EDISON S.P.A.

Permesso di Ricerca
Idrocarburi Liquidi e Gassosi
“d 84F.R-EL”

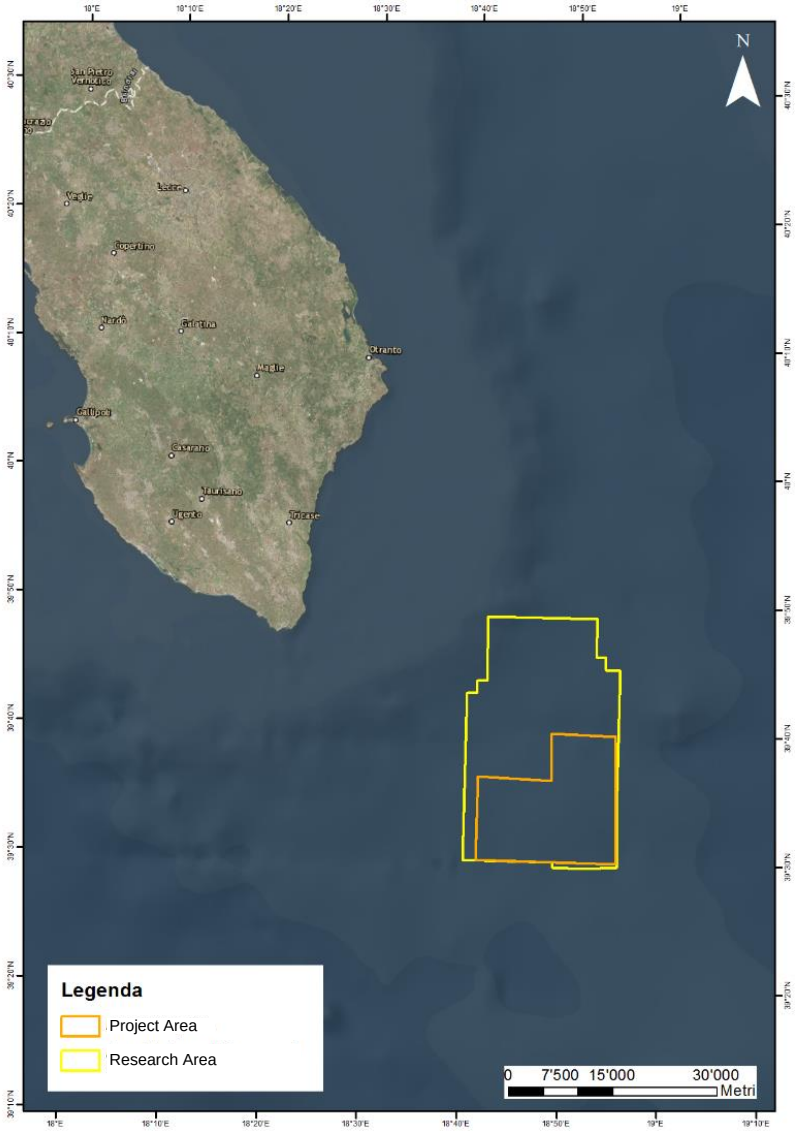
Notifica sugli impatti transfrontalieri del Progetto di Ricerca Idrocarburi Liquidi e Gassosi “d 84F.R-EL” ai sensi della Convenzione di Espoo del 25 febbraio 1991 e dell’articolo 32 del D.lgs 152/06 e s.m.i

	REVISIONE	RESPONSABILE DEL PROGETTO	DATA

Notifica sugli impatti transfrontalieri del Progetto di Ricerca Idrocarburi Liquidi e Gassosi "d 84F.R-EL"

Di seguito è disponibile un breve contributo redatto ai sensi della Convenzione di Espoo e dell'articolo 32 del D.lgs 152/06, in lingua inglese, incentrato sui potenziali impatti transfrontalieri del Progetto di indagine sismica 3D all'interno dell'Area di Istanza di Ricerca, in acque internazionali italiane, denominata "d 84F.R-EL".

An Environmental Impact Assessment (EIA) was conducted for the offshore 3D Seismic Project, aiming to investigate the presence of liquid and gaseous hydrocarbons in the area within the international waters of Italian competence, called "84F.R-EL" (here in after called Research Area). The Research Area is located in the Ionian Sea, more than 14 nautical miles from the city of Santa Maria di Leuca (LE) and covers an overall extension of 729.020 km^2. The seismic survey is planned in a sub-area of 300 km^2 (here in after called Project Area) located in the southern portion of the Research Area.



A 3D seismic survey is planned in the Project Area using a "*Polarcus* 3640 in^3" air gun array. The air guns will be located at 7 m depth, while the streamers will be pulled at a depth between 8 m and 15 m, for a length of about 8 km.

An acoustic modelling about the sound diffusion into water was appropriately elaborated and included in the EIA. According to the modelling, this type of array configuration is the "least impacting" on environmental components among the alternatives considered. None of the survey routes during the seismic campaign will touch the international waters of Greek competence.

Within the EIA, the following potential “impact factors” were considered:

- Emissions of atmospheric pollutants resulting from propulsion of boats;
- Greenhouse gas emissions resulting from propulsion of boats;
- Generation of compressional waves determined by the air gun;
- Non-impulsive noise emitted from the engines of the boats;
- Multiple impulse noise emitted by the air gun;
- Physical presence of moving naval units;
- Night illumination on naval units;
- Physical presence of towed streamers.

These “impact factors” were considered as potentially interfering with the environmental and social components listed below:

- Physical components
    - Atmosphere;
    - Oceanography;
    - Soil and subsoil;
- Biological components
    - Marine mammals (cetaceans);
    - Sea birds;
    - Marine turtles (*Caretta caretta*);
    - Fish;
    - Benthos;
    - Zooplankton and phytoplankton;
    - Biocoenoses;
    - Marine protected areas;
- Socio- economic components
    - Fishing;
    - Landscape and archeological heritage;
    - Naval traffic;
    - Tourism.

A detailed impact assessment was conducted within the EIA. It was based on the features of each environmental and social component including its sensitivity, the characteristics of each impact factor (*i.e.* duration, frequency, geographic extent, intensity) and the features of each potential impact (*i.e.* probability of occurrence, reversibility and potential for mitigation).

On the basis of the assessment, the impact on cetaceans is the only that has a potential transnational influence. This impact may potentially affect also marine mammals living in the international water of Greek competence. The impact factor that could be the cause of this potential transboundary impact is the “Multiple impulse noise emitted by the air gun”.

A detailed desktop research based on 170 scientific publication was carried out. According to the available data, four cetacean species inhabit the water of the Research Area and its surroundings: the striped dolphin (*Stenella ceruleoalba*), which is the most abundant species, the sperm whale (*Physeter microcephalus*), which, according to literature, counts 62 specimens in the Ionian Sea, the fin whale (*Balaenoptera physalus*), which may be present with limited number of specimens and especially during winter, and the Cuvier's beaked whale (*Ziphius cavirostris*).

According to bibliography, the potential impacts on marine mammals due to seismic campaigns can be of different importance based on: (i) the intensity/frequency of the noise; (ii) the distance between the source of noise and the specimen/s; and (iii) the species sensitivity. Shift from the areas affected by prospecting, perturbation of biologically important behaviors, communication signal masking, chronic stress, and temporary or permanent loss of auditory ability (Nowacek et al., 2015[1]) can be considered as the main potential impacts.

To mitigate these potential impacts, the following measures were identified within the EIA:

- Using of the "least impacting" air gun configuration defined according to the modelling;
- Defining and respecting an Exclusion Zone (EZ) of a 600 m radius, in which the absence of cetaceans is continuously verified. This radius was also defined on the basis of a Seismic Source Array Modelling.
- Monitoring continuously the presence/absence of cetaceans during the seismic survey by means of visual and acoustic methods implemented by specialized personnel (Marine Mammal Observers – MMO, and Passive Acoustic Monitoring – PAM).
- Interruption of the seismic activities in the presence of cetaceans (and other pelagic megafauna) in the EZ and waiting for a time defined species by species after their departure and resumption of activity through Ramp Up or Soft Start.
- Activation and/or reactivation of the air gun gradually (Ramp Up or Soft Start) to allow any cetacean potentially present in the EZ to move away.

The abovementioned mitigation measures are in compliance with the guidelines edited by ACCOBAMS and JNCC.

Considering the features and the sensitivity of the Marine mammals component in the Research Area, the features of the impact factor and the application of the above indicated mitigation measures, the impact of the 3D Seismic Project on cetacean are expected to be medium-low.

In addition to this, within the EIA the following monitoring activities are planned in order to gather data on the presence, distribution and potential impacts (if any) on cetaceans:

- Continuous acoustic monitoring through a bottom sonobuoy for 60 days before the Project activities, during the Project activities and for 60 days afterwards;
- Surface visual and acoustic monitoring by means of MMOs and PAM: 2-3 monitoring campaigns within the 60 days preceding the Project start; continuous monitoring during the entire Project implementation period.;
- Surveys on cetacean strandings for a 200 km-long coastline implemented by data gathering from local projects and initiatives.

[1] Nowacek, D.P., Clark, C.W., Mann, D., Miller, P.J., Rosenbaum, H.C., Golden, J.S., Jasny, M., Kraska, J., Southall, B.L., 2015. Marine seismic surveys and ocean noise: time for coordinated and prudent planning. Frontiers in Ecology and the Environment 13, 378–386. doi:10.1890/130286