaver	<i>Castor fiber</i>
		Eurasian otter	<i>Lutra lutra</i>

Idendification No	Name	Common name of species	The scientific name of the species / habitat type code
		N/A	<i>Triturus dobrogicus</i>
		Lowland hay meadows ( <i>Alopecurus pratensis</i> , <i>Sanguisorba officinalis</i> )	6510
		Amphibious habitat Isoëto-Nanojuncetea	3130
		Natural eutrophic lakes with Magnopotamion or Hydrocharition -type vegetation	3150
		Sub-Atlantic and medio-European oak or oak-hornbeam forests of the Carpinion betuli	9160
		Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> ( <i>Alno-Padion</i> , <i>Alnion incanae</i> , <i>Salicion albae</i> )	91E0*
HR2000416	Lonjsko polje	Yellow-spotted Whiteface	<i>Leucorrhinia pectoralis</i>
		Large Copper	<i>Lycaena dispar</i>
		Large Copper	<i>Lycaena dispar</i>
		Water Beetle	<i>Graphoderus bilineatus</i>
		Stag Beetle	<i>Lucanus cervus</i>
		hrastova strizibuba	<i>Cerambyx cerdo</i>
		Weather-fish	<i>Misgurnus fossilis</i>
		N/A	<i>Triturus carnifex</i>
		Fire-bellied toad	<i>Bombina bombina</i>
		European pond terrapin	<i>Emys orbicularis</i>
		Barbastelle Bat	<i>Barbastella barbastellus</i>
		European beaver	<i>Castor fiber</i>



Idendification No	Name	Common name of species	The scientific name of the species / habitat type code
		Eurasian otter	<i>Lutra lutra</i>
		četverolisna raznorotka	<i>Marsilea quadrifolia</i>
		N/A	<i>Triturus dobrogicus</i>
		loach	<i>Cobitis elongatoides</i>
		gavčica	<i>Rhodeus amarus</i>
		Natural eutrophic lakes with Magnopotamion or Hydrocharition -type vegetation	3150
		Riparian mixed forests of Quercus robur, Ulmus laevis and Ulmus minor, Fraxinus excelsior or Fraxinus angustifolia, along the great rivers (Ulmenion minoris)	91F0
		Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae)	91E0*
		Sub-Atlantic and medio-European oak or oak-hornbeam forests of the Carpinion betuli	9160
		Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels (Convolvulion sepii, Filipendulion, Senecion fluviatilis)	6430
		Amphibious habitat Isoëto-Nanojuncetea	3130
		Lowland hay meadows (Alopecurus pratensis, Sanguisorba officinalis)	6510
HR2000420	Sunjsko polje	Yellow-spotted Whiteface	<i>Leucorrhinia pectoralis</i>
		Water Beetle	<i>Graphoderus bilineatus</i>
		Eurasian otter	<i>Lutra lutra</i>

Idendification No	Name	Common name of species	The scientific name of the species / habitat type code
		četverolisna raznorotka	<i>Marsilea quadrifolia</i>
		Sub-Atlantic and medio-European oak or oak-hornbeam forests of the Carpinion betuli	9160
		Natural eutrophic lakes with Magnopotamion or Hydrocharition -type vegetation	3150
		Amphibious habitat Isoëto-Nanojuncetea	3130
		Lowland hay meadows (Alopecurus pratensis, Sanguisorba officinalis)	6510
		Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae)	91E0*
HR2000426	Dvorina	Fire-bellied toad	<i>Bombina bombina</i>
		N/A	<i>Triturus dobrogicus</i>
		Amphibious habitat Isoëto-Nanojuncetea	3130
		Natural eutrophic lakes with Magnopotamion or Hydrocharition -type vegetation	3150
		Lowland hay meadows (Alopecurus pratensis, Sanguisorba officinalis)	6510
HR2000427	Gajna	četverolisna raznorotka	<i>Marsilea quadrifolia</i>
		Amphibious habitat Isoëto-Nanojuncetea	3130
		Natural eutrophic lakes with Magnopotamion or Hydrocharition -type vegetation	3150
HR2000437	Ribnjaci Končanica	Fire-bellied toad	<i>Bombina bombina</i>
		Yellow-bellied toad	<i>Bombina variegata</i>

Idendification No	Name	Common name of species	The scientific name of the species / habitat type code
		European pond terrapin	<i>Emys orbicularis</i>
		Eurasian otter	<i>Lutra lutra</i>
		Amphibious habitat Isoëto-Nanojuncetea	3130
HR2000438	Ribnjaci Poljana	Eurasian otter	<i>Lutra lutra</i>
		Amphibious habitat Isoëto-Nanojuncetea	3130
HR2000440	Ribnjaci Siščani i Blatnica	Yellow-spotted Whiteface	<i>Leucorrhinia pectoralis</i>
		Fire-bellied toad	<i>Bombina bombina</i>
		Yellow-bellied toad	<i>Bombina variegata</i>
		Eurasian otter	<i>Lutra lutra</i>
		Amphibious habitat Isoëto-Nanojuncetea	3130
HR2000441	Ribnjak Narta	Yellow-spotted Whiteface	<i>Leucorrhinia pectoralis</i>
		Fire-bellied toad	<i>Bombina bombina</i>
		Eurasian otter	<i>Lutra lutra</i>
		četverolisna raznorotka	<i>Marsilea quadrifolia</i>
		Amphibious habitat Isoëto-Nanojuncetea	3130
HR2000444	Varoški Lug	Yellow-spotted Whiteface	<i>Leucorrhinia pectoralis</i>
		Sub-Atlantic and medio-European oak or oak-hornbeam forests of the Carpinion betuli	9160
		Riparian mixed forests of Quercus robur, Ulmus laevis and Ulmus minor, Fraxinus excelsior or Fraxinus angustifolia, along the great rivers (Ulmenion minoris)	91F0

Idendification No	Name	Common name of species	The scientific name of the species / habitat type code
		Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> (Alno-Padion, <i>Alnion incanae</i> , <i>Salicion albae</i> )	91E0*
HR2000447	Nacionalni park Risnjak	Marsh Fritillary	<i>Euphydryas aurinia</i>
		alpinska strizibuba	<i>Rosalia alpina</i> *
		velika četveropjega cvilidreta	<i>Morimus funereus</i>
		potočni rak	<i>Austropotamobius torrentium</i> *
		Wolf	<i>Canis lupus</i> *
		Brown bear	<i>Ursus arctos</i> *
		Lynx	<i>Lynx lynx</i>
		N/A	<i>Eryngium alpinum</i>
		Leptodirus	<i>Leptodirus hochenwarti</i>
		N/A	<i>Arabis scopoliana</i>
		Luzulo-Fagetum beech forests	9110
		Alpine and subalpine calcareous grasslands	6170
		Species-rich <i>Nardus</i> grasslands, on silicious substrates in mountain areas (and submountain areas in Continental Europe)	6230*
		Mountain hay meadows	6520
		Bushes with <i>Pinus mugo</i> and <i>Rhododendron hirsutum</i> ( <i>Mugo-Rhododendretum hirsuti</i> )	4070*
		Illyrian <i>Fagus sylvatica</i> forests ( <i>Aremonio-Fagion</i> )	91K0

Idendification No	Name	Common name of species	The scientific name of the species / habitat type code
		Acidophilous Picea forests of the montane to alpine levels (Vaccinio-Piceetea)	9410
		Caves and pits closed to the public	8310
		Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) (* important orchid sites)	6210*
		European dry heaths	4030
		Alpine and Boreal heaths	4060
		Juniperus communis formations on heaths or calcareous grasslands	5130
		Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae)	91E0*
HR2000449	Ribnjaci Crna Mlaka	Fire-bellied toad	<i>Bombina bombina</i>
		Yellow-bellied toad	<i>Bombina variegata</i>
		European pond terrapin	<i>Emys orbicularis</i>
		Eurasian otter	<i>Lutra lutra</i>
		četverolisna raznorotka	<i>Marsilea quadrifolia</i>
		Amphibious habitat Isoëto-Nanojuncetia	3130
HR2000450	Ribnjaci Draganići	Yellow-spotted Whiteface	<i>Leucorrhinia pectoralis</i>
		European pond terrapin	<i>Emys orbicularis</i>
		Eurasian otter	<i>Lutra lutra</i>
		Amphibious habitat Isoëto-Nanojuncetia	3130
HR2000451	Ribnjaci Pisarovina	European pond terrapin	<i>Emys orbicularis</i>

Idendification No	Name	Common name of species	The scientific name of the species / habitat type code
		Eurasian otter	<i>Lutra lutra</i>
		četverolisna raznorotka	<i>Marsilea quadrifolia</i>
		Amphibious habitat Isoëto-Nanojuncetea	3130
HR2000459	Petrinjšica	Freshwater sculpin	<i>Cottus gobio</i>
		Balkan Loach	<i>Cobitis elongata</i>
		zlatni vijun	<i>Sabanejewia balcanica</i>
		N/A	<i>Barbus balcanicus</i>
		Jersey Tiger	<i>Euplagia quadripunctaria*</i>
		Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> ( <i>Alno-Padion</i> , <i>Alnion incanae</i> , <i>Salicion albae</i> )	91E0*
HR2000463	Dolina Une	Large Copper	<i>Lycaena dispar</i>
		Danube	<i>Hucho hucho</i>
		Streber	<i>Zingel streber</i>
		Geoffroy's bat	<i>Myotis emarginatus</i>
		Greater horseshoe bat	<i>Rhinolophus ferrumequinum</i>
		Balkan Loach	<i>Cobitis elongata</i>
		Balkan Loach	<i>Cobitis elongata</i>
		Ornate Bluet	<i>Coenagrion ornatum</i>
		zlatni vijun	<i>Sabanejewia balcanica</i>
		N/A	<i>Barbus balcanicus</i>
		loach	<i>Cobitis elongatoides</i>

Idendification No	Name	Common name of species	The scientific name of the species / habitat type code
HR2000465	Žutica	N/A	<i>Rutilus virgo</i>
		Kessler's gudgeon	<i>Romanogobio kessleri</i>
		Weather-fish	<i>Misgurnus fossilis</i>
		N/A	<i>Triturus carnifex</i>
		Fire-bellied toad	<i>Bombina bombina</i>
		European pond terrapin	<i>Emys orbicularis</i>
		European beaver	<i>Castor fiber</i>
		Eurasian otter	<i>Lutra lutra</i>
		N/A	<i>Triturus dobrogicus</i>
		European Mud-minnow	<i>Umbra krameri</i>
		Sub-Atlantic and medio-European oak or oak-hornbeam forests of the Carpinion betuli	9160
		Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> (Alno-Padion, Alnion incanae, Salicion albae)	91E0*
		Natural eutrophic lakes with Magnopotamion or Hydrocharition -type vegetation	3150
HR2000470	Čep - Varaždin	Sub-Atlantic and medio-European oak or oak-hornbeam forests of the Carpinion betuli	9160
HR2000488	Južni Dilj	Pannonian woods with <i>Quercus pubescens</i>	91H0*
HR2000521	Brač - Baljenik	(Sub-) Mediterranean pine forests with endemic black pines	9530*
HR2000522	Luka Budava - Istra	<i>Quercus ilex</i> and <i>Quercus rotundifolia</i> forests	9340

Idendification No	Name	Common name of species	The scientific name of the species / habitat type code
HR2000525	Orebić – Osirac	Olea and Ceratonia forests	9320
HR2000526	Oštrica – Šibenik	Arborescent matorral with Juniperus spp	5210
HR2000529	Šaknja rat	Mediterranean pine forests with endemic Mesogean pines	9540
HR2000543	Vlažne livade uz potok Bračana (Žonti)	uskouščani zvrčić	<i>Vertigo angustior</i>
		Large Copper	<i>Lycaena dispar</i>
		False Ringlet	<i>Coenonympha oedippus</i>
		Lowland hay meadows ( <i>Alopecurus pratensis</i> , <i>Sanguisorba officinalis</i> )	6510
HR2000544	Vlažne livade uz potok Malinska	uskouščani zvrčić	<i>Vertigo angustior</i>
		Marsh Fritillary	<i>Euphydryas aurinia</i>
		False Ringlet	<i>Coenonympha oedippus</i>
HR2000545	Vlažne livade kod Marušića	False Ringlet	<i>Coenonympha oedippus</i>
HR2000546	Vlažne livade uz Jugovski potok (Štrcaj)	False Ringlet	<i>Coenonympha oedippus</i>
HR2000555	Lokva u Prljevićima	N/A	<i>Mauremys rivulata</i>
HR2000570	Crni jarki	Large Copper	<i>Lycaena dispar</i>
		Jersey Tiger	<i>Euplagia quadripunctaria</i> *
		Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> (Alno-Padion, <i>Alnion incanae</i> , <i>Salicion albae</i> )	91E0*
HR2000571	Đurđevački peski	Jersey Tiger	<i>Euplagia quadripunctaria</i> *
		Pannonic inland dunes	2340*
		Pannonic sand steppes	6260*



Idendification No	Name	Common name of species	The scientific name of the species / habitat type code
HR2000572	Kloštarski (Kalinovački) peski	Large Copper	<i>Lycaena dispar</i>
		Jersey Tiger	<i>Euplagia quadripunctaria</i> *
		Pannonic inland dunes	2340*
		Pannonic sand steppes	6260*
HR2000573	Petrijevci	Alluvial meadows of river valleys of the Cnidion dubii	6440
		Natural eutrophic lakes with Magnopotamion or Hydrocharition -type vegetation	3150
HR2000580	Papuk	Large Copper	<i>Lycaena dispar</i>
		Stag Beetle	<i>Lucanus cervus</i>
		alpiska strizibuba	<i>Rosalia alpina</i> *
		velika četveropjega cvilidreta	<i>Morimus funereus</i>
		Freshwater sculpin	<i>Cottus gobio</i>
		Yellow-bellied toad	<i>Bombina variegata</i>
		Lesser horseshoe bat	<i>Rhinolophus hipposideros</i>
		Greater horseshoe bat	<i>Rhinolophus ferrumequinum</i>
		Pond bat	<i>Myotis dasycneme</i>
		Bechstein's bat	<i>Myotis bechsteinii</i>
		modra sasa	<i>Pulsatilla vulgaris ssp. grandis</i>
		False Comma	<i>Nymphalis vau album</i> *
		gorski potočar	<i>Cordulegaster heros</i>
		Adriatic Lizard Orchid	<i>Himantoglossum adriaticum</i>

Idendification No	Name	Common name of species	The scientific name of the species / habitat type code
		N/A	<i>Barbus balcanicus</i>
		hermit beetle	<i>Osmoderma eremita</i> *
		Luzulo-Fagetum beech forests	9110
		Illyrian Fagus sylvatica forests (Aremonio-Fagion)	91K0
		Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) (* important orchid sites)	6210*
		Asperulo-Fagetum beech forests	9130
		Illyrian oak-hornbeam forests (Erythronio-carpinion)	91L0
		Pannonian woods with Quercus pubescens	91H0*
		Tilio-Acerion forests of slopes, screes and ravines	9180*
		Molinia meadows on calcareous, peaty or clayey-silt-laden soils (Molinion caeruleae)	6410
		Caves and pits closed to the public	8310
		Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation	3260
		Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels (Convolvulion sepium, Filipendulion, Senecion fluviatilis)	6430
		Pannonian-Balkan turkey oak –sessile oak forests	91M0
		Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae)	91E0*
HR2000583	Medvednica	Marsh Fritillary	<i>Euphydryas aurinia</i>

Idendification No	Name	Common name of species	The scientific name of the species / habitat type code
		Stag Beetle	<i>Lucanus cervus</i>
		alpinska strizibuba	<i>Rosalia alpina</i> *
		velika četveropjega cvilidreta	<i>Morimus funereus</i>
		potočni rak	<i>Austropotamobius torrentium</i> *
		Yellow-bellied toad	<i>Bombina variegata</i>
		Lesser horseshoe bat	<i>Rhinolophus hipposideros</i>
		Greater horseshoe bat	<i>Rhinolophus ferrumequinum</i>
		Mediterranean horseshoe bat	<i>Rhinolophus euryale</i>
		Barbastelle Bat	<i>Barbastella barbastellus</i>
		Schreiber's Bat	<i>Miniopterus schreibersii</i>
		Bechstein's bat	<i>Myotis bechsteinii</i>
		Greater mouse-eared bat	<i>Myotis myotis</i>
		Fenton's Wood White	<i>Leptidea morsei</i>
		gorski potočar	<i>Cordulegaster heros</i>
		N/A	<i>Barbus balcanicus</i>
		hermit beetle	<i>Osmoderma eremita</i> *
		Illyrian oak-hornbeam forests (Erythronio-carpinion)	91L0
		Castanea sativa woods	9260
		Luzulo-Fagetum beech forests	9110
		Illyrian Fagus sylvatica forests (Aremonio-Fagion)	91K0
		Tilio-Acerion forests of slopes, scree and ravines	9180*

Idendification No	Name	Common name of species	The scientific name of the species / habitat type code
HR2000586	Žumberak Samoborsko gorje	Caves and pits closed to the public	8310
		Calcareous rocky slopes with chasmophytic vegetation	8210
		Freshwater sculpin	<i>Cottus gobio</i>
		N/A	<i>Barbus balcanicus</i>
		Marsh Fritillary	<i>Euphydryas aurinia</i>
		Stag Beetle	<i>Lucanus cervus</i>
		velika četveropjega cvilidreta	<i>Morimus funereus</i>
		potočni rak	<i>Austropotamobius torrentium*</i>
		N/A	<i>Triturus carnifex</i>
		Yellow-bellied toad	<i>Bombina variegata</i>
		Greater horseshoe bat	<i>Rhinolophus ferrumequinum</i>
		Lesser horseshoe bat	<i>Rhinolophus hipposideros</i>
		Bechstein's bat	<i>Myotis bechsteinii</i>
		Greater mouse-eared bat	<i>Myotis myotis</i>
		Eurasian otter	<i>Lutra lutra</i>
		Leptodirus	<i>Leptodirus hochenwarti</i>
		Fenton's Wood White	<i>Leptidea morsei</i>
		gorski potočar	<i>Cordulegaster heros</i>
		Adriatic Lizard Orchid	<i>Himantoglossum adriaticum</i>
		hermit beetle	<i>Osmoderma eremita*</i>
		mala svibanjska riđa	<i>Hypodryas maturna</i>

Idendification No	Name	Common name of species	The scientific name of the species / habitat type code
		Jersey Tiger	<i>Euplagia quadripunctaria</i> *
		European dry heaths	4030
		Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) (* important orchid sites)	6210*
		Species-rich Nardus grasslands, on silicious substrates in mountain areas (and submountain areas in Continental Europe)	6230*
		Mountain hay meadows	6520
		Luzulo-Fagetum beech forests	9110
		Illyrian oak-hornbeam forests (Erythronio-carpinion)	91L0
		Illyrian Fagus sylvatica forests (Aremonio-Fagion)	91K0
		Alkaline fens	7230
		Caves and pits closed to the public	8310
		Petrifying springs with tufa formation (Cratoneurion)	7220*
		Lowland hay meadows (Alopecurus pratensis, Sanguisorba officinalis)	6510
		Castanea sativa woods	9260
HR2000589	Stupnički lug	hrastova strizibuba	<i>Cerambyx cerdo</i>
		Sub-Atlantic and medio-European oak or oak-hornbeam forests of the Carpinion betuli	9160
HR2000591	Klek	N/A	<i>Arabis scopoliana</i>
		Calcareous rocky slopes with chasmophytic vegetation	8210

Idendification No	Name	Common name of species	The scientific name of the species / habitat type code
		Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) (* important orchid sites)	6210*
		Lowland hay meadows (Alopecurus pratensis, Sanguisorba officinalis)	6510
		Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels (Convolvulion sepil, Filipendulion, Senecion fluviatilis)	6430
HR2000592	Ogulinsko-plašćansko područje	Marsh Fritillary	<i>Euphydryas aurinia</i>
		potočni rak	<i>Austropotamobius torrentium</i> *
		Proteus	<i>Proteus anguinus</i> *
		Yellow-bellied toad	<i>Bombina variegata</i>
		Greater horseshoe bat	<i>Rhinolophus ferrumequinum</i>
		Mediterranean horseshoe bat	<i>Rhinolophus euryale</i>
		Schreiber's Bat	<i>Miniopterus schreibersii</i>
		Leptodirus	<i>Leptodirus hochenwarti</i>
		Caves and pits closed to the public	8310
		Illyrian oak-hornbeam forests (Erythronio-carpinion)	91L0
HR2000593	Mrežnica – Tounjčica	obična lisanka	<i>Unio crassus</i>
		potočni rak	<i>Austropotamobius torrentium</i> *
		Freshwater sculpin	<i>Cottus gobio</i>
		European beaver	<i>Castor fiber</i>
		Eurasian otter	<i>Lutra lutra</i>
		puzavi celer	<i>Apium repens</i>

Idendification No	Name	Common name of species	The scientific name of the species / habitat type code
		N/A	<i>Barbus balcanicus</i>
		N/A	<i>Rutilus virgo</i>
		Tufa cascades of karstic rivers of the Dinaric Alps	32A0
		Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation	3260
HR2000594	Povremeno jezero Blata	livadni procjepak	<i>Chouardia litardierei</i>
		Turloughs	3180*
		Caves and pits closed to the public	8310
HR2000596	Slunjčica	puzavi celer	<i>Apium repens</i>
		Caves and pits closed to the public	8310
		Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation	3260
		Tufa cascades of karstic rivers of the Dinaric Alps	32A0
HR2000601	Park prirode Učka	Marsh Fritillary	<i>Euphydryas aurinia</i>
		Stag Beetle	<i>Lucanus cervus</i>
		alpiska strizibuba	<i>Rosalia alpina</i> *
		hrastova strizibuba	<i>Cerambyx cerdo</i>
		velika četveropjega cvilidreta	<i>Morimus funereus</i>
		N/A	<i>Triturus carnifex</i>
		Yellow-bellied toad	<i>Bombina variegata</i>
		Bechstein's bat	<i>Myotis bechsteinii</i>

Idendification No	Name	Common name of species	The scientific name of the species / habitat type code
		Lesser horseshoe bat	<i>Rhinolophus hipposideros</i>
		Leptodirus	<i>Leptodirus hochenwarti</i>
		N/A	<i>Carabus nodulosus</i>
		hermit beetle	<i>Osmoderma eremita*</i>
		Jersey Tiger	<i>Euplagia quadripunctaria*</i>
		Illyrian Fagus sylvatica forests (Aremonio-Fagion)	91K0
		Eastern sub-mediterranean dry grasslands (Scorzoneratalia villosae)	62A0
		Calcareous rocky slopes with chasmophytic vegetation	8210
		Castanea sativa woods	9260
		Caves and pits closed to the public	8310
		Eastern Mediterranean screes	8140
		Alpine and subalpine calcareous grasslands	6170
		Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) (* important orchid sites)	6210*
		Species-rich Nardus grasslands, on silicious substrates in mountain areas (and submountain areas in Continental Europe)	6230*
HR2000604	Nacionalni park Brijuni	Submerged or partially submerged sea caves	8330
		Eastern sub-mediterranean dry grasslands (Scorzoneratalia villosae)	62A0
		Posidonia beds (Posidonion oceanicae)	1120*



Idendification No	Name	Common name of species	The scientific name of the species / habitat type code
		Vegetated sea cliffs of the Mediterranean coasts with endemic Limonium spp	1240
HR2000605	Nacionalni park Sjeverni Velebit	velika četveropjega cvilidreta	<i>Morimus funereus</i>
		Barbastelle Bat	<i>Barbastella barbastellus</i>
		Wolf	<i>Canis lupus</i> *
		Brown bear	<i>Ursus arctos</i> *
		Lynx	<i>Lynx lynx</i>
		N/A	<i>Aquilegia kitaibelii</i>
		N/A	<i>Eryngium alpinum</i>
		N/A	<i>Congerius kusceri</i>
		N/A	<i>Arabis scopoliana</i>
		Jersey Tiger	<i>Euplagia quadripunctaria</i> *
		Eastern sub-mediterranean dry grasslands (Scorzonera villosa)	62A0
		Species-rich Nardus grasslands, on siliceous substrates in mountain areas (and submountain areas in Continental Europe)	6230*
		Acidophilous Picea forests of the montane to alpine levels (Vaccinio-Piceetea)	9410
		Calcareous rocky slopes with chasmophytic vegetation	8210
		Illyrian Fagus sylvatica forests (Aremonio-Fagion)	91K0
		Caves and pits closed to the public	8310

Idendification No	Name	Common name of species	The scientific name of the species / habitat type code
HR2000609	Dolina Dretulje	Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) (* important orchid sites)	6210*
		(Sub-) Mediterranean pine forests with endemic black pines	9530*
		puzavi celer	<i>Apium repens</i>
		livadni procjepak	<i>Chouardia litardierei</i>
		Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels (Convolvulion sepil, Filipendulion, Senecion fluviatilis)	6430
		Alkaline fens	7230
		Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation	3260
		Molinia meadows on calcareous, peaty or clayey-silt-laden soils (Molinion caeruleae)	6410
		Lowland hay meadows (Alopecurus pratensis, Sanguisorba officinalis)	6510
		Eastern sub-mediterranean dry grasslands (Scorzoneratalia villosae)	62A0
HR2000616	Donji Kamenjak	Arborescent matorral with Juniperus spp	5210
		Vegetated sea cliffs of the Mediterranean coasts with endemic Limonium spp	1240
		Pseudo-steppe with grasses and annuals of the Thero-Brachypodietea	6220*
HR2000619	Mirna i šire područje Butonige	uskoušćani zvrčić	<i>Vertigo angustior</i>

Idendification No	Name	Common name of species	The scientific name of the species / habitat type code
		trbušasti zvrčić	<i>Vertigo moulinsiana</i>
		Large Copper	<i>Lycaena dispar</i>
		False Ringlet	<i>Coenonympha oedippus</i>
		White-clawed crayfish	<i>Austropotamobius pallipes</i>
		Italian Barbel	<i>Barbus plebejus</i>
		Yellow-bellied toad	<i>Bombina variegata</i>
		Italian agile frog	<i>Rana latastei</i>
		European pond terrapin	<i>Emys orbicularis</i>
		N/A	<i>Alburnus arborella</i>
		Lowland hay meadows ( <i>Alopecurus pratensis</i> , <i>Sanguisorba officinalis</i> )	6510
HR2000623	Šume na Dilj gori	Sub-Atlantic and medio-European oak or oak-hornbeam forests of the Carpinion betuli	9160
		gorski potočar	<i>Cordulegaster heros</i>
		Jersey Tiger	<i>Euplagia quadripunctaria*</i>
		Illyrian oak-hornbeam forests ( <i>Erythronio-carpinion</i> )	91L0
		Pannonian-Balkan turkey oak –sessile oak forests	91M0
HR2000629	Limski zaljev – kopno	Pannonian woods with <i>Quercus pubescens</i>	91H0*
		Calcareous rocky slopes with chasmophytic vegetation	8210
HR2000632	Krbavsko polje	Marsh Fritillary	<i>Euphydryas aurinia</i>
		hrastova strizibuba	<i>Cerambyx cerdo</i>

Idendification No	Name	Common name of species	The scientific name of the species / habitat type code
		krbavski pijor	<i>Delminichthys (Phoxinellus) krbavensis</i>
		krbavska gaovica	<i>Telestes (Phoxinellus) fontinalis</i>
		N/A	<i>Triturus carnifex</i>
		Yellow-bellied toad	<i>Bombina variegata</i>
		Greater horseshoe bat	<i>Rhinolophus ferrumequinum</i>
		Lesser horseshoe bat	<i>Rhinolophus hipposideros</i>
		Schreiber's Bat	<i>Miniopterus schreibersii</i>
		Lesser mouse-eared bat	<i>Myotis blythii</i>
		Bechstein's bat	<i>Myotis bechsteinii</i>
		Greater mouse-eared bat	<i>Myotis myotis</i>
		livadni procjepak	<i>Chouardia litardierei</i>
		Molinia meadows on calcareous, peaty or clayey-silt-laden soils (Molinion caeruleae)	6410
		Caves and pits closed to the public	8310
		Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels (Convolvulion sepil, Filipendulion, Senecion fluviatilis)	6430
		Eastern sub-mediterranean dry grasslands (Scorzoneratalia villosae)	62A0
		Rupicolous calcareous or basophilic grasslands of the Alysso-Sedion albi	6110*
		Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) (* important orchid sites)	6210*

Idendification No	Name	Common name of species	The scientific name of the species / habitat type code
HR2000633	Crnačko polje	Lowland hay meadows ( <i>Alopecurus pratensis</i> , <i>Sanguisorba officinalis</i> )	6510
		Illyrian oak-hornbeam forests ( <i>Erythronio-carpinion</i> )	91L0
		Large Copper	<i>Lycaena dispar</i>
		Proteus	<i>Proteus anguinus</i> *
HR2000634	Stajničko polje	Molinia meadows on calcareous, peaty or clayey-silt-laden soils ( <i>Molinion caeruleae</i> )	6410
		Weather-fish	<i>Misgurnus fossilis</i>
		Proteus	<i>Proteus anguinus</i> *
		Molinia meadows on calcareous, peaty or clayey-silt-laden soils ( <i>Molinion caeruleae</i> )	6410
HR2000635	Gacko polje	European dry heaths	4030
		puzavi celer	<i>Apium repens</i>
		livadni procjepak	<i>Chouardia litardierei</i>
		Jersey Tiger	<i>Euplagia quadripunctaria</i> *
		Alkaline fens	7230
		Water courses of plain to montane levels with the <i>Ranunculon fluitantis</i> and <i>Callitricho-Batrachion</i> vegetation	3260
		Molinia meadows on calcareous, peaty or clayey-silt-laden soils ( <i>Molinion caeruleae</i> )	6410
		Caves and pits closed to the public	8310

Idendification No	Name	Common name of species	The scientific name of the species / habitat type code
HR2000637	Motovunska šuma	Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels (Convolvulion sepil, Filipendulion, Senecion fluviatilis)	6430
		Eastern sub-mediterranean dry grasslands (Scorzoneratalia villosae)	62A0
		uskoušćani zvrčić	<i>Vertigo angustior</i>
		Yellow-bellied toad	<i>Bombina variegata</i>
		Italian agile frog	<i>Rana latastei</i>
		European pond terrapin	<i>Emys orbicularis</i>
		Bechstein's bat	<i>Myotis bechsteinii</i>
		Riparian mixed forests of Quercus robur, Ulmus laevis and Ulmus minor, Fraxinus excelsior or Fraxinus angustifolia, along the great rivers (Ulmenion minoris)	91F0
		Sub-Atlantic and medio-European oak or oak-hornbeam forests of the Carpinion betuli	9160
		uskoušćani zvrčić	<i>Vertigo angustior</i>
HR2000641	Zrmanja	Italian Barbel	<i>Barbus plebejus</i>
		Canestrini's Goby	<i>Pomatoschistus canestrini</i>
		Painzsa's Goby	<i>Knipowitschia panizzae</i>
		Four lined snake	<i>Elaphe quatuorlineata</i>
		Eurasian otter	<i>Lutra lutra</i>
		N/A	<i>Cobitis bilineata</i>
		N/A	<i>Alburnus arborella</i>

Idendification No	Name	Common name of species	The scientific name of the species / habitat type code
HR2000642	Kupa	Caves and pits closed to the public	8310
		Eastern sub-mediterranean dry grasslands (Scorzonera villosa)	62A0
		Water courses of plain to montane levels with the Ranunculus fluitans and Callitriche-Batrachium vegetation	3260
		Tufa cascades of karstic rivers of the Dinaric Alps	32A0
		obična lisanka	<i>Unio crassus</i>
		Large Copper	<i>Lycaena dispar</i>
		potočni rak	<i>Austropotamobius torrentium*</i>
		Danube	<i>Hucho hucho</i>
		Asp	<i>Aspius aspius</i>
		Streber	<i>Zingel streber</i>
		Freshwater sculpin	<i>Cottus gobio</i>
		European beaver	<i>Castor fiber</i>
		Eurasian otter	<i>Lutra lutra</i>
		Vladykov's lamprey	<i>Eudontomyzon vladykovi</i>
		Balkan Loach	<i>Cobitis elongata</i>
		zlatni vijun	<i>Sabanejewia balcanica</i>
		N/A	<i>Barbus balcanicus</i>
		N/A	<i>Alburnus sarmaticus</i>
		bjeloperajna krkuš	<i>Romanogobio vladykovi</i>
		gavčica	<i>Rhodeus amarus</i>

Idendification No	Name	Common name of species	The scientific name of the species / habitat type code
		N/A	<i>Rutilus virgo</i>
		Kessler's gudgeon	<i>Romanogobio kessleri</i>
		Danube Gudgeon	<i>Romanogobio uranoscopus</i>
		mala svibanjska riđa	<i>Hypodryas maturna</i>
		Jersey Tiger	<i>Euplagia quadripunctaria*</i>
		Calcareous rocky slopes with chasmophytic vegetation	8210
		Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels (Convolvulion sepil, Filipendulion, Senecion fluviatilis)	6430
		Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> (Alno-Padion, Alnion incanae, Salicion albae)	91E0*
		Petrifying springs with tufa formation (Cratoneurion)	7220*
		Water courses of plain to montane levels with the Ranunculion fluitantis and Callitriche-Batrachion vegetation	3260
HR2000643	Obruč	velika četveropjega cvilidreta	<i>Morimus funereus</i>
		N/A	<i>Triturus carnifex</i>
		Eastern sub-mediterranean dry grasslands (Scorzoneralia villosae)	62A0
		Alpine and Boreal heaths	4060
		Bushes with <i>Pinus mugo</i> and <i>Rhododendron hirsutum</i> (Mugo-Rhododendretum hirsuti)	4070*



Idendification No	Name	Common name of species	The scientific name of the species / habitat type code
		Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) (* important orchid sites)	6210*
		Calcareous rocky slopes with chasmophytic vegetation	8210
		Alpine and subalpine calcareous grasslands	6170
HR2000645	Bjelolasica	Lesser horseshoe bat	<i>Rhinolophus hipposideros</i>
		N/A	<i>Eryngium alpinum</i>
		Alpine and subalpine calcareous grasslands	6170
HR2000646	Polje Lug	Bushes with <i>Pinus mugo</i> and <i>Rhododendron hirsutum</i> (Mugo-Rhododendretum hirsuti)	4070*
		potočni rak	<i>Austropotamobius torrentium</i> *
		Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels ( <i>Convolvulion sepium</i> , <i>Filipendulion</i> , <i>Senecion fluviatilis</i> )	6430
HR2000648	Drežničko polje	Large Copper	<i>Lycaena dispar</i>
		potočni rak	<i>Austropotamobius torrentium</i> *
		Proteus	<i>Proteus anguinus</i> *
		Riparian mixed forests of <i>Quercus robur</i> , <i>Ulmus laevis</i> and <i>Ulmus minor</i> , <i>Fraxinus excelsior</i> or <i>Fraxinus angustifolia</i> , along the great rivers ( <i>Ulmion minoris</i> )	91F0
		Molinia meadows on calcareous, peaty or clayey-silt-laden soils ( <i>Molinion caeruleae</i> )	6410

Idendification No	Name	Common name of species	The scientific name of the species / habitat type code
HR2000652	Jasenačko polje	Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels (Convolvulion sepilii, Filipendulion, Senecion fluviatilis)	6430
		Lowland hay meadows (Alopecurus pratensis, Sanguisorba officinalis)	6510
		Marsh Fritillary	<i>Euphydryas aurinia</i>
HR2000654	Ličke Jesenice	N/A	<i>Triturus carnifex</i>
		puzavi celer	<i>Apium repens</i>
		Water courses of plain to montane levels with the Ranunculion fluitantis and Callitriche-Batrachion vegetation	3260
HR2000658	Rječina	White-clawed crayfish	<i>Austropotamobius pallipes</i>
		Calcareous rocky slopes with chasmophytic vegetation	8210
HR2000659	Trstenik	Alkaline fens	7230
		Blanket bogs	7130*
HR2000667	Medvjeda špilja	Leptodirus	<i>Leptodirus hochenwarti</i>
		Caves and pits closed to the public	8310
HR2000670	Cret Dubravica	Transition mires and quaking bogs	<i>Drepanocladus vernicosus</i>
			7140
HR2000672	Zovje	veliki livadni plavac	<i>Maculinea telejus</i>
		zagasiti livadni plavac	<i>Maculinea nausithous</i>
		Lowland hay meadows (Alopecurus pratensis, Sanguisorba officinalis)	6510
HR2000703	Tarska uvala – Istra	Salicornia and other annuals colonizing mud and	1310

Idendification No	Name	Common name of species	The scientific name of the species / habitat type code
		sand	
HR2000707	Gornje Jelenje prema Platku	Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) (* important orchid sites)	6210*
		Eastern sub-mediterranean dry grasslands (Scorzoneratalia villosae)	62A0
HR2000728	Biljsko groblje	Sub-Pannonic steppic grasslands	6240*
HR2000730	Bistrinci	Sub-Pannonic steppic grasslands	6240*
HR2000753	Markov ponor	Leptodirus	<i>Leptodirus hochenwarti</i>
		N/A	<i>Congerius kusceri</i>
		Caves and pits closed to the public	8310
HR2000754	Novačka pećina	Leptodirus	<i>Leptodirus hochenwarti</i>
		Caves and pits closed to the public	8310
HR2000755	Hajdova hiža	Leptodirus	<i>Leptodirus hochenwarti</i>
		Caves and pits closed to the public	8310
HR2000759	Vela špilja u Krugu	Leptodirus	<i>Leptodirus hochenwarti</i>
		Caves and pits closed to the public	8310
HR2000780	Klinča sela	Molinia meadows on calcareous, peaty or clayey-silt-laden soils (Molinion caeruleae)	6410
HR2000782	Rečice		<i>Drepanocladus vernicosus</i>
		Hard oligo-mesotrophic waters with benthic vegetation of Chara spp	3140
		Alkaline fens	7230

Idendification No	Name	Common name of species	The scientific name of the species / habitat type code
		Mountain hay meadows	6520
		Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels (Convolvulion sepil, Filipendulion, Senecion fluviatilis)	6430
HR2000788	Uvala Makirina 1	Mediterranean salt meadows (Juncetalia maritimi)	1410
		Mediterranean and thermo-Atlantic halophilous scrubs (Sarcocornetea fruticosi)	1420
HR2000799	Gornji Hruševac – potok Kravarščica	Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels (Convolvulion sepil, Filipendulion, Senecion fluviatilis)	6430
HR2000854	Pleteno iznad N. Vinodolskog	modra sasa	<i>Pulsatilla vulgaris</i> ssp. <i>grandis</i>
		Eastern sub-mediterranean dry grasslands (Scorzoneratalia villosae)	62A0
		Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) (* important orchid sites)	6210*
HR2000856	Padine Velog vrha iznad Tomišine drage	N/A	<i>Degenia velebitica</i> *
HR2000871	Nacionalni park Paklenica	Stag Beetle	<i>Lucanus cervus</i>
		alpinska strizibuba	<i>Rosalia alpina</i> *
		hrastova strizibuba	<i>Cerambyx cerdo</i>
		velika četveropjega cvilidreta	<i>Morimus funereus</i>
		planinski žutokrug	<i>Vipera ursinii macrops</i> *
		Lesser horseshoe bat	<i>Rhinolophus hipposideros</i>
		Barbastelle Bat	<i>Barbastella barbastellus</i>

Idendification No	Name	Common name of species	The scientific name of the species / habitat type code
		Bechstein's bat	<i>Myotis bechsteinii</i>
		Greater mouse-eared bat	<i>Myotis myotis</i>
		Wolf	<i>Canis lupus</i> *
		Brown bear	<i>Ursus arctos</i> *
		Lynx	<i>Lynx lynx</i>
		N/A	<i>Aquilegia kitaibelii</i>
		N/A	<i>Genista holopetala</i>
		N/A	<i>Eryngium alpinum</i>
		N/A	<i>Eryngium alpinum</i>
		gospina papučica	<i>Cypripedium calceolus</i>
		Leptodirus	<i>Leptodirus hochenwarti</i>
		N/A	<i>Cerastium dinaricum</i>
		N/A	<i>Arabis scopoliana</i>
		Calcareous rocky slopes with chasmophytic vegetation	8210
		(Sub-) Mediterranean pine forests with endemic black pines	9530*
		Illyrian <i>Fagus sylvatica</i> forests (Aremonio-Fagion)	91K0
HR2000874	Krupa	Caves and pits closed to the public	8310
		White-clawed crayfish	<i>Austropotamobius pallipes</i>
		Freshwater sculpin	<i>Cottus gobio</i>
		Tufa cascades of karstic rivers of the Dinaric Alps	32A0

Idendification No	Name	Common name of species	The scientific name of the species / habitat type code
		Caves and pits closed to the public	8310
HR2000876	Crni vrh kod Vrhovina	Dinaric dolomite Scots pine forests (Genisto januensis-Pinetum)	91R0
HR2000879	Lapačko polje	Marsh Fritillary	<i>Euphydryas aurinia</i>
		livadni procjepak	<i>Chouardia litardierei</i>
		Alkaline fens	7230
		Molinia meadows on calcareous, peaty or clayey-silt-laden soils (Molinion caeruleae)	6410
		Natural eutrophic lakes with Magnopotamion or Hydrocharition -type vegetation	3150
		Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) (* important orchid sites)	6210*
		Eastern sub-mediterranean dry grasslands (Scorzoneratalia villosae)	62A0
HR2000888	Otok Susak	Pseudo-steppe with grasses and annuals of the Thero-Brachypodietea	6220*
HR2000891	Jezero Njivice na Krku	jezerski regoč	<i>Lindenia tetraphylla</i>
		European pond terrapin	<i>Emys orbicularis</i>
		Lesser horseshoe bat	<i>Rhinolophus hipposideros</i>
		Sub-Mediterranean grasslands of the Molinio-Hordeion secalinii	6540
HR2000893	Jezero Ponikve na Krku	jezerski regoč	<i>Lindenia tetraphylla</i>
		Natural eutrophic lakes with Magnopotamion or Hydrocharition -type vegetation	3150

Idendification No	Name	Common name of species	The scientific name of the species / habitat type code
		Caves and pits closed to the public	8310
HR2000898	Šuma crnike na Grguru	Calcareous rocky slopes with chasmophytic vegetation	8210
		Quercus ilex and Quercus rotundifolia forests	9340
		jezerski regoč	<i>Lindenia tetraphylla</i>
		Hermann's Mediterranean Tortoise	<i>Testudo hermanni</i>
		European pond terrapin	<i>Emys orbicularis</i>
		N/A	<i>Zamenis situla</i>
		livadni procjepak	<i>Chouardia litardierei</i>
		Dalmatian Ringlet	<i>Proterebia afra dalmata</i>
HR2000911	Kolansko blato – Blato Rogoza	Annual vegetation of drift lines (Cakiletea maritimae p.)	1210
		Coastal lagoons	1150*
		Eastern sub-mediterranean dry grasslands (Scorzoneratalia villosae)	62A0
		Mediterranean temporary ponds	3170*
		Mediterranean salt meadows (Juncetalia maritimi)	1410
		Sub-Mediterranean grasslands of the Molinio-Hordeion secalini	6540
HR2000917	Krčić	jezerski regoč	<i>Lindenia tetraphylla</i>
		Dalmatian Ringlet	<i>Proterebia afra dalmata</i>
		Greater horseshoe bat	<i>Rhinolophus ferrumequinum</i>
		Mediterranean horseshoe bat	<i>Rhinolophus euryale</i>

Idendification No	Name	Common name of species	The scientific name of the species / habitat type code
HR2000918	Šire područje NP Krka	Tufa cascades of karstic rivers of the Dinaric Alps	32A0
		Caves and pits closed to the public	8310
		White-clawed crayfish	<i>Austropotamobius pallipes</i>
		N/A	<i>Phoxinellus dalmaticus</i>
		Italian Barbel	<i>Barbus plebejus</i>
		Canestrini's Goby	<i>Pomatoschistus canestrini</i>
		Proteus	<i>Proteus anguinus</i> *
		Hermann's Mediterranean Tortoise	<i>Testudo hermanni</i>
		European pond terrapin	<i>Emys orbicularis</i>
		N/A	<i>Zamenis situla</i>
		Lesser horseshoe bat	<i>Rhinolophus hipposideros</i>
		Greater horseshoe bat	<i>Rhinolophus ferrumequinum</i>
		Mediterranean horseshoe bat	<i>Rhinolophus euryale</i>
		Blasius' horseshoe bat	<i>Rhinolophus blasii</i>
		Schreiber's Bat	<i>Miniopterus schreibersii</i>
		Bechstein's bat	<i>Myotis bechsteinii</i>
		Lesser mouse-eared bat	<i>Myotis blythii</i>
		Long-fingered bat	<i>Myotis capaccinii</i>
		Geoffroy's bat	<i>Myotis emarginatus</i>
		Eurasian otter	<i>Lutra lutra</i>
		Ramshorn snail	<i>Anisus vorticulus</i>



Idendification No	Name	Common name of species	The scientific name of the species / habitat type code
		livadni procjepak	<i>Chouardia litardierei</i>
		oštrulja	<i>Aulopyge huegelii</i>
		Eastern sub-mediterranean dry grasslands (Scorzoneratalia villosae)	62A0
		Calcareous rocky slopes with chasmophytic vegetation	8210
		Caves and pits closed to the public	8310
		Tufa cascades of karstic rivers of the Dinaric Alps	32A0
		Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation	3260
		Arborescent matorral with Juniperus spp	5210
		Rupicolous calcareous or basophilic grasslands of the Alyso-Sedion albi	6110*
		Quercus ilex and Quercus rotundifolia forests	9340
		Mediterranean temporary ponds	3170*
		Riparian mixed forests of Quercus robur, Ulmus laevis and Ulmus minor, Fraxinus excelsior or Fraxinus angustifolia, along the great rivers (Ulmenion minoris)	91F0
HR2000919	Čikola – kanjon	N/A	<i>Phoxinellus dalmaticus</i>
HR2000922	Svilaja	Wolf	<i>Canis lupus*</i>
		modra sasa	<i>Pulsatilla vulgaris ssp. grandis</i>
		Dalmatian Ringlet	<i>Proterebia afra dalmata</i>

Idendification No	Name	Common name of species	The scientific name of the species / habitat type code
		Illyrian Fagus sylvatica forests (Aremonio-Fagion)	91K0
		Caves and pits closed to the public	8310
		Eastern sub-mediterranean dry grasslands (Scorzoneratalia villosae)	62A0
		Dalmatian Ringlet	<i>Proterebia afra dalmata</i>
HR2000924	Suho polje	Eastern sub-mediterranean dry grasslands (Scorzoneratalia villosae)	62A0
HR2000929	Rijeka Cetina – kanjonski dio	Great sea lamprey	<i>Petromyzon marinus</i>
		N/A	<i>Cobitis dalmatina</i>
		Canestrini's Goby	<i>Pomatoschistus canestrini</i>
		Painzsa's Goby	<i>Knipowitschia panizzae</i>
		N/A	<i>Zamenis situla</i>
		oštrulja	<i>Aulopyge huegelii</i>
		Calcareous rocky slopes with chasmophytic vegetation	8210
		Eastern sub-mediterranean dry grasslands (Scorzoneratalia villosae)	62A0
HR2000931	Jadro	mekousna	<i>Salmothymus obtusirostris</i>
HR2000932	Prološko blato	White-clawed crayfish	<i>Austropotamobius pallipes</i>
		imotska gaovica	<i>Delminichthys (Phoxinellus) adspersus</i>
		ilirski vijun	<i>Cobitis illyrica</i>
		podbila	<i>Chondrostoma phoxinus</i>
		makal	<i>Squalius microlepis</i>

Idendification No	Name	Common name of species	The scientific name of the species / habitat type code
		Turloughs	3180*
		Hard oligo-mesotrophic waters with benthic vegetation of Chara spp	3140
		Natural eutrophic lakes with Magnopotamion or Hydrocharition -type vegetation	3150
HR2000933	Vrljika	White-clawed crayfish	<i>Austropotamobius pallipes</i>
		imotska gaovica	<i>Delminichthys (Phoxinellus) adspersus</i>
		mekousna	<i>Salmothymus obtusirostris</i>
HR2000934	Crveno jezero	imotska gaovica	<i>Delminichthys (Phoxinellus) adspersus</i>
		Caves and pits closed to the public	8310
HR2000935	Modro jezero	Caves and pits closed to the public	8310
HR2000936	Ruda	White-clawed crayfish	<i>Austropotamobius pallipes</i>
		podbila	<i>Chondrostoma phoxinus</i>
HR2000937	Vidova gora	Greater horseshoe bat	<i>Rhinolophus ferrumequinum</i>
		Quercus ilex and Quercus rotundifolia forests	9340
		Pseudo-steppe with grasses and annuals of the Thero-Brachypodietea	6220*
		Eastern sub-mediterranean dry grasslands (Scorzonera talia villosae)	62A0
		Calcareous rocky slopes with chasmophytic vegetation	8210
		Mediterranean pine forests with endemic Mesogean pines	9540

Idendification No	Name	Common name of species	The scientific name of the species / habitat type code
HR2000941	Svetac	Vegetated sea cliffs of the Mediterranean coasts with endemic Limonium spp	1240
		Calcareous rocky slopes with chasmophytic vegetation	8210
		Arborescent matorral with Juniperus spp	5210
		Pseudo-steppe with grasses and annuals of the Thero-Brachypodietea	6220*
		Termo-mediteranske (stenomediteranske) grmoliike formacije s Euphorbia dendroides	5330
HR2000942	Otok Vis	Four lined snake	<i>Elaphe quatuorlineata</i>
		N/A	<i>Zamenis situla</i>
		Greater horseshoe bat	<i>Rhinolophus ferrumequinum</i>
		Schreiber's Bat	<i>Miniopterus schreibersii</i>
		Submerged or partially submerged sea caves	8330
		Caves and pits closed to the public	8310
		Olea and Ceratonia forests	9320
		Embryonic shifting dunes	2110
		Annual vegetation of drift lines (Cakiletea maritimae p.)	1210
		Vegetated sea cliffs of the Mediterranean coasts with endemic Limonium spp	1240
		Mediterranean temporary ponds	3170*
		Arborescent matorral with Juniperus spp	5210

Idendification No	Name	Common name of species	The scientific name of the species / habitat type code
HR2000943	Palagruža	Pseudo-steppe with grasses and annuals of the Thero-Brachypodietea	6220*
		Calcareous rocky slopes with chasmophytic vegetation	8210
		Termo-mediteranske (stenomediteranske) grmoliike formacije s Euphorbia dendroides	5330
		Annual vegetation of drift lines (Cakiletea maritimae p.)	1210
		Pseudo-steppe with grasses and annuals of the Thero-Brachypodietea	6220*
HR2000944	Blatina kod Blata	Calcareous rocky slopes with chasmophytic vegetation	8210
		Vegetated sea cliffs of the Mediterranean coasts with endemic Limonium spp	1240
		jezerski regoč	<i>Lindenia tetraphylla</i>
		European pond terrapin	<i>Emys orbicularis</i>
HR2000946	Snježnica i Konavosko polje	Hard oligo-mesotrophic waters with benthic vegetation of Chara spp	3140
		European pond terrapin	<i>Emys orbicularis</i>
		Four lined snake	<i>Elaphe quatuorlineata</i>
		N/A	<i>Zamenis situla</i>
		Greater horseshoe bat	<i>Rhinolophus ferrumequinum</i>
		Mediterranean horseshoe bat	<i>Rhinolophus euryale</i>
		Lesser mouse-eared bat	<i>Myotis blythii</i>
		Schreiber's Bat	<i>Miniopterus schreibersii</i>

Idendification No	Name	Common name of species	The scientific name of the species / habitat type code
		Geoffroy's bat	<i>Myotis emarginatus</i>
		N/A	<i>Mauremys rivulata</i>
		dinarski voluhar	<i>Dinaromys bogdanovi</i>
		Caves and pits closed to the public	8310
		Eastern sub-mediterranean dry grasslands (Scorzonera villosa)	62A0
		Calcareous rocky slopes with chasmophytic vegetation	8210
HR2000947	Gornji Majkovi – lokve	N/A	<i>Mauremys rivulata</i>
HR2000950	Slano – oleandri	Olea and Ceratonia forests	9320
HR2000951	Krotuša	Turloughs	3180*
HR2000981	Izvor Jablan	Caves and pits closed to the public	8310
HR2001001	Cret Blatuša	Depressions on peat substrates of the Rhynchosporion	7150
		Transition mires and quaking bogs	7140
HR2001002	Čepelovačke livade	Large Copper	<i>Lycaena dispar</i>
		Jersey Tiger	<i>Euplagia quadripunctaria</i> *
HR2001004	Stari Gradac – Lendava	European Mud-minnow	<i>Umbra krameri</i>
HR2001005	Starogradački Marof	European Mud-minnow	<i>Umbra krameri</i>
HR2001006	Županijski kanal (Gornje Barje – Zidina)	European Mud-minnow	<i>Umbra krameri</i>
HR2001007	Orašac – kanjon	Southern riparian galleries and thickets (Nerio-Tamaricetea and Securinegion tinctoriae)	92D0
HR2001008	Blatina kraj Prožure	Hard oligo-mesotrophic waters with benthic	3140

Idendification No	Name	Common name of species	The scientific name of the species / habitat type code
		vegetation of Chara spp	
HR2001009	Blatina kraj Sobre (Mljet)	jezerski regoč	<i>Lindenia tetraphylla</i>
		Hard oligo-mesotrophic waters with benthic vegetation of Chara spp	3140
HR2001010	Paleoombla – Ombla	Greater horseshoe bat	<i>Rhinolophus ferrumequinum</i>
		Mediterranean horseshoe bat	<i>Rhinolophus euryale</i>
		Lesser mouse-eared bat	<i>Myotis blythii</i>
		Schreiber's Bat	<i>Miniopterus schreibersii</i>
		Geoffroy's bat	<i>Myotis emarginatus</i>
		Caves and pits closed to the public	8310
		Eastern sub-mediterranean dry grasslands (Scorzoneratalia villosae)	62A0
HR2001011	Istarske Toplice	Tomasinijeva merinka	<i>Moehringia tommasinii</i>
		Calcareous rocky slopes with chasmophytic vegetation	8210
HR2001012	Ličko polje	Marsh Fritillary	<i>Euphydryas aurinia</i>
		N/A	<i>Triturus carnifex</i>
		Eurasian otter	<i>Lutra lutra</i>
		livadni procjepak	<i>Chouardia litardierei</i>
		nerazgranjena pilica	<i>Serratula lycopifolia*</i>
		Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation	3260
		European dry heaths	4030

Idendification No	Name	Common name of species	The scientific name of the species / habitat type code
		Caves and pits closed to the public	8310
		Molinia meadows on calcareous, peaty or clayey-silt-laden soils (Molinion caeruleae)	6410
		Lowland hay meadows (Alopecurus pratensis, Sanguisorba officinalis)	6510
		Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels (Convolvulion sepil, Filipendulion, Senecion fluviatilis)	6430
		Species-rich Nardus grasslands, on silicious substrates in mountain areas (and submountain areas in Continental Europe)	6230*
HR2001015	Pregon	uskouščani zvrčić	<i>Vertigo angustior</i>
		trbušasti zvrčić	<i>Vertigo moulinsiana</i>
		False Ringlet	<i>Coenonympha oedippus</i>
		Italian agile frog	<i>Rana latastei</i>
HR2001016	Kotli	uskouščani zvrčić	<i>Vertigo angustior</i>
		Italian agile frog	<i>Rana latastei</i>
		Lowland hay meadows (Alopecurus pratensis, Sanguisorba officinalis)	6510
HR2001017	Lipa	Italian agile frog	<i>Rana latastei</i>
HR2001021	Lun	Eastern sub-mediterranean dry grasslands (Scorzoneralia villosae)	62A0
		Annual vegetation of drift lines (Cakiletea maritimae p.)	1210
		Eastern Mediterranean screes	8140



Idendification No	Name	Common name of species	The scientific name of the species / habitat type code
		Arborescent matorral with Juniperus spp	5210
		Calcareous rocky slopes with chasmophytic vegetation	8210
		Mediterranean temporary ponds	3170*
HR2001025	Matić poljana	Marsh Fritillary	<i>Euphydryas aurinia</i>
		Species-rich Nardus grasslands, on silicious substrates in mountain areas (and submountain areas in Continental Europe)	6230*
		Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) (* important orchid sites)	6210*
		European dry heaths	4030
		Mountain hay meadows	6520
HR2001031	Odra kod Jagodna	Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation	3260
HR2001034	Mačkovec – ribnjak	Amphibious habitat Isoëto-Nanojuncetea	3130
HR2001035	Otočić Zabodarski	Calcareous rocky slopes with chasmophytic vegetation	8210
HR2001036	Otočić V. Osir	Calcareous rocky slopes with chasmophytic vegetation	8210
		Arborescent matorral with Juniperus spp	5210
HR2001041	Gomance	Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) (* important orchid sites)	6210*
		Hard oligo-mesotrophic waters with benthic vegetation of Chara spp	3140

Idendification No	Name	Common name of species	The scientific name of the species / habitat type code
HR2001042	Lič polje	Juniperus communis formations on heaths or calcareous grasslands	5130
		Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) (* important orchid sites)	6210*
		Molinia meadows on calcareous, peaty or clayey-silt-laden soils (Molinion caeruleae)	6410
HR2001045	Trpinja	Pannonic salt steppes and salt marshes	1530*
HR2001046	Matica-Vrgoračko polje	White-clawed crayfish	<i>Austropotamobius pallipes</i>
		imotska gaovica	<i>Delminichthys (Phoxinellus) adspersus</i>
		ilirski vijun	<i>Cobitis illyrica</i>
		Proteus	<i>Proteus anguinus</i> *
		N/A	<i>Zamenis situla</i>
		N/A	<i>Congerius kuseri</i>
		primorska paklara	<i>Lampetra zanandreae</i>
		vrgoračka gobica	<i>Knipowitschia croatica</i>
		makal	<i>Squalius microlepis</i>
		Water courses of plain to montane levels with the Ranunculion fluitantis and Callitriche-Batrachion vegetation	3260
		Amphibious habitat Isoëto-Nanojuncetalia	3130
		Hard oligo-mesotrophic waters with benthic vegetation of Chara spp	3140
HR2001047	Bobara, Mrkan i Supetar	Calcareous rocky slopes with chasmophytic vegetation	8210

Idendification No	Name	Common name of species	The scientific name of the species / habitat type code
		Vegetated sea cliffs of the Mediterranean coasts with endemic Limonium spp	1240
		Pseudo-steppe with grasses and annuals of the Thero-Brachypodietea	6220*
HR2001049	Krbavica	Marsh Fritillary	<i>Euphydryas aurinia</i>
		potočni rak	<i>Austropotamobius torrentium</i> *
		Molinia meadows on calcareous, peaty or clayey-silt-laden soils (Molinion caeruleae)	6410
HR2001050	Murter	Pseudo-steppe with grasses and annuals of the Thero-Brachypodietea	6220*
		Annual vegetation of drift lines (Cakiletea maritimae p.)	1210
		Vegetated sea cliffs of the Mediterranean coasts with endemic Limonium spp	1240
		Mediterranean and thermo-Atlantic halophilous scrubs (Sarcocornetea fruticosi)	1420
HR2001055	Otočić Kosor kod Korčule	Olea and Ceratonia forests	9320
HR2001056	Otočić Veli Pržnjak kod Korčule	Olea and Ceratonia forests	9320
HR2001058	Lička Plješivica	Barbastelle Bat	<i>Barbastella barbastellus</i>
		Bechstein's bat	<i>Myotis bechsteinii</i>
		Wolf	<i>Canis lupus</i> *
		Brown bear	<i>Ursus arctos</i> *
		Lynx	<i>Lynx lynx</i>

Idendification No	Name	Common name of species	The scientific name of the species / habitat type code
			<i>Buxbaumia viridis</i>
		Jersey Tiger	<i>Euplagia quadripunctaria</i> *
		Alpine and subalpine calcareous grasslands	6170
		Alpine and Boreal heaths	4060
		Bushes with Pinus mugo and Rhododendron hirsutum (Mugo-Rhododendretum hirsuti)	4070*
		Calcareous and calcshist screes of the montane to alpine levels (Thlaspietea rotundifolii)	8120
HR2001068	Radiljevac	potočni rak	<i>Austropotamobius torrentium</i> *
HR2001069	Kanjon Une	Large Copper	<i>Lycaena dispar</i>
		Freshwater sculpin	<i>Cottus gobio</i>
		Tufa cascades of karstic rivers of the Dinaric Alps	32A0
		Calcareous rocky slopes with chasmophytic vegetation	8210
HR2001070	Sutla	obična lisanka	<i>Unio crassus</i>
		Streber	<i>Zingel streber</i>
		Freshwater sculpin	<i>Cottus gobio</i>
		Vladykov's lamprey	<i>Eudontomyzon vladykovi</i>
		N/A	<i>Barbus balcanicus</i>
		gavčica	<i>Rhodeus amarus</i>
		Kessler's gudgeon	<i>Romanogobio kessleri</i>
		Danube Gudgeon	<i>Romanogobio uranoscopus</i>

Idendification No	Name	Common name of species	The scientific name of the species / habitat type code
HR2001085	Ribnjak Grudnjak s okolnim šumskim kompleksom	Fire-bellied toad	<i>Bombina bombina</i>
		Eurasian otter	<i>Lutra lutra</i>
		N/A	<i>Triturus dobrogicus</i>
		Amphibious habitat Isoëto-Nanojuncetea	3130
		Sub-Atlantic and medio-European oak or oak-hornbeam forests of the Carpinion betuli	9160
		Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> (Alno-Padion, Alnion incanae, Salicion albae)	91E0*
HR2001086	Breznički ribnjak (Ribnjak Našice)	Eurasian otter	<i>Lutra lutra</i>
		Amphibious habitat Isoëto-Nanojuncetea	3130
HR2001088	Mala Dubrava – Vučedol	Sub-Atlantic and medio-European oak or oak-hornbeam forests of the Carpinion betuli	9160
HR2001097	Biševo kopno	Mediterranean pine forests with endemic Mesogean pines	9540
		Quercus ilex and Quercus rotundifolia forests	9340
		Caves and pits closed to the public	8310
		Vegetated sea cliffs of the Mediterranean coasts with endemic Limonium spp	1240
		Pseudo-steppe with grasses and annuals of the Thero-Brachypodietea	6220*
		Calcareous rocky slopes with chasmophytic vegetation	8210
HR2001098	Otok Pag II	Arborescent matorral with Juniperus spp	5210

Idendification No	Name	Common name of species	The scientific name of the species / habitat type code
HR2001113	Kukuruzovićeve špilja	Caves and pits closed to the public	8310
HR2001115	Strahinjčica	gorski potočar	<i>Cordulegaster heros</i>
		Adriatic Lizard Orchid	<i>Himantoglossum adriaticum</i>
		Tilio-Acerion forests of slopes, screes and ravines	9180*
		Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) (* important orchid sites)	6210*
		Calcareous rocky slopes with chasmophytic vegetation	8210
		Illyrian oak-hornbeam forests (Erythronio-carpinion)	91L0
		Species-rich Nardus grasslands, on silicious substrates in mountain areas (and submountain areas in Continental Europe)	6230*
HR2001126	Rokina bezdana	Proteus	<i>Proteus anguinus</i> *
		Caves and pits closed to the public	8310
HR2001127	Markarova špilja	Proteus	<i>Proteus anguinus</i> *
		Caves and pits closed to the public	8310
HR2001128	Antić špilja	Proteus	<i>Proteus anguinus</i> *
		Caves and pits closed to the public	8310
HR2001133	Ponor Bregi	Proteus	<i>Proteus anguinus</i> *
		Caves and pits closed to the public	8310
HR2001143	Jama kod Komune	Caves and pits closed to the public	8310
HR2001144	Klaričeva jama	Caves and pits closed to the public	8310
HR2001145	Izvor špilja pod Velim vrhom	Caves and pits closed to the public	8310

Idendification No	Name	Common name of species	The scientific name of the species / habitat type code
HR2001146	Radota špilja	Caves and pits closed to the public	8310
HR2001148	Dazdaland jama	Caves and pits closed to the public	8310
HR2001149	Velika jama	Caves and pits closed to the public	8310
HR2001150	Izvor Gerovčice	Caves and pits closed to the public	8310
HR2001153	Stupina jama	Caves and pits closed to the public	8310
HR2001154	Orlovac špilja	Caves and pits closed to the public	8310
HR2001156	Špilja pod Mačkovom dragom	Leptodirus	<i>Leptodirus hochenwarti</i>
		Caves and pits closed to the public	8310
HR2001158	Izvor Kamačnik	Caves and pits closed to the public	8310
HR2001162	Pivnica jama	Caves and pits closed to the public	8310
HR2001163	Jama kod Šipkovca	Caves and pits closed to the public	8310
HR2001172	Jama pod Debelom glavom	Caves and pits closed to the public	8310
HR2001177	Ponor pod Kremenom	Caves and pits closed to the public	8310
HR2001178	Vugrinova špilja	Caves and pits closed to the public	8310
HR2001180	Panjkov ponor-Varićakova špilja sustav	Caves and pits closed to the public	8310
HR2001181	Izvor Bakovac	Caves and pits closed to the public	8310
HR2001188	Pečina, Raslina	Caves and pits closed to the public	8310
HR2001190	Židovske jame	Caves and pits closed to the public	8310
HR2001191	Cerjanska špilja	Caves and pits closed to the public	8310
HR2001192	Zdenec pri Ciglaru	Caves and pits closed to the public	8310
HR2001193	Špilja kod Šušnjara	Caves and pits closed to the public	8310

Idendification No	Name	Common name of species	The scientific name of the species / habitat type code
HR2001195	Špilja pod Špicom	Caves and pits closed to the public	8310
HR2001199	Jama na Dućacu	Caves and pits closed to the public	8310
HR2001200	Jama kod Matešić stana	Caves and pits closed to the public	8310
HR2001201	Izvor Grab	Caves and pits closed to the public	8310
HR2001203	Izvor špilja kod Jurjevića	Caves and pits closed to the public	8310
HR2001204	Jama Kornjatuša	Caves and pits closed to the public	8310
HR2001207	Pliškovićeve jama	Caves and pits closed to the public	8310
HR2001208	Modrića bunar špilja	Caves and pits closed to the public	8310
HR2001215	Boljunsko polje	Italian Barbel	<i>Barbus plebejus</i>
		N/A	<i>Triturus carnifex</i>
		Yellow-bellied toad	<i>Bombina variegata</i>
		Lesser horseshoe bat	<i>Rhinolophus hipposideros</i>
		Bechstein's bat	<i>Myotis bechsteinii</i>
		N/A	<i>Alburnus arborella</i>
HR2001216	Ilova	Fire-bellied toad	<i>Bombina bombina</i>
		European beaver	<i>Castor fiber</i>
		Eurasian otter	<i>Lutra lutra</i>
		Vladykov's lamprey	<i>Eudontomyzon vladykovi</i>
		zlatni vijun	<i>Sabanejewia balcanica</i>
		gavčica	<i>Rhodeus amarus</i>
HR2001218	Benkovac	Marsh Fritillary	<i>Euphydryas aurinia</i>



Idendification No	Name	Common name of species	The scientific name of the species / habitat type code
HR2001220	Livade uz potok Injaticu	Large Copper	<i>Lycaena dispar</i>
		Molinia meadows on calcareous, peaty or clayey-silt-laden soils (Molinion caeruleae)	6410
HR2001224	Malodapčevačke livade	Large Copper	<i>Lycaena dispar</i>
HR2001227	Potok Gerovčica	potočni rak	<i>Austropotamobius torrentium</i> *
HR2001228	Potok Dolje	potočni rak	<i>Austropotamobius torrentium</i> *
HR2001229	Bočni kanal uz Vrljiku	White-clawed crayfish	<i>Austropotamobius pallipes</i>
HR2001235	Račice – Račički potok	White-clawed crayfish	<i>Austropotamobius pallipes</i>
		Italian agile frog	<i>Rana latastei</i>
HR2001236	Kanjon Badnjevice	White-clawed crayfish	<i>Austropotamobius pallipes</i>
HR2001238	Bušotina za vodu, Rakonik	Proteus	<i>Proteus anguinus</i> *
HR2001239	Rudnik ugljena, Raša	Proteus	<i>Proteus anguinus</i> *
HR2001241	Jama Golubinka	Proteus	<i>Proteus anguinus</i> *
		Caves and pits closed to the public	8310
HR2001242	Izvor Vir	Proteus	<i>Proteus anguinus</i> *
HR2001243	Rijeka Česma	obična lisanka	<i>Unio crassus</i>
		Eurasian otter	<i>Lutra lutra</i>
		loach	<i>Cobitis elongatoides</i>
HR2001244	Bunar kod Franjevačkog samostana u Hvaru	Caves and pits closed to the public	8310
HR2001245	Bunar na Hvaru	Caves and pits closed to the public	8310
HR2001246	Izvor u Medveji	Caves and pits closed to the public	8310

Idendification No	Name	Common name of species	The scientific name of the species / habitat type code
HR2001247	Ribnik izvor	Caves and pits closed to the public	8310
HR2001248	Izvor Duboka Ljuta	Caves and pits closed to the public	8310
HR2001249	Izvor kod mlina u Zatonu malom	Caves and pits closed to the public	8310
HR2001251	Žužino vrelo	Caves and pits closed to the public	8310
HR2001253	Poštak	planinski žutokrug	<i>Vipera ursinii macrops*</i>
		modra sasa	<i>Pulsatilla vulgaris ssp. grandis</i>
		Dalmatian Ringlet	<i>Proterebia afra dalmata</i>
		Eastern sub-mediterranean dry grasslands (Scorzoneratalia villosae)	62A0
HR2001254	Dolac Sekulića	nerazgranjena pilica	<i>Serratula lycopifolia*</i>
		Eastern sub-mediterranean dry grasslands (Scorzoneratalia villosae)	62A0
HR2001255	Bulji	livadni procjepak	<i>Chouardia litardierei</i>
		nerazgranjena pilica	<i>Serratula lycopifolia*</i>
		Eastern sub-mediterranean dry grasslands (Scorzoneratalia villosae)	62A0
		Molinia meadows on calcareous, peaty or clayey-silt-laden soils (Molinion caeruleae)	6410
HR2001256	Međugorje – Stružnica	nerazgranjena pilica	<i>Serratula lycopifolia*</i>
		Eastern sub-mediterranean dry grasslands (Scorzoneratalia villosae)	62A0
HR2001257	Potok Mala Belica	mirisava žlijezdača	<i>Adenophora lilifolia</i>
		N/A	<i>Carabus nodulosus</i>

Idendification No	Name	Common name of species	The scientific name of the species / habitat type code
		Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation	3260
HR2001258	Dinjiška	Eastern Mediterranean screes	8140
		Mediterranean tall humid grasslands of the Molinio-Holoschoenion	6420
		Mediterranean salt meadows (Juncetalia maritimi)	1410
HR2001259	Uvala Vlašići – kopno	livadni procjepak	<i>Chouardia litardierei</i>
		Mediterranean and thermo-Atlantic halophilous scrubs (Sarcocornetea fruticosi)	1420
		Sub-Mediterranean grasslands of the Molinio-Hordeion secalini	6540
HR2001260	Poluotok Molunat	Calcareous rocky slopes with chasmophytic vegetation	8210
		Vegetated sea cliffs of the Mediterranean coasts with endemic Limonium spp	1240
HR2001266	Vrba	N/A	<i>Phoxinellus dalmaticus</i>
HR2001267	Ričica	obična lisanka	<i>Unio crassus</i>
		White-clawed crayfish	<i>Austropotamobius pallipes</i>
		hrvatski pijor	<i>Telestes (Phoxinellus ) croaticus</i>
		Natural eutrophic lakes with Magnopotamion or Hydrocharition -type vegetation	3150
		Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation	3260

Idendification No	Name	Common name of species	The scientific name of the species / habitat type code
HR2001268	Otuča	White-clawed crayfish	<i>Austropotamobius pallipes</i>
		puzavi celer	<i>Apium repens</i>
		Natural eutrophic lakes with Magnopotamion or Hydrocharition -type vegetation	3150
HR2001269	Obsenica	hrvatski pijor	<i>Telestes (Phoxinellus) croaticus</i>
HR2001272	Jadova	jadovska gaovica	<i>Delminichthys (Phoxinellus) jadovensis</i>
		hrvatski pijor	<i>Telestes (Phoxinellus) croaticus</i>
		jadovski vijun	<i>Cobitis jadovaensis</i>
HR2001274	Mlaka	Italian agile frog	<i>Rana latastei</i>
		Lowland hay meadows ( <i>Alopecurus pratensis</i> , <i>Sanguisorba officinalis</i> )	6510
HR2001275	Vrbnik	Greater horseshoe bat	<i>Rhinolophus ferrumequinum</i>
		Mediterranean horseshoe bat	<i>Rhinolophus euryale</i>
		Schreiber's Bat	<i>Miniopterus schreibersii</i>
		Long-fingered bat	<i>Myotis capaccinii</i>
		Geoffroy's bat	<i>Myotis emarginatus</i>
HR2001276	Murvica – samostan	Greater horseshoe bat	<i>Rhinolophus ferrumequinum</i>
HR2001277	Slatina kod Kozarice na Mljetu	jezerski regoč	<i>Lindenia tetraphylla</i>
		European pond terrapin	<i>Emys orbicularis</i>
HR2001278	Premuda	Four lined snake	<i>Elaphe quatuorlineata</i>
		Vegetated sea cliffs of the Mediterranean coasts with endemic <i>Limonium</i> spp	1240

Idendification No	Name	Common name of species	The scientific name of the species / habitat type code
HR2001279	Silba	Four lined snake	<i>Elaphe quatuorlineata</i>
		Annual vegetation of drift lines (Cakiletea maritimae p.)	1210
		Vegetated sea cliffs of the Mediterranean coasts with endemic Limonium spp	1240
HR2001280	Olib	Four lined snake	<i>Elaphe quatuorlineata</i>
		Vegetated sea cliffs of the Mediterranean coasts with endemic Limonium spp	1240
HR2001281	Bilogora	Yellow-bellied toad	<i>Bombina variegata</i>
		Jersey Tiger	<i>Euplagia quadripunctaria*</i>
		Asperulo-Fagetum beech forests	9130
		Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae)	91E0*
HR2001282	Dio Kupe	kataks	<i>Eriogaster catax</i>
		Fenton's Wood White	<i>Leptidea morsei</i>
		Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae)	91E0*
HR2001285	Gornja Garešnica	Large Copper	<i>Lycaena dispar</i>
		Marsh Fritillary	<i>Euphydryas aurinia</i>
		Jersey Tiger	<i>Euplagia quadripunctaria*</i>
HR2001286	Orljava	Large Copper	<i>Lycaena dispar</i>
		Marsh Fritillary	<i>Euphydryas aurinia</i>

Idendification No	Name	Common name of species	The scientific name of the species / habitat type code
HR2001288	Pričac – Lužani	Large Copper	<i>Lycaena dispar</i>
		Marsh Fritillary	<i>Euphydryas aurinia</i>
		mala svibanjska riđa	<i>Hypodryas maturna</i>
HR2001289	Davor – livade	Large Copper	<i>Lycaena dispar</i>
		Marsh Fritillary	<i>Euphydryas aurinia</i>
HR2001292	Livade kod Čaglina	Large Copper	<i>Lycaena dispar</i>
		Marsh Fritillary	<i>Euphydryas aurinia</i>
HR2001293	Livade kod Grubišnog Polja	Large Copper	<i>Lycaena dispar</i>
		Marsh Fritillary	<i>Euphydryas aurinia</i>
		Jersey Tiger	<i>Euplagia quadripunctaria*</i>
		Molinia meadows on calcareous, peaty or clayey-silt-laden soils (Molinion caeruleae)	6410
HR2001294	Bruvno	Rupicolous calcareous or basophilic grasslands of the Alyso-Sedion albi	6110*
		Eastern sub-mediterranean dry grasslands (Scorzoneratalia villosae)	62A0
HR2001295	Jezerane	Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) (* important orchid sites)	6210*
HR2001298	Vejalnica i Krč	Large Copper	<i>Lycaena dispar</i>
		Adriatic Lizard Orchid	<i>Himantoglossum adriaticum</i>
		Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) (* important orchid sites)	6210*

Idendification No	Name	Common name of species	The scientific name of the species / habitat type code
HR2001299	Bijele i Samarske stijene	Calcareous rocky slopes with chasmophytic vegetation	8210
		Acidophilous Picea forests of the montane to alpine levels (Vaccinio-Piceetea)	9410
HR2001300	Zebar	modra sasa	<i>Pulsatilla vulgaris ssp. grandis</i>
		Eastern sub-mediterranean dry grasslands (Scorzoneratalia villosae)	62A0
HR2001301	Podbilo	modra sasa	<i>Pulsatilla vulgaris ssp. grandis</i>
HR2001302	Krmpotsko	modra sasa	<i>Pulsatilla vulgaris ssp. grandis</i>
HR2001304	Žbevnica	nerazgranjena pilica	<i>Serratula lycopifolia*</i>
		Eastern sub-mediterranean dry grasslands (Scorzoneratalia villosae)	62A0
HR2001305	Zvečevo	Molinia meadows on calcareous, peaty or clayey-silt-laden soils (Molinion caeruleae)	6410
HR2001307	Drava – akumulacije	Asp	<i>Aspius aspius</i>
		Striped Ruffe	<i>Gymnocephalus schraetser</i>
		Zingel	<i>Zingel zingel</i>
		European beaver	<i>Castor fiber</i>
		Eurasian otter	<i>Lutra lutra</i>
		Balon's Ruffe	<i>Gymnocephalus baloni</i>
		zlatni vijun	<i>Sabanejewia balcanica</i>
		bjeloperajna krkuš	<i>Romanogobio vladykovi</i>

Idendification No	Name	Common name of species	The scientific name of the species / habitat type code
		Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> (Alno-Padion, Alnion incanae, Salicion albae)	91E0*
		Lowland hay meadows ( <i>Alopecurus pratensis</i> , <i>Sanguisorba officinalis</i> )	6510
		Natural eutrophic lakes with Magnopotamion or Hydrocharition -type vegetation	3150
		Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels ( <i>Convolvulion sepium</i> , <i>Filipendulion</i> , <i>Senecion fluviatilis</i> )	6430
HR2001308	Donji tok Drave	Green Snaketail	<i>Ophiogomphus cecilia</i>
		Yellow-spotted Whiteface	<i>Leucorrhinia pectoralis</i>
		Large Copper	<i>Lycaena dispar</i>
		Water Beetle	<i>Graphoderus bilineatus</i>
		Asp	<i>Aspius aspius</i>
		Striped Ruffe	<i>Gymnocephalus schraetser</i>
		Zingel	<i>Zingel zingel</i>
		Streber	<i>Zingel streber</i>
		Fire-bellied toad	<i>Bombina bombina</i>
		European pond terrapin	<i>Emys orbicularis</i>
		Eurasian otter	<i>Lutra lutra</i>
		N/A	<i>Triturus dobrogicus</i>
		Ukrainian Brook Lamprey	<i>Eudontomyzon mariae</i>
		sabljarka	Razorfish



Idendification No	Name	Common name of species	The scientific name of the species / habitat type code
		Balon's Ruffe	<i>Gymnocephalus baloni</i>
		Ornate Bluet	<i>Coenagrion ornatum</i>
		zlatni vijun	<i>Sabanejewia balcanica</i>
		loach	<i>Cobitis elongatoides</i>
		bjeloperajna krkuš	<i>Romanogobio vladykovi</i>
		gavčica	<i>Rhodeus amarus</i>
		N/A	<i>Rutilus virgo</i>
		Alluvial meadows of river valleys of the Cnidion dubii	6440
		Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> ( <i>Alno-Padion</i> , <i>Alnion incanae</i> , <i>Salicion albae</i> )	91E0*
HR2001309	Dunav S od Kopačkog rita	Yellow-spotted Whiteface	<i>Leucorrhinia pectoralis</i>
		Large Copper	<i>Lycaena dispar</i>
		Water Beetle	<i>Graphoderus bilineatus</i>
		Asp	<i>Aspius aspius</i>
		Striped Ruffe	<i>Gymnocephalus schraetser</i>
		Zingel	<i>Zingel zingel</i>
		Greater horseshoe bat	<i>Rhinolophus ferrumequinum</i>
		Lesser mouse-eared bat	<i>Myotis blythii</i>
		Schreiber's Bat	<i>Miniopterus schreibersii</i>
		Bechstein's bat	<i>Myotis bechsteinii</i>
		Eurasian otter	<i>Lutra lutra</i>

Idendification No	Name	Common name of species	The scientific name of the species / habitat type code
		Ukranian Brook Lamprey	<i>Eudontomyzon mariae</i>
		sabljarka	<i>Razorfish</i>
		Balon's Ruffe	<i>Gymnocephalus baloni</i>
		Ornate Bluet	<i>Coenagrion ornatum</i>
		bjeloperajna krkuš	<i>Romanogobio vladykovi</i>
		Pannonic loess steppic grasslands	6250*
		Rivers with muddy banks with <i>Chenopodium rubri</i> pp and <i>Bidenton</i> pp vegetation	3270
		Amphibious habitat Isoëto-Nanojuncetea	3130
		Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> ( <i>Alno-Padion</i> , <i>Alnion incanae</i> , <i>Salicion albae</i> )	91E0*
		Sub-Pannonic steppic grasslands	6240*
		Natural eutrophic lakes with <i>Magnopotamion</i> or <i>Hydrocharition</i> -type vegetation	3150
HR2001311	Sava nizvodno od Hrušćice	obična lisanka	<i>Unio crassus</i>
		Green Snaketail	<i>Ophiogomphus cecilia</i>
		Asp	<i>Aspius aspius</i>
		Striped Ruffe	<i>Gymnocephalus schraetser</i>
		Zingel	<i>Zingel zingel</i>
		Streber	<i>Zingel streber</i>
		Vladikov's lamprey	<i>Eudontomyzon vladykovi</i>

Idendification No	Name	Common name of species	The scientific name of the species / habitat type code
		Balkan Loach	<i>Cobitis elongata</i>
		loach	<i>Cobitis elongatoides</i>
		bjeloperajna krkuš	<i>Romanogobio vladykovi</i>
		N/A	<i>Rutilus virgo</i>
		Natural eutrophic lakes with Magnopotamion or Hydrocharition -type vegetation	3150
		Rivers with muddy banks with Chenopodion rubri pp and Bidention pp vegetation	3270
		Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae)	91E0*
HR2001312	Argile	White-clawed crayfish	<i>Austropotamobius pallipes</i>
HR2001313	Srednji tok Cetine s Hrvatačkim i Sinjskim poljem	White-clawed crayfish	<i>Austropotamobius pallipes</i>
		potočni rak	<i>Austropotamobius torrentium</i> *
		pijurica	<i>Phoxinellus alepidotus</i>
		N/A	<i>Cobitis dalmatina</i>
		Greater horseshoe bat	<i>Rhinolophus ferrumequinum</i>
		Mediterranean horseshoe bat	<i>Rhinolophus euryale</i>
		Lesser horseshoe bat	<i>Rhinolophus hipposideros</i>
		Blasius' horseshoe bat	<i>Rhinolophus blasii</i>
		Schreiber's Bat	<i>Miniopterus schreibersii</i>
		Long-fingered bat	<i>Myotis capaccinii</i>

Idendification No	Name	Common name of species	The scientific name of the species / habitat type code
		Geoffroy's bat	<i>Myotis emarginatus</i>
		livadni procjepak	<i>Chouardia litardierei</i>
		oštrulja	<i>Aulopyge huegelii</i>
		Sub-Mediterranean grasslands of the Molinio-Hordeion secalinii	6540
		Caves and pits closed to the public	8310
		Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation	3260
		Eastern sub-mediterranean dry grasslands (Scorzoneratalia villosae)	62A0
HR2001314	Izvorišni dio Cetine s Paškim i Vrličkim poljem	Lesser horseshoe bat	<i>Rhinolophus hipposideros</i>
		White-clawed crayfish	<i>Austropotamobius pallipes</i>
		N/A	<i>Cobitis dalmatina</i>
		Ornate Bluet	<i>Coenagrion ornatum</i>
		močvarna gladiola	<i>Gladiolus palustris</i>
		livadni procjepak	<i>Chouardia litardierei</i>
		Dalmatian Ringlet	<i>Proterebia afra dalmata</i>
		Eastern sub-mediterranean dry grasslands (Scorzoneratalia villosae)	62A0
		Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation	3260
		Caves and pits closed to the public	8310
		Sub-Mediterranean grasslands of the Molinio-	6540

Idendification No	Name	Common name of species	The scientific name of the species / habitat type code
		Hordeion secalini	
		Natural eutrophic lakes with Magnopotamion or Hydrocharition -type vegetation	3150
HR2001315	Rastočko polje	N/A	<i>Zamenis situla</i>
		vrgoračka gobica	<i>Knipowitschia croatica</i>
HR2001316	Karišnica i Bijela	Lesser mouse-eared bat	<i>Myotis blythii</i>
		Schreiber's Bat	<i>Miniopterus schreibersii</i>
		Long-fingered bat	<i>Myotis capaccinii</i>
		Lesser horseshoe bat	<i>Rhinolophus hipposideros</i>
		Dalmatian Ringlet	<i>Proterebia afra dalmata</i>
		Caves and pits closed to the public	8310
		Salicornia and other annuals colonizing mud and sand	1310
		Mediterranean salt meadows ( <i>Juncetalia maritimi</i> )	1410
		Mediterranean and thermo-Atlantic halophilous scrubs ( <i>Sarcocornetea fruticosi</i> )	1420
HR2001317	Cret kod Klepine dulibe	kranjska jezernica	<i>Eleocharis carniolica</i>
HR2001318	Kalnik – Vranilac	Calcareous rocky slopes with chasmophytic vegetation	8210
HR2001319	Ris	Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> (Alno-Padion, <i>Alnion incanae</i> , <i>Salicion albae</i> )	91E0*
HR2001320	Crna gora	Fenton's Wood White	<i>Leptidea morsei</i>

Idendification No	Name	Common name of species	The scientific name of the species / habitat type code
		Jersey Tiger	<i>Euplagia quadripunctaria</i> *
HR2001321	Jasena ponor	Proteus	<i>Proteus anguinus</i> *
		N/A	<i>Congerius kusceri</i>
		Caves and pits closed to the public	8310
HR2001322	Vela Traba	Marsh Fritillary	<i>Euphydryas aurinia</i>
		kataks	<i>Eriogaster catax</i>
		Jersey Tiger	<i>Euplagia quadripunctaria</i> *
HR2001323	Česma – šume	Sub-Atlantic and medio-European oak or oak-hornbeam forests of the Carpinion betuli	9160
HR2001324	Bjelopolje	N/A	<i>Triturus carnifex</i>
		Molinia meadows on calcareous, peaty or clayey-silt-laden soils (Molinion caeruleae)	6410
HR2001325	Ninski stanovi – livade	livadni procjepak	<i>Chouardia litardierei</i>
		Sub-Mediterranean grasslands of the Molinio-Hordeion secalini	6540
HR2001326	Jelas polje s ribnjacima	Yellow-spotted Whiteface	<i>Leucorrhinia pectoralis</i>
		Fire-bellied toad	<i>Bombina bombina</i>
		European pond terrapin	<i>Emys orbicularis</i>
		Barbastelle Bat	<i>Barbastella barbastellus</i>
		Eurasian otter	<i>Lutra lutra</i>
		Amphibious habitat Isoëto-Nanojuncetea	3130
HR2001327	Ribnjak Dubrava	Yellow-spotted Whiteface	<i>Leucorrhinia pectoralis</i>

Idendification No	Name	Common name of species	The scientific name of the species / habitat type code
		Fire-bellied toad	<i>Bombina bombina</i>
		Yellow-bellied toad	<i>Bombina variegata</i>
		Eurasian otter	<i>Lutra lutra</i>
HR2001328	Lonđa, Glogovica i Breznica	obična lisanka	<i>Unio crassus</i>
		Eurasian otter	<i>Lutra lutra</i>
		Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation	3260
HR2001329	Potoci oko Papuka	obična lisanka	<i>Unio crassus</i>
		potočni rak	<i>Austropotamobius torrentium*</i>
		Eurasian otter	<i>Lutra lutra</i>
		Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation	3260
HR2001330	Pakra i Bijela	Eurasian otter	<i>Lutra lutra</i>
HR2001331	Šaševa – cret	Transition mires and quaking bogs	7140
		Depressions on peat substrates of the Rhynchosporion	7150
HR2001332	Vrhovinsko polje	livadni procjepak	<i>Chouardia litardierei</i>
		Molinia meadows on calcareous, peaty or clayey-silt-laden soils (Molinion caeruleae)	6410
		Eastern sub-mediterranean dry grasslands (Scorzoneratalia villosae)	62A0
HR2001333	Kupa kod Severina	Fenton's Wood White	<i>Leptidea morsei</i>

Idendification No	Name	Common name of species	The scientific name of the species / habitat type code
HR2001334	Poluotok Ubaš	Stag Beetle	<i>Lucanus cervus</i>
HR2001335	Jastrebarski lugovi	alpiska strizibuba	<i>Rosalia alpina</i> *
		Fire-bellied toad	<i>Bombina bombina</i>
		Yellow-bellied toad	<i>Bombina variegata</i>
		Natural eutrophic lakes with Magnopotamion or Hydrocharition -type vegetation	3150
		Sub-Atlantic and medio-European oak or oak-hornbeam forests of the Carpinion betuli	9160
		Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> ( <i>Alno-Padion</i> , <i>Alnion incanae</i> , <i>Salicion albae</i> )	91E0*
HR2001336	Područje oko Matešića pećine	potočni rak	<i>Austropotamobius torrentium</i> *
		Greater horseshoe bat	<i>Rhinolophus ferrumequinum</i>
		Mediterranean horseshoe bat	<i>Rhinolophus euryale</i>
		Lesser horseshoe bat	<i>Rhinolophus hipposideros</i>
		Schreiber's Bat	<i>Miniopterus schreibersii</i>
		Long-fingered bat	<i>Myotis capaccinii</i>
		Caves and pits closed to the public	8310
HR2001337	Područje oko Rafove (Zatonske) špilje	Geoffroy's bat	<i>Myotis emarginatus</i>
		Greater horseshoe bat	<i>Rhinolophus ferrumequinum</i>
		Mediterranean horseshoe bat	<i>Rhinolophus euryale</i>
		Submerged or partially submerged sea caves	8330



Idendification No	Name	Common name of species	The scientific name of the species / habitat type code
HR2001338	Područje oko špilje u uvali Pišćena, Hvar	Lesser mouse-eared bat	<i>Myotis blythii</i>
		Pseudo-steppe with grasses and annuals of the Thero-Brachypodietea	6220*
		Mediterranean pine forests with endemic Mesogean pines	9540
HR2001339	Područje oko Jopića špilje	potočni rak	<i>Austropotamobius torrentium</i> *
		Greater horseshoe bat	<i>Rhinolophus ferrumequinum</i>
		Lesser horseshoe bat	<i>Rhinolophus hipposideros</i>
		Caves and pits closed to the public	8310
HR2001340	Područje oko Kuštrovke	Barbastelle Bat	<i>Barbastella barbastellus</i>
		Greater horseshoe bat	<i>Rhinolophus ferrumequinum</i>
		Schreiber's Bat	<i>Miniopterus schreibersii</i>
		Caves and pits closed to the public	8310
HR2001342	Područje oko špilje Gradusa	Mediterranean horseshoe bat	<i>Rhinolophus euryale</i>
		Schreiber's Bat	<i>Miniopterus schreibersii</i>
		Caves and pits closed to the public	8310
HR2001343	Područje oko špilje Duboška pazuha	Geoffroy's bat	<i>Myotis emarginatus</i>
		Caves and pits closed to the public	8310
		Pseudo-steppe with grasses and annuals of the Thero-Brachypodietea	6220*
		Quercus ilex and Quercus rotundifolia forests	9340
		Mediterranean pine forests with endemic Mesogean pines	9540

Idendification No	Name	Common name of species	The scientific name of the species / habitat type code
HR2001344	Novkovići – Bosnjakuša	potočni rak	<i>Austropotamobius torrentium</i> *
HR2001345	Vražji prolaz i Zeleni vir	Tilio-Acerion forests of slopes, screes and ravines	9180*
HR2001346	Međimurje	Large Copper	<i>Lycaena dispar</i>
		veliki livadni plavac	<i>Maculinea telejus</i>
		zagasiti livadni plavac	<i>Maculinea nausithous</i>
		Jersey Tiger	<i>Euplagia quadripunctaria</i> *
		Lowland hay meadows ( <i>Alopecurus pratensis</i> , <i>Sanguisorba officinalis</i> )	6510
HR2001347	Donje Međimurje	veliki livadni plavac	<i>Maculinea telejus</i>
		zagasiti livadni plavac	<i>Maculinea nausithous</i>
		Lowland hay meadows ( <i>Alopecurus pratensis</i> , <i>Sanguisorba officinalis</i> )	6510
HR2001348	Dolina Sutle kod Razvora	Large Copper	<i>Lycaena dispar</i>
HR2001349	Dolina Raše	Marsh Fritillary	<i>Euphydryas aurinia</i>
		White-clawed crayfish	<i>Austropotamobius pallipes</i>
		Italian Barbel	<i>Barbus plebejus</i>
		N/A	<i>Alburnus arborella</i>
HR2001350	Podbiokovlje	Yellow-bellied toad	<i>Bombina variegata</i>
		N/A	<i>Zamenis situla</i>
		Caves and pits closed to the public	8310
HR2001351	Područje oko Kupice	potočni rak	<i>Austropotamobius torrentium</i> *
		alpinska strizibuba	<i>Rosalia alpina</i> *

Idendification No	Name	Common name of species	The scientific name of the species / habitat type code
		Danube	<i>Hucho hucho</i>
		Yellow-bellied toad	<i>Bombina variegata</i>
HR2001352	Mosor	Stag Beetle	<i>Lucanus cervus</i>
		Proteus	<i>Proteus anguinus*</i>
		Yellow-bellied toad	<i>Bombina variegata</i>
		N/A	<i>Zamenis situla</i>
		Wolf	<i>Canis lupus*</i>
		mosorska gušterica	<i>Dinarolacerta mosorensis</i>
		dinarski voluhar	<i>Dinaromys bogdanovi</i>
		Eastern sub-mediterranean dry grasslands (Scorzoneratalia villosae)	62A0
		Caves and pits closed to the public	8310
		Rupicolous calcareous or basophilic grasslands of the Alyso-Sedion albi	6110*
		Calcareous rocky slopes with chasmophytic vegetation	8210
HR2001353	Lokve-Sunger-Fužine	Large Copper	<i>Lycaena dispar</i>
		Marsh Fritillary	<i>Euphydryas aurinia</i>
		potočni rak	<i>Austropotamobius torrentium*</i>
		N/A	<i>Triturus carnifex</i>
		Yellow-bellied toad	<i>Bombina variegata</i>
		kranjska jezernica	<i>Eleocharis carniolica</i>

Idendification No	Name	Common name of species	The scientific name of the species / habitat type code
		Leptodirus	<i>Leptodirus hochenwarti</i>
		Amphibious habitat Isoëto-Nanojuncetea	3130
		Hard oligo-mesotrophic waters with benthic vegetation of Chara spp	3140
		Caves and pits closed to the public	8310
		European dry heaths	4030
HR2001354	Područje oko jezera Borovik	Yellow-bellied toad	<i>Bombina variegata</i>
		Illyrian oak-hornbeam forests (Erythronio-carpinion)	91L0
HR2001355	Psunj	Yellow-bellied toad	<i>Bombina variegata</i>
HR2001356	Zrinska gora	Yellow-bellied toad	<i>Bombina variegata</i>
		Wolf	<i>Canis lupus*</i>
		gorski potočar	<i>Cordulegaster heros</i>
		Castanea sativa woods	9260
		Illyrian oak-hornbeam forests (Erythronio-carpinion)	91L0
		Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae)	91E0*
HR2001357	Otok Krk	Hermann's Mediterranean Tortoise	<i>Testudo hermanni</i>
		Four lined snake	<i>Elaphe quatuorlineata</i>
		N/A	<i>Zamenis situla</i>
		Lesser mouse-eared bat	<i>Myotis blythii</i>
		Calcareous rocky slopes with chasmophytic vegetation	8210

Idendification No	Name	Common name of species	The scientific name of the species / habitat type code
		Vegetated sea cliffs of the Mediterranean coasts with endemic Limonium spp	1240
		Caves and pits closed to the public	8310
		Annual vegetation of drift lines (Cakiletea maritimae p.)	1210
		Mediterranean temporary ponds	3170*
		Eastern sub-mediterranean dry grasslands (Scorzoneratalia villosae)	62A0
HR2001358	Otok Cres	uskoušćani zvrčić	<i>Vertigo angustior</i>
		Stag Beetle	<i>Lucanus cervus</i>
		hrastova strizibuba	<i>Cerambyx cerdo</i>
		Hermann's Mediterranean Tortoise	<i>Testudo hermanni</i>
		Four lined snake	<i>Elaphe quatuorlineata</i>
		N/A	<i>Zamenis situla</i>
		Blasius' horseshoe bat	<i>Rhinolophus blasii</i>
		Greater horseshoe bat	<i>Rhinolophus ferrumequinum</i>
		Lesser horseshoe bat	<i>Rhinolophus hipposideros</i>
		Adriatic Lizard Orchid	<i>Himantoglossum adriaticum</i>
		hermit beetle	<i>Osmoderma eremita*</i>
		Jersey Tiger	<i>Euplagia quadripunctaria*</i>
		Calcareous rocky slopes with chasmophytic vegetation	8210
		Eastern sub-mediterranean dry grasslands (Scorzoneratalia villosae)	62A0

Idendification No	Name	Common name of species	The scientific name of the species / habitat type code
		Mediterranean salt meadows ( <i>Juncetalia maritimi</i> )	1410
		Mediterranean and thermo-Atlantic halophilous scrubs ( <i>Sarcocornetea fruticosi</i> )	1420
		Annual vegetation of drift lines ( <i>Cakiletea maritimae</i> p.)	1210
		Vegetated sea cliffs of the Mediterranean coasts with endemic <i>Limonium</i> spp	1240
		Mediterranean temporary ponds	3170*
		Eastern sub-mediterranean dry grasslands ( <i>Scorzoneratalia villosae</i> )	62A0
		Caves and pits closed to the public	8310
HR2001359	Otok Rab	hrastova strizibuba	<i>Cerambyx cerdo</i>
		obrvan	<i>Aphanius fasciatus</i>
		Four lined snake	<i>Elaphe quatuorlineata</i>
		Blasius' horseshoe bat	<i>Rhinolophus blasii</i>
		Greater horseshoe bat	<i>Rhinolophus ferrumequinum</i>
		Mediterranean horseshoe bat	<i>Rhinolophus euryale</i>
		Lesser mouse-eared bat	<i>Myotis blythii</i>
		Schreiber's Bat	<i>Miniopterus schreibersii</i>
		Geoffroy's bat	<i>Myotis emarginatus</i>
		Greater mouse-eared bat	<i>Myotis myotis</i>
		Vegetated sea cliffs of the Mediterranean coasts with endemic <i>Limonium</i> spp	1240

Idendification No	Name	Common name of species	The scientific name of the species / habitat type code
		Mediterranean salt meadows ( <i>Juncetalia maritimi</i> )	1410
		Mediterranean and thermo-Atlantic halophilous scrubs ( <i>Sarcocornetea fruticosi</i> )	1420
		Eastern Mediterranean screes	8140
		Embryonic shifting dunes	2110
		<i>Quercus ilex</i> and <i>Quercus rotundifolia</i> forests	9340
		Calcareous rocky slopes with chasmophytic vegetation	8210
		Caves and pits closed to the public	8310
		Submerged or partially submerged sea caves	8330
		Annual vegetation of drift lines ( <i>Cakiletea maritimae</i> p.)	1210
		Mediterranean temporary ponds	3170*
		Eastern sub-mediterranean dry grasslands ( <i>Scorzoneratalia villosae</i> )	62A0
		Mediterranean tall humid grasslands of the <i>Molinio-Holoschoenion</i>	6420
HR2001360	Šire rovinjsko područje	Hermann's Mediterranean Tortoise	<i>Testudo hermanni</i>
		European pond terrapin	<i>Emys orbicularis</i>
		Four lined snake	<i>Elaphe quatuorlineata</i>
		Pseudo-steppe with grasses and annuals of the Thero-Brachypodietea	6220*
		Mediterranean salt meadows ( <i>Juncetalia maritimi</i> )	1410
		Caves and pits closed to the public	8310

Idendification No	Name	Common name of species	The scientific name of the species / habitat type code
		Coastal lagoons	1150*
		Annual vegetation of drift lines (Cakiletea maritimae p.)	1210
HR2001361	Ravni kotari	White-clawed crayfish	<i>Austropotamobius pallipes</i>
		Hermann's Mediterranean Tortoise	<i>Testudo hermanni</i>
		Four lined snake	<i>Elaphe quatuorlineata</i>
		N/A	<i>Zamenis situla</i>
		Schreiber's Bat	<i>Miniopterus schreibersii</i>
		Lesser mouse-eared bat	<i>Myotis blythii</i>
		Dalmatian Ringlet	<i>Proterebia afra dalmata</i>
		Mediterranean tall humid grasslands of the Molinio-Holoschoenion	6420
		Caves and pits closed to the public	8310
HR2001362	Otok Žut	Four lined snake	<i>Elaphe quatuorlineata</i>
		Vegetated sea cliffs of the Mediterranean coasts with endemic Limonium spp	1240
HR2001363	Zaleđe Trogira	Greater horseshoe bat	<i>Rhinolophus ferrumequinum</i>
		Four lined snake	<i>Elaphe quatuorlineata</i>
		N/A	<i>Zamenis situla</i>
		Caves and pits closed to the public	8310
		Pseudo-steppe with grasses and annuals of the Thero-Brachypodietea	6220*
		Eastern sub-mediterranean dry grasslands (Scorzoneralia villosae)	62A0



Idendification No	Name	Common name of species	The scientific name of the species / habitat type code
		Calcareous rocky slopes with chasmophytic vegetation	8210
HR2001364	I dio Pelješca	Hermann's Mediterranean Tortoise	<i>Testudo hermanni</i>
		N/A	<i>Zamenis situla</i>
		Quercus ilex and Quercus rotundifolia forests	9340
		Vegetated sea cliffs of the Mediterranean coasts with endemic Limonium spp	1240
		Arborescent matorral with Juniperus spp	5210
		Pseudo-steppe with grasses and annuals of the Thero-Brachypodietea	6220*
		Mediterranean pine forests with endemic Mesogean pines	9540
HR2001365	Pazinština	N/A	<i>Triturus carnifex</i>
HR2001366	Bokanjačko blato	Greater horseshoe bat	<i>Rhinolophus ferrumequinum</i>
		N/A	<i>Zamenis situla</i>
HR2001367	I dio Korčule	Greater horseshoe bat	<i>Rhinolophus ferrumequinum</i>
		N/A	<i>Zamenis situla</i>
		Caves and pits closed to the public	8310
		Quercus ilex and Quercus rotundifolia forests	9340
		Calcareous rocky slopes with chasmophytic vegetation	8210
		Embryonic shifting dunes	2110
		Annual vegetation of drift lines (Cakiletea maritimae p.)	1210

Idendification No	Name	Common name of species	The scientific name of the species / habitat type code
		Vegetated sea cliffs of the Mediterranean coasts with endemic Limonium spp	1240
		Arborescent matorral with Juniperus spp	5210
		Pseudo-steppe with grasses and annuals of the Thero-Brachypodietea	6220*
		Mediterranean pine forests with endemic Mesogean pines	9540
HR2001369	Područje oko špilje Golubinka, Dugi otok	Greater horseshoe bat	<i>Rhinolophus ferrumequinum</i>
		Geoffroy's bat	<i>Myotis emarginatus</i>
HR2001370	Područje oko Hrvatske Kostajnice	Greater horseshoe bat	<i>Rhinolophus ferrumequinum</i>
		Geoffroy's bat	<i>Myotis emarginatus</i>
HR2001371	Područje oko Dobre vode	Mediterranean horseshoe bat	<i>Rhinolophus euryale</i>
		Greater horseshoe bat	<i>Rhinolophus ferrumequinum</i>
		Geoffroy's bat	<i>Myotis emarginatus</i>
		Caves and pits closed to the public	8310
HR2001372	Područje oko špilje Vrlovka	Greater horseshoe bat	<i>Rhinolophus ferrumequinum</i>
		Mediterranean horseshoe bat	<i>Rhinolophus euryale</i>
HR2001373	Lisac	Yellow-bellied toad	<i>Bombina variegata</i>
		planinski žutokrug	<i>Vipera ursinii macrops*</i>
		Eastern sub-mediterranean dry grasslands (Scorzonera tatarica villosa)	62A0
HR2001374	Područje oko špilje Vratolom	Blasius' horseshoe bat	<i>Rhinolophus blasii</i>
		Lesser mouse-eared bat	<i>Myotis blythii</i>

Idendification No	Name	Common name of species	The scientific name of the species / habitat type code
		Schreiber's Bat	<i>Miniopterus schreibersii</i>
		Long-fingered bat	<i>Myotis capaccinii</i>
		Caves and pits closed to the public	8310
HR2001375	Područje oko špilje Golubnjače, Žegar	Lesser horseshoe bat	<i>Rhinolophus hipposideros</i>
		Mediterranean horseshoe bat	<i>Rhinolophus euryale</i>
		Caves and pits closed to the public	8310
HR2001376	Područje oko Stražnice	Lesser mouse-eared bat	<i>Myotis blythii</i>
		Caves and pits closed to the public	8310
HR2001377	Sunđerac	Transition mires and quaking bogs	7140
HR2001378	Livade kod Hudinčeca	Adriatic Lizard Orchid	<i>Himantoglossum adriaticum</i>
		Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) (* important orchid sites)	6210*
HR2001379	Vlakanac-Radinje	Yellow-spotted Whiteface	<i>Leucorrhinia pectoralis</i>
		Natural eutrophic lakes with Magnopotamion or Hydrocharition -type vegetation	3150
HR2001380	Vele i Male Srakane – kopno	Pseudo-steppe with grasses and annuals of the Thero-Brachypodietea	6220*
HR2001381	Vukmanić – cret	Transition mires and quaking bogs	7140
HR2001383	Klasnići	Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels (Convolvulion sepilii, Filipendulion, Senecion fluviatilis)	6430
HR2001384	Solana Dinjiška	obrvan	<i>Aphanius fasciatus</i>

Idendification No	Name	Common name of species	The scientific name of the species / habitat type code
		Mediterranean and thermo-Atlantic halophilous scrubs (Sarcocornetea fruticosi)	1420
HR2001385	Orljava	obična lisanka	<i>Unio crassus</i>
		Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation	3260
HR2001386	Pazinski potok	uskoušćani zvrčić	<i>Vertigo angustior</i>
HR2001387	Područje uz Maju i Bručinu	uskoušćani zvrčić	<i>Vertigo angustior</i>
HR2001388	Budava	trbušasti zvrčić	<i>Vertigo moulinsiana</i>
HR2001389	Banićevac	Adriatic Lizard Orchid	<i>Himantoglossum adriaticum</i>
HR2001390	Brajkovo brdo	Adriatic Lizard Orchid	<i>Himantoglossum adriaticum</i>
HR2001391	Breborna	potočni rak	<i>Austropotamobius torrentium*</i>
		Adriatic Lizard Orchid	<i>Himantoglossum adriaticum</i>
HR2001392	Ljubeščica	Adriatic Lizard Orchid	<i>Himantoglossum adriaticum</i>
HR2001393	Nurkovac	Adriatic Lizard Orchid	<i>Himantoglossum adriaticum</i>
HR2001394	Brbišnica – Vrbica	White-clawed crayfish	<i>Austropotamobius pallipes</i>
HR2001395	Grab	White-clawed crayfish	<i>Austropotamobius pallipes</i>
HR2001396	Grdoselski potok	White-clawed crayfish	<i>Austropotamobius pallipes</i>
HR2001397	Sutina	White-clawed crayfish	<i>Austropotamobius pallipes</i>
HR2001398	Dabašnica – Srebrenica	potočni rak	<i>Austropotamobius torrentium*</i>
HR2001399	Kobilica	potočni rak	<i>Austropotamobius torrentium*</i>
HR2001400	Orašnica	potočni rak	<i>Austropotamobius torrentium*</i>

Idendification No	Name	Common name of species	The scientific name of the species / habitat type code
HR2001401	Pećina – pritok Slunjšice	potočni rak	<i>Austropotamobius torrentium</i> *
HR2001402	Radočaji	potočni rak	<i>Austropotamobius torrentium</i> *
HR2001403	Bijela	obična lisanka	<i>Unio crassus</i>
HR2001404	Glogovnica	obična lisanka	<i>Unio crassus</i>
HR2001405	Lonja	obična lisanka	<i>Unio crassus</i>
HR2001406	Maja	obična lisanka	<i>Unio crassus</i>
HR2001407	Orljava	obična lisanka	<i>Unio crassus</i>
HR2001408	Livade uz Bednju I	Large Copper	<i>Lycaena dispar</i>
		Molinia meadows on calcareous, peaty or clayey-silt-laden soils (Molinion caeruleae)	6410
		Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels (Convolvulion sepium, Filipendulion, Senecion fluviatilis)	6430
		Lowland hay meadows (Alopecurus pratensis, Sanguisorba officinalis)	6510
HR2001409	Livade uz Bednju II	Large Copper	<i>Lycaena dispar</i>
		veliki livadni plavac	<i>Maculinea telejus</i>
		Molinia meadows on calcareous, peaty or clayey-silt-laden soils (Molinion caeruleae)	6410
		Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels (Convolvulion sepium, Filipendulion, Senecion fluviatilis)	6430
		Lowland hay meadows (Alopecurus pratensis, Sanguisorba officinalis)	6510

Idendification No	Name	Common name of species	The scientific name of the species / habitat type code
HR2001410	Livade uz Bednju III	Large Copper	<i>Lycaena dispar</i>
		Molinia meadows on calcareous, peaty or clayey-silt-laden soils (Molinion caeruleae)	6410
		Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels (Convolvulion sepii, Filipendulion, Senecion fluviatilis)	6430
		Lowland hay meadows (Alopecurus pratensis, Sanguisorba officinalis)	6510
HR2001411	Livade uz Bednju IV	Large Copper	<i>Lycaena dispar</i>
		Molinia meadows on calcareous, peaty or clayey-silt-laden soils (Molinion caeruleae)	6410
		Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels (Convolvulion sepii, Filipendulion, Senecion fluviatilis)	6430
		Lowland hay meadows (Alopecurus pratensis, Sanguisorba officinalis)	6510
HR2001412	Livade uz Bednju V	Large Copper	<i>Lycaena dispar</i>
		Molinia meadows on calcareous, peaty or clayey-silt-laden soils (Molinion caeruleae)	6410
		Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels (Convolvulion sepii, Filipendulion, Senecion fluviatilis)	6430
		Lowland hay meadows (Alopecurus pratensis, Sanguisorba officinalis)	6510
HR2001413	Šume kod Skrada	Luzulo-Fagetum beech forests	9110
HR2001414	Spačvanski bazen	Stag Beetle	<i>Lucanus cervus</i>

Idendification No	Name	Common name of species	The scientific name of the species / habitat type code
		hrastova strizibuba	<i>Cerambyx cerdo</i>
		Fire-bellied toad	<i>Bombina bombina</i>
		European pond terrapin	<i>Emys orbicularis</i>
		Barbastelle Bat	<i>Barbastella barbastellus</i>
		Eurasian otter	<i>Lutra lutra</i>
		N/A	<i>Triturus dobrogicus</i>
		Natural eutrophic lakes with Magnopotamion or Hydrocharition -type vegetation	3150
HR2001415	Spačva JZ	Stag Beetle	<i>Lucanus cervus</i>
		hrastova strizibuba	<i>Cerambyx cerdo</i>
		Fire-bellied toad	<i>Bombina bombina</i>
		European pond terrapin	<i>Emys orbicularis</i>
		Barbastelle Bat	<i>Barbastella barbastellus</i>
		Eurasian otter	<i>Lutra lutra</i>
		N/A	<i>Triturus dobrogicus</i>
		Natural eutrophic lakes with Magnopotamion or Hydrocharition -type vegetation	3150
		Sub-Atlantic and medio-European oak or oak-hornbeam forests of the Carpinion betuli	9160
		Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> (Alno-Padion, <i>Alnion incanae</i> , <i>Salicion albae</i> )	91E0*

Idendification No	Name	Common name of species	The scientific name of the species / habitat type code
		Riparian mixed forests of <i>Quercus robur</i> , <i>Ulmus laevis</i> and <i>Ulmus minor</i> , <i>Fraxinus excelsior</i> or <i>Fraxinus angustifolia</i> , along the great rivers ( <i>Ulmion minoris</i> )	91F0
HR2001416	Brezovica-Jelik	Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> ( <i>Alno-Padion</i> , <i>Alnion incanae</i> , <i>Salicion albae</i> )	91E0*
HR2001417	Velika Belica	Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> ( <i>Alno-Padion</i> , <i>Alnion incanae</i> , <i>Salicion albae</i> )	91E0*
HR2001419	Otok Dolin – J	Eastern sub-mediterranean dry grasslands ( <i>Scorzoneratalia villosae</i> )	62A0
HR2001420	Otoci Badija, Planjak, Kamenjak, Bisače, Gojak, M. Sestrica, Majsan, M. i V. Stupa, Lučnjak te hrid Baretica	Mediterranean pine forests with endemic Mesogean pines	9540
HR2001421	Hvar od Pokrvenika do uvale Bristova	<i>Quercus ilex</i> and <i>Quercus rotundifolia</i> forests	9340
		Mediterranean pine forests with endemic Mesogean pines	9540
HR2001422	Hvar Golubiničin rat – Rat Velog Strvnja	Mediterranean pine forests with endemic Mesogean pines	9540
		<i>Quercus ilex</i> and <i>Quercus rotundifolia</i> forests	9340
HR2001423	Hvar – od Plane do Veprinove glavice	<i>Quercus ilex</i> and <i>Quercus rotundifolia</i> forests	9340
		Mediterranean pine forests with endemic Mesogean pines	9540
HR2001424	Hvar – od Križišća do Tavna špilje	<i>Quercus ilex</i> and <i>Quercus rotundifolia</i> forests	9340
HR2001425	Hvar – od Prapatna do Karnjakuše	Greater horseshoe bat	<i>Rhinolophus ferrumequinum</i>



Idendification No	Name	Common name of species	The scientific name of the species / habitat type code
		Submerged or partially submerged sea caves	8330
		Quercus ilex and Quercus rotundifolia forests	9340
		Mediterranean pine forests with endemic Mesogean pines	9540
HR2001426	Hvar – Kabal	Mediterranean pine forests with endemic Mesogean pines	9540
HR2001427	Hvar – šume kod Starigrada	Quercus ilex and Quercus rotundifolia forests	9340
HR2001428	Hvar – od Maslinice do Grebišća	Submerged or partially submerged sea caves	8330
		Quercus ilex and Quercus rotundifolia forests	9340
		Mediterranean pine forests with endemic Mesogean pines	9540
HR2001429	Hvar – od Prvog boka do Lučišća	Mediterranean pine forests with endemic Mesogean pines	9540
HR2001430	Golubinjak		<i>Buxbaumia viridis</i>
		Leptodirus	<i>Leptodirus hochenwarti</i>
		Caves and pits closed to the public	8310
HR2001431	Lividraga		<i>Buxbaumia viridis</i>
HR2001432	Lug – Jasenak		<i>Buxbaumia viridis</i>
HR2001433	Bjeljevina		<i>Buxbaumia viridis</i>
HR2001434	Čepić tunel	Caves and pits closed to the public	8310
HR2001435	Sniježnica pod Lisinom	Caves and pits closed to the public	8310
HR2001436	Sojkina jama	Leptodirus	<i>Leptodirus hochenwarti</i>
		Caves and pits closed to the public	8310

Idendification No	Name	Common name of species	The scientific name of the species / habitat type code
HR2001437	Špilja 2 kraj potoka Zala	Leptodirus	<i>Leptodirus hochenwarti</i>
		Caves and pits closed to the public	8310
HR2001438	Jama kod šumarske kuće	Leptodirus	<i>Leptodirus hochenwarti</i>
		Caves and pits closed to the public	8310
HR2001439	Jama kod lugarnice	Leptodirus	<i>Leptodirus hochenwarti</i>
		Caves and pits closed to the public	8310
HR2001440	Špilja pod Zimzelom	Leptodirus	<i>Leptodirus hochenwarti</i>
		Caves and pits closed to the public	8310
HR2001441	Bezdan pod Vučjakom	Leptodirus	<i>Leptodirus hochenwarti</i>
		Caves and pits closed to the public	8310
HR2001442	Lasića špilja	Leptodirus	<i>Leptodirus hochenwarti</i>
		Caves and pits closed to the public	8310
HR2001444	Drenovača jama	Caves and pits closed to the public	8310
HR2001445	Maravića jama	Caves and pits closed to the public	8310
HR2001449	Izvor Dropulića vrilo	Proteus	<i>Proteus anguinus</i> *
HR2001451	Jama za Rasokama	Caves and pits closed to the public	8310
HR2001452	Vilenska peć	Caves and pits closed to the public	8310
HR2001454	Jama u Zadubravici	Caves and pits closed to the public	8310
HR2001458	Vitkovača jama	Caves and pits closed to the public	8310
HR2001460	Pasja jama	Caves and pits closed to the public	8310
HR2001461	Kukova peć	Caves and pits closed to the public	8310

Idendification No	Name	Common name of species	The scientific name of the species / habitat type code
HR2001463	Jama pod Sinji kuk	Caves and pits closed to the public	8310
HR2001464	Špilja na vrh Krčevina	Caves and pits closed to the public	8310
HR2001465	Špilja za Gromačkom vlakom	Lesser horseshoe bat	<i>Rhinolophus hipposideros</i>
		Caves and pits closed to the public	8310
HR2001468	Aragonka	Caves and pits closed to the public	8310
HR2001469	Debela ljut	Caves and pits closed to the public	8310
HR2001470	Jama na vrh Prodoli	Caves and pits closed to the public	8310
HR2001474	Golubinka kod Handrake	Submerged or partially submerged sea caves	8330
HR2001475	Ljubičica kod Handrake	Submerged or partially submerged sea caves	8330
HR2001476	Medvjedina špilja	Submerged or partially submerged sea caves	8330
HR2001477	Nevjestina špilja	Submerged or partially submerged sea caves	8330
HR2001478	Špilja pod Neharom	Submerged or partially submerged sea caves	8330
HR2001479	Špilje od Konjavca	Submerged or partially submerged sea caves	8330
HR2001480	Špiljica u luci Trstena	Submerged or partially submerged sea caves	8330
HR2001481	Špiljice kod mola od Orašca	Submerged or partially submerged sea caves	8330
HR2001483	Istra – Oprtalj	Adriatic Lizard Orchid	<i>Himantoglossum adriaticum</i>
HR2001484	Istra – Čački	Adriatic Lizard Orchid	<i>Himantoglossum adriaticum</i>
HR2001485	Istra – Martinčići	Adriatic Lizard Orchid	<i>Himantoglossum adriaticum</i>
HR2001486	Istra – Čepićko polje	Adriatic Lizard Orchid	<i>Himantoglossum adriaticum</i>
HR2001487	Bakar – Meja	Adriatic Lizard Orchid	<i>Himantoglossum adriaticum</i>
HR2001489	Brač – Stup	Adriatic Lizard Orchid	<i>Himantoglossum adriaticum</i>

Idendification No	Name	Common name of species	The scientific name of the species / habitat type code
HR2001490	Dubrovačko promorje – Doli	Adriatic Lizard Orchid	<i>Himantoglossum adriaticum</i>
HR2001491	Šibensko zaledje – Lozovac	Adriatic Lizard Orchid	<i>Himantoglossum adriaticum</i>
HR2001492	Bunari	Mediterranean temporary ponds	3170*
HR2001493	Piskovica špilja	Caves and pits closed to the public	8310
HR2001494	Jama kod Rašpora	Caves and pits closed to the public	8310
HR2001495	Jama kod Burići	Caves and pits closed to the public	8310
HR2001497	Jama u Bratušu	Caves and pits closed to the public	8310
HR2001498	Kraljevska jama	Caves and pits closed to the public	8310
HR2001499	Jama za Sv. Spasom	Caves and pits closed to the public	8310
HR2001500	Stepska staništa kod Bapske	Sub-Pannonic steppic grasslands	6240*
HR2001501	Stepska staništa kod Opatovca	Sub-Pannonic steppic grasslands	6240*
HR2001502	Stepska staništa kod Šarengrada	Sub-Pannonic steppic grasslands	6240*
HR2001503	Potok Bregana	blstavac	<i>Telestes souffia</i>
HR3000001	Limski kanal – more	Large shallow inlets and bays	1160
		Sandbanks which are slightly covered by sea water all the time	1110
		reefs	1170
		Submerged or partially submerged sea caves	8330
HR3000002	Plomin – Mošćenička draga	Submerged or partially submerged sea caves	8330
		reefs	1170
HR3000003	Vrsarski otoci	Submerged or partially submerged sea caves	8330
		reefs	1170

Idendification No	Name	Common name of species	The scientific name of the species / habitat type code
		Sandbanks which are slightly covered by sea water all the time	1110
HR3000004	Cres – rt Grota – Merag	reefs	1170
HR3000005	Cres – rt Pernat – uvala Tiha	Submerged or partially submerged sea caves	8330
		reefs	1170
		Mudflats and sandflats not covered by seawater at low tide	1140
HR3000007	Cres – rt Suha – rt Meli	Submerged or partially submerged sea caves	8330
		Mudflats and sandflats not covered by seawater at low tide	1140
		Posidonia beds (Posidonion oceanicae)	1120*
		reefs	1170
		Large shallow inlets and bays	1160
HR3000008	Lošinj – Vela i Mala draga	Large shallow inlets and bays	1160
HR3000009	Lošinj – uvala Sunfarni	Large shallow inlets and bays	1160
HR3000010	Lošinj – uvala Krivica	Large shallow inlets and bays	1160
HR3000011	Lošinj – uvala Balvanida	Large shallow inlets and bays	1160
HR3000012	Lošinj – uvala Pijeska	Large shallow inlets and bays	1160
		Mudflats and sandflats not covered by seawater at low tide	1140
HR3000014	Ilovik i Sv. Petar	Posidonia beds (Posidonion oceanicae)	1120*
		Sandbanks which are slightly covered by sea water all the time	1110
		Mudflats and sandflats not covered by seawater at low tide	1140

Idendification No	Name	Common name of species	The scientific name of the species / habitat type code
HR3000015	V. i M. Srakane	Submerged or partially submerged sea caves	8330
		Posidonia beds (Posidonion oceanicae)	1120*
HR3000016	Podmorje Plavnika i Kormata	reefs	1170
HR3000017	Podmorje otoka Suska	Posidonia beds (Posidonion oceanicae)	1120*
		Sandbanks which are slightly covered by sea water all the time	1110
		Mudflats and sandflats not covered by seawater at low tide	1140
		reefs	1170
HR3000018	Podmorje otoka Unije	Posidonia beds (Posidonion oceanicae)	1120*
		Sandbanks which are slightly covered by sea water all the time	1110
		Mudflats and sandflats not covered by seawater at low tide	1140
		reefs	1170
HR3000019	Uvala Soline	Large shallow inlets and bays	1160
HR3000020	Mala i Vela luka na poluotoku Sokol, Krk	Mudflats and sandflats not covered by seawater at low tide	1140
		Large shallow inlets and bays	1160
HR3000021	Podmorje otoka Prvić	reefs	1170
		Sandbanks which are slightly covered by sea water all the time	1110
		Submerged or partially submerged sea caves	8330
HR3000022	Podmorje otoka Grgur i Goli	reefs	1170
		Sandbanks which are slightly covered by sea water all	1110

Idendification No	Name	Common name of species	The scientific name of the species / habitat type code
		the time	
		Submerged or partially submerged sea caves	8330
HR3000024	Supetarska draga na Rabu	Posidonia beds (Posidonion oceanicae)	1120*
		Sandbanks which are slightly covered by sea water all the time	1110
		Mudflats and sandflats not covered by seawater at low tide	1140
HR3000025	Zaljev Kampor na Rabu	Posidonia beds (Posidonion oceanicae)	1120*
		Sandbanks which are slightly covered by sea water all the time	1110
		Mudflats and sandflats not covered by seawater at low tide	1140
HR3000026	Dolfin i otoci	Posidonia beds (Posidonion oceanicae)	1120*
HR3000027	Podmorje Trstenika	Posidonia beds (Posidonion oceanicae)	1120*
		Coastal lagoons	1150*
HR3000028	I. strana V. i M. Orjula	Posidonia beds (Posidonion oceanicae)	1120*
		reefs	1170
HR3000029	Obala između rta Šilo i Vodotoč	Sandbanks which are slightly covered by sea water all the time	1110
		reefs	1170
HR3000030	M. Draga-Žrnovnica	Submerged or partially submerged sea caves	8330
		Large shallow inlets and bays	1160
HR3000031	Sv. Juraj – otočić Lisac	Sandbanks which are slightly covered by sea water all the time	1110
		Coastal lagoons	1150*

Idendification No	Name	Common name of species	The scientific name of the species / habitat type code
		reefs	1170
HR3000032	Uvala Ivanča	Large shallow inlets and bays	1160
		reefs	1170
		Coastal lagoons	1150*
HR3000033	Uvala Malin; uvala Duboka	Large shallow inlets and bays	1160
		reefs	1170
		Coastal lagoons	1150*
HR3000034	Uvala Zavrtnica	Large shallow inlets and bays	1160
		reefs	1170
HR3000035	Uvala Krivača	Large shallow inlets and bays	1160
		reefs	1170
		Coastal lagoons	1150*
HR3000036	Uvala Vrulja u Velebitskom kanalu	Large shallow inlets and bays	1160
		reefs	1170
		Sandbanks which are slightly covered by sea water all the time	1110
HR3000037	Uvala Jurišnica	Large shallow inlets and bays	1160
		reefs	1170
HR3000038	Uvale Svetojanj V. i M.; uvala Lusk	Large shallow inlets and bays	1160
HR3000039	Uvala Caska – od Metajne do rta Hanzina	Sandbanks which are slightly covered by sea water all the time	1110
		Mudflats and sandflats not covered by seawater at low tide	1140



Idendification No	Name	Common name of species	The scientific name of the species / habitat type code
		Large shallow inlets and bays	1160
HR3000040	Pag – od uvale Luka V. do rta Krištofor	reefs	1170
HR3000041	Paška vrata	reefs	1170
HR3000042	Košljunski zaljev	reefs	1170
		Submerged or partially submerged sea caves	8330
HR3000043	Stara Poveljana	Sandbanks which are slightly covered by sea water all the time	1110
		Mudflats and sandflats not covered by seawater at low tide	1140
HR3000044	Uvala Vlašići	Sandbanks which are slightly covered by sea water all the time	1110
		Mudflats and sandflats not covered by seawater at low tide	1140
HR3000045	Uvala Dinjiška	Sandbanks which are slightly covered by sea water all the time	1110
		Mudflats and sandflats not covered by seawater at low tide	1140
		Coastal lagoons	1150*
HR3000046	Ljubačka vrata	reefs	1170
HR3000050	Vinjerac – Masleničko ždrilo	Submerged or partially submerged sea caves	8330
		reefs	1170
HR3000051	Ražanac M. i V.	reefs	1170
HR3000052	Olib – podmorje	Posidonia beds ( <i>Posidonion oceanicae</i> )	1120*
		Sandbanks which are slightly covered by sea water all the time	1110

Idendification No	Name	Common name of species	The scientific name of the species / habitat type code
HR3000053	Silba – podmorje	Posidonia beds (Posidonion oceanicae)	1120*
		reefs	1170
HR3000054	Premuda – vanjska strana	Posidonia beds (Posidonion oceanicae)	1120*
		reefs	1170
		Submerged or partially submerged sea caves	8330
HR3000056	More oko otoka Grujica	Posidonia beds (Posidonion oceanicae)	1120*
HR3000058	Planik i Planičić	Posidonia beds (Posidonion oceanicae)	1120*
		reefs	1170
HR3000059	Otoci Škrda i Maun	Posidonia beds (Posidonion oceanicae)	1120*
HR3000060	More oko otoka Škarda	Posidonia beds (Posidonion oceanicae)	1120*
		reefs	1170
HR3000061	Plićine oko Maslinjaka; Vodenjaka, Kamenjaka	Submerged or partially submerged sea caves	8330
		Posidonia beds (Posidonion oceanicae)	1120*
		reefs	1170
HR3000062	Plićine oko Tramerke	Posidonia beds (Posidonion oceanicae)	1120*
		reefs	1170
HR3000063	Prolaz između Zapuntela i Ista	Submerged or partially submerged sea caves	8330
		Posidonia beds (Posidonion oceanicae)	1120*
HR3000064	Brguljski zaljev – o. Molat	Posidonia beds (Posidonion oceanicae)	1120*
		Large shallow inlets and bays	1160
HR3000065	Bonaster – o. Molat	reefs	1170

Idendification No	Name	Common name of species	The scientific name of the species / habitat type code
HR3000066	Jl dio o. Molata	Posidonia beds (Posidonion oceanicae)	1120*
		reefs	1170
HR3000067	Luka Soliščica; Dugi Otok	Posidonia beds (Posidonion oceanicae)	1120*
		Sandbanks which are slightly covered by sea water all the time	1110
		Large shallow inlets and bays	1160
HR3000068	Uvala Golubinka – rt Lopata	reefs	1170
HR3000069	Uvala Sakarun	Posidonia beds (Posidonion oceanicae)	1120*
		reefs	1170
HR3000070	Z. obala Dugog otoka	Submerged or partially submerged sea caves	8330
		reefs	1170
HR3000071	Uvala Brbišćica	reefs	1170
		Mudflats and sandflats not covered by seawater at low tide	1140
		Submerged or partially submerged sea caves	8330
HR3000072	Uvala Zagračina	Posidonia beds (Posidonion oceanicae)	1120*
HR3000073	J rt o. Zverinac	Posidonia beds (Posidonion oceanicae)	1120*
HR3000074	Rivanjski kanal sa Sestricama	Posidonia beds (Posidonion oceanicae)	1120*
		reefs	1170
HR3000075	Otok Jidula do rt Ovčjak; prolaz V. Ždrelac	Posidonia beds (Posidonion oceanicae)	1120*
HR3000076	Punta Parda	reefs	1170
HR3000077	J dio o. Iža i o. Mrtovnjak	Posidonia beds (Posidonion oceanicae)	1120*

Idendification No	Name	Common name of species	The scientific name of the species / habitat type code
		Submerged or partially submerged sea caves	8330
HR3000078	Otok Tukošćak i o. Mrtonjak	Posidonia beds (Posidonion oceanicae)	1120*
		reefs	1170
HR3000079	Otok Karantunić	reefs	1170
		Posidonia beds (Posidonion oceanicae)	1120*
HR3000080	Uvala Sabuša	Sandbanks which are slightly covered by sea water all the time	1110
		Mudflats and sandflats not covered by seawater at low tide	1140
HR3000081	Rončić	Posidonia beds (Posidonion oceanicae)	1120*
HR3000082	V. i M. Skala	Posidonia beds (Posidonion oceanicae)	1120*
HR3000084	Uvala Sv. Ante	Large shallow inlets and bays	1160
HR3000085	Otok Vrgada SI strana s o. Kozina	Submerged or partially submerged sea caves	8330
		Posidonia beds (Posidonion oceanicae)	1120*
		Sandbanks which are slightly covered by sea water all the time	1110
		Mudflats and sandflats not covered by seawater at low tide	1140
HR3000086	Uvala Makirina	Coastal lagoons	1150*
HR3000088	Uvala Grebaštica	Large shallow inlets and bays	1160
HR3000089	Uvale oko rta Ploča	reefs	1170
HR3000090	Uvala Stivančica	reefs	1170
HR3000091	Uvala Tijašnica	Large shallow inlets and bays	1160

Idendification No	Name	Common name of species	The scientific name of the species / habitat type code
HR3000092	Blitvenica	reefs	1170
HR3000093	JZ strana Šolte – I	Submerged or partially submerged sea caves	8330
		Posidonia beds (Posidonion oceanicae)	1120*
		Sandbanks which are slightly covered by sea water all the time	1110
HR3000094	JZ strana Šolte – II	Large shallow inlets and bays	1160
		Submerged or partially submerged sea caves	8330
		reefs	1170
		Posidonia beds (Posidonion oceanicae)	1120*
HR3000095	Pakleni otoci	Posidonia beds (Posidonion oceanicae)	1120*
		Sandbanks which are slightly covered by sea water all the time	1110
		reefs	1170
		Submerged or partially submerged sea caves	8330
HR3000096	JI strana o. Visa	Posidonia beds (Posidonion oceanicae)	1120*
		Sandbanks which are slightly covered by sea water all the time	1110
		Mudflats and sandflats not covered by seawater at low tide	1140
HR3000097	Otok Vis – podmorje	Posidonia beds (Posidonion oceanicae)	1120*
		reefs	1170
		Submerged or partially submerged sea caves	8330
		Mudflats and sandflats not covered by seawater at low tide	1140

Idendification No	Name	Common name of species	The scientific name of the species / habitat type code
		Sandbanks which are slightly covered by sea water all the time	1110
HR3000098	Biševo more	Posidonia beds (Posidonion oceanicae)	1120*
		reefs	1170
		Submerged or partially submerged sea caves	8330
		Sandbanks which are slightly covered by sea water all the time	1110
		Mudflats and sandflats not covered by seawater at low tide	1140
HR3000099	Brusnik i Svetac	Submerged or partially submerged sea caves	8330
		reefs	1170
HR3000100	Otok Jabuka – podmorje	reefs	1170
HR3000101	Arkandjel	reefs	1170
		Posidonia beds (Posidonion oceanicae)	1120*
HR3000102	Kosmač M. i V.	reefs	1170
		Posidonia beds (Posidonion oceanicae)	1120*
HR3000103	Merara	reefs	1170
		Posidonia beds (Posidonion oceanicae)	1120*
HR3000104	Muljica V. more	reefs	1170
		Posidonia beds (Posidonion oceanicae)	1120*
HR3000105	Hrid Muljica more	reefs	1170
		Posidonia beds (Posidonion oceanicae)	1120*
HR3000106	Murvica	reefs	1170

Idendification No	Name	Common name of species	The scientific name of the species / habitat type code
		Posidonia beds (Posidonion oceanicae)	1120*
HR3000107	Otoci Orud i Mačaknar	reefs	1170
		Posidonia beds (Posidonion oceanicae)	1120*
HR3000108	Fumija I – podmorje	Submerged or partially submerged sea caves	8330
		reefs	1170
		Posidonia beds (Posidonion oceanicae)	1120*
HR3000109	Krknjaši	reefs	1170
		Posidonia beds (Posidonion oceanicae)	1120*
HR3000110	Fumija II – podmorje	reefs	1170
		Posidonia beds (Posidonion oceanicae)	1120*
HR3000111	Recetinovac	reefs	1170
		Posidonia beds (Posidonion oceanicae)	1120*
HR3000112	Mrduja	reefs	1170
		Posidonia beds (Posidonion oceanicae)	1120*
		Submerged or partially submerged sea caves	8330
HR3000113	Podmorje otočića Mrduja	reefs	1170
		Posidonia beds (Posidonion oceanicae)	1120*
		Sandbanks which are slightly covered by sea water all the time	1110
HR3000114	Otoci Lukavci	reefs	1170
		Posidonia beds (Posidonion oceanicae)	1120*
HR3000115	Pelegrin – podmorje	Submerged or partially submerged sea caves	8330

Idendification No	Name	Common name of species	The scientific name of the species / habitat type code
		reefs	1170
		Posidonia beds (Posidonion oceanicae)	1120*
HR3000116	Kabal – podmorje	reefs	1170
		Posidonia beds (Posidonion oceanicae)	1120*
		Sandbanks which are slightly covered by sea water all the time	1110
		Large shallow inlets and bays	1160
		Submerged or partially submerged sea caves	8330
HR3000119	Otok Šćedro	Submerged or partially submerged sea caves	8330
		reefs	1170
		Posidonia beds (Posidonion oceanicae)	1120*
		Sandbanks which are slightly covered by sea water all the time	1110
		Large shallow inlets and bays	1160
HR3000120	Zlatni rat na Braču – podmorje	Posidonia beds (Posidonion oceanicae)	1120*
		Sandbanks which are slightly covered by sea water all the time	1110
HR3000121	Palagruža – podmorje I	Submerged or partially submerged sea caves	8330
		reefs	1170
		Posidonia beds (Posidonion oceanicae)	1120*
		Sandbanks which are slightly covered by sea water all the time	1110
HR3000122	Otočić Galijula	reefs	1170



Idendification No	Name	Common name of species	The scientific name of the species / habitat type code
		Sandbanks which are slightly covered by sea water all the time	1110
		Submerged or partially submerged sea caves	8330
HR3000123	Uvala Vrulja kod Brela	reefs	1170
		Submerged or partially submerged sea caves	8330
HR3000124	Sveti Petar	reefs	1170
		Calcareous rocky slopes with chasmophytic vegetation	8210
		Vegetated sea cliffs of the Mediterranean coasts with endemic Limonium spp	1240
HR3000125	Osejava	Mudflats and sandflats not covered by seawater at low tide	1140
		reefs	1170
HR3000126	Ušće Cetine	Great sea lamprey	<i>Petromyzon marinus</i>
		Mudflats and sandflats not covered by seawater at low tide	1140
		Estuaries	1130
		Sandbanks which are slightly covered by sea water all the time	1110
HR3000127	Brač – podmorje	reefs	1170
		Submerged or partially submerged sea caves	8330
		Posidonia beds ( <i>Posidonion oceanicae</i> )	1120*
		Sandbanks which are slightly covered by sea water all the time	1110
HR3000128	U. Ramova; u. Krvavica	Mudflats and sandflats not covered by seawater at	1140

Idendification No	Name	Common name of species	The scientific name of the species / habitat type code
		low tide	
		Sandbanks which are slightly covered by sea water all the time	1110
HR3000129	Uvala Klokun	Mudflats and sandflats not covered by seawater at low tide	1140
		Sandbanks which are slightly covered by sea water all the time	1110
HR3000130	Uvala V. Duba	Mudflats and sandflats not covered by seawater at low tide	1140
HR3000131	Uvale Vira donja i Vira gornja	Mudflats and sandflats not covered by seawater at low tide	1140
		Sandbanks which are slightly covered by sea water all the time	1110
HR3000133	Crni rat – o. Brač	Large shallow inlets and bays	1160
		reefs	1170
HR3000134	Uvala Lovrečina	Large shallow inlets and bays	1160
HR3000135	Otok Hvar – od Uvale Dubovica do rta Nedjelja	reefs	1170
		Mudflats and sandflats not covered by seawater at low tide	1140
		Posidonia beds (Posidonion oceanicae)	1120*
HR3000136	Uvala Vlaška – Hvar	Sandbanks which are slightly covered by sea water all the time	1110
		Mudflats and sandflats not covered by seawater at low tide	1140
HR3000137	Uvala Bristova – Hvar	Posidonia beds (Posidonion oceanicae)	1120*
		Sandbanks which are slightly covered by sea water all the time	1110

Idendification No	Name	Common name of species	The scientific name of the species / habitat type code
HR3000138	Uvala V. Pogorila – Hvar	Mudflats and sandflats not covered by seawater at low tide	1140
		Sandbanks which are slightly covered by sea water all the time	1110
HR3000139	Uvala M. Pogorila – Hvar	Mudflats and sandflats not covered by seawater at low tide	1140
		Sandbanks which are slightly covered by sea water all the time	1110
HR3000140	Uvala M. Moševčica – Hvar	Mudflats and sandflats not covered by seawater at low tide	1140
		Sandbanks which are slightly covered by sea water all the time	1110
HR3000141	Uvala V. Moševčica – Hvar	Mudflats and sandflats not covered by seawater at low tide	1140
		Sandbanks which are slightly covered by sea water all the time	1110
HR3000142	Uvale Divlja mala i Divlja vela – Hvar	Mudflats and sandflats not covered by seawater at low tide	1140
		Sandbanks which are slightly covered by sea water all the time	1110
HR3000143	Uvale Kruševa; Pokrvenik i Zaraće – Hvar	Mudflats and sandflats not covered by seawater at low tide	1140
		Sandbanks which are slightly covered by sea water all the time	1110
		reefs	1170
HR3000149	Uvale Prapratna i Makarac – Hvar	Mudflats and sandflats not covered by seawater at low tide	1140
		Sandbanks which are slightly covered by sea water all the time	1110

Idendification No	Name	Common name of species	The scientific name of the species / habitat type code
HR3000150	Pelješac – od uvale Rasoka do rta Osičac	Large shallow inlets and bays	1160
		Posidonia beds (Posidonion oceanicae)	1120*
		Sandbanks which are slightly covered by sea water all the time	1110
HR3000152	Otok Proizd i Privala na Korčuli	reefs	1170
		Posidonia beds (Posidonion oceanicae)	1120*
HR3000153	Otok Korčula – od uvale Poplat do Vrhovnjaka	reefs	1170
		Posidonia beds (Posidonion oceanicae)	1120*
		Submerged or partially submerged sea caves	8330
HR3000154	Pupnatska luka	Sandbanks which are slightly covered by sea water all the time	1110
		Mudflats and sandflats not covered by seawater at low tide	1140
		Large shallow inlets and bays	1160
HR3000155	Uvala Orlanduša	Sandbanks which are slightly covered by sea water all the time	1110
		Mudflats and sandflats not covered by seawater at low tide	1140
HR3000156	Pavja luka	Sandbanks which are slightly covered by sea water all the time	1110
		Mudflats and sandflats not covered by seawater at low tide	1140
HR3000161	Cres – Lošinj	dobri dupin	<i>Tursiops truncatus</i>
HR3000162	Rt Rukavac – Rt Marčuleti	Posidonia beds (Posidonion oceanicae)	1120*
		Mudflats and sandflats not covered by seawater at low tide	1140

Idendification No	Name	Common name of species	The scientific name of the species / habitat type code
HR3000163	Stonski kanal	Large shallow inlets and bays	1160
		Posidonia beds (Posidonion oceanicae)	1120*
HR3000164	Sveti Andrija – podmorje	Submerged or partially submerged sea caves	8330
		reefs	1170
HR3000165	Uvala Slano	Posidonia beds (Posidonion oceanicae)	1120*
		Large shallow inlets and bays	1160
HR3000166	Sjeverna obala od rta Pusta u uvali Sobra do rta Stoba kod uvale Okuklje s otocima i akvatorijem	Large shallow inlets and bays	1160
		Posidonia beds (Posidonion oceanicae)	1120*
HR3000167	Solana Ston	obrvan	<i>Aphanius fasciatus</i>
		Mediterranean and thermo-Atlantic halophilous scrubs (Sarcocornetea fruticosi)	1420
HR3000170	Akvatorij uz Konavoske stijene	Posidonia beds (Posidonion oceanicae)	1120*
		reefs	1170
		Submerged or partially submerged sea caves	8330
		Large shallow inlets and bays	1160
HR3000171	Ušće Krke	Greater horseshoe bat	<i>Rhinolophus ferrumequinum</i>
		Mediterranean horseshoe bat	<i>Rhinolophus euryale</i>
		Lesser mouse-eared bat	<i>Myotis blythii</i>
		Schreiber's Bat	<i>Miniopterus schreibersii</i>
		Long-fingered bat	<i>Myotis capaccinii</i>
		Geoffroy's bat	<i>Myotis emarginatus</i>

Idendification No	Name	Common name of species	The scientific name of the species / habitat type code
		Submerged or partially submerged sea caves	8330
		Estuaries	1130
		Sandbanks which are slightly covered by sea water all the time	1110
		Caves and pits closed to the public	8310
HR3000172	Obalna linija od luke Gonoturska do rta Vratnički	reefs	1170
		Submerged or partially submerged sea caves	8330
HR3000173	Medulinski zaljev	Posidonia beds (Posidonion oceanicae)	1120*
		Large shallow inlets and bays	1160
		Sandbanks which are slightly covered by sea water all the time	1110
		reefs	1170
HR3000174	Pomerski zaljev	Coastal lagoons	1150*
HR3000175	Ljubački zaljev	Submerged or partially submerged sea caves	8330
		Sandbanks which are slightly covered by sea water all the time	1110
		Mudflats and sandflats not covered by seawater at low tide	1140
HR3000176	Ninski zaljev	Submerged or partially submerged sea caves	8330
		Sandbanks which are slightly covered by sea water all the time	1110
		Mudflats and sandflats not covered by seawater at low tide	1140
HR3000177	Zmajevo oko	Submerged or partially submerged sea caves	8330
		Coastal lagoons	1150*

Idendification No	Name	Common name of species	The scientific name of the species / habitat type code
HR3000179	Lun – podmorje	Posidonia beds (Posidonion oceanicae)	1120*
		reefs	1170
		Submerged or partially submerged sea caves	8330
HR3000180	Uvala Stara Novalja	Sandbanks which are slightly covered by sea water all the time	1110
		Mudflats and sandflats not covered by seawater at low tide	1140
HR3000198	Medvjeda pećina kod uvale Lučica (Lošinj)	Submerged or partially submerged sea caves	8330
HR3000208	Špilja kod iškog Mrtovnjaka	Submerged or partially submerged sea caves	8330
HR3000247	Špilja podno Kostrija (Vrbnička špilja)	Submerged or partially submerged sea caves	8330
HR3000257	Jama Vrtare Male	Submerged or partially submerged sea caves	8330
HR3000279	Vrulja Plantaža	reefs	1170
HR3000280	Vrulja Zečica	reefs	1170
HR3000319	Jama Gradina	Submerged or partially submerged sea caves	8330
HR3000331	Jama Bač II	Submerged or partially submerged sea caves	8330
HR3000340	Batista jama (Bijaka)	Submerged or partially submerged sea caves	8330
HR3000349	Špilja Matijaševica	Submerged or partially submerged sea caves	8330
HR3000351	Uvala Drašnica – vrulja	Coastal lagoons	1150*
HR3000376	Jama Stračinčica	Submerged or partially submerged sea caves	8330
HR3000381	Jama Zaglavica	Submerged or partially submerged sea caves	8330
HR3000414	Zmajevo uho	Submerged or partially submerged sea caves	8330

Idendification No	Name	Common name of species	The scientific name of the species / habitat type code
HR3000415	Uvale Jaz; Soline i Sulinj na Krku	Large shallow inlets and bays	1160
HR3000417	Zaljev Sv. Eufemije na Rabu	Mudflats and sandflats not covered by seawater at low tide	1140
		Sandbanks which are slightly covered by sea water all the time	1110
HR3000419	J. Molat-Dugi-Kornat-Murter-Pašman-Ugljan-Rivanj-Sestrunj-Molat	dobri dupin	<i>Tursiops truncatus</i>
		Submerged or partially submerged sea caves	8330
HR3000421	Solana Nin	obrvan	<i>Aphanius fasciatus</i>
		Mediterranean and thermo-Atlantic halophilous scrubs ( <i>Sarcocornetea fruticosi</i> )	1420
HR3000423	Jabučka kotlina	Sandbanks which are slightly covered by sea water all the time	1110
		reefs	1170
HR3000426	Lastovski i Mljetski kanal	dobri dupin	<i>Tursiops truncatus</i>
HR3000430	Pantan	obrvan	<i>Aphanius fasciatus</i>
		Painzza's Goby	<i>Knipowitschia panizae</i>
		Coastal lagoons	1150*
		Mediterranean and thermo-Atlantic halophilous scrubs ( <i>Sarcocornetea fruticosi</i> )	1420
		Mediterranean salt meadows ( <i>Juncetalia maritimi</i> )	1410
HR3000431	Akvatorij J od uvale Pržina i S od uvale Bilin žal uz poluotok Ražnjić	Posidonia beds ( <i>Posidonion oceanicae</i> )	1120*
		Sandbanks which are slightly covered by sea water all the time	1110
		Mudflats and sandflats not covered by seawater at	1140



Idendification No	Name	Common name of species	The scientific name of the species / habitat type code
		low tide	
		reefs	1170
HR3000432	Ušće Raše	Painzza's Goby	<i>Knipowitschia panizzae</i>
		Estuaries	1130
		Sandbanks which are slightly covered by sea water all the time	1110
HR3000433	Ušće Mirne	Mediterranean and thermo-Atlantic halophilous scrubs (Sarcocornetea fruticosi)	1420
		Estuaries	1130
		Sandbanks which are slightly covered by sea water all the time	1110
HR3000437	Sedlo – podmorje	reefs	1170
HR3000438	Kosmerka – Prokladnica – Vrtlac – Babuljak – podmorje	reefs	1170
HR3000439	Uvale Tratinska i Balun	reefs	1170
		Posidonia beds (Posidonion oceanicae)	1120*
HR3000440	Žirje – Kabal	reefs	1170
		Posidonia beds (Posidonion oceanicae)	1120*
HR3000441	Kaprije	Posidonia beds (Posidonion oceanicae)	1120*
HR3000442	Kakanski kanal	Posidonia beds (Posidonion oceanicae)	1120*
		reefs	1170
		Sandbanks which are slightly covered by sea water all the time	1110

Idendification No	Name	Common name of species	The scientific name of the species / habitat type code
HR3000443	Tetovišnjak – podmorje	reefs	1170
		Posidonia beds (Posidonion oceanicae)	1120*
HR3000444	Kukuljari	Submerged or partially submerged sea caves	8330
		reefs	1170
		Posidonia beds (Posidonion oceanicae)	1120*
HR3000445	Murterski kanal	Posidonia beds (Posidonion oceanicae)	1120*
		reefs	1170
HR3000446	Medvjeda špilja (morska)	Submerged or partially submerged sea caves	8330
HR3000447	Markova jama	Submerged or partially submerged sea caves	8330
HR3000450	Solana Pag	obrvan	<i>Aphanius fasciatus</i>
		Mediterranean and thermo-Atlantic halophilous scrubs (Sarcocornetea fruticosi)	1420
HR3000451	Hvar – otok Zečevo	reefs	1170
		Posidonia beds (Posidonion oceanicae)	1120*
HR3000452	Krak – od rta Negrit do uvale Zaglav	Posidonia beds (Posidonion oceanicae)	1120*
		Mudflats and sandflats not covered by seawater at low tide	1140
		reefs	1170
HR3000453	Krak – od uvale Zaglav do Crikvenog rta	Posidonia beds (Posidonion oceanicae)	1120*
		Sandbanks which are slightly covered by sea water all the time	1110
HR3000454	Krak – od Crikvenog rta do rta Sv.	Posidonia beds (Posidonion oceanicae)	1120*

Idendification No	Name	Common name of species	The scientific name of the species / habitat type code
	Nikole	Mudflats and sandflats not covered by seawater at low tide	1140
		reefs	1170
HR3000455	Rt Gomilica – Brač	Posidonia beds (Posidonion oceanicae)	1120*
		reefs	1170
HR3000456	Hvar – od uvale Vitarna do uvale Maslinica	Posidonia beds (Posidonion oceanicae)	1120*
		Sandbanks which are slightly covered by sea water all the time	1110
		reefs	1170
		Mudflats and sandflats not covered by seawater at low tide	1140
HR3000457	Južna obala Hvara – od rta Nedjelja do uvale Česminica	Sandbanks which are slightly covered by sea water all the time	1110
		Posidonia beds (Posidonion oceanicae)	1120*
		Mudflats and sandflats not covered by seawater at low tide	1140
		Submerged or partially submerged sea caves	8330
HR3000458	Šolta od uvale Šipkova do Grčkog rata	Posidonia beds (Posidonion oceanicae)	1120*
HR3000459	Pantan – Divulje	Sandbanks which are slightly covered by sea water all the time	1110
		Large shallow inlets and bays	1160
HR3000460	Morinjski zaljev	Coastal lagoons	1150*
HR3000461	Uvala Modrić	Coastal lagoons	1150*
		reefs	1170

Idendification No	Name	Common name of species	The scientific name of the species / habitat type code
HR3000462	Otoci rovinjskog područja – podmorje	reefs	1170
HR3000463	Uvala Remac	reefs	1170
HR3000464	Područje oko rta Tatinja – Hvar	reefs	1170
HR3000465	Podmorje istočne obale otoka Krka	reefs	1170
		Posidonia beds (Posidonion oceanicae)	1120*
		Submerged or partially submerged sea caves	8330
HR3000466	Čiovo od uvale Orlice do rta Čiova	reefs	1170
		Sandbanks which are slightly covered by sea water all the time	1110
		Mudflats and sandflats not covered by seawater at low tide	1140
		Posidonia beds (Posidonion oceanicae)	1120*
HR3000467	Podmorje Kostrene	reefs	1170
		Submerged or partially submerged sea caves	8330
HR3000468	Podmorje poluotoka Lopar – Rab	Posidonia beds (Posidonion oceanicae)	1120*
		Sandbanks which are slightly covered by sea water all the time	1110
		Mudflats and sandflats not covered by seawater at low tide	1140
HR3000469	Viški akvatorij	dobri dupin	<i>Tursiops truncatus</i>
HR3000470	Podmorje kod Rabca	Sandbanks which are slightly covered by sea water all the time	1110
		reefs	1170
HR3000471	Uvala Škvaranska – Uvala Sv.	Sandbanks which are slightly covered by sea water all	1110

Idendification No	Name	Common name of species	The scientific name of the species / habitat type code
	Marina	the time	
		reefs	1170
HR3000472	Podmorje oko rta Ćuf na Krku	reefs	1170
		Large shallow inlets and bays	1160
HR3000473	Babuljaši i okolni reefs	reefs	1170
		Posidonia beds (Posidonion oceanicae)	1120*
HR3000474	Otočić Drvenik	reefs	1170
		Submerged or partially submerged sea caves	8330
HR3000475	Brač – podmorje od Rta Gališnjak do Druge vale	Sandbanks which are slightly covered by sea water all the time	1110
		Posidonia beds (Posidonion oceanicae)	1120*
		Mudflats and sandflats not covered by seawater at low tide	1140
HR3000476	Uvala Divna – Pelješac	Sandbanks which are slightly covered by sea water all the time	1110
		Posidonia beds (Posidonion oceanicae)	1120*
		Mudflats and sandflats not covered by seawater at low tide	1140
HR4000001	Nacionalni park Kornati	dobri dupin	<i>Tursiops truncatus</i>
		Pseudo-steppe with grasses and annuals of the Thero-Brachypodietea	6220*
		Termo-mediteranske (stenomediteranske) grmolike formacije s Euphorbia dendroides	5330
		Submerged or partially submerged sea caves	8330

Idendification No	Name	Common name of species	The scientific name of the species / habitat type code
		Caves and pits closed to the public	8310
		Posidonia beds (Posidonion oceanicae)	1120*
		Calcareous rocky slopes with chasmophytic vegetation	8210
		Eastern sub-mediterranean dry grasslands (Scorzoneratalia villosae)	62A0
		reefs	1170
		Large shallow inlets and bays	1160
		Vegetated sea cliffs of the Mediterranean coasts with endemic Limonium spp	1240
		Olea and Ceratonia forests	9320
HR4000002	Park prirode Telašćica	Geoffroy's bat	<i>Myotis emarginatus</i>
		Greater horseshoe bat	<i>Rhinolophus ferrumequinum</i>
		N/A	<i>Zamenis situla</i>
		Termo-mediteranske (stenomediteranske) grmolike formacije s Euphorbia dendroides	5330
		Eastern sub-mediterranean dry grasslands (Scorzoneratalia villosae)	62A0
		Submerged or partially submerged sea caves	8330
		Posidonia beds (Posidonion oceanicae)	1120*
		Coastal lagoons	1150*
		Eastern Mediterranean screes	8140
		Calcareous rocky slopes with chasmophytic vegetation	8210

Idendification No	Name	Common name of species	The scientific name of the species / habitat type code
		reefs	1170
		Large shallow inlets and bays	1160
		Vegetated sea cliffs of the Mediterranean coasts with endemic Limonium spp	1240
HR4000004	Velo i Malo Blato	jezerski regoč	<i>Lindenia tetraphylla</i>
		Marsh Fritillary	<i>Euphydryas aurinia</i>
		Dalmatian Ringlet	<i>Proterebia afra dalmata</i>
		Mediterranean salt meadows ( <i>Juncetalia maritimi</i> )	1410
		Mediterranean and thermo-Atlantic halophilous scrubs ( <i>Sarcocornetea fruticosi</i> )	1420
		Amphibious habitat Isoëto-Nanojuncetea	3130
		Eastern sub-mediterranean dry grasslands ( <i>Scorzoneratalia villosae</i> )	62A0
		Natural eutrophic lakes with Magnopotamion or Hydrocharition -type vegetation	3150
HR4000005	Privlaka – Ninski zaljev – Ljubački zaljev	Mediterranean and thermo-Atlantic halophilous scrubs ( <i>Sarcocornetea fruticosi</i> )	1420
		Caves and pits closed to the public	8310
		Mudflats and sandflats not covered by seawater at low tide	1140
		Embryonic shifting dunes	2110
		Mediterranean salt meadows ( <i>Juncetalia maritimi</i> )	1410
HR4000006	Uvala Plemići	Schreiber's Bat	<i>Miniopterus schreibersii</i>

Idendification No	Name	Common name of species	The scientific name of the species / habitat type code
		Long-fingered bat	<i>Myotis capaccini</i>
		Geoffroy's bat	<i>Myotis emarginatus</i>
		Greater mouse-eared bat	<i>Myotis myotis</i>
		Greater horseshoe bat	<i>Rhinolophus ferrumequinum</i>
		Mediterranean salt meadows ( <i>Juncetalia maritimi</i> )	1410
		Mediterranean and thermo-Atlantic halophilous scrubs ( <i>Sarcocornetea fruticosi</i> )	1420
		Mudflats and sandflats not covered by seawater at low tide	1140
		Vegetated sea cliffs of the Mediterranean coasts with endemic <i>Limonium</i> spp	1240
		Sub-Mediterranean grasslands of the Molinio-Hordeion secalini	6540
HR4000007	Badija i otoci oko Korčule	Posidonia beds ( <i>Posidonion oceanicae</i> )	1120*
		Submerged or partially submerged sea caves	8330
HR4000008	Jabuka	Vegetated sea cliffs of the Mediterranean coasts with endemic <i>Limonium</i> spp	1240
		Termo-mediteranske (stenomediteranske) grmolike formacije s <i>Euphorbia dendroides</i>	5330
		Calcareous rocky slopes with chasmophytic vegetation	8210
HR4000009	Brusnik	Vegetated sea cliffs of the Mediterranean coasts with endemic <i>Limonium</i> spp	1240



Idendification No	Name	Common name of species	The scientific name of the species / habitat type code
HR4000010	Saplunara	Embryonic shifting dunes	2110
		Quercus ilex and Quercus rotundifolia forests	9340
HR4000015	Malostonski zaljev	Large shallow inlets and bays	1160
		reefs	1170
HR4000016	Konavoske stijene	Termo-mediteranske (stenomediteranske) grmolike formacije s Euphorbia dendroides	5330
		Vegetated sea cliffs of the Mediterranean coasts with endemic Limonium spp	1240
		Calcareous rocky slopes with chasmophytic vegetation	8210
		Pseudo-steppe with grasses and annuals of the Thero-Brachypodietea	6220*
HR4000017	Lokrum	Posidonia beds (Posidonion oceanicae)	1120*
		reefs	1170
		Vegetated sea cliffs of the Mediterranean coasts with endemic Limonium spp	1240
		Calcareous rocky slopes with chasmophytic vegetation	8210
		Pseudo-steppe with grasses and annuals of the Thero-Brachypodietea	6220*
		Quercus ilex and Quercus rotundifolia forests	9340
		Mediterranean pine forests with endemic Mesogean pines	9540
		Submerged or partially submerged sea caves	8330

Idendification No	Name	Common name of species	The scientific name of the species / habitat type code
HR4000018	Paške stijene Velebitskog Kanala (Rt Sv. Nikola – Rt Fortica – Rt Mrtva)	Hermann's Mediterranean Tortoise	<i>Testudo hermanni</i>
		N/A	<i>Zamenis situla</i>
		Dalmatian Ringlet	<i>Proterebia afra dalmata</i>
		Eastern sub-mediterranean dry grasslands (Scorzoneratalia villosae)	62A0
		Vegetated sea cliffs of the Mediterranean coasts with endemic Limonium spp	1240
		Calcareous rocky slopes with chasmophytic vegetation	8210
		Eastern Mediterranean screes	8140
HR4000019	Paške stijene Velebitskog Kanala (Rt Deda – Rt Krištofer)	Hermann's Mediterranean Tortoise	<i>Testudo hermanni</i>
		N/A	<i>Zamenis situla</i>
		Eastern Mediterranean screes	8140
		Vegetated sea cliffs of the Mediterranean coasts with endemic Limonium spp	1240
		Eastern sub-mediterranean dry grasslands (Scorzoneratalia villosae)	62A0
HR4000024	Južna obala Šolte	Calcareous rocky slopes with chasmophytic vegetation	8210
HR4000025	Silbanski reefs	Posidonia beds (Posidonion oceanicae)	1120*
		reefs	1170
		Annual vegetation of drift lines (Cakiletea maritimae p.)	1210

Idendification No	Name	Common name of species	The scientific name of the species / habitat type code
		Vegetated sea cliffs of the Mediterranean coasts with endemic Limonium spp	1240
		Eastern sub-mediterranean dry grasslands (Scorzonera villosa)	62A0
HR4000027	Laguna kod Poveljane – Segla	Coastal lagoons	1150*
HR4000028	Elafiti	Lesser horseshoe bat	<i>Rhinolophus hipposideros</i>
		Caves and pits closed to the public	8310
		reefs	1170
		Posidonia beds (Posidonion oceanicae)	1120*
		Submerged or partially submerged sea caves	8330
		Vegetated sea cliffs of the Mediterranean coasts with endemic Limonium spp	1240
		Thermo-mediterranean (stenomediterranean) grass-like formations with Euphorbia dendroidea	5330
		Sandbanks which are slightly covered by sea water all the time	1110
		Mudflats and sandflats not covered by seawater at low tide	1140
		Quercus ilex and Quercus rotundifolia forests	9340
		Pseudo-steppe with grasses and annuals of the Thero-Brachypodietea	6220*
		Embryonic shifting dunes	2110
		Calcareous rocky slopes with chasmophytic vegetation	8210

Idendification No	Name	Common name of species	The scientific name of the species / habitat type code
HR4000029	Zaljev Soline – otok Krk	Mediterranean and thermo-Atlantic halophilous scrubs (Sarcocornetea fruticosi)	1420
HR4000030	Novigradsko i Karinsko more	Submerged or partially submerged sea caves	8330
		Estuaries	1130
		Sandbanks which are slightly covered by sea water all the time	1110
		Salicornia and other annuals colonizing mud and sand	1310
		Mediterranean salt meadows (Juncetalia maritimi)	1410
		Mediterranean and thermo-Atlantic halophilous scrubs (Sarcocornetea fruticosi)	1420
		Coastal lagoons	1150*
HR4000031	Otok Zeča	Posidonia beds (Posidonion oceanicae)	1120*
		Coastal lagoons	1150*
		Annual vegetation of drift lines (Cakiletea maritimae p.)	1210
		Salicornia and other annuals colonizing mud and sand	1310
HR5000014	Gornji tok Drave (od Donje Dubrave do Terezinog polja)	Green Snaketail	<i>Ophiogomphus cecilia</i>
		Yellow-spotted Whiteface	<i>Leucorrhinia pectoralis</i>
		Large Copper	<i>Lycaena dispar</i>
		Stag Beetle	<i>Lucanus cervus</i>
		hrastova strizibuba	<i>Cerambyx cerdo</i>
		Asp	<i>Aspius aspius</i>

Idendification No	Name	Common name of species	The scientific name of the species / habitat type code
		Weather-fish	<i>Misgurnus fossilis</i>
		Striped Ruffe	<i>Gymnocephalus schraetser</i>
		Zingel	<i>Zingel zingel</i>
		Streber	<i>Zingel streber</i>
		Fire-bellied toad	<i>Bombina bombina</i>
		European pond terrapin	<i>Emys orbicularis</i>
		Barbastelle Bat	<i>Barbastella barbastellus</i>
		Bechstein's bat	<i>Myotis bechsteinii</i>
		European beaver	<i>Castor fiber</i>
		Eurasian otter	<i>Lutra lutra</i>
		N/A	<i>Triturus dobrogicus</i>
		European Mud-minnow	<i>Umbra krameri</i>
		sabljarka	<i>Razorfish</i>
		Balon's Ruffe	<i>Gymnocephalus baloni</i>
		Ornate Bluet	<i>Coenagrion ornatum</i>
		zlatni vijun	<i>Sabanejewia balcanica</i>
		bjeloperajna krkuš	<i>Romanogobio vladkovi</i>
		gavčica	<i>Rhodeus amarus</i>
		N/A	<i>Rutilus virgo</i>
		mala svibanjska riđa	<i>Hypodryas matura</i>
		Jersey Tiger	<i>Euplagia quadripunctaria*</i>

Idendification No	Name	Common name of species	The scientific name of the species / habitat type code
		Sub-Atlantic and medio-European oak or oak-hornbeam forests of the Carpinion betuli	9160
		Obale planinskih rijeka s Myricaria germanica	3230
		Natural eutrophic lakes with Magnopotamion or Hydrocharition -type vegetation	3150
		Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae)	91E0*
		Lowland hay meadows (Alopecurus pratensis, Sanguisorba officinalis)	6510
		Riparian mixed forests of Quercus robur, Ulmus laevis and Ulmus minor, Fraxinus excelsior or Fraxinus angustifolia, along the great rivers (Ulmenion minoris)	91F0
		Amphibious habitat Isoëto-Nanojuncetea	3130
HR5000015	Srednji tok Drave (od Terezinog polja do Donjeg Miholjca)	obična lisanka	<i>Unio crassus</i>
		Green Snaketail	<i>Ophiogomphus cecilia</i>
		Yellow-spotted Whiteface	<i>Leucorrhinia pectoralis</i>
		Asp	<i>Aspius aspius</i>
		Weather-fish	<i>Misgurnus fossilis</i>
		Striped Ruffe	<i>Gymnocephalus schraetser</i>
		Zingel	<i>Zingel zingel</i>
		Streber	<i>Zingel streber</i>
		European pond terrapin	<i>Emys orbicularis</i>

Idendification No	Name	Common name of species	The scientific name of the species / habitat type code
		European beaver	<i>Castor fiber</i>
		Eurasian otter	<i>Lutra lutra</i>
		N/A	<i>Triturus dobrogicus</i>
		European Mud-minnow	<i>Umbra krameri</i>
		Vladykov's lamprey	<i>Eudontomyzon vladykovi</i>
		sabljarka	<i>Razorfish</i>
		Balon's Ruffe	<i>Gymnocephalus baloni</i>
		Ornate Bluet	<i>Coenagrion ornatum</i>
		zlatni vijun	<i>Sabanejewia balcanica</i>
		loach	<i>Cobitis elongatoides</i>
		bjeloperajna krkuš	<i>Romanogobio vladykovi</i>
		gavčica	<i>Rhodeus amarus</i>
		N/A	<i>Rutilus virgo</i>
		mala svibanjska riđ	<i>Hypodryas maturna</i>
		Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> ( <i>Alno-Padion</i> , <i>Alnion incanae</i> , <i>Salicion albae</i> )	91E0*
HR5000019	Gorski kotar i sjeverna Lika	Barbastelle Bat	<i>Barbastella barbastellus</i>
		Lesser horseshoe bat	<i>Rhinolophus hipposideros</i>
		Wolf	<i>Canis lupus</i> *
		Brown bear	<i>Ursus arctos</i> *
		Lynx	<i>Lynx lynx</i>

Idendification No	Name	Common name of species	The scientific name of the species / habitat type code
		N/A	<i>Genista holopetala</i>
		Ornate Bluet	<i>Coenagrion ornatum</i>
		gorski potočar	<i>Cordulegaster heros</i>
		(Sub-) Mediterranean pine forests with endemic black pines	9530*
HR5000020	Nacionalni park Plitvička jezera	Marsh Fritillary	<i>Euphydryas aurinia</i>
		velika četveropjega cvilidreta	<i>Morimus funereus</i>
		potočni rak	<i>Austropotamobius torrentium</i> *
		Greater horseshoe bat	<i>Rhinolophus ferrumequinum</i>
		Mediterranean horseshoe bat	<i>Rhinolophus euryale</i>
		Barbastelle Bat	<i>Barbastella barbastellus</i>
		Schreiber's Bat	<i>Miniopterus schreibersii</i>
		Long-fingered bat	<i>Myotis capaccinii</i>
		Bechstein's bat	<i>Myotis bechsteinii</i>
		Greater mouse-eared bat	<i>Myotis myotis</i>
		Wolf	<i>Canis lupus</i> *
		Brown bear	<i>Ursus arctos</i> *
		Eurasian otter	<i>Lutra lutra</i>
		Lynx	<i>Lynx lynx</i>
		puzavi celer	<i>Apium repens</i>
		sibirska jezičnjača	<i>Ligularia sibirica</i>
		gospina papučica	<i>Cypripedium calceolus</i>



Idendification No	Name	Common name of species	The scientific name of the species / habitat type code
		Ornate Bluet	<i>Coenagrion ornatum</i>
		livadni procjepak	<i>Chouardia litardierei</i>
		hermit beetle	<i>Osmoderma eremita</i> *
		Jersey Tiger	<i>Euplagia quadripunctaria</i> *
		European dry heaths	4030
		Species-rich <i>Nardus</i> grasslands, on silicious substrates in mountain areas (and submountain areas in Continental Europe)	6230*
		<i>Molinia</i> meadows on calcareous, peaty or clayey-silt-laden soils ( <i>Molinion caeruleae</i> )	6410
		Semi-natural dry grasslands and scrubland facies on calcareous substrates ( <i>Festuco-Brometalia</i> ) (* important orchid sites)	6210*
		<i>Asperulo-Fagetum</i> beech forests	9130
		Illyrian <i>Fagus sylvatica</i> forests ( <i>Aremonio-Fagion</i> )	91K0
		Acidophilous <i>Picea</i> forests of the montane to alpine levels ( <i>Vaccinio-Piceetea</i> )	9410
		Dinaric dolomite Scots pine forests ( <i>Genisto januensis-Pinetum</i> )	91R0
		Caves and pits closed to the public	8310
		Tufa cascades of karstic rivers of the Dinaric Alps	32A0
		Alkaline fens	7230
		<i>Tilio-Acerion</i> forests of slopes, screes and ravines	9180*
		Transition mires and quaking bogs	7140

Idendification No	Name	Common name of species	The scientific name of the species / habitat type code
		Juniperus communis formations on heaths or calcareous grasslands	5130
		Hard oligo-mesotrophic waters with benthic vegetation of Chara spp	3140
		Water courses of plain to montane levels with the Ranunculion fluitantis and Callitriche-Batrachion vegetation	3260
		Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels (Convolvulion sepium, Filipendulion, Senecion fluviatilis)	6430
		Illyrian oak-hornbeam forests (Erythronio-carpinion)	91L0
		Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae)	91E0*
HR5000022	Park prirode Velebit	Marsh Fritillary	<i>Euphydryas aurinia</i>
		velika četveropjega cvilidreta	<i>Morimus funereus</i>
		Hermann's Mediterranean Tortoise	<i>Testudo hermanni</i>
		Four lined snake	<i>Elaphe quatuorlineata</i>
		N/A	<i>Zamenis situla</i>
		planinski žutokrug	<i>Vipera ursinii macrops*</i>
		Mediterranean horseshoe bat	<i>Rhinolophus euryale</i>
		Greater horseshoe bat	<i>Rhinolophus ferrumequinum</i>
		Blasius' horseshoe bat	<i>Rhinolophus blasii</i>
		Lesser horseshoe bat	<i>Rhinolophus hipposideros</i>
		Lesser mouse-eared bat	<i>Myotis blythii</i>

Idendification No	Name	Common name of species	The scientific name of the species / habitat type code
		Geoffroy's bat	<i>Myotis emarginatus</i>
		Barbastelle Bat	<i>Barbastella barbastellus</i>
		Schreiber's Bat	<i>Miniopterus schreibersii</i>
		Long-fingered bat	<i>Myotis capaccinii</i>
		Bechstein's bat	<i>Myotis bechsteinii</i>
		Greater mouse-eared bat	<i>Myotis myotis</i>
		Wolf	<i>Canis lupus</i> *
		Brown bear	<i>Ursus arctos</i> *
		Lynx	<i>Lynx lynx</i>
			<i>Buxbaumia viridis</i>
		N/A	<i>Aquilegia kitaibelii</i>
		N/A	<i>Genista holopetala</i>
		gospina papučica	<i>Cypripedium calceolus</i>
		modra sasa	<i>Pulsatilla vulgaris ssp. grandis</i>
		Leptodirus	<i>Leptodirus hochenwarti</i>
		N/A	<i>Cerastium dinaricum</i>
		N/A	<i>Arabis scopoliana</i>
		livadni procjepak	<i>Chouardia litardierei</i>
		Jersey Tiger	<i>Euplagia quadripunctaria</i> *
		N/A	<i>Degenia velebitica</i> *
		dinarski voluhar	<i>Dinaromys bogdanovi</i>

Idendification No	Name	Common name of species	The scientific name of the species / habitat type code
		Dalmatian Ringlet	<i>Proterebia afra dalmata</i>
		Alkaline fens	7230
		Alpine and Boreal heaths	4060
		Arborescent matorral with Juniperus spp	5210
		Rupicolous calcareous or basophilic grasslands of the Alyso-Sedion albi	6110*
		Alpine and subalpine calcareous grasslands	6170
		Species-rich Nardus grasslands, on silicious substrates in mountain areas (and submountain areas in Continental Europe)	6230*
		Eastern sub-mediterranean dry grasslands (Scorzoneratalia villosae)	62A0
		Illyrian Fagus sylvatica forests (Aremonio-Fagion)	91K0
		Acidophilous Picea forests of the montane to alpine levels (Vaccinio-Piceetea)	9410
		Caves and pits closed to the public	8310
		Bushes with Pinus mugo and Rhododendron hirsutum (Mugo-Rhododendretum hirsuti)	4070*
		Calcareous and calcshist screes of the montane to alpine levels (Thlaspietea rotundifolii)	8120
		Calcareous rocky slopes with chasmophytic vegetation	8210
		Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) (*)	6210*

Idendification No	Name	Common name of species	The scientific name of the species / habitat type code
		important orchid sites)	
		Molinia meadows on calcareous, peaty or clayey-silt-laden soils (Molinion caeruleae)	6410
		European dry heaths	4030
		Eastern Mediterranean screes	8140
		(Sub-) Mediterranean pine forests with endemic black pines	9530*
		Illyrian oak-hornbeam forests (Erythronio-carpinion)	91L0
HR5000025	Vransko jezero i Jasen	jezerski regoč	<i>Lindenia tetraphylla</i>
		Painzsa's Goby	<i>Knipowitschia panizzae</i>
		Hermann's Mediterranean Tortoise	<i>Testudo hermanni</i>
		Four lined snake	<i>Elaphe quatuorlineata</i>
		livadni procjepak	<i>Chouardia litardierei</i>
		Ramshorn snail	<i>Anisus vorticulus</i>
		Mediterranean tall humid grasslands of the Molinio-Holoschoenion	6420
		Hard oligo-mesotrophic waters with benthic vegetation of Chara spp	3140
		Sub-Mediterranean grasslands of the Molinio-Hordeion secalini	6540
		Mediterranean temporary ponds	3170*
		Pseudo-steppe with grasses and annuals of the Thero-Brachypodietea	6220*

Idendification No	Name	Common name of species	The scientific name of the species / habitat type code
		Eastern sub-mediterranean dry grasslands (Scorzoneratalia villosae)	62A0
HR5000028	Dinara	hermit beetle	<i>Osmoderma eremita</i> *
		alpiska strizibuba	<i>Rosalia alpina</i> *
		velika četveropjega cvilidreta	<i>Morimus funereus</i>
		planinski žutokrug	<i>Vipera ursinii macrops</i> *
		Lesser mouse-eared bat	<i>Myotis blythii</i>
		Greater mouse-eared bat	<i>Myotis myotis</i>
		Mediterranean horseshoe bat	<i>Rhinolophus euryale</i>
		Wolf	<i>Canis lupus</i> *
		Brown bear	<i>Ursus arctos</i> *
		N/A	<i>Cerastium dinaricum</i>
		N/A	<i>Arabis scopoliana</i>
		mosorska gušterica	<i>Dinarolacerta mosorensis</i>
		dinarski voluhar	<i>Dinaromys bogdanovi</i>
		Dalmatian Ringlet	<i>Proterebia afra dalmata</i>
		Alpine and subalpine calcareous grasslands	6170
		Eastern sub-mediterranean dry grasslands (Scorzoneratalia villosae)	62A0
		Bushes with Pinus mugo and Rhododendron hirsutum (Mugo-Rhododendretum hirsuti)	4070*
		Calcareous rocky slopes with chasmophytic vegetation	8210

Idendification No	Name	Common name of species	The scientific name of the species / habitat type code
		Caves and pits closed to the public	8310
		Alpine and Boreal heaths	4060
		Calcareous and calcshist screes of the montane to alpine levels (Thlaspietea rotundifolii)	8120
		Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) (* important orchid sites)	6210*
HR5000030	Biokovo	Stag Beetle	<i>Lucanus cervus</i>
		alpinska strizibuba	<i>Rosalia alpina</i> *
		hrastova strizibuba	<i>Cerambyx cerdo</i>
		velika četveropjega cvilidreta	<i>Morimus funereus</i>
		N/A	<i>Zamenis situla</i>
		Schreiber's Bat	<i>Miniopterus schreibersii</i>
		Bechstein's bat	<i>Myotis bechsteinii</i>
		Wolf	<i>Canis lupus</i> *
		N/A	<i>Arabis scopoliana</i>
		Jersey Tiger	<i>Euplagia quadripunctaria</i> *
		mosorska gušterica	<i>Dinarolacerta mosorensis</i>
		dinarski voluhar	<i>Dinaromys bogdanovi</i>
		Dalmatian Ringlet	<i>Proterebia afra dalmata</i>
		Alpine and subalpine calcareous grasslands	6170
		Eastern sub-mediterranean dry grasslands (Scorzoneratalia villosae)	62A0

Idendification No	Name	Common name of species	The scientific name of the species / habitat type code
		Eastern Mediterranean screes	8140
		Calcareous rocky slopes with chasmophytic vegetation	8210
		Caves and pits closed to the public	8310
		Alpine and Boreal heaths	4060
		Rupicolous calcareous or basophilic grasslands of the Alyso-Sedion albi	6110*
		Pseudo-steppe with grasses and annuals of the Thero-Brachypodietea	6220*
		(Sub-) Mediterranean pine forests with endemic black pines	9530*
HR5000031	Delta Neretve	jezerski regoč	<i>Lindenia tetraphylla</i>
		Great sea lamprey	<i>Petromyzon marinus</i>
		čepa	<i>Alosa fallax</i>
		glavatica	<i>Salmo marmoratus</i>
		N/A	<i>Alburnus neretvae</i>
		imotska gaovica	<i>Delminichthys (Phoxinellus) adspersus</i>
		ilirski vijun	<i>Cobitis illyrica</i>
		neretvanski vijun	<i>Cobitis narentana</i>
		Canestrini's Goby	<i>Pomatoschistus canestrini</i>
		Painzza's Goby	<i>Knipowitschia panizzae</i>
		Proteus	<i>Proteus anguinus</i> *
		Hermann's Mediterranean Tortoise	<i>Testudo hermanni</i>



Idendification No	Name	Common name of species	The scientific name of the species / habitat type code
		European pond terrapin	<i>Emys orbicularis</i>
		Four lined snake	<i>Elaphe quatuorlineata</i>
		N/A	<i>Zamenis situla</i>
		Mediterranean horseshoe bat	<i>Rhinolophus euryale</i>
		Lesser horseshoe bat	<i>Rhinolophus hipposideros</i>
		Greater horseshoe bat	<i>Rhinolophus ferrumequinum</i>
		Schreiber's Bat	<i>Miniopterus schreibersii</i>
		Long-fingered bat	<i>Myotis capaccinii</i>
		Geoffroy's bat	<i>Myotis emarginatus</i>
		Eurasian otter	<i>Lutra lutra</i>
		N/A	<i>Mauremys rivulata</i>
		Ornate Bluet	<i>Coenagrion ornatum</i>
		N/A	<i>Congerius kuscieri</i>
		primorska paklara	<i>Lampetra zanandreae</i>
		podustva	<i>Chondrostoma kneri</i>
		vrgoračka gobica	<i>Knipowitschia croatica</i>
		mekousna	<i>Salmothymus obtusirostris</i>
		svalić	<i>Squalius squalizae</i>
		Amphibious habitat Isoëto-Nanojuncetea	3130
		Hard oligo-mesotrophic waters with benthic vegetation of Chara spp	3140
		Coastal lagoons	1150*

Idendification No	Name	Common name of species	The scientific name of the species / habitat type code
		Estuaries	1130
		Salicornia and other annuals colonizing mud and sand	1310
		Caves and pits closed to the public	8310
		Sandbanks which are slightly covered by sea water all the time	1110
		Mudflats and sandflats not covered by seawater at low tide	1140
		Mediterranean and thermo-Atlantic halophilous scrubs (Sarcocornetea fruticosi)	1420
		Mediterranean salt meadows (Juncetalia maritimi)	1410
		Embryonic shifting dunes	2110
		Natural eutrophic lakes with Magnopotamion or Hydrocharition -type vegetation	3150
		Southern riparian galleries and thickets (Nerio-Tamaricetea and Securinegion tinctoriae)	92D0
		Pseudo-steppe with grasses and annuals of the Thero-Brachypodietea	6220*
		Eastern sub-mediterranean dry grasslands (Scorzoneratalia villosae)	62A0
		Olea and Ceratonia forests	9320
HR5000032	Akvtorij zapadne Istre	dobri dupin	<i>Tursiops truncatus</i>
		Submerged or partially submerged sea caves	8330
		Sandbanks which are slightly covered by sea water all the time	1110

Idendification No	Name	Common name of species	The scientific name of the species / habitat type code
HR5000037	Nacionalni park Mljet	Hermann's Mediterranean Tortoise	<i>Testudo hermanni</i>
		Termo-mediteranske (stenomediteranske) grmolike formacije s Euphorbia dendroides	5330
		Mediterranean pine forests with endemic Mesogean pines	9540
		Coastal lagoons	1150*
		Submerged or partially submerged sea caves	8330
		Caves and pits closed to the public	8310
		Posidonia beds (Posidonion oceanicae)	1120*
		Large shallow inlets and bays	1160
		reefs	1170
		Vegetated sea cliffs of the Mediterranean coasts with endemic Limonium spp	1240
		Mediterranean temporary ponds	3170*
		Arborescent matorral with Juniperus spp	5210
		Pseudo-steppe with grasses and annuals of the Thero-Brachypodietea	6220*
		Calcareous rocky slopes with chasmophytic vegetation	8210
		Quercus ilex and Quercus rotundifolia forests	9340
HR5000038	Park prirode Lastovsko otočje	Lesser horseshoe bat	<i>Rhinolophus hipposideros</i>
		Greater horseshoe bat	<i>Rhinolophus ferrumequinum</i>
		Schreiber's Bat	<i>Miniopterus schreibersii</i>

Idendification No	Name	Common name of species	The scientific name of the species / habitat type code
		Geoffroy's bat	<i>Myotis emarginatus</i>
		Quercus ilex and Quercus rotundifolia forests	9340
		Olea and Ceratonia forests	9320
		Caves and pits closed to the public	8310
		Submerged or partially submerged sea caves	8330
		Posidonia beds (Posidonion oceanicae)	1120*
		Sandbanks which are slightly covered by sea water all the time	1110
		reefs	1170
		Vegetated sea cliffs of the Mediterranean coasts with endemic Limonium spp	1240
		Mediterranean temporary ponds	3170*
		Arborescent matorral with Juniperus spp	5210
		Termo-mediteranske (stenomediteranske) grmoliike formacije s Euphorbia dendroides	5330
		Pseudo-steppe with grasses and annuals of the Thero-Brachypodietea	6220*
		Calcareous rocky slopes with chasmophytic vegetation	8210