



GOBIERNO
DE ESPAÑA

MINISTERIO
DE AGRICULTURA, ALIMENTACIÓN
Y MEDIO AMBIENTE



Fundación Biodiversidad

INDEMARES



Inventory and designation of marine Natura 2000 areas in the Spanish sea

Layman's Report - LIFE07/NAT/E/000732 INDEMARES



Why protect our seas?

Spain has more than one million square kilometres of sea-surface, twice its land area, spread across three different biogeographic regions: Atlantic, Mediterranean and Macaronesian. Of the 28 countries of the European Union it seems likely that Spain can claim to have the most bio-diverse set of marine environments. The climatic and orographical variety of the region gives rise to ecosystems of great richness, with more than 10,000 known species and 900 habitat types catalogued.

Among the riches present in our waters are not only fascinating marine habitats such as reefs, posidonia meadows or underwater structures caused by gas emissions, but also pelagic species like the bottlenose dolphin or loggerhead sea turtle, and seabirds such as the Balearic Shearwater and Audouin's Seagull, all of which are protected by EU directives.

Besides the requirement to comply with the Birds and Habitats Directives of the European Union, the protection of Spanish oceans is a necessity for the preservation and maintenance of a unique natural heritage, which will help to preserve the habitats and species representative and characteristic of our latitudes for future generations.

What is the legal framework?

In the European Union, the main instrument for protecting biodiversity is the Natura 2000 network, which seeks the maintenance or, where appropriate, the restoration to a favourable status of certain habitats and animal and plant species, including the marine environment. Its legal basis is found in:

- Directive 92/43/EEC of the Council of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora (DO L 206 de 22.7.1992), known as the Habitats Directive, and
- Directive 2009/147/EC of the European Parliament and of the Council of 30 November 2009 on the conservation of wild birds (DO L 20/7 de 26.1.2010), known as the Birds Directive.

Both directives have been included into Spanish national legislation through law 42/2007, of 13 December, on Natural Heritage and Biodiversity (BOE núm. 299 de 14 de diciembre de 2007).

What is the Natura 2000 network?

The Natura 2000 network is composed of Sites of Community Importance (SCI), which are subsequently declared as Special Areas of Conservation (SAC), and Special Protection Areas for Birds (SPA). These protection regimes seek to ensure long-term preservation of these areas and the animals and plants found there as well as the sustainability of human activities carried out therein. The establishment of these protected areas does not imply the prohibition of human activities, but rather their regulation through the implementation of management plans. Such plans must ensure on the one hand that the natural values for which these areas have been preserved continue to exist, whilst simultaneously allowing a sustainable use of resources through economic activities compatible with the protection regime.

What is the INDEMARES project?

The INDEMARES LIFE project is one of the major European initiatives for the investigation and conservation of the marine environment. During the project's 6 year duration, 10 large marine areas in the Atlantic, Mediterranean and Macaronesian regions have been studied with the objective of evaluating and propose their designation as a Natura 2000 network SCI: Avilés Canyon System, Banco de Galicia, the Mud Volcanoes of the Gulf of Cadiz, South of Almeria-Seco de los Olivos, Alboran marine reserve, Columbretes Islands marine reserve, Western Canyon System of the Gulf of Lions, Minorca Channel, Banco de la Concepción and the East and South Lanzarote-Fuerteventura marine reserve.

This project has also seen the continuation of work done for the marine IBA LIFE project through which SEO/BirdLife and the Ministry of Agriculture, Food and Environment had identified the main Important Bird Areas (IBA) in the Spanish marine environment. During the course of INDEMARES, 39 spaces of ornithological values have been confirmed and been designated as Special Protection Areas for Birds.

The areas declared during the course of the project have increased the total protected sea-surface in Spain from less than 1% to more than 8%, thus contributing to the objective of the Convention on Biological Diversity to protect 10% of marine regions by the year 2020.

CHALLENGES

Poor knowledge Scientific Habitats and species in non-coastal marine waters.

OBJETIVES

To increase the scientific knowledge about seabed habitats, pelagic species (cetaceans, turtles) and seabirds.

ACTIONS

SCIENTIFIC INFORMATION

- Benthic habitats Characterization.
- Seabird Survey.
- Study of cetaceans and sea turtles.

RESULTS

HABITATS

- 55 campaigns conducted, 4,4 million hectares (Mha.) characterized, 4 types of habitats present in the Habitats Directive (1170, 1180, 1110 and 1120) protected, 112 habitats found, 3 new proposed habitats, characterized 10,000 species, more than 50 new species for science.

- 250,000 seabirds identified belonging to 48 different species. 24 marking campaigns and 794 seabirds marked belonging to 6 different species.
- 39 campaigns for the cetacean census with over 30 species observed and cataloged.

Need to identify and regulate the human activities.

To get the management and monitoring guidelines for the Natura 2000 marine areas.

SOCIOECONOMIC STUDIES

- Fisheries Impact.
- Human activities monitoring and cost/benefit analysis.
- Mitigation of risks to cetaceans.
- Natura 2000 Impact on the social and local agents.

RESULTS

- Professional and nonprofessional fishing footprint analyzed in the 49 designated sites.
- Positive Cost-benefit analysis of the Natura 2000 areas.
- Human activities impact matrices processed.

- Tested mitigation of impact tools due to tourism, defense, fisheries, and transport.
- Studied 10 spaces and more than 5 Mha to propose them as SCI.
- 50 Management Guidelines documents done.

Obligation of Member State to designate marine protected areas under the Natura 2000 network.

To increase the Natura 2000 network spaces at sea.

NATURA 2000 DESIGNATION

- Natura 2000 selection.
- Seminars for public participation to the European Commission.
- Preparation and submission of the Standard Data Form.

RESULTS

- 9 seminars with the participation of over 300 people from the fishing sector, administracion and local social agents.
- Declared 39 SPAs to the EC representing more than 4,9 Mha.

- Proposed 10 LIC to CE representing more than 4,3 Mha.

Need to increase training, information and awareness about the importance of preserving the marine environment.

To increase the awareness among social agents and sea users about the conservation of the marine environment.

DISSEMINATION AND AWARENESS

- WEB: www.indemares.es
- Educational materials.
- Training for fishermen.
- Development of audiovisual material.

RESULTS

- Publication "The RN2000 marina: In Spain"
- 10 Monographs on each LIC proposed.
- Scientific articles.
- 10 Newsletters.
- 1 Leaflet marine SPAs.
- 1 Layman Report.

- Publication for kids "Os Bolechas".
- Documental "Preserving the Unknown?".
- 5 themed shorts INDEMARES.
- DVD "Marine Mammals".
- 15 descriptive panels.
- Training plan for fishermen.

How have our seas been studied?

The study of oceans is a very complicated task, requiring a large deployment of human, technical and financial resources as well as a dose of luck so that investigations, scheduled in advance, can take place without disruption or delay.

Large oceanographic vessels, equipped with cutting-edge technologies have carried out over 120 missions, covering an area of more than 4.7 million hectares, to study the seabed and pelagic species and seabirds. Moreover, INDEMARES has completed the information and therefore confirmed the values for seabirds in 39 marine Important Bird Areas (IBA) proposed by the LIFE IBA Marinas project.

PELAGIC SPECIES

- Monitoring of cetaceans: Visual census, acoustic and photo-identification.
- Monitoring populations of sea turtles.

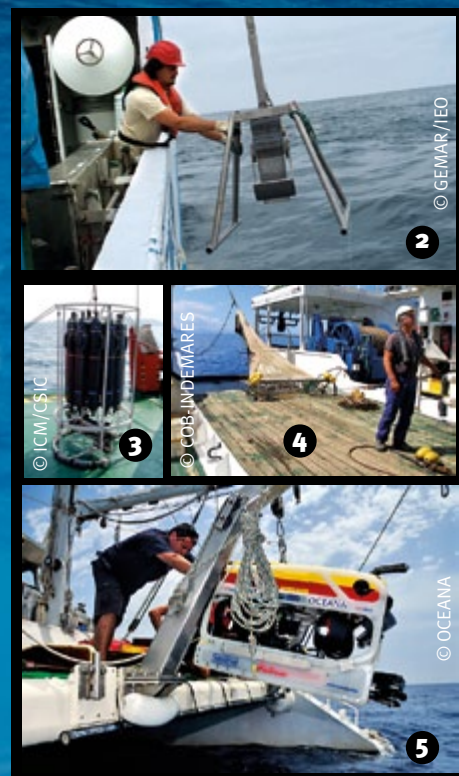


Audouin's Gull
© SEO/BirdLife



SEABIRDS

- 29 campaigns of visual census.
- Remote monitoring of individuals with GPS markers.



SEABED

The characterization of the benthic habitats has been obtained through 55 multidisciplinary oceanographic campaigns:

- ▶ **GEOMORPHOLOGY:** Acoustic **1** and sedimentology **2** methodologies to obtain the bathymetry and nature of the bottom.
- ▶ **OCEANOGRAPHY:** Physical and chemical characteristics of the water column. **3**
- ▶ **ECOLOGY:** Direct methods (*dredges and fishery methods*) **4** and indirect methods (*photography and video recording with remotely operated underwater vehicles*) **5** to map the benthic habitats.

Why carry out socio-economic studies?

With regard to the management of the protected areas, it is essential to understand the way in which different marine resources are exploited and the pressures that are exerted on them as a result of human activities. In this way, activities not compatible with the conservation regime which has been declared in a certain area can be identified and regulated, favouring those activities that allow for a sustainable management of the natural space.

Human activities within each of the proposed areas, such as fishing, shipping, recreational activities or the extent of hydrocarbon pollution, among others, have been studied as part of the INDEMARES project.



How has citizen participation been promoted?

Citizen participation is an essential part of any conservation project, helping to ensure that the project is seen through to fruition and in order to maintain the positive environmental status of the area. In this project, in addition to having worked closely with users of the sea, public participation has been encouraged through workshops in which the researchers have presented the scientific data obtained to fishermen and other interested parties. These meetings allowed the involvement of local people in the process of designation of the areas and the development of management guidelines.

How have all these processes been coordinated?

INDEMARES has integrated the work of institutions in the field of management, research and conservation of the marine environment. The Biodiversity Foundation of the Ministry of Agriculture, Food and Environment has coordinated a multi-disciplinary team in which 300 people directly participated, belonging to the Ministry itself, to the Spanish Institute of Oceanography, the Spanish National Research Council, ALNITAK, the Coordinator for the Study of Marine Mammals, OCEANA, the Society for the Study of Cetaceans in the Canary Archipelago, SEO/BirdLife and WWF Spain. In addition to the direct participation of project members many other institutions have been involved, including public universities non-governmental organizations and private companies. The heterogeneous contributions of such organisations have enriched the project through a variety of different approaches and points of view.

Decision-making has been realised through management committees, scientific committees, and committees of communication in which all members have participated.

What are the principle results?

- **DECLARATION OF PROTECTED AREAS:** Within the framework of the project, 49 new marine areas have been declared as part of the Natura 2000 network, 10 SCI's and 39 SPA's, totalling more than 7,3 million hectares.
- **SCIENTIFIC DISCOVERIES:** The oceanographic research carried out has made important contributions to our understanding of deep habitats and discovered dozens of species new to science. Three types of habitats, characteristic of the seas around Spain have been also recorded, which due to their ecological importance and vulnerability, have been proposed for inclusion in Annex I of the Habitats Directive.
- **CREATION OF A GEOGRAPHIC INFORMATION SYSTEM (GIS):** All of the cartographic data obtained during the campaign has been used to create a GIS, now part of the Banco de Datos de la Naturaleza, (a database of environmental information of the Ministry).
- **DEVELOPMENT OF MANAGEMENT GUIDELINES:** Based on the scientific results, the public seminars and socio-economic studies, management guidelines have been developed for 49 marine spaces of the Natura 2000 network which will form the basis of future management plans.
- **SOCIAL CONSENSUS THROUGH PARTICIPATION:** A process of public participation has begun with all interested sectors, facilitating the elaboration of management plans to be agreed by all stakeholders.



Maëri seabed © IEO

How have the results been published?

A results communication campaign has been carried out with the aim of disseminating scientific knowledge and raising awareness about the importance of preserving marine ecosystems and their resources. The main methods of disclosure have been:

- A media communication campaign has been highly successful with more than 1,200 press reviews. 10 press releases have also been issued and promptly reported, helping to track the progress of the project.
- The creation and updating of a web page with more than 1 million visits since the beginning of the project. The website includes information about the objectives, development and results of the project and the different oceanographic campaigns as well as videos of the seabed.
- Participation in more than 200 conferences and national and international congresses as well as more than 50 dissemination and awareness events, has allowed the inclusion of a large number of people of all ages and backgrounds, from scientists to children.
- Environmental education programs working with populations close to the protected areas have been focused on the fishing industry. Training workshops for fishermen have been carried out in order to help minimize the by-catch of protected species in the seas around Spain like the loggerhead sea turtle (*Caretta caretta*), currently in danger of extinction.
- Production of informative publications about the project and the new areas of the Natura 2000 network:
 - A brochure about the network of marine spaces around Spain.
 - A book on the Natura 2000 marine network in Spain, recording the past, present, and future state of the network of protected spaces in our seas.
 - An informative documentary on the project, consisting of a narrated tour of the new protected areas.
 - 10 monographic publications detailing the results in each of the proposed areas.
 - 15 information panels with information about each of the studied areas placed strategically in front of the 10 sites.



© SEO/BirdLife



What long-term benefits will the project produce?

Although assessing the future benefits of the project requires the elaboration and subsequent implementation of the management plans, certain benefits can already be seen:

- Conservation of habitats and species of high ecological value.
- Integration of factors related to the conservation of biodiversity and their use in a coherent network of protected marine areas.
- Collaboration in the fields of science, management and conservation toward the achievement of a common goal: the sustainability of marine resources.
- Changing the negative perception of the fisheries sector towards the Natura 2000 network.
- Implementation of pioneering methodologies in marine research, agreed through various protocols.
- Reserve-effect of protected areas with subsequent overflow of fauna to neighbouring areas, resulting in an increase in catches and lower search costs as well as an improvement in catch quality and a reduction of discard.
- Protection of the structure, functions and integrity of ecosystems resulting in the subsequent increase in ecosystem resilience.
- Increase in the aesthetic and recreational values of an area leading to an increase of economic alternatives, such as tourism.
- Increased general knowledge and awareness of the natural value of our seas.

Short-beaked common dolphin © OCEANA



And after LIFE?

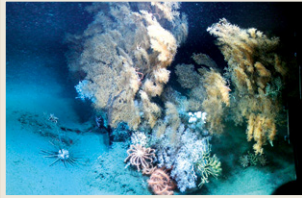
INDEMARES has helped establish a Natura 2000 network in the marine environment that is the most extensive and scientifically best defined in Europe and whose management plans will have a wide social consensus, thus serving as an example for other countries. Furthermore, this effort does not stop here. The future of this network needs to ensure the good conservation status of the natural values by regulating the human activities compatible with these objectives. To this end, it is essential to manage the Natura 2000 network at sea by employing innovative measures and the effort of the whole society.

Loggerhead sea turtle © OCEANA



Avilés Canyon System

The Avilés canyon, along with the Corviro and La Gavierna canyons, make up a system of submarine canyons located to the north of the Asturian coast. This system leaves the continental platform at a depth of 140 meters in the form of three large canyons and more than 12 tributary canyons that join together and flow into the Bay of Biscay abyssal plain at a depth of more than 4,700 meters. The biodiversity in these submarine canyons is very high and more than 1,300 bottom-dwelling species have been inventoried to date (not including pelagic species), some of which are very vulnerable, like the corals, sponges and deep water sharks, and which are included in diverse protection regulations, even though they tend to occupy very deep waters.



Black coral genus *Leiopathes*
© IEO - F. Sánchez

HABITAT AND SPECIES



Reefs (Habitat 1170) Bottlenose dolphin (*Tursiops truncatus*) Harbour porpoise (*Phocoena phocoena*) Loggerhead turtle (*Caretta caretta*)

Galicia Bank

180 kilometres off the Galician coast, this mountain rises from the sea floor. Its summit is located between 650 meters and 1500 meters below the surface of the sea, and it is surrounded by abyssal platforms more than 4,000 meters deep. The relief of this seamount modifies bottom currents, causing nutrient-rich deep water to ascend. This enrichment of the waters on the bank allows high productivity, which together with the quantity of environments present on the slopes, creates a true oasis of biodiversity in the middle of the sea, favouring the presence of various species of cetaceans, marine turtles and seabirds.



Sand with cold water corals
© IEO - F. Sánchez

HABITAT AND SPECIES



Reefs (Habitat 1170) Bottlenose dolphin (*Tursiops truncatus*) Loggerhead turtle (*Caretta caretta*) Seabirds

Conception Bank

Conception Bank is a seamount located to 75 kilometres to the north of the island of Lanzarote. It rises from a depth of 2,000 m to its summit at a water depth of 150 meters. Its relief, together with the ocean currents, create an upwelling phenomenon, where deep nutrient-rich waters rise towards the surface. These nutrients increase the productivity of the zone, attracting numerous species like cetaceans, marine turtles, sharks and seabirds in search of food.



Crustalising over rocks covered by sponges
© IEO-GO-INDEMARES Canarias - Bruno Almon

HABITAT AND SPECIES



Reefs (Habitat 1170) Bottlenose dolphin (*Tursiops truncatus*) Loggerhead turtle (*Caretta caretta*) Seabirds

Eastern and southern marine area of Lanzarote-Fuerteventura

The eastern coast of Fuerteventura and Lanzarote Islands is a true marine sanctuary for cetaceans, with 28 different species being found here, including beaked whales, fin whales, sperm whales, killer whales, dolphins and pilot whales. A third of all cetacean species in the world can be seen in this protected marine area. In addition, two seamounts of volcanic origin located to the southwest of Fuerteventura, the Amanay and Banquete banks, house a great variety of communities, mainly due to the wide range of depths they cover and their orographic complexity.



Bryde's Whale (*Balaenoptera edeni*)
© SECAC

HABITAT AND SPECIES

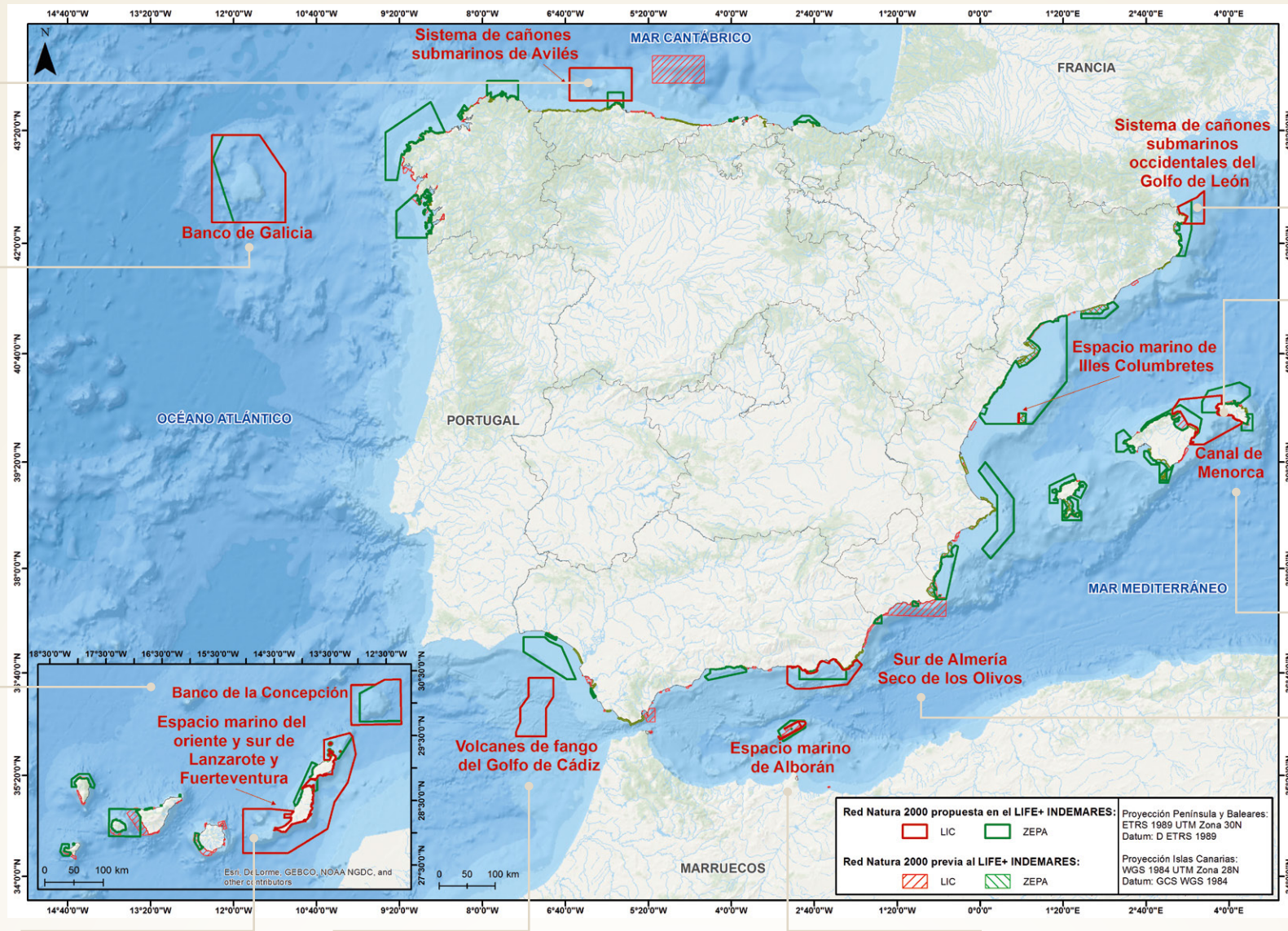


Sandbanks (Habitat 1110) Reefs (Habitat 1170) Bottlenose dolphin (*Tursiops truncatus*) Loggerhead turtle (*Caretta caretta*)

Special Protection Areas for Birds

On July 2014, were declared 39 Special Protection Areas for Birds (SPA) in Spanish waters of all marine biogeographic regions. This represents an important step for the protection of breeding colonies, feeding areas and key migratory areas.

Thanks to INDEMARES, more than 27 species of seabirds, and especially the 16 species listed in the Annex I of the Bird Directive (2009/147 / EC) will enjoy more effective protection both in land and at sea.



South-West Gulf of Lions canyons system

This SCI houses a huge variety of ecosystems in a relatively small area: littoral ecosystems, platform and slope ecosystems, and submarine canyon communities, meaning there is a high level of biodiversity. The main canyon in this system is the Creus canyon, which reaches a depth of 2150 meters. In studies carried out for the project, some 1740 species have been recorded, representing a quarter of all known species in the Mediterranean. This enormous wealth of forms is partly due to the abundance of plankton, including the larval phases of commercially interesting fish (like hake) and krill, which is the preferred food source of many fish and cetaceans.



Coral Reef (*Madrepora oculata*)
© Jürgen Schauer IFM-GEOMAR

HABITAT AND SPECIES



Reefs (Habitat 1170) Bottlenose dolphin (*Tursiops truncatus*) Loggerhead turtle (*Caretta caretta*)

Marine area of Columbretes Islands

The Columbretes Islands are the emergent part of an extensive submarine volcanic field situated near the end of the vast platform located to the south of the Ebro estuary. The volcanic origin of the Columbretes Islands is especially unusual on the Mediterranean continental platform and has led to a rich and unique flora and fauna, both in the terrestrial and marine realms. The sea floor houses unique and well-protected Mediterranean habitats. These values, together with the importance of the zone for cetaceans and seabirds, demonstrate the need to increase the existing SCI.



Balearic shearwater (*Puffinus mauretanicus*)
© SEO/BirdLife - J.M. Acos

HABITAT AND SPECIES



Reefs (Habitat 1170) Bottlenose dolphin (*Tursiops truncatus*) Loggerhead turtle (*Caretta caretta*) Seabirds

Menorca Channel

The Menorca Channel holds a great variety of habitats, from the sand banks and Posidonia beds typical of nearshore areas to communities on the bottom of the platform (50 to 100 meters deep) and slope (100 to 400 meters deep), which have a high ecological value and great diversity of species.



Coral Community
© COB-INDEMARES

HABITAT AND SPECIES



Sandbanks (Habitat 1110) Posidonia beds (Habitat 1120) Reefs (Habitat 1170) Bottlenose dolphin (*Tursiops truncatus*) Loggerhead turtle (*Caretta caretta*) Seabirds

Southern Almeria - Chel Ila Bank

Southern Almeria-Seco de los Olivivos is a marine area with 2,829 square kilometers, located in the south of the Iberian peninsula, and characterized by high productivity of its waters and a great diversity of marine species and habitats. Shallow coastal areas, deep sea, mountains and canyons are part of the seabed, providing such a variety of environments that allow the settlement of a variety of organisms.



Coral (*Dendrophyllia comensis*)
© OCEANA

HABITAT AND SPECIES



Posidonia beds (Habitat 1120) (Almeria) Reefs (Habitat 1170) Bottlenose dolphin (*Tursiops truncatus*) Loggerhead turtle (*Caretta caretta*) Seabirds

Mud volcanoes in the Gulf of Cadiz

On the seabed of the Gulf of Cadiz, at depths of between 800 and 1200 meters, there are low temperature, methane-saturated emanations of fluid that build the so-called mud volcanoes. Once the methane rises towards the surface of the seabed, it is subjected to microbial activity that transforms it, freeing bicarbonate ions. These reactions facilitate the precipitation of authigenic carbonate that forms rocky substrates, like chimneys, crusts and slabs, the reforming creating a great diversity of reliefs and habitats of extraordinary ecological interest.



Sponge (*Alicona senhalesensis*)
© IEO-GEOMAR

HABITAT AND SPECIES



Submarine structures made by leaking gases (Habitat 1180) Reefs (Habitat 1170) Bottlenose dolphin (*Tursiops truncatus*) Loggerhead turtle (*Caretta caretta*) Harbour porpoise (*Phocoena phocoena*) Sables (*Alopias albus*)

Marine area of Alborán Island

The Alborán Sea is a transition zone between the Atlantic Ocean and the Mediterranean Sea. The mixing of waters from both oceanographic basins creates certain special conditions that contribute to the wealth and uniqueness of the marine life. In addition, the Alborán Sea constitutes a feeding zone and migratory stopover for numerous species, particularly cetaceans, marine turtles and seabirds.



Coral Communities
© Universidad de Málaga/ INDEMARES Alborán

HABITAT AND SPECIES



Reefs (Habitat 1170) Bottlenose dolphin (*Tursiops truncatus*) Loggerhead turtle (*Caretta caretta*) Seabirds

INDEMARES Project

Duration	<ul style="list-style-type: none"> • 6 years (2009 – 2014)
Budget	<ul style="list-style-type: none"> • € 15.4 million, where the European Commission funds the 50%
Coordination	<ul style="list-style-type: none"> • Biodiversidad Foundation <i>Entity of the Ministry of Agriculture, Food and Environment created on 1998 in order to protect the Spanish nature capital and biodiversity.</i>
Project partners	<ul style="list-style-type: none"> • Ministry of Agriculture, Food and Environment <i>Institution responsible for the Spanish policies in the issues of Climate change, protection of natural heritage, conservation of the biodiversity and the seas, water, rural development, and agriculture, livestock, fishing and food.</i> • Spanish National Research Council (CSIC) <i>Public institution dedicated to the research and development of the scientific and technologic development.</i> • Spanish Institute of Oceanography (IEO) <i>Research Public body belonging to the Ministry of Economy and Competitiveness, and focused on the research and scientific knowledge of the oceans.</i> • ALNITAK <i>Cultural association whose goal is the research, education and conservation of marine biodiversity.</i> • Coordinator for the Study of Marine Mammals (CEMMA) <i>Galician non-profit association dedicated to the study and conservation of the cetaceans and other marine species.</i> • OCEANA <i>International organization focused solely on oceans, dedicated to achieving measurable change by conducting specific, science-based campaigns with fixed deadlines and articulated goals.</i> • Society for the Study of Cetaceans in the Canary Archipelago (SECAC) <i>Non-profit scientific organization to protect the cetaceans in the Canary Islands.</i> • SEO/BirdLife <i>Non-profit organization focused on the study and conservation of birds and their habitats in Spain.</i> • WWF Spain <i>WWF is a non-profit organization whose mission is to stop the degradation of our planet's natural environment, and build a future in which humans live in harmony with nature.</i>

www.indemares.es

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