ECOSAFIMED
Project funded by the EUROPEAN UNION
ENPI CBCMED
CROSS-BORDER COOPERATION IN THE MEDITERRANEAN

Newsletter no. 2

May 2015

Exploring the Mediterranean seabed

In the first year of the ECOSAFIMED project, the partners carried out a range of scientific activities collecting important data about fisheries and benthic communities. These Data are currently being processed in the first four months of this second year of the project.

To gather the most accurate information on seabed life, oceanographic campains were conducted in the project's three locations, Italy, Spain and Tunisia, coordinated by David Díaz (ICM/CSIC). One of the most challenging tasks to complete were the benthic surveys along transects using a remotely operated vehicle (ROV) in specific areas: Balearic Islands and the Minorca Channel in Spain, Pontine Archipelago and the Golf of Patti in Italy, and the Esquerquis Bank and La Galite in Tunisia. because of bad meteorological condition during summer 2014, some campains became complicated but at the end they were successfully completed.

Used extensively in the scientific community to study the deep sea, ROVs are underwater robots tethered to an on-board computer by an umbilical cable and operated remotely. They are outfitted with high-output lighting systems and broadcast-quality cameras, to guaranty high quality images.

ROVs used during the Spanish surveys

The main objective of the surveys was to capture high-quality archive footage of the selected study areas' seabed comprising between 20 and 200 m depth.

These video footage archives will help to characterize the structure and composition of the benthic communities and, at the same time, will allow to gather evidences of antropic impact, in particular that related to the lost fishing gears.

In each study area were selected a series of fishing grounds not subjected to trawling but only to artisanal fishing. The localization and fishing effort for each area were defined thanks to the help of local fishermen, actively involved also in the fishing surveys (focused on the characterization of the benthic bycatch) and in the oceanographic surveys, for example by coming onboard and identifying the entanglements.

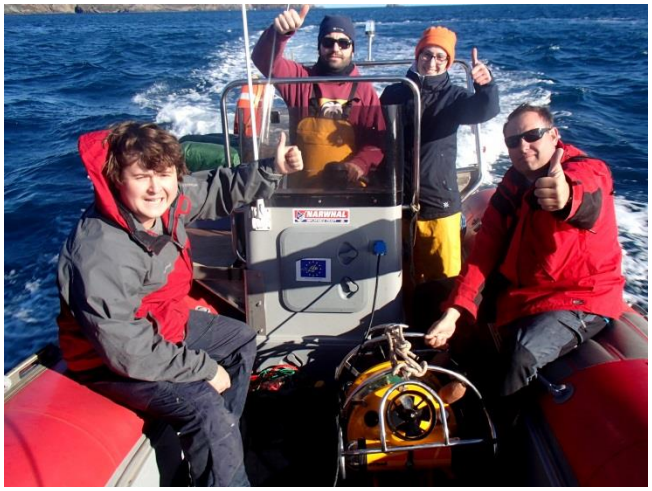
In **Italy**, the surveys were directed by Marzia Bo (University of Genoa) in the Pontine Archipelago, in Ponza, Zannone and Palmarola Islands, in August 2014, and in the Gulf of Patti, in October 2014 on board the research vessel *Astrea*.

Italian survey team in Patti, Sicily on board of *Astrea*

In **Spain**, the survey and scientific director was David Diaz (ICM/CSIC). Campaigns were conducted in the Minorca Chanel, in the Balearic Islands, in August 2014

GOBIERNO DE ESPAÑA MINISTERIO DE AGRICULTURA, ALIMENTACIÓN Y MEDIO AMBIENTE
Fundación Biodiversidad
CSIC Consejo Superior de Investigaciones Científicas
INSTM
Università degli Studi di Genova

on board the *SOCIB*, and in Cap de Creus, Catalonia in December and January on board the *Pelagia Primero*.



Spanish survey team in Cap de Creus

In **Tunisia**, the scientific coordinator of the survey was Adel Gaamour (INSTM) at the Esquerquis Bank and the Galite Archipelago, in September and October 2014, on board the *Amilcar*.

In April and May 2015, a complementary campaign will be conducted to cover areas that could not be surveyed in October due to technical and meteorological difficulties.

Tunisian survey team and *Amilcar* vessel

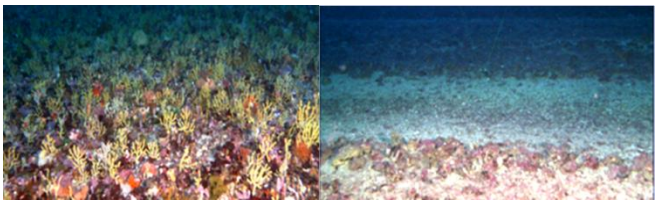
The results

The ECOSAFIMED partners have almost completed the oceanographic surveys aimed at the characterization of the megabenthic communities of the study areas. Some of the investigations were complicated by adverse meteorological and technical conditions, in particular those related to the need of adapting ROVs to different vessels. The support of the project's scientific coordinator, David Diaz, was essential in ensuring the success of campaigns.

Control stations on board Italian and Spanish vessels

ROV deployment during the Spanish survey

The images obtained from the ROV surveys in these areas provided valuable information on the benthic ecosystems and their condition. Video footage successfully identified ecologically valuable areas, and will help improve our knowledge of the existing impacts of some fishing gears.



ROV images showing areas with and without impacts in La Galite and Esquerquis (Tunisia)

The involvement of local fishermen and local communities was another key result for the first year of the project. They were given the chance to discuss the objectives and activities of the project, which benefited from their support and collaboration during field operations.

the fisherman Salvatore Romano on-board of the vessel *Astrea* during Ponza campaign (Italy).

The next step is to process and analyse the images to obtain relevant information on the condition of the seabed in the areas surveyed. For this purpose, a specific technical seminar on image treatment was held in Barcelona in November 2014, In which the three partners have developed a common analytical strategy.

Technical seminar in Barcelona, November 2014

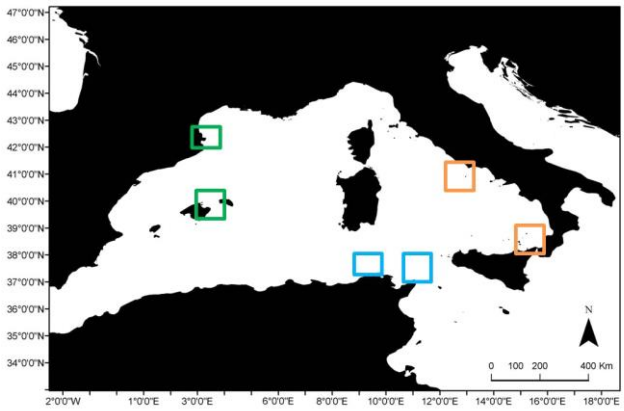
Video footage and high-quality images of the seabed are also key tools used in various communication activities as part of the ECOSAFIMED project. They were used during the informative sessions in 2015 to raise awareness of the importance of protecting the seabed habitat to ensure ongoing sustainability.

ROV image, having been treated and analysed

Together with the other scientific activities carried out, these surveys will help to achieve the main objective of the ECOSAFIMED project, which is to promote sustainable fishing practices and exchange information on good practices between stakeholders, to help ensure habitat conservation.

ECOSAFIMED study area: Gulf of Patti, Sicily

The first step in assessing the impact of artisanal fisheries in the three ENPI regions preselected by the ECOSAFIMED project was to select the areas: Spain (Minorca Channel and Cape of Creus), Italy (Pontine Archipelago and Gulf of Patti) and Tunisia (La Galite Archipelago and Esquerquis Banks). Characterising the study areas was one of the most decisive aspects of the first year of ECOSAFIMED project. In fact, It was necessary to develop it with a coordinated and scientific approach.



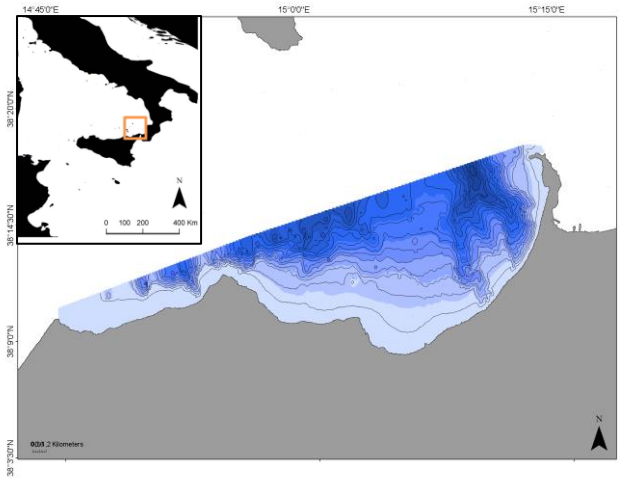
ECOSAFIMED selected areas of study

The methodology used to select in each study area, the fishing grounds were to carry out the fishing and

oceanographic surveys was related to one or more of these instruments: VMS data in places where it was available (only possible in Spain), contact with local fishermen and field interviews to gather information on trawling and artisanal activity, and bibliographical research for comparing and redefining results. The characteristics of the first identified ECOSAFIMED study area are here presented:

Gulf of Patti

The Gulf of Patti is located in north-eastern Sicily (southern Italy), in the province of Messina. It stretches from Cape Calavà to Cape Milazzo, along 60 km of coastline.
A well-established collaboration between artisanal fishermen and scientists, together with a 25-year no-trawl law, made the Gulf an ideal study area.



The Golf of Patti

The study area covers the full extension of the Gulf, with particular focus on the seabed at the 50-200m depth, and on the rocky cliffs of the two capes bordering the Gulf. The interviews with the local fishermen made by the observer Adriana Profeta allowed to identify six main fishing grounds in the study area.. An estimation of the extent of the fishing activity was given for each area, calculated as an average of how much time of the year the interviewed fishermen work in each specific ground.

One additional site (Brolo) outside the area, worked by the artisanal fishing fleet and subject to trawling, was selected exclusively for use as a comparison area to assess the impact of fishing on the soft seabed communities with regard to the internal Gulf areas that have been trawl-free since 1990.

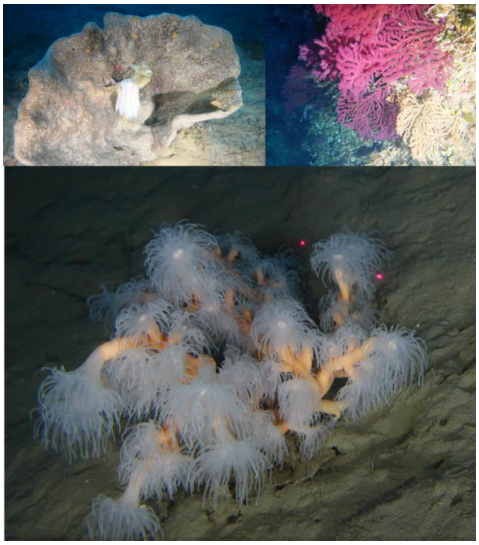
Ecosystems of the Golf

The terrestrial ecosystems of the Gulf include important rocky coastal areas alternating with small sandy beaches, forming a dune system with a series of small salt-water lakes (Laghetti di Marinello) covering approximately 400 hectares and protected as a nature reserve. The resulting area is home to numerous fish species.

Laghetti di Marinello, Gulf of Patti.

The seabeds of the Gulf of Patti are mainly sandy or muddy, with wide meadows of *Posidonia oceanica* and traces of *Cymodocea nodosa*. Various shoals and rocky elevations are present in front of the major coastal cliffs. The easternmost side of the Gulf, Cape Milazzo, is characterised by numerous habitats of significant scientific interest. The cliff is high and rocky, bordered by vermetid trottoirs, caves and *Posidonia* meadows extending down to depths of 30 m, where the bed is detritic. The sandy bed is fragmented by rocky boulders, which are home to numerous fish species.

Other areas with rocky beds and significant benthic biological communities are the Patti shoal, a large rocky elevation emerging from a depth of about 50 m in front of the town of Patti Marina, and the Tindari shoal, off the Cape of Tindari. The continental shelf in this area is very narrow and low depths are reached very quickly.



Benthic communities in the Gulf of Patti, as revealed by ROV

The ROV survey revealed interesting communities dominated by arborescent cnidarians within the Gulf, in particular wide populations of the rare Mediterranean gorgonian Spinimuricea klavereni, between 40 and 80 m depth, together with forests of the arborescent hydroid Lytocarpia myriophyllum and rich biocoenoses of pennatulaceans and alcyonaceans, that demonstrate the effect of the long term protection of these areas from trawling.

Along the rocky coasts of the Gulf's capes, there are rich biocoenoses of hardground dominated by gorgonians , black corals and the scleractinian Dendrophyllia ramea. The rocky areas are those that better keep the evidences of fishing impact, related to both professional and recreational activities. Entangled nets and lines are present on both the substrate and the organisms.

Fishing activities

There is an uneven harbour system in the gulf area and several deficiencies in infrastructure, as the fishing boats are scattered along the coast in ports located along the sandy shores.

The area is almost totally lacking in services and infrastructure suitable for landing catches and for improvements to the fishing industry. In total there are 152 registered fishing boats. Long lines and demersal nets are widely used in the area, while less common is the purse seine nets (60,2%).There are 264 seafaring units working in the Gulf of Patti (updated to 2014), with an average of two people per boat. The mean age is around 49 years.

Fishing activities in the Gulf of Patti are exclusively artisanal, divided into demersal fishing and pelagic fishing (small, medium and large pelagic). As elsewhere in Italy and other regions of the Mediterranean, the artisanal fleet in the Gulf is characterised by high variability of fishing activity throughout the seasons, determined by a rotation and adaptation of the gears used depending on the presence of certain target species.

Fishermen at work in Patti

Fishing excursions are short and rarely last more than 24 hours. Local fishery targets are for European hake and mullet. The most commonly used fishing gear is the long-line, used mainly during the winter months, and specific to hake, white hake and silver scabbard, which are an abundant and important resource for the local market. Fish are sold in retail, often directly on the beach, after the boat has beached at the end of the fishing excursion. No data or references are available for recreational fishing, which is widely practised in the Gulf.

On the whole, the Gulf of Patti has suitable characteristics for inclusion in the ECOSAFIMED study areas: it has a well-represented artisanal fleet working in coastal environments, and the fishermen, who operate as a joint cooperative, have been working toward sustainable fishing practices for some time.

ECOSAFIMED Events

Monitoring visit in Tunis (Tunisia)

On 2 February, representatives from the Biodiversity Foundation of Spain (a beneficiary of the project) attended a monitoring visit in Tunisia organised by the National Institute of Marine Sciences (INSTM).

Víctor Gutiérrez, the project director, reported on the activities and objectives for this year, and Adel Gaamour from the INSTM revised the plan of action for the coming months, with the scientific coordinator David Diaz providing support in the planning for the next steps to be taken by INSTM.

Monitoring visit in Tunisia

Launching sessions in Kelibia (Tunisia)

At the end of February, ECOSAFIMED partners in Tunisia organised an informative session to inform fishermen of the characteristics of the project and the relevance of their cooperation. The economic benefits of adopting good fishing practices that help preserve the seabed were also explained. Two more sessions were carried out in Tunisia, in Tabarka and Bizerte.

Informative session in Kelibia (Tunisia)

Launching sessions in Italy

At the end of July 2014, the Italian ECOSAFIMED partners organized the launching seminars of the project in Ponza and Patti discussing with the local community the scientific backgrounds of the projects, the objectives and activities of ECOSAFIMED building a first base of discussion to promote sustainable fishing activities compatible with a good environmental state.

Informative session in Patti, Italy

ECOSAFIMED Next Events

Launching sessions in Catalonia and the Balearic Islands (Spain)

As it has been done in Tunisia and Italy, informative days about the project ECOSAFIMED will be held in Spain in May and June this year. Organised by the Spanish Research Council - Institute of Marine Sciences, David Diaz, the scientific coordinator of the ECOSAFIMED project, will introduce the project to local fishermen. The final aim of this seminar is to ensure the maintenance of acceptable practices compatible with the good environmental status of the benthic communities

Complementary on board survey in Tunisia in April and May 2015

Due to technical difficulties and unfavourable meteorological conditions during 2014 field campaigns, the on board surveys in Tunisia have been rescheduled and will be carried out in April and May 2015. The Results of this survey will be added and analysed by the Tunisian partner of the ECOSAFIMED project to be later discussed in the next scientific seminar to take place in Barcelona.

More information

Webpage

http://ecosafimed.eu/

Contact us

ecosafimed@fundacion-biodiversidad.es

The 2007-2013 ENPI CBC Mediterranean Sea Basin Programme is a multilateral Cross-Border Cooperation initiative funded by the European Neighbourhood and Partnership Instrument (ENPI). The Programme objective is to promote the sustainable and harmonious cooperation process at the Mediterranean Basin level by dealing with the common challenges and enhancing its endogenous potential. It finances cooperation projects as a contribution to the economic, social, environmental and cultural development of the Mediterranean region. The following 14 countries participate in the Programme: Cyprus, Egypt, France, Greece, Israel, Italy, Jordan, Lebanon, Malta, Palestine, Portugal, Spain, Syria (participation currently suspended), and Tunisia. The Joint Managing Authority (JMA) is the Autonomous Region of Sardinia (Italy). Official Programme languages are Arabic, English and French. (**www.enpicbcmed.eu**).

The European Union is made up of 28 Member States who have decided to gradually link together their know-how, resources and destinies. Together, during a period of enlargement of 50 years, they have built a zone of stability, democracy and sustainable development whilst maintaining cultural diversity, tolerance and individual freedoms. The European Union is committed to sharing its achievements and its values with countries and peoples beyond its border.

This newsletter has been produced with the financial assistance of the European Union under the ENPI CBC Mediterranean Sea Basin Programme. The contents of this document are the sole responsibility of Biodiversity Foundation and can under no circumstances be regarded as reflecting the position of the European Union or of the Program's management structures.