ECOSAFIMED

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ENPI CBCMED
CROSS-BORDER COOPERATION IN THE MEDITERRANEAN

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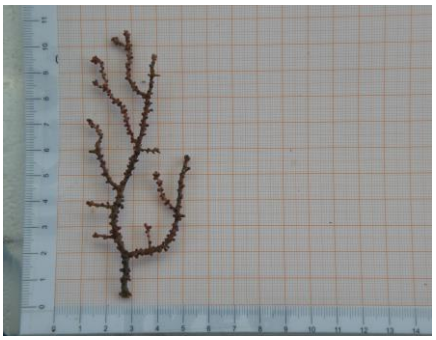
One of the main activities carried out by the ECOSAFIMED team during the first year of the project was to define the dynamic of artisanal fishing and the local *métiers* in fishing areas that had been previously identified and selected with the help of local fishermen. With the aim of gathering information on the interactions between the selected fishing techniques and the benthic communities, scientists conducted research directly on-board of boats used for artisanal fishing. In this way, they succeeded in obtaining a detailed quantification of catch diversity, the fish by-catch and the benthic species by-catch paying particular attention to structuring species such as sponges and corals. To conduct the research, the scientists running the project produced a standard work protocol to be used by all partners, and a series of technical materials for observers on-board the fishing boat. These include a visual guide that features a compendium of images and scientific information on the main benthic species in the Mediterranean, to help identify the species captured by the artisanal fishing boat. Two images were included for each species: one of the captured organism and one in its natural environment. The guide is therefore a useful tool for fishing surveys and Remotely Operated Vehicule surveys as well.

Example of information included in visual guide

A work protocol was also produced in the form of a matrix for gathering fishing activity data (target species, boat type, date and time, area of activity, depth, etc.), fishing equipment (material, net length and mesh size, line length and hook size, etc.), species of commercial interest caught (species, abundance and length), by-catch (species, abundance, length and status of the specimen caught) and benthic organisms caught (species, abundance and status of the specimen upon its return to the water).

Activities carried out by the observer Adriana Profeta (Italy) working on board a fishing boat

In addition to the characterization of the catches, the observers have been characterising the artisanal fleet in the study areas. In fact, the observers conducted a series of interviews to gather information on the technical characteristics of the boats, the fishing equipment used, and the seasonal nature of each *métier* in the previously identified fishing zones.



By-catch of *Paramuricea macrospina*

In **Italy**, on-board survey was co-ordinated by scientists from the University of Genoa, specifically by Sandro Cerasi in the Pontino archipelago (Lazio) between June and November 2014, and by Adriana Profeta in the Gulf of Patti (Sicily) between June and October 2014.

In **Spain**, surveys were carried out by Sandra Mallol (COB-IEO) in the Menorca Channel and the Balearic

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Islands in July 2014, and by Anabel Muñoz (ICM-CSIC) in the Cap de Creus in September 2014 on board the boat Goga.

In **Tunisia**, interviews with fishermen were conducted between May and June 2014. However, due to technical difficulties and unfavourable weather conditions, on-board surveys with fishermen have been postponed and were scheduled for spring 2015.

More than a hundred fishermen were interviewed and more than 10,000 by-catch species were studied. With these interviews the ECOSAFIMED team acquired broad knowledge about the most important characteristics of the artisanal fleets, such as the seasonal nature of the *métiers*, the percentage of the artisanal fleet that operates in each *métier* and about the identification of the main fishing techniques and their characteristics. Furthermore, the catch data are currently being processed, and this will enable a quantitative assessment on the impact of each fishing technique on the by-catch of benthic species.

Collaboration with fishermen during the research

The involvement of local fishermen and the community as a whole is a key factor in this project, from the initial data-gathering phases to drawing up the management recommendations at the end of the project. Local fishermen have been informed of the objectives and activities of the project, and their support and collaboration during field activities have been fundamental to the success of the scientific research.

ECOSAFIMED study area: Cap of Creus, Spain

The choice regarding the study areas was the first key step for the assessment of the impact of artisanal fisheries in the three ENPI regions preselected by the ECOSAFIMED Project. In Spain, one of the selected areas was Cape of Creus. As a matter of fact, this area hosts an outstanding diversity of marine benthic habitats containing valuable and vulnerable ecosystem components as it had been widely identified in previous researches.

The littoral region of the Cape of Creus is located at the easternmost part of the Iberian Peninsula and it was the first marine-terrestrial nature park to be declared in Catalonia. With its four marine reserves, fishing is at present banned in all the area of this nature park except for one tiny zone which does not affect the spatial fishing effort distribution.

Panoramic view of Cap de Creus

A total of eight areas have been classified as free trawl zones in the Cape of Creus. Thanks to the information provided by local fishermen, five areas were selected for the study.

Ecosystems

Recent research in Mediterranean submarine canyons close to the Cape of Creus coast revealed the existence of rich habitats with a high degree of endemism, indicating that these biodiversity hotspots might play an important role in providing portions of migration routes and nurseries.

Nevertheless, vulnerable ecosystem components were found in Cape of Creus: complex niches and habitats, such as rocky bottoms covered by coralligenous

communities, and maërl beds on top of muddy or sandy detritic environments.

In shallower environments, benthic communities are also composed by seabeds such as *posidonia* and/or algae, all of which increase the diversity of sessile species.

The presence of a submarine canyon in the area increases the ecological importance of the entire region. Plankton and benthic communities in the canyon benefit from the high concentration of particles as a consequence of strong current regimes. Therefore the presence of fish, seabird and cetacean species which use it as feeding ground increases. Cold-water corals provide a suitable habitat for juveniles and larvae of several fish species, some of which with high commercial value, consequently acting as a refuge from fishing pressure and allowing the recovery of depleted stocks.

Fishing activities

Most of the artisanal fleet in the Cape of Creus is composed by vessels between 6 and 12 meters length. The number of artisanal fishermen fishing in this region (which includes 4 ports) is 34 vessels, with a total number of 78 fishermen, 45% of them usually fishing in the area of the natural park.

Vessels whose main harbour is Roses show a higher number of *métiers*, as they may exploit the wide sandy bay and the Gulf of Roses, while the other ports work mainly in rocky bottoms.

Boats in Cap de Creus

Co-operation with the GREAT Med project: improving knowledge for greater security in the Mediterranean

The ECOSAFIMED project has established contact with other EU Projects within the scope of the ENPI CBC Mediterranean Sea Basin Programme 2007/2013, such as the Great Med Project, so as to capitalize results and exchange information.

The GREAT Med Project was submitted by the Sapienza University of Rome, which is the leading institution of this project belonging to the 2nd Call for Proposals for standard projects of the "ENPI CBC Mediterranean Sea Basin Programme 2007/2013".

Being 90% financed from its total budget –which rises up to around 2 million Euros–, the project involves 4 countries and 6 partners: the Sapienza University of Rome (Italy); the Aix-Marseille University - Mediterranean Institute of Marine and Terrestrial Biodiversity & Ecology (France); the American University of Beirut (Lebanon); the National Research Council of Lebanon (Lebanon); the University of Sfax - BIOECOS - MA Unit (Tunisia); and Saint Joseph' University-Lab. Genomic Characterization of Plants (Lebanon).

GREAT Med project staff

The Italian Ministry of Environment, the Italian Ministry of Education, University and Research, the Federation of Arab Scientific Research Councils, and the UNEP-MAP Priority Actions Programme Regional Activity Centre of the Mediterranean Action Plan are involved as associates.

This project deals with some crucial issues regarding biodiversity conservation, management and monitoring of the Mediterranean coasts, and it is being developed through five case studies located in different areas: the Gulf of Cagliari (Italy), the coastal area of Provence (France), the coastal areas around Byblos and Beirut (Lebanon), and the Gulf of Gabes (Tunisia).

GREAT Med focuses in particular on the design and implementation of an integrated strategy based on ecological indicators and risk analysis. The objectives of the programme are:

- To create a network of European and Mediterranean Partner institutions and administrations.
- To develop a specific toolkit for assessing plant diversity at species and community levels, and its vulnerability to potential risks concerning oil and HNS (Hazardous and Noxious Substances) spills, urbanization and tourism pressures.
- To compile and disseminate guidelines and best practices for integrated coastal management.

GREAT Med project field work

In autumn 2014, 5 regional involvement events (one for each study area) were organised in order to introduce the project to local stakeholders and to ensure that their perspectives and demands were properly taken into account from an early stage. More recently, in March 2015, a Mid Term Conference was held in Rome to present the methodological procedure shared by all partners showing preliminary results on the biodiversity assessment of the coastal sites based on floristic and habitat indicators and on models simulating the effects of potential oil and HNS spills.

Activities in the next month will especially focus on the development and application of the integrated toolkit, which will include:

- risk indices and thematic maps for all study areas;
- a GIS database of environmental and risk data layers, which will represent the spatial reference framework for monitoring projects and management activities;
- and, finally, guidelines for eco-friendly infrastructure design and for *ex-situ* and *in-situ* conservation of vulnerable plant species and communities, to help sustainable development in coastal areas.

More information on the project can be found at: **www.greatmed.eu**, on Facebook (GREAT Med) and on Twitter **@GREATMedProject**

ECOSAFIMED events

Informative sessions in the Balearic Islands (Spain)

As it has been done in Tunisia and Italy, informative sessions in the Balearic Islands about the project ECOSAFIMED were held in May this year precisely in Mahon, Fornells, Ciutadella and Cala Rajada (Spain). Organised by the Spanish Research Council - Institute of Marine Sciences, David Diaz, the scientific coordinator of the ECOSAFIMED project, introduced the project and its preliminary results to local fishermen. The final aim of this seminar was to ensure the maintenance of responsible fishing practices compatible with the good environmental status of the benthic communities.

Informative session in Mahon (Spain). May 13th 2015

Forthcoming ECOSAFIMED events

Scientific seminar in Barcelona (Spain)

The next scientific seminar on the ECOSAFIMED project will be held in Barcelona in June 2015. The partners from Spain, Italy and Tunisia will be discussing the standardization methodologies for data analysis using a common geodatabase as well as the content of marine stewardship agreement.

Follow the Project

Website **http://ecosafimed.eu/**

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The European 2007-2013 ENPI Mediterranean Basin Programme is a cross-border co-operation initiative funded by the European Neighbourhood and Partnership Instrument (ENPI). The aim of the programme is to promote a process of cordial and sustainable co-operation at the Mediterranean Basin level through proper management of common challenges and highlighting their endogenous potential. The programme funds co-operation projects as a way of contributing to the economic, social, environmental and cultural development of the Mediterranean region. The following 14 countries are taking part in the programme: Cyprus, Egypt, France, Greece, Israel, Italy, Jordan, Lebanon, Malta, the Palestinian Authority, Portugal, Spain, Syria (participation currently suspended) and Tunisia. The Joint Managing Authority (JMA) is the Autonomous Region of Serdegna (Italy). The official languages of the programme are Arabic, English and French (www.enpicbcmed.eu).

The European Union consists of 28 member states, which have gradually decided to come together to combine their know-how, their resources and their destinies. Together, over a period of growth spanning 50 years, they have built an area of stability, democracy and sustainable development, while also working on other values, such as cultural diversity, tolerance and individual freedoms. The European Union is committed on matters of collaboration, sharing its values and achievements with other peoples and countries beyond its borders.

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