FISHERY REGIMES IN ATLANTO-MEDITERRANEAN EUROPEAN MARINE PROTECTED AREAS

EMPAFISH PROJECT BOOKLET Nº 2

This publication has been developed in the framework of the project EMPAFISH (SSP8-006539) supported by the Commission of the European Communities within the Sixth Framework Programme. The views expressed in this work do not necessarily reflect those of EC or anticipates the Commission's future policy in the area.

Work Package: 2
Deliverable: D4
Dissemination Level: Public

Published by:

Citation: Vandeperre F., Higgins R., Santos R.S. & Pérez-Ruzafa A. (Coord.) 2006. *Fishery Regimes in Atlanto-Mediterranean European Marine Protected Areas*. EMPAFISH Project, Booklet nº 2. 97 pp.

ISBN:

Editorial Committee: José Antonio García-Charton, Stephen Mangi, Concepción Marcos and Francesc Maynou

Cover photo and design: Ángel Pérez-Ruzafa & Concepción Marcos

Photos: Pablo Sánchez-Jerez (p.5, p.8, p.16, p.34), Vanessa Stelzenmüller (p.27, p.30), Stefania Coppa (p.38), Giovanni D'Anna (p.47), Carlo Pipitone (p.49), Jesús Falcón (p.51), José Carlos Hernández (p.55), Patrick Schembri (p.79, p.81)

Available from:
http://www.um.es/empafish

Project nº SSP8-006539
EMPAFISH
European Marine Protected Areas as tools for Fisheries management and conservation

Specific Programme "Integrating and strengthening the ERA" (6th Framework Programme), under the activity "Scientific Support to Policies" and the research priority for "Modernisation and sustainability of fisheries, including aquaculture-based production system".

Fishery Regimes in Atlanto-Mediterranean European Marine Protected Areas

Deliverable reference number: 4

Due date of deliverable: July 2005
Actual submission date: July 2006

Star date of project: 1st March 2005 ***Duration: 36 months***

Organisation name of lead contractor for this deliverable: Universidade dos Azores (IMAR)

Revision: Final

Dissemination Level		
PU	Public	X
PP	Restricted to other programme participants (including the Commission Services)	
RE	Restricted to a group specified by the consortium (including the Commission Services)	
CO	Confidential, only for members of the consortium (including the Commission Services)	

Contents

Forewords

The management objective of local fisheries has been to maintain the viability of traditional fisheries and the existing fleets. In other words, to make fisheries sustainable and prevent overfishing.

The traditional measures for the management of coastal fisheries rested on the basis of singled-species models of population dynamics and the concept of maximum sustainable yield. They consists in controlling the catch and recommending a total allowable catch, and in to establish seasonal closures and gear specifications to guarantee a minimum size of fished individuals of target species and then, to ensure enough reproductive success and recruitment.

Most fisheries biological research has been oriented to provide information on the biological and ecological consequences of the reduction of the stock abundance, to predict recruitment and to estimate the parameters which define the population dynamics. Despite the huge amount of information and knowledge accumulated during the last decades, the traditional management tools have been insufficient to prevent overfishing of target and by-catch populations and their ecological consequences. More recently, fishery biologists have advocated a more ecological approach to fishery management by developing the concept of "Ecosystem approach to fisheries", based on a series of principles whose general purpose is, as acknowledged by FAO, *to plan, develop and manage fisheries in a manner that addresses the multiple needs and desires of societies, without jeopardizing the options for future generations to benefit from the full range of goods and services provided by marine ecosystems.* This approach recognize explicitly that fisheries have the potential to alter the structure, biodiversity and productivity of marine ecosystems, and that natural resources should not be allowed to decrease below their level of maximum productivity. Nevertheless, translation of these aims, concepts and principles into actions is hard to achieve in practice.

In recent years, marine reserves have been strongly advocated as an ideal tool for the management of coastal fisheries, and a large number of marine protected areas (MPAs) have been established around the world, in an attempt to halt further deterioration of sensitive habitats, or serving as fisheries management tools. Marine fishery reserves are intended to protect critical spawning stock biomass, intraspecific genetic diversity, population age structure, recruitment supply and ecosystem balance, while maintaining fisheries.

In theory, those effects are important, not only for the preservation of the structure of populations where fishing is prohibited, but also for ensuring the gene flow between more or less distant populations and to export biomass to the surrounding areas so that fisheries take advantage of the protection. Potential spillover could be important in larval phases and for pelagic species, but also for non-pelagic fishes and some invertebrates such as lobsters or shrimps that may spend enough time inside the reserve to experience a significant reduction in fishing mortality while having the ability to move outside the protected area.

The effect of fishing restrictions on the density, size structure and biomass of fish populations inside the reserve has been thoroughly investigated and demonstrated and some evidences that marine reserves also preserve the gene pool and genetic diversity have been recently provided. However, the quantification of the benefits on fisheries and the mechanisms involved are still under speculation and numerous studies find difficulties in detecting the exportation of biomass from MPAs to surrounding areas.

Some modelling studies show that reserves have low effect in adjacent fisheries and produce minor improvements when compared with the best spatially uniform effort-control policies, although other approaches suggests that no-take marine reserves are always part of an optimal harvest designed to maximize yield.

From 1997 to 1999 the number of marine protected areas in the EU had doubled. As a consequence of this quick development, the heterogeneity in design, objectives, characteristics, management tools, monitoring plans and involved administrations is as large as the proper number of MPAs. In the last years, the European Commission has underlined the necessity to manage this situation and had promoted policy-oriented research to establish the potential of marine protected areas for marine environmental protection and fisheries enhancement.

In this context, EMPAFISH project (European Marine Protected Areas as tools for FISHeries management and conservation), supported by the European Commission, has as general objectives 1) to investigate the potential of different regimes of MPAs in Europe as measures to protect sensitive and endangered species, habitats and ecosystems from the effects of fishing; 2) to develop quantitative methods to assess the effects of marine protected areas and 3) to provide EU with a set of integrated measures and policy proposals for the implementation of MPAs as fisheries and ecosystem management tools.

The main objective of the project is to promote a basis for responsible and sustainable fisheries activity that contribute to healthy marine ecosystems, creating an economically viable and competitive fisheries industry, guaranteeing a fair standard of living for those who depend on fishing activities. The primary objective is to investigate the potential of different regimes of protected areas as measures to protect sensitive and endangered species, habitats and ecosystems from the effects of fishing, using 20 case studies where management regimes range from totally prohibited zones ("no take zones") to protected areas where different levels of fishing are accepted either on a seasonal or activity basis and covering a broad geographic area from the Mediterranean to the Canary island, and Azores. A secondary objective is to develop quantitative methods to assess the effects of marine protected areas where these methods are lacking or not well suited to assess the relevant type of effects.

The work package 2 of EMPAFISH is devoted to evaluate and provide useful fishery related steady state variables as indicators of MPAs fishery effects, to analyse MPAs management regime on population parameters of the exploited resources and key non-commercial species, to analyse MPAs effects at varying temporal and spatial scales and to study the effects of MPAs on the geographic dispersion of fishing effort and fleet operational regimes.

Most of the difficulties in responding to the open queries on the effects of fishing protection and the real role of MPAs as fishery management tools are related with the above mentioned heterogeneity of designs, target species, gears, management regimes and monitoring plans. The present booklet reviews the characteristics of the case studies included in the project from the point of view of their fishing activities and fleets as a starting point to look for answers to such important questions.

Angel Pérez-Ruzafa
EMPAFISH coordinator

Introduction

Marine protected areas (MPAs) are areas of the sea where fishing is restricted or prohibited. They have been proposed throughout the world as an ideal way to protect marine ecosystems and associated fisheries (Plan Development Team 1990; Roberts & Polunin 1991; Dugan & Davis 1993; Agardy 1994; Gerber *et al*. 2002; Lubchenco *et al*. 2003) and are seen as key components in an ecosystem approach to fisheries management (Sutinen & Soboil 2001). Amongst their chief benefits is their role in conservation of valuable species and habitats, and the protection of economic resources (Salm *et al.* 2000). From a fisheries perspective, MPAs have been advocated as an insurance against uncertainties related to traditional management measures, which have in some cases failed to protect stocks against collapse (Pauly *et al.* 2002).

The effect of fishing protection on the density, size structure and biomass of fish populations has been thoroughly investigated (see reviews by García-Charton *et al.* 2000; McClanahan & Mangi 2000; Russ 2002; Halpern 2003). In general, fishing reduces population abundance, preferentially removing larger and older fish, thus changing the size and age structure of exploited populations (e.g. Jennings *et al*. 1995) and reducing potential fecundity. So, the cessation or reduction of fishing may promote an increase of the recruitment and of abundance as well as the mean size and age of the individuals of the protected populations.

Increases in the number and biomass of a number of species (Buxton & Smale 1989) or in the entire fish assemblage of the protected area (Cole *et al*. 1990; Polunin & Roberts 1993) have been observed in different studies. Most of these works show that the species more likely to respond to the cessation of fishing in marine reserves (reserve effect) are large, long-lived predators, organisms highly vulnerable to fishing and those whose populations are overexploited (Plan Development Team 1990; Roberts & Polunin 1993; Bohnsack 1996), meanwhile other species may not be influenced by protection or may show the opposite response (lower abundance or biomass in the reserve), presumably due to inter-specific interactions (Pinnegar *et al*. 2000).

Some studies show that the response time to protection is low and the positive effects on population density are reached within a period of time of 1 to 3 years (Halpern & Warner 2002).

Furthermore, marine reserves, like fishery reserves, are not closed systems and can determine a recovery in the productive potential of fishing resources, inside or in the immediate vicinity of the protected area. On this basis, it is widely accepted that MPAs offer, as potential advantages to fisheries, a net exportation of individuals or biomass to adjacent areas, commonly referred to

as "spillover". Three mechanisms can be responsible of this biomass exportation from a MPA: 1) random movements of fishes (home-range) (Rakitin & Kramer 1996; Kramer & Chapman 1999); 2) migration of individuals (trophic or reproductive) or home range relocation as a consequence of density dependent factors and 3) egg and larval dispersal (Gell & Roberts 2003). This process would result in a recovery of exploited populations outside the limits of MPAs, therefore enhancing the yield of neighbouring fisheries.

However, it must be taken into account that if home range of most individuals of a given species normally exceeds the protected area, fishes that surpass the MPA boundaries could be vulnerable to fishing mortality. Conversely, fishes whose home ranges are centred outside the MPA but include its boundaries could have reduced exposure to fishing. This is an important question to be considered in the design of marine reserves as it is clear that if the size of the protected area is not big enough in terms of home-range units, the protection on these species populations would actually be incomplete (DeMartini 1993). Thus, in this case consequences of spillover can benefit yields of local fisheries but they could be merely a result of a partial protection of several target fish populations.

Other expected effects of protection such as increasing reproductive potential of target species (e.g. Goñi *et al.* 2003), or protecting genetic diversity (e.g. González-Wangüemert *et al.* 2002, Pérez-Ruzafa *et al*. 2006), have received little attention by researchers, but there are some recent evidences of their functioning.

The best fishery evidence of fishing enhancement due to the effect of MPAs is that fishing effort is often very high in the limits of protected areas suggesting that catch rates are improved close to them (e.g. Shorthouse 1990; McClanahan & Kaunda-Arara 1996). The change in the attitudes and perceptions of fishers after the effects of protection in some cases, also suggests that commercial catches in nearby areas have improved (Shorthouse 1990; Badalamendi *et al*. 2000).

However, numerous studies find difficulties in detecting or quantifying the exportation of biomass from MPAs to surrounding areas (McClanahan & Mangi 2000; Sanchez-Lizaso *et al*. 2000; Gerber & Heppell 2004). And several confounding factors, including habitat heterogeneity (García-Charton & Pérez-Ruzafa 1998; 1999; 2001), inadequate sampling designs (García Charton *et al*. 2000) and localised research, weaken the ability to determine the effects of protection in many areas. In fact, after more than a decade of continuous and intense research, current knowledge is extremely unbalanced (Palumbi 2001) and the long term effects of MPAs are still a matter of controversy (Dawson *et al*. 2006; Steneck *et al*. 2006). Some of the main gaps in scientific knowledge that must be filled if MPAs are to be effectively used as fishery management tools relates with the dispersal capability of marine larvae, the movement patterns of juveniles and adults, the complex effects of

fishing on ecological interactions at ecosystem level, the coastal hydrodynamic processes and well designed studies of no-take MPAs that can rigorously demonstrate process as recruitment subsidy and spillover to the surrounding region (Sale *et al*. 2005).

Most European MPAs have been developed in an attempt to unite and harmonise conservation and economic interests, improving fisheries through the sustainable exploitation of natural resources, and maximising additional socio-economic benefits such as diving and tourism. This booklet summarises the current status of fisheries in each of the case studies included in the EMPAFISH study. Each site has been characterised in terms of its management regime and fisheries activity, acceptable activities and target and by-catch species.

EMPAFISH Area Map

1. Cabo de Palos
2. Tabarca
3. San Antonio
4. Serra Gelada and Benidorm islets
5. Columbretes Islands
6. Anti-trawling zones (SE Spain)
7. Medes Islands
8. Cerbère-Banyuls
9. Côte Bleue
10. Sinis - Maldiventre
11. Bouches de Bonifacio
12. Ustica Island
13. Gulf of Castellammare / Trawl Ban Area
14. La Graciosa
15. La Restinga
16. Monte da Guia / Faial
17. Formigas islet / Dollabarat Bank
18. Tuscany Archipelago
19. Malta 25 NM Fisheries Management Zone (FMZ)
20. Rdum Majjiesa / Ras ir-Raheb MPA

MPA: Cabo de Palos

Location:	37°38'N 00°42'W
Country:	Spain
Coastal/Island:	Mixed inshore
Total size:	1,898 ha
Integral size:	270 ha
Year of establishment:	1995
Depth range:	0 – 100m
Protection objectives:	Fisheries enhancement
Type of MPA:	Partial
Habitats:	*Posidonia oceanica* beds, rocky reefs (from supra- to circa littoral), caves, detritic bottoms, sandy bottoms
Socio-economic activities:	Diving, tourism

Activities	Integral Reserve (IR)	Restricted Use Area (RU)
Forbidden	Fishing, scuba diving, swimming, boating, anchoring, angling, spear fishing	Spear fishing
Restricted	Scientific survey	Scientific survey, fishing, angling, scuba diving
Allowed		Swimming, boating, anchoring

Description of the fisheries in and around the MPA:

The marine reserve was created in 1995 under fishery legislation rules. Management of this area is shared between regional and national administration. The entire marine reserve is 1898 Ha in size, and it is formed by an integral reserve (270 ha) where all fishing activity is prohibited, and a restricted use area, which is acting as buffer zone, where some kind of artisanal fishery (clear trammel net and bottom long-line) is allowed under strict regulation. There are four fishing guilds in the region of Murcia one of which fishes inside the marine reserve and this one plus another fish in its vicinity. Boats coming from Santa Pola (Alicante), especially trawlers, fish around limits of the marine reserve. In this partial reserve, other activities (namely diving) are also permitted.

Area		Gear	Seasonality	Target Species	Bycatch Species	No. of Vessels
Inside	IR	-	-	-	-	-
	RU	*Palinurus* trammel net	May-Sept	*Palinurus elephas*	*Phycis phycis, Scorpaena scrofa, Lophius piscatorius*	12
		Rockfish trammel net	May-Sept	*Dentex dentex, Scorpaena scrofa*	*Scorpaena porcus, Pagellus erythrinus, Sciaena umbra*	
		Dentex bottom long-line	Sept-Mar	*Dentex dentex, Epinephelus marginatus*	*Pagrus pagrus*	
Outside		Pelagic trap net	April-June	*Seriola dumerili, Sarda sarda, Auxis rochei*		39
		Sepia trap net	Nov-Mar	*Sepia officinalis, Loligo vulgaris, Seriola dumerili*	*Sphyraena sphyraena, Diplodus sargus, Lithognathus mormyrus*	
		Mullus trammel net	Mar-Aug	*Mullus surmuletus*	*Diplodus* spp., *Sepia officinalis, Serranus* spp.	
		Palinurus trammel net	May-Sept	*Palinurus elephas*	*Phycis phycis, Scorpaena scrofa, Lophius piscatorius*	
		Rockfish trammel net	May-Sept	*Dentex dentex, Scorpaena scrofa*	*Scorpaena porcus, Pagellus erythrinus, Sciaena umbra*	
		Sparids gillnet	Oct-Jan	*Sparus aurata, Diplodus sargus*	*Pagellus erythrinus*	
		Dentex bottom long-line	Sept-April	*Dentex dentex, Epinephelus marginatus*	*Pagrus pagrus*	
		Marginatus bottom long-line	Sept-Mar	*Epinephelus marginatus*	*Dentex* spp.	
		Surface-bottom long-line (*Palangre piedrabola*)	Sept-May	*Xiphias gladius, Epinephelus marginatus, Scorpaena scrofa*		
		Octopus pots	All seasons	*Octopus vulgaris*		
		Surface long-line	Jun-Sept	*Xiphias gladius, Thunnus thynnus*	Sharks	4
		Trawling	All seasons	*Mullus surmuletus, Merluccius merluccius, Octopus vulgaris,*		8

			Aristeus antennatus		
	Purse seine	depending on the species	*Sardina pilchardus, Engraulis encrasicolus, Seriola dumerili,* Scombridae, *Aphia minuta, Atherina* spp.		8

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Statistics:

Landings of the most important species (by weight) from the region for 2004*

Total landings	Weight (tons)
Total landings (all species)	30.5
Seriola dumerili	5.0
Dentex dentex	2.4
Mullus spp.	2.1

* Landings data of the 9 boats which are allowed to fish within the marine protected area of Cabo de Palos – Islas Hormigas

Fishing regulations:

Resolución de 12 de mayo de 1999, de la Dirección General de Recursos Pesqueros, por la que se da publicidad al Convenio Marco de Colaboración entre el Ministerio de Agricultura, Pesca y Alimentación y

la Consejería de Medio Ambiente, Agricultura y Agua de la Comunidad Autónoma de la Región de Murcia, relativo a la Gestión compartida de la Reserva Marina del entorno de Cabo de Palos - Islas Hormigas (B.O.E. núm. 141 de 14 de junio de 1999). Resolución de 3 de septiembre de 2001, de la Secretaría General de Pesca Marítima, por la que se actualiza el censo de embarcaciones autorizadas a ejercer la pesca marítima profesional en la reserva marina del entorno de Cabo de Palos - Islas Hormigas (B.O.E. núm. 233 de 28 de septiembre de 2001). Orden de 19 de julio de 2001, de la Consejería de Agricultura, Agua y Medio Ambiente, por la que se regula el ejercicio de las actividades subacuáticas en aguas interiores de la reserva marina de Cabo de Palos - Islas Hormigas.(B.O.R.M. núm. 174, de 28 de julio de 2001). Orden de 6 de junio de 2001, por la que se modifica la Orden de 22 de junio de 1995, por la que se establece una reserva marina en el entorno del Cabo de Palos - Islas Hormigas (B.O.E. núm. 146 de 19 de junio 2001). Orden de 7 de abril de 2000, de la Consejería de Agricultura, Agua y Medio Ambiente, por la que se regulan las modalidades de pesca autorizadas en aguas de la reserva marina de Cabo de Palos - Islas Hormigas. (B.O.R.M. núm 92 de 19 de abril de 2000). Orden de 29 de abril de 1999 por la que se modifica la Orden de 22 de junio de 1995, por la que se establece una reserva marina en el entorno del Cabo de Palos - Islas Hormigas (B.O.E. núm 119 de 19 de mayo de 1999). Orden de 22 de junio de 1995, por la que se establece una reserva marina en el entorno del Cabo de Palos - Islas Hormigas (B.O.E. núm 161 de 7 de julio de 1995). Decreto nº 15/1995, de 31 de marzo, por el que se declara reserva marina de interés pesquero la zona de Cabo de Palos - Islas Hormigas. (B.O.R.M. núm. 92 de 21 de abril de 1995).

Database reference: http://www.mapa.es/rmarinas/index_rm.htm http://www.carm.es/econet/sicrem/p1/index.htm

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MPA: Tabarca

Location:	38°10'N 00°28'W
Country:	Spain
Coastal/Island:	Island
Total size:	1,400 ha
Integral size:	120 ha
Year of establishment:	1986
Depth range:	0 – 50m
Protection objectives:	Fisheries enhancement
Type of MPA:	Multiple uses
Habitats:	*Posidonia oceanica* beds and rocky reefs
Socio-economic activities:	Diving, tourism and fishing

Activities	Core I	Buffer IIa	Buffer IIb	Restricted IIIa	Restricted IIIb
Forbidden	Angling, Spear fishing, Scuba diving, swimming, anchoring	Angling, Spear fishing, swimming, anchoring	Angling, Spear fishing, swimming, anchoring	Angling, Spear fishing, anchoring	Spear fishing
Restricted	Scientific research	Fishing	Fishing	Fishing	Fishing
Allowed	Boating	Scuba diving, Scientific research, boating	Scuba diving, Scientific research, boating	Scuba diving, swimming, Scientific research, boating	Angling, Scuba diving, swimming, anchoring, Scientific research, boating

Description of the fisheries in and around the MPA:

The marine reserve was created to protect biodiversity and allow the regeneration of local fisheries around the protected area. Within the integral reserve all fishing activities are forbidden. The restricted use area is divided into internal and external waters, which are regulated by the regional government of Valencia and the Spanish State respectively.
The fleet is artisanal and the main fishing area is located at the eastern external part of the MPA. The different fishing gears differ according to the year period and the target species, being the more used trammel net for mullets and cuttlefish, demersal long-lines and traw-lines. In the buffer and regulated zones big and small trap nets are allowed. Moreover, an intense recreational fishery is developed around the MPA,

including angling, trawl-line and spear fishing.

Area		Gear	Seasonality	Target Species	Bycatch Species	No. of Vessels
Inside	IR	-	-	-	-	-
	RU	Trap nets (*Moruna gruesa*)	May-July	*Seriola dumerili, Dentex dentex,*	*Sphyraena sphyraena, Pomatomus saltatrix*	4
		Trap nets (*Moruna fina*)	Sept-Nov	*Atherina hepsetus*	*other juvenile fishes*	
		Troll line (*Curricán*)	All seasons	*Seriola dumerili, Epinephelus* spp.		
Outside		Trap net (*moruna gruesa*)	April-June	*Seriola dumerili, Sarda sarda, Auxis rochei*		20
		Trap net (*moruna fina*)	Nov-Mar	*Loligo vulgaris, Sepia officinalis, Seriola dumerili, Sphyraena sphyraena, Diplodus sargus, Lithognathus mormyrus*		
		Trammel net (*trasmallos finos*)	Mar-Aug	*Mullus surmuletus, Scorpaena scrofa, Scorpaena porcus, Dentex dentex, Sepia officinalis*		
		Trammel net (*trasmallos claros*)	May-Sept	*Palinurus elephas, Dentex dentex, Scorpaena scrofa, Phycis phycis, Pagellus erythrinus*		
		Gill net	Oct-Jan	*Sepia officinalis, Sparus aurata, Diplodus sargus*		
		Surface long-line	June-Sept	*Xiphias gladius, Thunnus thynnus,* sharks...		4
		Bottom long-line	Sept-April	*Pagrus pagrus, Diplodus sargus, Sciaena umbra, Dentex dentex*		
		Long line	Sept-Mar	*Epinephelus marginatus*		
		Trawling	All season	*Mullus surmuletus, Merluccius merluccius, Octopus vulgaris, Aristeus antennatus*		57
		Pure seine	depending on the species	*Sardina pilchardus, Engraulis encrasicolus, Seriola dumerili,* Scombridae, *Aphia minuta, Atherina* spp.		15

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Statistics:

Landings of the most important species (by weight) from the region for 2004*

	Weight (tons)
Total landings (all species)	2846.0
Species 1	Not available
Species 2	Not available
Species 3	Not available

* Landings data of fish market

Fishing Regulations:

Foundation Text : Order 4th of April 1986, Regional Council of Agriculture and Fisheries. Founding of a MPA in Tabarca Island. (DOGV nº 397, 27th of June)

Order 4th April 1986 modified by Order 15th June 1988 and Order 24th July 2000 (Ministry of Agriculture, Fisheries and Food); Order 4th April 1986 modified by Order 19th October 2000 (Regional Council of Agriculture and Fisheries).

BOE nº 112, 10 may 1986; DOGV nº 397, 27 June 1986; BOE nº 163, 8 July 1988; BOE nº 184, 2 august 2000; DOGV nº 3868, 31 October 2000.

Law 3/2001, of the 26th of March, of Fishing activities of the Spanish State.

Law 9/1998, of the 15th of December, of Fishing activities of the Comunidad Valenciana (BOE nº 18, January 1999)

Database reference:

http://www.agricultura.gva.es/estadisticos/
http://www.mapa.es/

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MPA: San Antonio

Location:	38°48'N 00°11'E
Country:	Spain
Coastal/Island:	Coastal
Total size:	250 ha
Integral size:	250 ha
Year of establishment:	1993
Depth range:	0 – 22m
Protection objectives:	Fisheries enhancement
Type of MPA:	Multiple uses
Habitats:	*Posidonia oceanica* beds and rocky reefs
Socio-economic activities:	Diving, tourism and fishing

Activities	Integral Reserve (IR)	Buffer Zone
Forbidden	Angling, Spear fishing, Anchoring	Spear fishing, Anchoring
Restricted	Scuba diving, scientific research	Scientific research, angling
Allowed	Fishing, swimming, boating	Fishing, Scuba diving, swimming, boating,

Description of the fisheries in and around the MPA:

The marine reserve was created around San Antonio cape to protect the natural resources and achieve a sustainable fishery, allowing local artisanal fishermen to preserve their way of life.
Within the reserve most fishing activities are forbidden, with the

exception of small-scale fishing gears (trammel net and longline). A very productive fishery has developed close to the MPA. The abundance of the catches of species like *Mullus surmuletus, Pagrus pagrus, Dentex dentex*, etc. produce sustained incomes with time, compatible with the ecosystem protection. Artisanal fishing is mainly located around the southern area of San Antonio cape. The entire MPA is managed by the regional government of Valencia.

Area		Gear	Seasonality	Target Species	Bycatch Species	No. of Vessels
Inside	IR	-	-	-	-	-
Inside RU and Outside.		Trammel net (*trasmallos finos*)	Mar-Aug	*Mullus surmuletus, Scorpaena scrofa, Scorpaena porcus, Dentex dentex, Sepia officinalis*		15
		Trammel net (*trasmallos claros*)	May-Sept	*Palinurus elephas, Dentex dentex, Scorpaena scrofa, Phycis phycis, Pagellus erythrinus*		
		Gill net	Oct-Jan	*Sepia officinalis, Sparus aurata, Diplodus sargus*		
		Surface long-line	June-Sept	*Xiphias gladius, Thunnus thynnus,* sharks...		2
		Bottom long-line	Sept-April	*Pagrus pagrus, Diplodus sargus, Sciaena umbra, Dentex dentex*		
Outside		Trawling	All seasons	*Mullus surmuletus, Merluccius merluccius, Octopus vulgaris, Aristeus antennatus*		26
		Pure seine	depending on the species	*Sardina pilchardus, Engraulis encrasicolus, Seriola dumerili,* Scombridae, *Aphia minuta, Atherina* spp.		8

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Statistics:

Landings of the most important species (by weight) from the region for 2004*

	Weight (tons)
Total landings (all species)	7097.2

Species 1	Not available
Species 2	Not available
Species 3	Not available

*Landings data of fish market

Fishing regulations:

Foundation Text : Order 9th of November 1993 by the Regional Council of the Generalitat Valenciana.
Order 9th of November 212/1993, Order 8th of November 180/2002, Order 10th of June 110/ 2005.
DOGV nº 2145, DOGV 4374, DOGV 5027.
Law 3/2001, of the 26th of March, of Fishing activities of the Spanish State.
Law 9/1998, of the 15th of December, of Fishing activities of the Generalitat Valenciana (BOE nº 18, January 1999)

Database reference:

http://www.mapa.es/rmarinas/index_rirm.htm

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MPA: Serra Gelada – Benidorm islets

Location:	38°48'N 00°11'E
Country:	Spain
Coastal/Island:	Coastal including inlets and small isles
Total size:	4,920 ha
Integral size:	-
Year of establishment:	2005
Depth range:	0 – 50 m
Protection objectives:	Protection of biodiversity
Type of MPA:	Multiple uses
Habitats:	*Posidonia oceanica* beds, rocky reefs and Maërl
Socio-economic activities:	Diving, tourism and fishing

Activities	Area of special protection	Compatible activity zone	Area of special use
Forbidden	Angling, Spear fishing	Spear fishing	
Restricted	Fishing, Scuba diving, anchoring, scientific research	Fishing, anchoring	
Allowed	Swimming, boating	Angling, Scuba diving, swimming, boating, scientific research.	Only fish farm activities are allowed

Description of the fisheries in and around the MPA:

In Serra Gelada, trammel net, gill net and longlines are used widely around the MPA. Nowadays no regulation exists on these activities although some rules exist about in the management plan. Recreational fishing including angling, spear fishing and shellfish collecting is also uncontrolled. There is a Special Use Area where only fish farm activities are allowed. All the MPA is managed by the regional government of Valencia.

Area	Gear	Seasonality	Target Species	Bycatch Species	No. of Vessels
Inside IR	-	-	-	-	-
Inside RU	Trammel net (*trasmallos finos*)	Mar-Aug	*Mullus surmuletus, Scorpaena scrofa, Scorpaena porcus, Dentex dentex, Sepia officinalis*		12
	Trammel net (*trasmallos claros*)	May-Sept	*Palinurus elephas, Dentex dentex, Scorpaena scrofa, Phycis phycis, Pagellus erythrinus*		
	Gill net	Oct-Jan	*Sepia officinalis, Sparus aurata, Diplodus sargus*		
	Surface long-line	June-Sept	*Xiphias gladius, Thunnus thynnus,* sharks...		2
	Bottom long-line	Sept-April	*Pagrus pagrus, Diplodus sargus, Sciaena umbra, Dentex dentex*		
Outside	Trawling	All seasons	*Mullus surmuletus, Merluccius merluccius, Octopus vulgaris, Aristeus antennatus*		26
	Pure seine	depending on the species	*Sardina pilchardus, Engraulis encrasicolus, Seriola dumerili,* Scombridae, *Aphia minuta, Atherina* spp.		8

Bibliographic references:

Mediterraneo Servicios Marinos S.L., 1997. *Estudios previos realizados al establecimiento del LIC de Benidorm*. Generalitat Valenciana, Conselleria de Territori i Habitatge.

Statistics:

Landings of the most important species (by weight) from the region for 2004*

	Weight (tons)
Total landings (all species)	3451.4
Species 1	Not available

Species 2	Not available
Species 3	Not available

* Landings data of fish market

Fishing regulations:

Foundation Text: Order 29th of July 2005 by the Regional Government 129/2005. (DOGV 5062)
Law 3/2001, of the 26th of March, of Fishing activities of the Spanish state.
Law 9/1998, of the 15th of December, of Fishing activities of the Generalitat Valenciana (BOE nº 18, January 1999)

Database reference:

Not available

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MPA: Columbretes Islands

Location:	39º 50'N 00º 37'E
Country:	Spain
Coastal/Island:	Mid continental shelf
Total size:	4,400 ha
No-take area (IR + RU):	1,862.6 ha
Year of establishment:	1990
Depth range:	0 - 80 m
Protection objectives:	Fisheries enhancement
Type of MPA:	No take
Habitats:	Rocky outcrops, coralligenous communities, Maërl beds, *Cymodocea nodosa* beds
Socio-economic activities:	Diving, snorkelling, sailing, very limited professional and recreational fishing.

Activities	Integral Reserve (IR)	Restricted use (RU)	Rest of Marine Reserve
Forbidden	Fishing, spear fishing, angling, anchoring, scuba diving, swimming	Fishing, spear fishing, angling, anchoring	Spear fishing, scuba diving, anchoring
Restricted		Scuba diving	Fishing, angling
Allowed	Scientific research, boating	Scientific research, boating, swimming	Scientific research, boating, swimming

Description of the fisheries in and around the MPA:

The Columbretes Island marine reserve was created for the enhancement of fisheries resources.
The no-take area of the reserve includes: a) integral reserve (IR) with two zones, around the Columbretes Grande and the Bergantin islands covering an area of 957.9 Ha, and b) three areas of restricted use (RU) where, in addition to scientific research, restricted scuba diving is allowed. In the rest of the reserve, some professional and recreational fishing is allowed: listed boats can fish with purse-seine, troll-line, squid-jig or hand-line. In practice, almost no commercial fisheries take place in the reserve as it is far from the coast and the fisheries allowed are not of sufficient interest. The recreational fisheries have been greatly reduced after the recent prohibition of anchoring in shallow habitats (IR, RU).
Mainly two commercial fisheries operate on the grounds surrounding the reserve: a) Year-round bottom trawling targeting a mix of species like hake, squids, octopus, mullets and anglerfish and b) seasonal (March-August) trammel netting targeting the spiny lobster (*Palinurus elephas*). Both fisheries operate intensively along the boundary of the reserve.
The protection of this reserve is regulated by the General Secretariat for Maritime Fisheries, Ministry of Agriculture and Fisheries.

Area		Gear	Seasonality	Target Species	Bycatch Species	No. of Vessels
Inside	IR, RU	none	-	-	-	-
	Rest of reserve	Purse seine		*Sardina pilchardus*	-	negligible
		Angling	Mainly summer	*Serranus* spp., *Scorpaena scrofa*	*Spondyliosoma cantharus*, *Phycis phycis*	
		Troll line	Mainly summer	*Serranus* spp., *Scorpaena scrofa*	*Spondyliosoma cantharus*, *Phycis phycis*	negligible
		Squid jig		Squid		negligible
		Hand line	Mainly summer			negligible
Outside (main fisheries only)		Trawling	All seasons	Mix species: *Merluccius merluccius*, *Octopus* spp., *Mullus* spp., *Lophius* spp.	Many	5-10
		Trammel net	Mar-Aug	*Palinurus elephas*	*Scorpaena scrofa*, *Lophius* spp., *Raja* spp., *Phycis phycis*	2-4

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Goñi R., Quetglas A. & Reñones O., 2006. Spillover of lobster *Palinurus elephas* (Fabricius 1787) from a Western Mediterranean marine reserve. *Marine Ecology Progress Series*, 308: 207-219.

Statistics:

Landings of the most important species (by weight) from the region for 2004

Not available

Fishing regulations:

B.O.E. nº 97, 23rd April 1990
(http://www.mapa.es/rmarinas/lasreservas/columbretes/legislacion/orden_19_4/text.htm)

Database reference:

http://www.mapa.es/rmarinas/index_rm.htm

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MPA: Anti-trawling zones (SE Spain)

Location:	38°25'N 00°21'E
Country:	Spain
Coastal/Island:	Coastal
Total size:	20 – 800 ha
Integral size:	-
Year of establishment:	1989, 1996
Depth range:	0 – 28 m
Protection objectives:	Fisheries enhancement, protection of sea grasses
Type of MPA:	Artificial Reef
Habitats:	*Posidonia oceanica* beds and Maërl
Socio-economic activities:	Diving, tourism and fishing

Activities	Anti-trawling zones
Forbidden	(Trawling)
Restricted	Fishing
Allowed	Angling, spear fishing, scuba diving, swimming, boating, anchoring, scientific research

Description of the fisheries in and around the MPA:

The anti-trawling reefs were established mainly to protect the *Posidonia oceanica* meadows.
Within the anti-trawling reefs, fishing activities are not regulated. The fleet works in the fishing-grounds close to the artificial reefs, using trammel nets for mullets (mesh size <40 mm) and cuttlefish (mesh size 40 - 60 mm). There is evidence that their captures have increased around some artificial reefs (e.g.: El Campello) due to an increase of stocks favoured by the ban of trawling.
Many of the anti-trawling reefs are managed by the regional government.

Area	Gear	Seasonality	Target Species	Bycatch Species	No. of Vessels
Inside/outside	Trammel net (*trasmallos finos)*	Mar-Aug	*Mullus surmuletus, Scorpaena scrofa, Scorpaena porcus, Dentex dentex, Sepia officinalis*		25
	Trammel net (*trasmallos claros*)	May-Sept	*Palinurus elephas, Dentex dentex, Scorpaena scrofa, Phycis phycis, Pagellus erythrinus*		
	Gill net	Oct-Jan	*Sepia officinalis, Sparus aurata, Diplodus sargus*		

	Bottom long-line	Sept-April	*Pagrus pagrus, Diplodus sargus, Sciaena umbra, Dentex dentex*		
Outside	Trawling	All seasons	*Mullus surmuletus, Merluccius merluccius, Octopus vulgaris, Aristeus antennatus*		60
	Pure seine	depending on the species	*Sardina pilchardus, Engraulis encrasicolus, Seriola dumerili,* Scombridae, *Aphia minuta, Atherina* spp.		10

Bibliographic references:

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Mediterraneo Servicios Marinos S.L., 1992. *Informe Arrecife Artificial Calpe Fase I*. Generalitat Valenciana. Servicio de Pesca de la Conselleria de Agricultura, Pesca y Alimentación.

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Mediterraneo Servicios Marinos S.L., 2001. *Informe Arrecife Artificial Torrevieja Fase III*. Generalitat Valenciana. Servicio de Pesca de la Conselleria de Agricultura, Pesca y Alimentación.
Mediterraneo Servicios Marinos S.L., 2001. *Informe final (1991–2001) Arrecife Artificial Altea*. Generalitat Valenciana. Servicio de Pesca de la Conselleria de Agricultura, Pesca y Alimentación.
Mediterraneo Servicios Marinos S.L., 2001. *Informe Arrecife Artificial Altea Fase II.* Generalitat Valenciana. Servicio de Pesca de la Conselleria de Agricultura, Pesca y Alimentación.
Mediterraneo Servicios Marinos S.L., 2001. *Informe Arrecife Artificial Guardamar.* Generalitat Valenciana. Servicio de Pesca de la Conselleria de Agricultura, Pesca y Alimentación.
Mediterraneo Servicios Marinos S.L., 2002. *Informe Arrecife Artificial Guardamar*. Generalitat Valenciana. Servicio de Pesca de la Conselleria de Agricultura, Pesca y Alimentación.
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Mediterraneo Servicios Marinos S.L., 2002. *Informe Arrecife Artificial Torrevieja Fase III*. Generalitat Valenciana. Servicio de Pesca de la Conselleria de Agricultura, Pesca y Alimentación.
Mediterraneo Servicios Marinos S.L., 2004. *Informe Arrecife Artificial Torrevieja Fase III.* Generalitat Valenciana. Servicio de Pesca de la Conselleria de Agricultura, Pesca y Alimentación.

Statistics:

Landings of the most important species (by weight) from the region for 2004

Not available

Fishing regulations:
Law 3/2001, of the 26th of March, of Fishing activities of the Spanish state. Law 9/1998, of the 15th of December, of Fishing activities of the Generalitat Valenciana (BOE nº 18, January 1999)

Database reference:
Not available

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Name MPA: Medes Islands

Location:	42º02'55''N 03º13'30''E (center of Meda Gran Island)
Country:	Spain
Coastal/Island:	Island (inshore)
Total size:	511 ha
Integral size:	93 ha
Year of establishment:	1983
Depth range:	20 – 60 m
Protection objectives:	Conservation
Type of MPA:	No take/ partial
Habitats:	Rocky reefs, *Posidonia oceanica* beds, caves
Socio-economic activities:	Tourism, diving

Activities	Integral Reserve (IR)	Restricted Use Area (RU)
Forbidden	Fishing, angling, spear fishing	Spear fishing
Restricted	Scuba diving, swimming, boating, anchoring, scientific research	Fishing, scientific research
Allowed		Scuba diving, angling, swimming, boating, anchoring

Description of the fisheries in and around the MPA:

The primary purpose of Medes Marine Reserve is conservation, scientific research and ecotourism. At present the MPA is managed by the Environment Department of the Autonomous Government of Catalonia.
Within the integral reserve all fishing activities are forbidden. Professional artisanal fishing is allowed for licensed boats inside the Restricted Use area. Only the fishing boats with base in L'Estartit, a small village very close to the MPA, can go fishing into the nearby area of Medes Islands. Although the artisanal fleet of this port consists of 30 vessels, only a small number, 4 to 6, go fishing regularly all year round. The boats are small and operate close to the base port of L'Estartit. Most fishing activity concentrates in an area of around 4 km from the MPA border, mainly within 2 km from the MPA border. Fishing is allowed 5 days a week. Fishing activity is low by the end of autumn and winter because of weather conditions.

Area		Gear	Seasonality	Target Species	Bycatch Species	No. of Vessels
Inside	IR					
	RU	gillnet	All seasons, main season: winter	*Pagellus erythrinus*		4
		trammel net	May-Oct	*Palinurus elephas*		4
		trammel net	June-Aug	*Mullus surmuletus*		4
		Traps		*Octopus vulgaris*		1
Outside		gillnet	All seasons, main season: winter	*Pagellus erythrinus*		4
		trammel net	May-Oct	*Palinurus elephas*		4
		trammel net	June-Aug	*Mullus surmuletus*		4
		traps		*Octopus vulgaris*		1
		gillnet	All seasons, main season: April to Oct	*Merluccius merluccius*		3-4
		trammel net	Jan-April	*Sepia officinalis*		3-4
		trammel net	Dec-Feb	*Solea vulgaris, Psetta maxima*		3-4
		trammel net	All seasons	*Dicentrarchus labrax*		3-4
		longline	All seasons, main season: Mar-Sept	*Sparus aurata*		1
		hand line	July-Mar	*Loligo vulgaris*		1

Bibliographic referentes:

Lleonart J., 1990. La Pesquería de Cataluña y Valencia: descripción global y planteamiento de bases para su seguimiento. EC DG XIV Contract Reference 1989/3, 1634 pp. (Available at the library of the CSIC-Institut de Ciències del Mar, Barcelona).

García-Rubies A. & Zabala M., 1990. Effects of total fishing prohibition on the rocky fish assemblages of Medes Islands marine reserve (NW Mediterranean). *Scientia Marina* 54: 317- 328.

García-Rubies A., Zabala M. & Hereu B., 2003. Seguiment de la població de meros (*Epinephelus marginatus*) i d'altres espècies vulnerables de Les Illes Medes i la costa veïna parcialment protegida (1991-2003). In: *Seguiment Temporal de l'Àrea Marina Protegida de Les Illes Medes. Informe Anual, any 2003*. Edited by Generalitat de Catalunya,

Departament de Medi Ambient: 3-55.

Statistics:

Landings of the most important species (by weight) from the region for 2004*

	Weight (tons)
Total landings (all species)	9.76
Merluccius merluccius	2.32
Sparus aurata	1.85
Mullus surmuletus	0.92

* no official landings records available; data below are an estimate from the sampling on board conducted during 2004

Fishing regulations:

1983: DOGC 391, 21.12.1983, Departament d'Agricultura, Ramaderia i Pesca de la Generalitat de Catalunya. First protection measure implemented: prohibition of fishing and of the extraction of living marine resources around Medes Islands.

1990: DOGC 1381, 17.12 1990, Llei 19/1990 del Parlament de Catalunya de conservació de la flora i la fauna del fons marí de les Illes Medes. Act 19/1990 of the Parliament of Catalonia for the conservation of the underwater marine flora and fauna of the Medes Islands reads: "The aim of this Act is to establish specific laws and regulations *on the conservation of the flora and fauna of the marine environment of the Medes Islands and their surroundings so as to avoid the destruction, deterioration or alteration of the natural habitat*" (Art.1).

Decret 215/1999, 27.07.1999, pel qual s'aproven les normes generals del Pla per a la conservació de les àrees protegides de les Illes Medes per al període 1999-2002. Departament de Medi Ambient de la Generalitat de Catalunya (definition of regulations, uses and conservation measures).

Decret 59/2003, 20.02.2003, prorrogava la vigència de les normes generals del Pla per a la conservació de les àrees protegides de les Illes Medes a l'any 2003 (extension to 2003 of the regulations in force).

Decret 234/2004, 16.03.2004, pel qual es prorroga la vigència de les normes generals del Pla per a la conservació de les àrees protegides de les Illes Medes. Departament de Medi Ambient i Habitatge de la Generalitat de Catalunya (update and extension of the regulations in force previously defined).

Database reference:

http://mediambient.gencat.net/eng//el_medi/parcs_de_catalunya/medes/inici.jsp

Contact:	MPA Director: Nuria Muñoz Oficina de l'Area Protegida de les Illes Medes Edifici Medes Park c/ Eivissa, s/n 17258 l'Estartit Spain e-mail: rmillesmedes.dma@gencat.net www.parcsdecatalunya.net

MPA: Cerbère-Banyuls

Location:	42º 29'N 03º 09'E
Country:	France
Coastal/Island:	Coastal
Total size:	617.4 ha
Integral size:	65 ha
Year of establishment:	1974
Depth range:	0 – 60 m
Protection objectives:	Conservation
Type of MPA:	Partial
Habitats:	Rock reef, coraligene
Socio-economic activities:	Recreational fishing, tourism, scuba diving

Activities	Integral Reserve (IR)	Buffer Zone
Forbidden	Fishing, scuba diving, angling, spear fishing, anchoring	Spear fishing
Restricted	Boating, scientific research	Fishing, angling, anchoring, boating, scientific research
Allowed	Swimming	Swimming, scuba diving

Description of the fisheries in and around the MPA:

The marine reserve was created in 1974 in order to slow down the unreasoned exploitation of the sea, involved in a significant degradation of fauna and marine flora. At this period, the 2 principal cause were the trawlers working near the coasts and destroying the spawning grounds as well as the animal and fixed flora species, and tourism which, while constituting a considerable share of the local incomes, had led to an anarchistic development of fishing and pleasure sailing, underwater fishing and scuba diving.
With these disturbances, it is advisable to add pollution: domestic pollution in an area which was deprived of any means of purification of the used water directly rejected at sea; chemical pollution related to the development of the agricultural treatments; use of toxic paintings anti-stains on the boats hulls ; rejection at sea of hydrocarbons by the pleasure boats or professionals.
To achieve a sustainable fishery allowing local artisanal fishermen and to restore environment, the MPA was divided, in 1977, in two part: integral reserve, in which all fishing activities are forbidden; partial reserve, in which, artisanal fishery is regulate.
Artisanal fleet, 6 fishermen on 4 vessels, is completely traditional and original. This fishery gathers all the units not practising professionally trawling or fishing with the seine of the pelagic resources. These boats, using a whole range of fixed or mobile gear, have varied

characteristics: from a few meters without motorization, to largest boats. These small "metiers" can be schematically identified according to the zone of activity: littoral fisheries, gathering modest units operating at sea, inside the 3 miles area. This fishery is seasonally marked with fluctuations between the winter and the summer.

Area		Gear	Seasonality	Target Species	Bycatch Species	No. of Vessels
Inside	IR	None	-	-	-	-
	RU	Gillnet	All seasons	*Merluccius merluccius*	*Merluccius merluccius, Pagellus acarne, Mullus barbatus, Triglidae*	4
		Gillnet	Spring-Summer	*Sparus aurata, Pagellus erythrinus, Diplodus* sp., *Dicentrarchus labrax*	*Sparus aurata, Pagellus erythrinus*	3
		Combined gillnet-trammel net	Spring-Summer	*Sarda sarda, Lichia amia, Seriola dumerili*	*Sarda sarda, Auxis rochei*	2
		Trammel net	Spring-Summer	*Palinurus elephas, Homarus gammarus*	*Palinurus elephas, Scorpaena scrofa, Uranoscopus scaber, Lophius piscatorius*	4
		Trammel net	Spring-Summer	*Mullus* sp.	*Mullus* sp., *Scorpaena* sp., *Sepia officinalis*	3
		Long-lines	Spring-Summer	*Conger conger*	*Conger conger, Dicentrarchus labrax, Diplodus* sp.	1
Outside		Gillnet	All seasons	*Merluccius merluccius*	*Merluccius merluccius, Pagellus acarne, Mullus barbatus, Triglidae*	4
		Gillnet	Spring-Summer	*Sparus aurata, Pagellus erythrinus, Diplodus* sp., *Dicentrarchus labrax*	*Sparus aurata, Pagellus erythrinus*	3
		Combined gillnet-trammel net	Spring-Summer	*Sarda sarda, Lichia amia, Seriola dumerili*	*Sarda sarda, Auxis rochei*	2
		Trammel net	Spring-Summer	*Palinurus elephas, Homarus gammarus*	*Palinurus elephas, Scorpaena scrofa, Uranoscopus scaber, Lophius piscatorius*	4
		Trammel net	Spring-Summer	*Mullus* sp.	*Mullus* sp., *Scorpaena* sp., *Sepia officinalis*	3
		Long-lines	Spring-Summer	*Conger conger*	*Conger conger, Dicentrarchus labrax, Diplodus* sp.	1

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EPHE, 2000. *Etude de « l'effet réserve » dans la réserve naturelle de Banyuls-Cerbère. Décembre 2000*. XIème CONTRAT de PLAN Etat-Région. Rapport EPHE.

Benard I., 2000. *Etude des situations économique et écologique de la côte vermeille en vue de la creation d'un parc national*. Mémoire de stage.

Planes S., Galzin R., García Rubies A., Goñi R., Harmelin J.-G., Le Diréach L., Lenfant P., Quetglas A., 2000. Effects of marine protected areas on recruitment processes with special reference to Mediterranean littoral ecosystems. *Environmental Conservation* 27: 126-143.

Planes S., Lenfant P., Romans P., Lecchini D., Jacquet S., Crec'hriou R., Sasal P., Duchêne J.C., & Licari M.L., 2000. *Etude de l'effet réserve dans la réserve naturelle de Banyuls Cerbère*. Rapport EPHE- Plan Etat - Région, 163 pp.

Criquet G., 2001. *La pêche professionnelle dans la région de Banyuls sur mer. Effort et productions*. Mémoire de DESS, Université de Corse. 43 pp.

EPHE, 2002. *Etude de l'impact de la réserve naturelle marine de Banyuls-Cerbère comme source d'exportation de poissons littoraux adultes vers des zones avoisinantes. Juin 2002*. Rapport EPHE.

Garcia-Charton J., Planes S., 2002. *Etude de l'impact de la Réserve Naturelle Marine de Cerbère-Banyuls comme source d'exportation de poissons littoraux adultes vers les zones avoisinantes*. Rapport EPHE – Conseil Général des Pyrénées-Orientales, 43p.

Guillou A., Lespagnol P. & Ruchon F., 2002. *La pêche aux petits métiers en Languedoc-Roussillon en 2000-2001.* Rapport final de convention Région Languedoc-Roussillon-IFREMER n°00/1210041/YF, 108p + 6 annexes.

Planes S., Ody D. & Schrimm M., 2005. Project Progress Summary. BIOMEX. Year 2 progress report.

Planes S. Ody D. & Schrimm M., 2005. Project Progress Summary. BIOMEX. Year 2 progress report. Annexe book.

Statistics:

Landings of the most important species (by weight) from the region for 2004

Not available

Fisheries Regulations:

Arrêté interministériel du 26 février 1974 portant création de la réserve de Cerbère - Banyuls

Décret n° 90-790 du 6 septembre 1990.Portant création de la réserve naturelle marine de Cerbère- Banyuls (Pyrénées-Orientales).

Arrêté préfectorale n°674 du 14 Octobre 1994 régulant les activités de pêche commerciales sur la zone de la réserve naturelle marine de Cerbère-Banyuls (Pyrénées-Orientales).

Arrêté préfectorale n°673 du 14 Octobre 1994 régulant les activités de pêche récréatives sur la zone de la réserve naturelle marine de Cerbère-Banyuls (Pyrénées-Orientales).

Database reference

Not available

Web site for list of data relevant for Banyuls mpa:
http://biomex.univ-perp.fr/
http://www.cg66.fr/environnement/reserve_marine/index.html
http://www.airesmarines.org/reseau/membres.asp?id=8

Contact:	Marie Laure LICARI - Manager 5, rue Roger David – 66650 Banyuls-sur-Mer Tel : +33 4 68 88 09 11 Fax : +33 4 68 88 12 35 marielaure.licari@cg66.fr http://www.cg66.fr/environnement/reserve_marine/index.html

MPA: Côte Bleue, (Carry-le-Rouet & Cap Couronne)

Location:	43º 19'N 05º 10'E
Country:	France
Coastal/Island:	Coastal inshore and offshore
Total size:	85 / 210 ha
Integral size:	85 / 210 ha
Year of establishment:	1983 / 1996
Depth range:	0 – 34 m / 13 – 50 m
Protection objectives:	Protection and restoration of naturals habitats and fisheries enhancement
Type of MPA:	No take
Habitats:	*Posidonia oceanica* beds, rocky reefs, sandy substrates
Socio-economic activities:	Tourism ; around MPA: fishing, scuba diving and boating

Activities	Integral Reserve (IR): Carry & Courone	Outside the Integral Reserve (general regulation)
Forbidden	Fishing, scuba diving, angling, anchoring, spear fishing	Trawling (the general prohibition of fishing within 3 nautical miles from the coast is applied)
Restricted	Scientific research	Fishing, Scientific research
Allowed	Swimming, boating	All activities (except those described above)

Description of the fisheries in and around the MPA:

The Côte Bleue Marine Park was created with the following objectives: management, protection and restoration of natural habitats; maintaining professional fishing activities; information and public awareness; scientific studies and experimentation.
Within the reserve all fishing activities are forbidden and artificial production reefs have been installed to enhance the fisheries resources.
Outside the reserve, trawling is forbidden within the 3 nautical mile limit from the coast (general regulation). To fight against illegal trawling, protection reefs have been deployed in the Côte Bleue Marine Park. Forty to fifty boats, originating from 6 harbours, operate in the area of influence of the reserves. The fishing methods used are mainly traditional.

Area		Gear	Seasonality (months)	Target Species	Bycatch Species	No. of Vessels
Inside	IR	None	-	-	-	-
Outside		Trammel nets (different metiers use these nets)	All seasons	*Sparidae*, *Scorpaena scrofa, Labrus* spp., *Symphodus* spp., *Scorpaena* spp., *Coris julis*, *Seranus* spp., *Mullus* spp., *Solea* sp., *Sepia officinalis, Palinurus elephas*	*Octopus vulgaris*, *Sarpa salpa*, *Spicara maena*, *Boops boops*, *Sardinella aurita*, *Phycis phycis*, *Lophius piscatorius, Pagellus* spp.	30 All, except vessels using bottom long line and tuna netters
		Gill nets (different metiers use these nets)	Spring, summer and automn	*Merluccius* sp., *Mullus* spp., *Labrus* spp., *Symphodus* spp., *Scorpaena* spp., *Coris julis*, *Seranus* spp., *Sparidae*, *Dicentrarchus labrax, Scomber* sp., *Pagellus* spp., Triglidae	*Sarpa salpa*	30 All, except vessels using bottom long line and tuna netters
		Combined gillnet-trammel net	March to July and September to December (winter for *Dicentrarchus labrax*)	*Sparus aurata, Lithognathus mormyrus, Diplodus* spp., *Sarda sarda, Auxis* spp., *Dicentrarchus labrax, Pagellus* sp.	*Sarpa salpa*, *Sardinella aurita*	30 All, except vessels using bottom long line and tuna netters
		Bottom long line	All seasons	*Sparus aurata, Diplodus* sp., *Pagellus* sp., *Dicentrarchus labrax, Conger conger*	*Phycis phycis*, *Muraena helena*	Few number of vessels (one sure, probably a maximum of five)
		Tuna nets	Summer	*Thunnus thynnus, Xiphias gladius, Brama brama*	*Mola mola*	Few number of vessels (probably less than ten)

Bibliographic references :

Jouvenel J.-Y. & Bachet F., 2002. *Programme de suivi des peuplements ichthyologiques de la réserve marine Richard Fouque du Cap Couronne. Rapport final bilan 1995 à 2001*. Aquafish Technology/Parc Marin de la Côte Bleue edit.

Bachet F., Daniel B. & Renaud A., 2003. Suivi de l'évolution du peuplement d'oursins comestibles (*Paracentrotus lividus*) dans le quartier de Martigues. 19ème note. Avril 1994-Août 2003. *C.R. Trav.scient. Parc Marin Côte Bleue 2003,* 3: 36-46.

Report of WP6 in BIOMEX final report to be published in 2006.

Statistics:

Landings of the most important species (by weight) from the region for 2004

Not available

Fishing regulations:

Arrêté Préfectoral n°6/83 portant création d'une zone interdite sur le littoral de la commune de Carry le Rouet et Arrêté n°08 du 17/01/83 portant interdiction de pêche, plongée et chasse sous-marine dans une zone située sur le littoral de la commune de Carry le Rouet-quartier des Affaires Maritimes de Marseille;

Arrêtés de concession de cultures marines n°164 du 23/12/94, n°17/CM-28 du 28/02/89 et n°292 du 31/12/85 pour la réserve de Carry le Rouet ;

Arrêté Préfecture Maritime n°43/95 du 04/10/95 et n°7/98 du 03/0398 pour la réserve de Carry le Rouet;

Arrêté de concession de cultures marines n°17 du 14/05/96 portant autorisation d'exploitation de cultures marines pour la concession de la zone marine protégée et de récifs artificiels devant le Cap Couronne « dans un but expérimental de protection, de conservation et de régénération des fonds », « toute forme de pêche, le mouillage et le dragage sont interdits, la plongée y est également interdite »;

Arrêté ministériel de réserve-cantonnement de pêche du 12/02/98 (JO du 21/02/98) renouvelant les arrêtés du 27/04/95 et du 08/09/87 portant renouvellement et extension d'une réserve de pêche sur le littoral du département des Bouches du Rhône (communes de Carry le Rouet et de Martigues;

Arrêté préfectoral de concession du 15/12/03 (Concession d'Endigage et d'Utilisation des Dépendances du DPM de 10 000 ha) « …accordée au profit du Syndicat Mixte Parc Marin de la Côte Bleue pour l'implantation et la conservation de récifs artificiels… », « le Syndicat mixte du Parc Marin est autorisé à gérer 2 secteurs réglementés du domaine public maritime: un de 85 ha à Carry le Rouet, un de 210 ha au droit du Cap Couronne »

Arrêté du Ministère de l'agriculture, de l'alimentation, de la pêche et de la ruralité du 16/12/04 - portant renouvellement des réserves de pêche dans le département des Bouches-du-Rhône devant les communes de Carry-le-Rouet et de Martigues et y "interdisant la Pêche sous toutes ses formes";

Arrêté du Préfet Maritime n°048/2005 du 25/07/05 faisant suite aux arrêtés préfectoraux 7/98 du 03/03/98 pour la commune de Carry le Rouet et 3/97 du 21/02/97 pour la commune de Martigues– réglementant la plongée sous-marine, le mouillage des navires et embarcations à l'intérieur de deux zones protégées sur le littoral de la commune de Carry-le-Rouet et la communes de Martigues.

Database reference:

Not available

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MPA: Sinis – Maldiventre

Location:	39°55'N 008°20'E
Country:	Italy
Coastal/Island:	Mixed
Total size:	25,673 ha
Integral size:	529 ha
Year of establishment:	1997
Depth range:	0 – 50 m
Protection objectives:	Environmental protection
Type of MPA:	No take/partial
Habitats:	*Posidonia oceanica* beds, rocky reefs, sandy/detritic bottoms
Socio-economic activities:	Tourism, diving, fishery

Activities	Integral Reserve (zone A)	General Reserve (zone B)	Partial Reserve (zone C)
Forbidden	Fishing, scuba diving, boating, swimming, angling	Spear fishing	Spear fishing
Restricted	Scientific survey	Scientific survey, boat anchoring, fishing, scuba diving, angling, boating	Scientific survey, fishing, scuba diving, angling
Allowed		Swimming	Swimming, boating, anchoring

Description of the fisheries in and around the MPA:

The main aims of "Penisola del Sinis – Isola di Maldiventre" marine reserve are environmental protection, fisheries enhancement, environmental education, research and sustainable development.
All fishing activities are forbidden within the Integral Reserve (zone A); the General Reserve (zone B) and the Partial Reserve (zone C) have the same regime of restriction: trammel nets, pots and long-lines are allowed under the regulation of the MPA Management Board, trawling is forbidden and sea urchin (*Paracentrotus lividus)* fishery is restricted to skin diving. The fleet operating in the region is currently composed of 389 boats mainly partitioned in three marinas (Oristano, Marceddì and Su Pallosu); among the vessels potentially able to fish inside the MPA, more than 60% are small boats normally working in more sheltered areas outside the reserve (Gulf of Oristano and neighbouring lagoons).

Area		Gear	Seasonality	Target Species	Bycatch Species	No. of Vessels
Inside	A	-	-	-	-	-
	B	Gill and trammel nets	All seasons	*Mullus surmuletus, Scorpaena scrofa, Sepia officinalis*		124
		Pot	All seasons	*Octopus vulgaris*		
		Long lines	All seasons	Sparidae		
	C	Gill and trammel nets	All seasons	*Mullus surmuletus, Scorpaena scrofa, Sepia officinalis*		
		Pot	All seasons	*Octopus vulgaris*		
		Long lines	All seasons	Sparidae		
		Skin diving	Nov-April	*Paracentrotus lividus*		124
Outside		Gill and trammel nets	All seasons	*Mullus surmuletus, Scorpaena scrofa, Sepia officinalis*		300 (+ 73 operating in adjacent lagoons)
		Pot	All seasons	*Octopus vulgaris*		
		Long lines	All seasons	Sparidae		
		Bottom trawl	All seasons	*Mullus surmuletus, Merluccius merluccius, Aristeus antennatus*		12

Bibliographic references:

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Baroli M., De Falco G., Antonini C., Coppa S. & Facheris C., in press. Distribution and population structure of sea urchin *Paracentrotus lividus* in the Penisola del Sinis - Isola di Maldiventre marine protected area (Western Sardinia) finalised to fishery management. *Biol. Mar. Medit*.

Statistics:

Landings of the most important species (by weight) from the region for 2004

	Weight (tons)
Total landings (all species)	482.8
Octopus vulgaris	102.7
Mullidae (*Mullus surmuletus*, *Mullus barbatus*)	34.8
Scorpaenidae (*Scorpaena porcus*, *Scorpaena scrofa*)	34.6

It is important to emphasize the landings of 1,385,679 individuals of *Paracentrotus lividus* for the fishing season 2004-2005, November to April

Fishing regulations:

Foundation Text of Marine Protected Area "Sinis – Maldiventre": Decree 12.12.1997, integrally substituted by Decree 06.09.1999, modified by Decree 17.07.2003. Legal references GURI n°45 (24.02.1998), GURI n°255 (29.10.1999) and GURI n°262 (11.11.2003).

Decree for the regulation of maritime fishery: n° 963 (14.07.65) and n° 1639 (02.10.1968).

Regional Decrees for the regulation of sea urchin fishery: RAS n° 276 (03.03.94), RAS n° 2984 (20.10.99), RAS n° 31680 (08.11.99).

Council of Cabras Decree for the regulation of sea urchin fishery within the Marine Protected Area "Sinis – Maldiventre": n° 94 (12.11.2003).

Council of Cabras Decree for the regulation of sea urchin fishery within the Marine Protected Area "Sinis – Maldiventre": n° 130 (02.11.2004).

Database reference:

Data on fishery (fleet and yield composition) come from Oristano Coast Guard database;
Data on sea urchin fishery come from MPA "Sinis-Maldiventre" database and IMC scientific programmes.

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MPA: Bouches de Bonifacio

Location:	41º 25'N 09º 15'E
Country:	France (Western Mediterranean)
Coastal/Island:	Mixed
Total size:	80,000 ha
Integral size:	1,200 ha
Year of establishment:	1998
Depth range:	0-80 m
Protection objectives:	Environmental protection
Type of MPA:	Partial
Habitats:	*Posidonia oceanica* beds, Rocky reefs, Caves, Sandbanks slightly covered by water
Socio-economic activities:	Tourism, fishing, scuba diving, environmental education

Activities	Integral Reserve (IR)	Restricted Use area (RU)	Partial Reserve
Forbidden	Fishing, angling, spear fishing, scuba diving.	Spear fishing, angling	
Restricted	Scientific research	Scientific research, fishing, scuba diving.	Spear fishing, Scientific research, fishing, scuba diving, angling
Allowed	Boating, Anchoring, Swimming	Swimming, boating, anchoring	Swimming, boating, anchoring

Description of the fisheries in and around the MPA:

The main objectives of the Bouches de Bonifacio MPA are conservation, environmental protection and fisheries enhancement. The Ministry of Ecology and Sustainable Development is responsible for the reserve and it is managed by the Corsican Environment Office.
The MPA is divided into 3 zones, Integral Reserve (IR, 1,200 Ha), Restricted Use area (RU, 12,000 Ha) and Partial Reserve (PR, 66,800 Ha). Within the integral reserve all fishing activities are forbidden. Artisanal fisheries are allowed in the RU and PR. Professional fishing is only allowed outside the reserve.

Area		Gear	Seasonality	Target Species	Bycatch Species	No. of Vessels
Inside	IR	N/A	N/A	N/A	N/A	N/A
	RU	Trammel net, long line	All seasons	*Mullus surmuletus, Palinurus elephas, Pagellus erythrinus, Phycis phycis, Scorpaena scrofa*	*Torpedo marmorata, Synodus saurus*	36-38
Outside		Trammel net, long line	All seasons	*Mullus surmuletus, Palinurus elephas, Pagellus erythrinus, Phycis phycis, Scorpaena scrofa*	*Torpedo marmorata, Synodus saurus*	36-38

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Statistics:

Landings of the most important species (by weight) from the region for 2002

	Weight (tons)
Total landings	39 (april-July 2002)
Dentex dentex	13.2 (april-July 2002)
Scorpaena scrofa	8 (april-July 2002)
Palinurus elephas	6.5 (april-July 2002)

Fishing regulations:

Natural reserve decree of the Bonifacio straits, 23 september 1999
Decree of the fisheries activities regulation 9 january 1852
Arrêté n°393 of the no take area of Bonifacio and Porto Vecchio, 17 november 1983
Arrêté n°196/2004/DRAMfor the reglementation of the spearfishing activities into the natural reserve of Bonifacio, 23 july 2004
Decision n°46/2004/DRAM for the apnea experimental fishery of sea urchins into the perimeter of the protected reinforced area of Lavezzi islands (natural reserve of Bonifacio Straits), 20 January 2004

Database reference:

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MPA: Ustica

Location:	38º42'N,13º43'E
Country:	Italy
Coastal/Island:	Island
Total size:	15,951 ha
Integral size:	60 ha
Year of establishment:	1986 (effective establishment: 1991)
Depth range:	0 – ~1,000 m
Protection objectives:	Environmental protection
Type of MPA:	No take/partial
Habitats:	*Posidonia oceanica* beds, rocky reefs, sandy bottoms, marine caves
Socio-economic activities:	Tourism, diving, small scale fishery

Activities	Integral Reserve (zone A)	General Reserve (zone B)	Partial Reserve (zone C)
Forbidden	Fishing, scuba diving, boating, swimming, spearfishing, angling, anchoring	Spear fishing	Spear fishing
Restricted	Scientific survey	Scientific survey, fishing	Scientific survey, fishing
Allowed		Swimming, scuba diving, boating/anchoring, angling	Swimming, scuba diving boating/anchoring, angling

Description of the fisheries in and around the MPA:
The main aims of the "Ustica Island" MPA are environmental protection, fisheries enhancement, environmental education and research activity.
Fishing is a small scale activity mainly carried out using traps, gill nets and long-lines. All fishing activities are forbidden within the Integral Reserve (zone A). Similar restrictions are enforced within the General Reserve (zone B) and the Partial Reserve (zone C). Gill nets, traps and long-lines are allowed under the regulation of the MPA Management Authority, but are restricted to 7 local vessels. Spearfishing and trawling are banned within the MPA boundaries (three miles from the island coasts). Sea urchin harvesting is permitted only in Zone C by skin divers and angling is not regulated in either Zone B or Zone C.

Area		Gear	Seasonality	Target Species	Bycatch Species	No. of Vessels
Inside	Zone A	-	-	-	-	-
	Zone B	Gill net	Mar-Jul	*Spicara* spp., *Boops boops*		7 local vessels
		Gill net	whole year	*Mullus surmuletus, Palinurus elephas, Scorpaena* spp., *Phycis phycis, Merluccius merluccius, Muraena helena*		
		Trap	whole year	*Plesionika narval*		
		Long line	whole year	*Epinephelus marginatus, Diplodus* spp., *Muraena helena*		
	Zone C	Gill net	Mar-Jul	*Spicara* spp., *Boops boops*		7 local vessels
		Gill net	whole year	*Mullus surmuletus, Palinurus elephas, Scorpaena* spp., *Phycis phycis, Merluccius merluccius, Muraena helena*		
		Trap	whole year	*Plesionika narval*		
		Long line	whole year	*Epinephelus marginatus, Diplodus* spp., *Muraena helena*		
		Skin diving	Nov-May	*Paracentrotus lividus*		

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Statistics:

Landings of the most important species (by weight) from the region for 2004

Not available

Fishing regulations:

Decree, November 12th , 1986 - GURI n° 71 (26/03 /1987)
Decree, August 8th, 1990 GURI n° 219 (19/09/1990)

Database reference:

Not available

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MPA: Gulf of Castellammare

Location:	38°05'N 12°55'E (approx. centre point)
Country:	Italy
Coastal/Island:	Mixed inshore/offshore
Total size:	20,000 ha (200 km^2)
Integral size:	N/A
Year of establishment:	1990
Depth range:	0 – 500 m
Protection objectives:	Fisheries enhancement
Type of MPA:	Trawl ban
Habitats:	Mud flats, sand, *Posidonia oceanica* beds, rocky reefs, detritic
Socio-economic activities:	All uses (including recreational and professional fishing) are permitted, except trawling

Activities	Trawl Ban Area
Forbidden	Trawl fishing
Restricted	none
Allowed	All uses other than trawling

Description of the fisheries in and around the MPA:

The Gulf of Castellammare fishery reserve was created through a Regional Act to regenerate and enhance the demersal marine resources, to achieve a sustainable fishery allowing local artisanal fishermen to preserve their activity.

Thirteen trawlers are based in the Gulf: 3 in Castellammare (inside the MPA) and 10 in Terrasini (located east of the MPA). Trawlers from Castellammare fish deep-sea species inside the Gulf off the MPA border. Trawlers from Terrasini target either the same deep-sea resource or other shelf and slope resources located east of the MPA. Some 70 small vessels, using artisanal gear, are registered at harbours located inside the MPA, with a further 30 registered at Terrasini. It must be noted that some of the Terrasini vessels may well fish illegally inside the eastern sector of the MPA.
There are two seasonal fisheries: (i) a FAD fishery (September-November) targeting dolphin fish and pilot fish with small purse seines; (ii) a fish-fry fishery (late winter-early spring) targeting very valuable juvenile sardine and anchovy with small boat seines. Occasionally other types of gear are used (drifting gill nets, jigs, and cane pots)."

Area	Gear	Seasonality	Target Species	Bycatch Species	No. of Vessels
Inside	Combined gillnet-trammel net	All seasons	*Mullus barbatus, Sepia officinalis, Boops boops, Trachurus trachurus, Merluccius merluccius, Pagrus pagrus, Pagellus erythrinus*	*Diplodus sargus, Diplodus vulgaris, Epinephelus marginatus, Mullus surmuletus, Octopus vulgaris, Lithognathus mormyrus, ...*	70+
	Gill net	summer-autumn	*Seriola dumerili,* Scombridae*, Merluccius merluccius, Pagrus pagrus*		
	Boat seine	winter	fish fry (juvenile clupeoids)		?
	FAD seine	summer-autumn	*Seriola dumerili* juv., *Coryphaena hippurus*	*Naucrates ductor*	?
	Bottom longline	summer	*Merluccius merluccius, Lepidopus caudatus, Dicentrarchus labrax, Trigla lucerna, Diplodus sargus, Lithognathus mormyrus*		?
	Jig	summer	*Todarodes sagittatus*		?
Outside (in Gulf)	Trawling	All seasons	*Aristeus antennatus, Parapenaeus longirostris*	*Merluccius merluccius, Lophius piscatorius, Plesionika narval, ...*	3
Outside (off Gulf)	Trawling	All seasons	*Aristeus antennatus, Parapenaeus longirostris, Merluccius merluccius, Mullus barbatus, Eledone moschata*	*Spicara flexuosa, Octopus vulgaris, Eledone cirrhosa, Loligo vulgaris, Pagellus erythrinus, Lepidopus caudatus, Pagellus acarne, Lophius piscatorius, ...*	10

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Statistics:

Landings of the most important species (by weight) from the region for 2004

Not available

Fishing regulations:

- Fishing regulations in the reserve:
L.R. no. 25/1990

- Fishing regulations around the reserve: regional as well as national legislation on fishing and fisheries applies in this case, e.g.:
L.R. no. 32/2000 (regional)
L. no. 963/1965 (national)
L. no. 41/1982 (national)

Database reference:

http://www.mpaglobal.org/home.html

Contact	Dr. Patrizia Vinci - Fishery Department of the Regional Council for Cooperation, Commerce, Handicraft and Fishing Via Degli Emiri, 45 Palermo Tel: +390917079725 Email: pvinci@regione.sicilia.it http://www.regione.sicilia.it/cooperazione/pesca/5.html

MPA: La Graciosa

Location:	29º 20'N 13º 25'W
Country:	Canary Islands, Spain
Coastal/Island:	Island (inshore and offshore)
Total size:	70,700 ha
Integral size:	1,225 ha
Year of establishment:	1995
Depth range:	0 – 1000 m
Protection objectives:	Fisheries enhancement, conservation
Type of MPA:	Partial
Habitats:	Rocky reefs, caves, Mäerl, *Cymodocea nodosa* beds, sandy substrates
Socio-economic activities:	Fishing, tourism, diving

Activities	Integral Reserve (IR)	Buffer Zone	Restricted Use area
Forbidden	Fishing, scuba diving, angling, anchoring, spear fishing, swimming, boating	Spear fishing, angling	Spear fishing
Restricted	Scientific research	Fishing, scientific research	Fishing, scuba diving, anchoring, scientific research
Allowed		Boating	Swimming, boating

Description of the fisheries in and around the MPA:

Since its establishment, no commercial vessels fish within the reserve. Within the integral reserve all fishing activities are forbidden.
The reserve is divided into internal and external waters, which are regulated by the Region of Canarias and the Spanish State respectively. The artisanal fleet operating in the reserve belongs to a list, closed for local and traditional reasons, with vessels from Caleta del Sebo (La Graciosa), Órzola (NE of Lanzarote), La Santa (NW of Lanzarote) and Arrecife (E of Lanzarote). In 2003, date of the last official list, there were 73 vessels within this operative fleet. Since the abundance of target species of the 1980's commercial fleet decreased severely during the 1990's, no large commercial vessels operates in the zone of influence of the reserve. Only the artisanal fleet operates in this zone.

Area		Gear	Seasonality	Target Species	Bycatch Species	No. of Vessels
Inside	IR	-	-	-	-	-
	RU	Hand line	Depending on the species	*Sparisoma cretense, Pagrus pagrus, Spondyliosoma cantharus, Serranus atricauda, Pagellus erythrinus, Epinephelus marginatus*	*Diplodus vulgaris, Phycis phycis, Scorpaena* spp., *Mycteroperca fusca, Balistes capriscus, Diplodus sargus, Bodianus scrofa, Pseudocaranx dentex, Pontinus kuhlii, Pagrus auriga, Diplodus cervinus, Parapristipoma octolineatum*	21
		Pole and line	April-Oct.	*Sparisoma cretense*	-	15
		Pole and line with live bait	April-Nov.	*Seriola* spp., *Mycteroperca fusca, Sphyraena viridensis, Dentex dentex*		7
		Jig	May-Oct.	*Loligo vulgaris*	*Sepia officinalis*	9
		Purse seine	All seasons	*Sarpa salpa, Boops boops, Sardina pilchardus, Engraulis encrasicolus*	*Oblada melanura, Trachinotus ovatus, Sardinella* spp., *Belone belone*	1
		Beach seine	All seasons	*Atherina presbyter*	*Sardina pilchardus, Sardinella* spp., *Belone belone, Boops boops*	2
		Shellfish seeking	Mar-Nov.	*Patella* spp.	*Osilinus* spp.	3
		Octopus long-handled tool	All seasons	*Octopus vulgaris*	-	2
Outside		Trap	March-nov.	*Scorpaena* spp., *Dentex* spp., *Phycis phycis, Pagrus pagrus*	*Muraena helena, Gymnothorax* spp., *Conger conger*	2
		Electric reel hook and line	All seasons	*Merluccius merluccius, Polyprion americanus*	*Pagellus bogaraveo, Schedophilus ovalis, Mustelus mustelus*	7

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Statistics:

Landings of the most important species (by weight) from the region for 2005

	Weight (tons)
Total landings (all species)	120.76
Sparisoma cretense	25.57
Merluccius merluccius	12.26
Sarpa salpa	11.81

Fishing regulations:

- National laws:

Ley 3/2001, de 26 de marzo, de Pesca Marítima del Estado. (B.O.E. 28 de marzo de 2001).

Orden APA/677/2004, de 5 de marzo, por la que se regula la pesca con artes de cerco en el Caladero Nacional de Canarias. (B.O.E núm. 65 de 16 de marzo de 2004).

Orden de 3 de octubre de 2001 que modifica la orden de 19 de mayo de 1995 por la que se establece una reserva marina en el entorno de la isla Graciosa y de los islotes del Norte de Lanzarote (B.O.E núm. 250 de 18 de octubre de 2001).

Orden de 20 de enero de 1999 por la que se modifica la Orden de 19 de mayo de 1995, por la que se establece una reserva marina en el entorno de la isla Graciosa y de los islotes del norte de Lanzarote. (B.O.E. núm. 31 de 5 de febrero de 1999).

Orden de 19 de mayo de 1995, por la que se establece una reserva marina en el entorno de la isla Graciosa y de los islotes del Norte de Lanzarote. (B.O.E. núm. 131 de 2 de junio de 1995).

Resolución de 5 de marzo de 2003, por la que se actualiza el censo de embarcaciones autorizadas a ejercer la pesca marítima profesional en la reserva marina del entorno de la Isla de La Graciosa e islotes del Norte de Lanzarote (B.O.E. núm. 89 de 14 de abril de 2003).

Resolución de 17 de mayo de 1999, de la Dirección General de Recursos Pesqueros, por la que se da publicidad al Convenio Marco de colaboración entre el Ministerio de Agricultura, Pesca y Alimentación y la Consejería de Agricultura, Pesca y Alimentación de la Comunidad Autónoma de Canarias relativo a la Gestión compartida de la Reserva Marina en el entorno de la punta de la Restinga-Mar de las Calmas, en la Isla de El Hierro. (B.O.E. núm. 142 de 15 de junio de 1999).

- Regional laws:

Ley 17/2003, de 10 de abril, de Pesca de Canarias. (B.O.C. núm. 162 de 8 julio 2003).

Orden de 12 de diciembre de 2000, por la que se determina la documentación que es preciso aportar para la obtención de la autorización que posibilite la realización de actividades de pesca recreativa en las aguas interiores de la reserva marina del entorno de la isla de La Graciosa y de los islotes del Norte de Lanzarote. (B.O.C. núm 3 de 5 de enero de 2001).

Decreto 182/2004, de 21 de diciembre, por el que se aprueba el Reglamento

de la Ley de Pesca de Canarias (B.O.C. núm. 4 de 7 de enero de 2005).

Decreto 162/2000, de 24 de julio, por el que se modifica el Decreto 62/1995, de 24 de marzo, por el que se establece una reserva marina de interés pesquero en el entorno de la isla de La Graciosa y de los islotes del Norte de Lanzarote. (B.O.C. núm. 100 de 7 de agosto de 2000).

Decreto 62/1995, de 24 de marzo, por el que se establece una reserva marina de interés pesquero en el entorno de la isla de La Graciosa y de los islotes del Norte de Lanzarote. (B.O.C. núm. 51 de 26 de abril de 1995).

Resolución de 22 de mayo de 2003, de la Viceconsejeria de Pesca, por la que se actualiza el censo de las embarcaciones autorizadas a ejercer la pesca marítima profesional en la reserva marina de interés pesquero del entorno de la isla de La Graciosa e islotes del Norte de Lanzarote (B.O.C. núm. 117 de 20 de junio de 2003)

Anuncio de la Viceconsejería de Pesca por el que se hace pública la Resolución de 10 de enero de 2003, que da publicidad a la modificación del Convenio Marco de colaboración entre el Ministerio de Agricultura, Pesca y Alimentación y la Consejería de Agricultura, Ganadería, Pesca y Alimentación de la Comunidad Autónoma de Canarias, relativo a la gestión compartida de la reserva marina del entorno de la isla de la Graciosa e Islotes del Norte de Lanzarote. (B.O.C. núm. 39 de 26 febrero de 2003).

Database reference:

http://www.gobiernodecanarias.org/agricultura/pesca/pesca_canarias/default.htm

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MPA: La Restinga

Location:	27º 38'N 18º 00'W
Country:	Canary Islands, Spain
Coastal/Island:	Island (mixed inshore – offshore)
Total size:	750 ha
Integral size:	180 ha
Year of establishment:	1996
Depth range:	0 – 400 m
Protection objectives:	Fisheries enhancement, conservation
Type of MPA:	Partial
Habitats:	Rocky reefs, caves, mäerl, sandy substrates
Socio-economic activities:	Fishing, tourism, diving

Activities	Integral Reserve (IR)	Buffer Zone	Restricted Use Area
Forbidden	Scuba diving, angling, anchoring, spear fishing, swimming	Angling, spear fishing	Angling, spear fishing
Restricted	Fishing, scientific research	Scuba diving, scientific research, fishing, anchoring	Scuba diving, anchoring, scientific research, fishing
Allowed	Boating	Boating, swimming	Swimming, boating

Description of the fisheries in and around the MPA:

The marine reserve was created in 1996, and requested by fishermen themselves.
Within the integral reserve all fishing activities are forbidden except professional tuna fisheries. The reserve is divided into internal and external waters, which are regulated by the Region of Canarias and the Spanish State respectively.The artisanal fleet operating in the reserve consists of approximately 40 vessels from El Hierro. Only the artisanal fleet operates in this zone and in the rest of the island of El Hierro. The fishing gears and target species are diverse and the most of vessels fish different species depending on the availability of the resource and the season, and also fish inside or outside the reserve depending on the weather conditions.

Area		Gear	Seasonality	Target Species	Bycatch Species	No. of Vessels
Inside	IR	-	-	-	-	-
	RU	Pole-and-line (hand operated)	May-Aug	*Katsuwonus pelamis*	*Thunnus albacares*	15
		Hand-line, Pole-and-line (hand operated)	May-Oct	*Thunnus albacares, Seriola fasciata, Seriola rivoliana*	*Katsuwonus pelamis, Sphyraena viridensis, Mycteroperca fusca, Seriola dumerili*	8
		Snorkeling hand line	All seasons	*Sparisoma cretense*	*Bodianus scrofa, Serranus atricauda*	10
		Moray trap	Mar-Oct	*Muraena augusti, Gymnothorax unicolor*	*Enchelycore anatina, Gymnothorax miliaris*	4
		Purse seine	Sep-Jun	*Oblada melanura, Sarpa salpa*	*Kyphosus sectator, Sphyraena viridensis, Diplodus vulgaris, Diplodus cervinus cervinus, Diplodus sargus cadenati, Diplodus puntazzo, Lithognathus mormyrus, Trachinotus ovatus, Boops boops*	1
		Hand line	May-Dec	*Balistes capriscus, Canthidermis sufflamen*	*Boops boops*	6
		Harpoon, Troll line, Hand line	Sep-Jun	*Acanthocybium solandri*		16
		Hand-line	Abr-Oct	*Epinephelus marginatus*	*Seriola fasciata, Seriola rivoliana Seriola dumerili, Sphyraena viridensis, Muraena augusti*	2
Outside		Pole-and-line (hand operated)	May-Aug	*Katsuwonus pelamis*	*Thunnus albacares, Thunnus alalunga, Thunnus obesus, Makaira nigricans*	15
		Hand-line, Pole line (hand operated)	May-Oct	*Thunnus albacares, Seriola fasciata, Seriola rivoliana*	*Katsuwonus pelamis, Mycteroperca fusca, Sphyraena viridensis, Seriola dumerili*	8
		Snorkeling hand line	All seasons	*Sparisoma cretense*	*Bodianus scrofa, Serranus atricauda*	10

	Moray trap	Mar-oct	*Muraena augusti, Gymnothorax unicolor*	*Enchelycore anatina, Gymnothorax miliaris, Epinephelus marginatus*	4
	Moray trap	All seasons	*Muraena helena, Gymnothorax polygonius*	*Gymnothorax maderensis*	3
	Electric reel hook and line	Oct-may	*Serranus atricauda*	*Bodianus scrofa, Pagrus pagrus, Phycis phycis, Scorpaena scrofa*	7
	Electric reel hook and line	All seasons	*Beryx splendens*	*Beryx decadactylus, Polymixia nobilis, Promethichthys prometheus, Pontinus kuhlii, Helicolenus dactylopterus dactylopterus, Polyprion americanus, Ruvettus pretiosus, Epigonus telescopus, Schedophilus ovalis, Xiphias gladius*	8
	Purse seine	Sep-Jun	*Oblada melanura, Sarpa salpa*	*Kyphosus sectator, Sphyraena viridensis, Diplodus vulgaris, Diplodus cervinus cervinus, Diplodus sargus cadenati, Diplodus puntazzo, Lithognathus mormyrus, Trachinotus ovatus, Boops boops*	1
	Hand line	May-Dec	*Balistes capriscus, Canthidermis sufflamen*	*Boops boops*	6
	Harpoon, Troll line, Hand line	Sep-Jun	*Acanthocybium solandri*		16
	Hand line	Apr-Oct	*Epinephelus marginatus*	*Seriola fasciata, Seriola rivoliana, Seriola dumerili, Sphyraena viridensis, Muraena augusti*	2
	Shellfish seeking (from shore or snorkeling)	Jan-Aug	*Patella candei crenata, Patella ulyssiponensis aspera*		5

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Statistics:

Landings of the most important species (by weight) from the region for 2004

	Weight (tons)
Total landings (all species)	177.5
Acanthocybium solandri	45.6
Katsuwonus pelamis	33.9
Sparisoma cretense	23.1

Fishing regulations:

- National laws:

Ley 3/2001, de 26 de marzo, de Pesca Marítima del Estado. (B.O.E. 28 de marzo de 2001).

Orden APA/677/2004, de 5 de marzo, por la que se regula la pesca con artes de cerco en el Caladero Nacional de Canarias. (B.O.E núm. 65 de 16 de marzo de 2004).

Orden de 24 de enero de 1996, por la que se establece una reserva marina en el entorno de la Punta de La Restinga - Mar de las Calmas (isla de El Hierro). (B.O.E. núm. 30 de 3 de febrero de 1996).

Resolución de 19 de noviembre de 2001 de la Secretaría General de Pesca Marítima por la que se actualiza el censo de embarcaciones

autorizadas a ejercer la pesca marítima profesional en la reserva marina del entorno de la Punta de la Restinga - Mar de las Calmas (Isla de El Hierro). (B.O.E. núm. 297 de 12 de diciembre de 2001).

Resolución de 17 de mayo de 1999, de la Dirección General de Recursos Pesqueros, por la que se da publicidad al Convenio Marco de colaboración entre el Ministerio de Agricultura, Pesca y Alimentación y la Consejería de Agricultura, Pesca y Alimentación de la Comunidad Autónoma de Canarias relativo a la Gestión compartida de la Reserva Marina en el entorno de la punta de la Restinga-Mar de las Calmas, en la Isla de El Hierro. (B.O.E. núm. 142 de 15 de junio de 1999).

- Regional laws:

Ley 17/2003, de 10 de abril, de Pesca de Canarias. (B.O.C. núm. 162 de 8 julio 2003).

Orden de 27 de mayo de 1994, de la Consejería de Pesca y Transportes, por la que se prohíbe el uso de las nasas para peces y se regula la pesca al puyón en las aguas interiores de la isla de El Hierro (B.O.C. núm 72, de 13 de junio de 1994).

Decreto 182/2004, de 21 de diciembre, por el que se aprueba el Reglamento de la Ley de Pesca de Canarias (B.O.C. núm. 4 de 7 de enero de 2005).

Decreto núm. 30/1996, de 16 de febrero, por el que se establece una reserva marina de interés pesquero en la isla de El Hierro, en el entorno de la Punta de La Restinga, Mar de las Calmas. (B.O.C.núm. 31, de 11 de marzo de 1996).

Database reference:

http://www.gobiernodecanarias.org/agricultura/pesca/pesca_canarias/default.htm

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MPA: Monte da Guia

Location:	38° 31'N 28° 37'W
Country:	Portugal, Azores
Coastal/Island:	Island (mixed inshore – offshore)
Total size:	443 ha
Integral size:	10 ha
Year of establishment:	Integral part and buffer zone since 1980, the SCI is part of Natura 2000 (2002)
Depth range:	0-125 m
Protection objectives:	Conservation, scientific research, tourism
Type of MPA:	Partial
Habitats:	Rocky reefs, caves, sandy substrates, shallow inlets and bays
Socio-economic activities:	Fishing, diving, tourism

Activities	Integral Reserve (IR)	Buffer Zone	SIC
Forbidden	Fishing, boating, swimming, scuba diving, spear fishing, angling, anchoring	Fishing, spear fishing, angling	
Restricted	Scientific survey	Scientific survey	Fishing, scientific survey, spear fishing
Allowed		Boating, swimming, scuba diving, anchoring	Scuba diving, swimming, angling, boating, anchoring

Description of the fisheries in and around the MPA:

The main objective of the Monte da Guia marine reserve is to manage the marine environment in a way that safeguards its nature conservation importance at the same time as benefiting the local community.
Within the integral reserve and the buffer zone all fishing activities are forbidden. In the rest of the area, general regulations for the entire archipelago apply: no boats longer than 12 m are allowed to operate within 6 NM of the coast and netting is banned except for use in fisheries to catch live bait (when hand nets or small purse seines are used) or under a special permit for gill netting. Traditionally, the area between the islands of Faial and Pico (the 'channel'), where the Monte da Guia is located, is a fishing ground for the artisanal open-deck fleet that operate from both islands. This fleet comprises a multi-specific fishery targeting different species: hand line for bottom fishes, shore

gill-netting for bottom and pelagic fishes, purse-seining for juvenile pelagics and pole-and-line fishing for larger pelagic predators. Spear fishing and mollusc collection (limpet, barnacle, crab and octopus) are also common.

Area		Gear	Seasonality	Target Species	Bycatch Species	No. of Vessels
Inside	IR	-	-	-	-	-
	GR	-	-	-	-	-
Outside		Hand line	Year-round	*Epinephelus marginatus*, *Serranus atricauda*, *Pagellus bogaraveo*, *Polyprion americanus*, *Conger conger*, *Phycis phycis*, *Helicolenus dactylopterus*	*Raja* spp., *Galeorhinus galeus*, *Pagellus acarne*, *Balistes capriscus*	97
Outside		Gillnet	Year-round	*Sparisoma cretense*, *Sphyraena viridensis*, *Sarda sarda*	*Diplodus vulgaris*, Mugilidae, *Sarpa salpa*	
Outside		Purse seine	Year-round	*Trachurus trachurus*	*Pagellus bogaraveo*, *Sardina pilchardus*	
Outside		Pole and line	Year-round	*Seriola* spp., *Pseudocaranx dentex*	*Balistes capriscus*	

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Statistics:

Landings of the most important species (by weight) from the region for 2004*

	Weight (tons)
Total landings (all species)	1,235.078
Katsuwonus pelamis	810.391
Pagellus bogaraveo	160.791
Thunnus obesus	89.686

*Landings from Horta harbour

Fishing regulations:

- National legislation:
Law Decree nº. 7/2000, May 30th
Ordinance 1102-C/2000, November 22nd
Law Decree nº. 278/98, July 7th
Law Decree nº. 383/98, November 27th

- Regional legislation:
Decree nº. 27/98, July 9th
Decree nº. 101/2002, October 24th
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Regional Regulatory Decree nº 13/84/A, March 31

Database reference:

http://www.lotacor.pt/
http://www.horta.uac.pt/projectos/macmar/ogamp/index.html

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MPA: Formigas islet/Dollabarat Bank

Location:	37º 14'N 24º43W - 37º 17'N 24º 47'W
Country:	Portugal, Azores
Coastal/Island:	Island (offshore)
Total size:	52,527 ha
Integral size:	52,527 ha
Year of establishment:	1988 (modified in 2003)
Depth range:	0 - > 1700 m
Protection objectives:	Conservation, scientific research, tourism
Type of MPA:	Integral
Habitats:	Rocky reefs, *Laminaria* beds, *Cystoseira* beds, deep coral
Socio-economic activities:	Fishing, diving, tourism

Activities	General reserve
Forbidden	Spear fishing, angling
Restricted	Fishing, scientific research
Allowed	Boating, swimming, scuba diving, anchoring

Description of the fisheries in and around the MPA:

The Formigas Islets and Dollabarat Bank MPA was created to protect and to manage the natural environment and its resources, to enhance scientific knowledge and to organise tourist, recreational and fishery activities in a sustainable manner.
The Formigas Islets comprise an area of deep sea and sub- and supra-aquatic seamounts. The Dollabarat Bank, on the other hand, is a shallow marine plain.
All fishing activities are forbidden within the reserve, with the exception of tuna fisheries, under certain conditions. These fisheries may only be conducted by pole-and-line and only by vessels that are equipped with the MONICAP (MONItorização Contínua das Actividades da Pesca) monitoring system, a system that can track the location of any given vessel. Traditionally, the area as been a fishing ground for the artisanal open-deck and semi-artisanal fleet targeting bottom fish, both in the shallow and in the deeper part of the seamount, that operate from the neighboring islands of Santa Maria and São Miguel. This fishing occurs also in the islets and seamount slopes located nearest to the islands. Limpet collection and spear fishing is known to have occurred from the neighboring islands.
The reserve is regulated by the Regional government of the Azores.

Area	Gear	Seasonality	Target Species	Bycatch Species	No. of Vessels
Inside	Pole-and-line	Spring/Summer	tuna	-	19
Outside	Pole-and-line	Spring/Summer	tuna	-	19
Outside	Bottom longline	Year-round	*Pagellus bogaraveo*, *Polyprion americanus*, *Conger conger*, *Phycis phycis*, *Helicolenus dactylopterus*, *Beryx* sp., *Molva dipterygia*	*Raja* spp., *Galeorhinus galeus*, *Lepidopus caudatus*, *Mora moro*	N/A
Outside	Surface longline	Year-round	*Xiphias gladius*	*Prionace glauca*, *Caretta caretta*	N/A

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Statistics:

Landings of the most important species (by weight) from the region for 2004

Not available

Fishing regulations:

- National legislation:
Law Decree nº. 7/2000, May 30th
Ordinance 1102-C/2000, November 22nd
Law Decree nº. 278/98, July 7th
Law Decree nº. 383/98, November 27th

- Regional legislation:
Regional Law Decree nº. 26/2003/A, May 27th

Decree nº. 27/98, July 9th Decree nº. 101/2002, October 24th

Database reference: http://www.lotacor.pt/ http://www.horta.uac.pt/projectos/macmar/ogamp/index.html

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MPA: Tuscany Archipelago

Location:	42°45'N 10°15'E
Country:	Italy
Coastal/Island:	100% island
Total size:	56,766 ha
Integral size:	6,147.4 ha
Year of establishment:	1996
Depth range:	0 – 100 m
Protection objectives:	Conservation of natural habitats, promotion of eco-tourism
Type of MPA:	Partial
Habitats:	*Posidonia oceanica* beds, rocky reefs, sandy bottom
Socio-economic activities:	Diving, tourism

Activities	Integral Reserve (IR)	Restricted Use area (RU)
Forbidden	Fishing, spearfishing, angling, scuba diving, swimming, boating, anchoring	Spearfishing
Restricted	Scientific research	Fishing, angling
Allowed		Swimming, scuba diving, scientific research, boating, anchoring

Description of the fisheries in and around the MPA:

The Tuscany Archipelago National Park was created with the primary aims of preserving natural habitats and promoting eco-tourism. MPAs are established on the islands of Capraia, Gorgona, Giannutri, Pianosa and Montecristo.
Within the integral reserve all fishing activities are forbidden. The MPA is divided into Zone A (integral reserve: sector 1 in the map), Zone B (partial reserve: sector 2 in the map) and Zone C (free access) areas, which are regulated by the Ente Parco Nazionale Arcipelago Toscano and by general Italian maritime laws. Resident artisanal fishing guilds are found on the islands of Elba, Capraia and Giglio. Boats coming from the mainland, mostly from Porto Santo Stefano (Grosseto), especially trawlers, fish around limits of the marine reserve.

Area		Gear	Seasonality	Target Species	Bycatch Species	No. of Vessels
Inside	IR	-	-	-	-	-
	RU	n/a	n/a	n/a	n/a	n/a
Outside		n/a	n/a	n/a	n/a	n/a

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Statistics:

Landings of the most important species (by weight) from the region for 2005

	Weight (tons)
Total landings	6412.08
Species 1: *Sardina pilchardus*	1567.37
Species 2: *Engraulis encrasicolus*	791.11
Species 3: *Trachurus* spp.	190.73

Fishing regulations:
L. 394/91 D.P.R. 22/07/1996 D.M. Ambiente 19/12/1997.

Database reference:
Information about the Parco Nazionale Arcipelago Toscano can be found visiting the website: www.islepark.it

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MPA: 25NM Fisheries Management Zone (FMZ) around Malta

Location:	35º 56'N 14º 20º E
Country:	Malta (Central Mediterranean)
Coastal/Island:	Island (mixed inshore/offshore)
Total size:	1,070,000 ha
Integral size:	-
Year of establishment:	As Exclusive Fishing Zone (EFZ) (1971), and as Fisheries Management Zone (FMZ) following EU accession (2004)
Depth range:	0 - 1,200 m
Protection objectives:	Fisheries conservation; conservation of benthic ecosystems supporting fisheries
Type of MPA:	Partial
Habitats:	Sandbanks, reefs, *Posidonia oceanica* beds, Large shallow inlets and bays, Offshore habitats including open water, and various types of sedimentary bottoms.
Socio-economic activities:	Fishing, maritime activities, all types of inshore aquatic activities

Activities	3 Nautical mile limit	12 Nautical mile limit	25 Nautical mile limit
Forbidden	Trawling		
Restricted	Fishing, Angling	Fishing, Angling Trawling	Fishing, Angling Trawling
Allowed			

Description of the fisheries in and around the MPA:

The key aim of the Malta Fisheries Management Zone (FMZ) is to protect the fisheries resources of Malta's sea area and the ecosystems on which they depend. During the accession negotiations with the EU, Malta presented to the EU a number of studies which showed the negative effects that purse-seining and industrial long-lining (two very intensive fishing methods), as practised by EU fishers, would have in the Maltese EFZ area if this was opened up to these fishery types. The EU recognized the conflict that exists between these intensive fishing methods and the less intensive passive fishing operations practised to date by the Maltese fishing fleet. For this reason, the EU agreed that when Malta would become a member state, sustainable fishing in the previous EFZ would be safeguarded through the setting up of a Fisheries Management Zone and the implementation of a variety of management actions. Thus, the Malta FMZ in effect functions as a

'marine protected area' albeit being a new type for the Mediterranean. The measures adopted for the management of resources within the FMZ are designed to limit fishing effort and capacity by restricting size and engine power of fishing vessels. In particular, only vessels smaller than 12 m are allowed to fish within the zone since these are considered as boats that practise small scale coastal fishing and which are therefore least harmful to the ecological regime within the zone.
By way of exception to the above arrangement, four types of fishing activities are nevertheless allowed, but sometimes restricted, within the Malta 25 NM FMZ by vessels that may be larger than 12 m. These are trawling, fishing for Lampuki (Dolphin fish), lampara (small-scale pelagic purse seining with the aid of lamps) and fishing for tuna, swordfish and other highly migratory species.

Area	Gear	Seasonality	Target Species	Bycatch Species	No. of Vessels
Inside	bottom longlines	Jan-Mar	*Pagellus* spp., *Dentex dentex*, *Polyprion americanus*, *Epinephelus costae*, *Pagrus pagrus*	*Raja* spp., *Scorpaena* spp., *Squalus acanthias*, *Squatina squatina*	1,492
	trammel-nets and gill-nets	All seasons	*Mullus barbatus*, *Mullus surmuletus*, Scorpaenidae (*Scorpaena* spp.), *Boops boops*, *Trachurus* spp.	Sparidae spp. (e.g. *Oblada melanura*, *Pagrus pagrus*), Scorpaenidae (e.g. *Scorpaena* spp.)	550
	drift-nets	Mar-July	*Oblada melanura*, *Scomber japonicus*, *Scomber scombrus*	Sparidae spp.	12
	'Lampara' purse-seining	Jan-Aug	*Scomber japonicus*, *Scomber scombrus*, *Engraulis encrasicolus*, *Sardina pilchardus*	*Trachurus trachurus*, *Trachurus mediterraneus*, *Boops boops*, *Alosa alosa*	18
	Surface long-lines	May-July	*Thunnus thynnus*	*Xiphias gladius*	321
	ring net/*kannizzati*	Aug-Jan	*Coryphaena hippurus*,	*Naucrates ductor*, *Seriola dumerili*	185
	traps	All seasons	*Octopus vulgaris*, *Spicara* spp.	*Muraena helena*, *Palinurus elephas*, *Boops boops*, Scorpaenidae spp.	543
	Trawling (50 – 150m)	All seasons	*Mullus barbatus*, *Serranus* spp., *Pagellus* spp., *Trachinus* spp.	*Octopus vulgaris*, *Todarodes sagittatus*, *Sepia officinalis*	17
	Trawling (150-300m)	All seasons	*Merluccius merluccius*, *Parapenaeus longirostris*, *Mullus barbatus*	*Raja* spp., *Boops boops*, *Trachurus* spp. *Mullus surmuletus*	
	Deep sea Trawling (400 – 800m)	All seasons	*Aristaeomorpha foliacea*, *Nephrops norvegicus*, *Parapenaeus longirostris*	*Citharus linguatula* *Phycis blennoides*, *Merluccius merluccius*, *Aristeus antennatus*	
Outside	Surface long-lines	May-July	*Thunnus thynnus*	*Xiphias gladius*	321

	bottom longlines	Jan-Mar	*Pagellus spp.*, *Dentex dentex*, *Polyprion americanus*, *Epinephelus costae*, *Pagrus pagrus*	*Raja* spp., *Scorpaena* spp., *Squalus acanthias*, *Squatina squatina*	1,492
	Trawling (50 – 150m)	All seasons	*Mullus barbatus*, *Serranus* spp., *Pagellus* spp., *Trachinus* spp.	*Octopus vulgaris*, *Todarodes sagittatus*, *Sepia officinalis*	< 50
	Trawling (150-300m)	All seasons	*Merluccius merluccius*, *Parapenaeus longirostris*, *Mullus barbatus*	*Raja* spp., *Boops boops*, *Trachurus* spp. *Mullus surmuletus*	
	Deep sea Trawling (400 – 800m)	All seasons	*Aristaeomorpha foliacea*, *Nephrops norvegicus*, *Parapenaeus longirostris*	*Citharus linguatula*, *Phycis blennoides*, *Merluccius merluccius*, *Aristeus antennatus*	

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Statistics:

Landings of the most important species (by weight) from the region for 2004

	Weight (tons)
Total landings (2004)	1068
Coryphaena hippurus	473 (44%)
Thunnus thynnus	228 (21%)
Xiphias gladius	174 (16%)

Fishing regulations

Legislation directly related to fisheries and aquaculture

- Chapter 425 Fisheries Conservation & Management Act
- Chapter 146 Agriculture and Fishing Industries (Financial Assistance) Act
- Chapter 129 Tunny Fishery (Shares) Act
- Subsidiary Legislation LN 407 (2004) Fishing Vessels Regulations
- Subsidiary Legislation 10.12 Fishery Regulations
- Subsidiary Legislation 138.01 Fish Marketing Regulations
- Subsidiary Legislation 138.03 Slipway (Use) Regulations
- Subsidiary Legislation 10.30 Berthing Regulations
- Subsidiary Legislation 138.04 Registration of Fishing Boats Regulations
- Subsidiary Legislation 138.06 Marine Vegetation Licence Regulations
- Subsidiary Legislation 138.02 Tunny Fish (Importation) Restriction Order
- Subsidiary Legislation 36.34 Aquaculture Regulations
- Subsidiary Legislation 231.12 Sale of Fish Regulations
- Subsidiary Legislation 231.43 Fish Packing and Processing Establishment Regulations
- Subsidiary Legislation 36.26 Prohibition of Sale of Sea-Food Regulations
- Subsidiary Legislation 35.01 Fees Leviable by Government Departments Regulations (Sections 5b & Ministry for Agriculture & Fisheries - Fisheries section)
- Subsidiary Legislation 35.10 Fees for Abattoir and Veterinary Services Regulations (Section II)
- Subsidiary Legislation 117.12 Price Control of Fish Regulations
- Subsidiary Legislation 35.13 Fees Levied at Agricultural Produce Marketing Centres Regulations
- Subsidiary Legislation 138.05 Fisheries Officers (Remuneration) Regulations

Database reference
www.maltafisheries.gov.mt

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MPA: RDUM MAJJIESA - RAS IR-RAHEB

Location:	35º 56N 14º 20º E
Country:	Malta (Central Mediterranean)
Coastal/Island:	Island (inshore)
Total size:	885 ha
Integral size:	88.38 ha
Year of establishment:	Not yet established; awaiting Ministerial approval
Depth range:	0-50 m
Protection objectives:	Biodiversity conservation; research; education
Type of MPA:	Partial
Habitats:	Sandbanks, reefs, *Posidonia oceanica* beds, large shallow inlets and bays, coastal lagoons, caves
Socio-economic activities:	Fishing, all types of inshore aquatic activities

Activities	Zone A (No entry-no take)	Zone B, C, D (Entry-no-take with guided access)	Zone E (Entry-no-take with free access)	Zone P (General protection)
Forbidden	Spear Fishing, scuba diving, fishing, angling, anchoring, boating, swimming,	Spear Fishing, , fishing, angling, anchoring, boating	Spear Fishing, fishing, angling, , anchoring	Spear Fishing
Restricted	Scientific research	scuba diving	boating	anchoring fishing, angling
Allowed		swimming, scientific research	swimming, scuba diving, Scientific research	swimming, boating, scuba diving, scientific research

Description of the fisheries in and around the MPA:

Fishing in the area is of the artisanal type and there is no large scale commercial fishing. The only mooring area for fishing boats within the MPA is Gnejna Bay, where there are some 102 boats belonging to part-time fishermen (those whose living does not depend on fishing alone). Traditional fishermen use lamps ('*lampara*' fishing) to catch pelagic

species (*Alosa alosa*, *Boops boops, Sardina pilchardus, Scomber japonicus*, *Scomber scomber, Trachurus trachurus*, *Trachurus mediterraneus*,), small long-lines, trammel nets or *'parit'* for catching demersal fish and cephalopods, **'***parit xkitt'* (combined gillnets-trammel nets)**,** for catching bogue and *Trachurus* spp. and *'nasses'* (cane or metal basket traps) for moray eels, octopus, spiny lobster, sardines and picarel. Traditional fishing takes place mainly near sand banks and escarpments. Bogue fishing is practised by fleet-owners (Rdum Majjiesa). Hand-line fishing takes place all along the coast, except along beaches, in places where access to the sea is possible. Basket traps are also used near Fomm ir-Rih.
During spring, small boats fish for cuttlefish (*Sepia officinalis*) in sandy bays. A female specimen is used to attract and catch males. Gear is often lost, particularly nets and traps abandoned on the seabed, which have an adverse impact on fish fauna, and may be hazardous for divers. The area is also popular for spear fishing for species such as the dusky grouper (*Epinephelus marginatus*) and common octopus (*Octopus vulgaris*).

Area		Gear	Seasonality	Target Species	Bycatch Species	No. of Vessels
Inside (Zone)	A	/	/	/	/	/
	B,C,D	/	/	/	/	/
	E	/	/	/	/	/
	P	Trammel nets	All year round	*Alosa alosa*, *Boops boops, Sardina pilchardus, Scomber japonicus*, *Scomber scombrus, Trachurus trachurus*, *Trachurus mediterraneus*	Sparidae spp. (e.g. *Oblada melanura*, *Pagrus pagrus*)	N/A
		Traps	All year round	*Octopus vulgaris*, *Spicara* spp.	*Muraena helena, Palinurus elephas, Boops boops,* Scorpaenidae spp.	N/A

		Bottom long lines	All year round	*Pagellus* spp., *Dentex dentex*, *Epinephelus costae, Pagrus pagrus*	*Raja* spp., *Scorpaena* spp.,	N/A
		Trolling lines combined with hand spears	Spring	*Sepia officinalis*		N/A
		Trolling lines	All year round	*Seriola dumerili*	*Auxis rochei*	N/A
Outside		Trammel nets	All year round	*Alosa alosa*, *Boops boops, Sardina pilchardus, Scomber japonicus*, *Scomber scombrus, Trachurus trachurus*, *Trachurus mediterraneus*	Sparidae spp. (e.g. *Oblada melanura*, *Pagrus pagrus*)	N/A
		Traps	All year round	*Octopus vulgaris*, *Spicara* spp.	*Muraena helena, Palinurus elephas, Boops boops,* Scorpaenidae spp.	N/A
		Bottom long lines	All year round	*Pagellus* spp., *Dentex dentex*, *Epinephelus costae, Pagrus pagrus*	*Raja* spp., *Scorpaena* spp.,	N/A
		Trolling lines combined with hand spears	Spring	*Sepia officinalis*		N/A
		Trolling lines	All year round	*Seriola dumerili*	*Auxis rochei*	N/A

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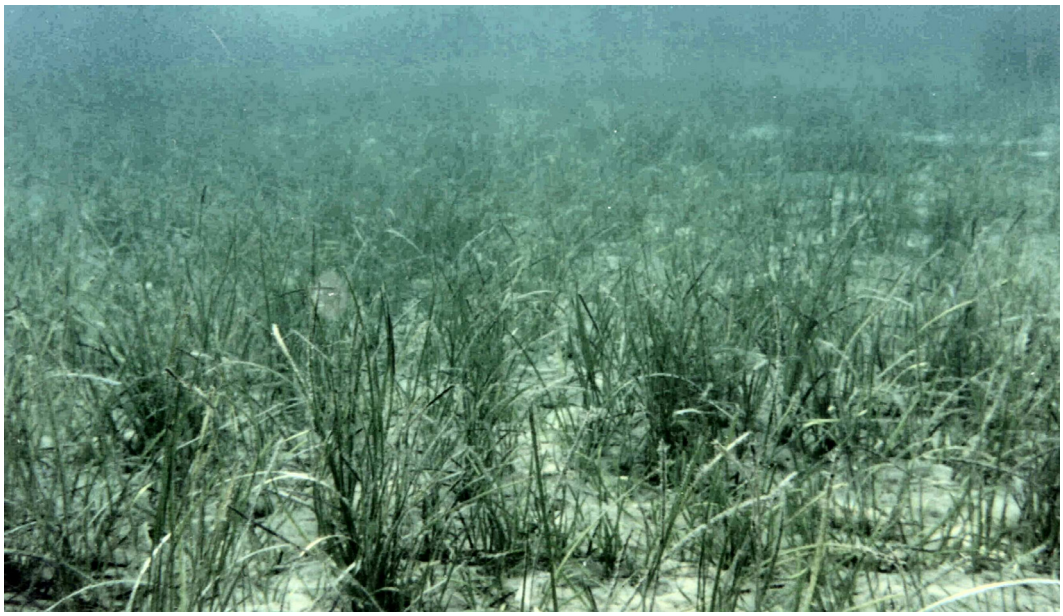

Statistics
Landings of the most important species (by weight) from the region for 2004 Not available

Fishing regulations
There are no fisheries regulations

Database reference
http://www.mepa.org.mt/Environment/index.htm?Marine_Protected _Area/mainframe_ mpa.htm&1

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Description of the fishing gears

Handline	The fish are attracted by a natural or artificial bait (lures) placed on a hook fixed to the end of a line or snood, on which they get caught.*
Longline	A fishing gear in which short lines carrying hooks are attached to a longer main line at regular intervals. Longlines are laid on the bottom or suspended horizontally at a predetermined depth with the help of surface floats. The main lines can be as long as 150 km and have several thousand hooks (e.g. in tuna fisheries).*
Trawling	Towed net consisting of a cone-shaped body, closed by a bag or cod end and extended at the opening by wings. It can be towed by one or two boats and, according to the type, are used on the bottom or in midwater (pelagic). In certain cases, as in trawling for shrimp or flatfish, the trawler can be specially rigged with outriggers to tow up to four trawls at the same time (double rigging).*
Pole-and-line	A fishing technique in which surface schooling fish are attracted to the vessel and driven into very active feeding behavior by throwing live or dead bait into the water and spraying water onto the sea surface to simulate the escape behavior of small preys. The fish lured with a line and a hook attached to a pole and pulled off the water by manual or powered devices. This fishing method is used worldwide to capture surface-swimming tuna such as yellowfin and skipjack.*
Gill net	Single vertical nylon netting walls that catches fish by gilling. As fish attempt to swin through the mesh of the net, they become snagged by their sill opperculi, fins or scales.#
Trammel net	Bottom-set net made with three walls of netting, the two outer walls being of a larger mesh size than the loosely hung inner netting panel. The fish get entangled in the inner small meshed wall after passing through the outer wall.*
Purse seine	Nets characterised by the use of a purse line at the bottom of the net. The purse line enables the net to be closed like a purse and thus retain all the fish caught. The purse seines, which may be very large, are operated by one or two boats. The most usual case is a purse seine operated by a single boat, with or without an auxiliary skiff.*

Pots	Traps, designed to catch fish or crustaceans, are in the form of cages or baskets various materials (wood, wicker, metal rods, wire netting, etc.) and have one or more openings or entrances. Usually set on the bottom, with or without bait, singly or in rows, connected by ropes (buoy-lines) to buoys on the surface showing their position.*
Jig	A method of fishing using lures (weight surrounded by a crown of small hooks) on a vertical line moved up and down (jigged) by hand or mechanically. Extremely efficient for fishing oceanic squids at night.*
FAD Seine	These FADs (Fish Aggregating Devices) take the form of small rafts made of floating material, which are then anchored to the bottom. Their use was introduced after it was noticed by local fishers that Dolphin Fish along with other species such as Pilot Fish (*Naucrates ductor*) and the Amberjack (*Seriola dumerili*) tend to aggregate within the shadow cast by floats. To further augment the number of fish, palm fronds are attached underneath each float to extend the shaded area. Once the Dolphin Fish aggregate, they are caught by surrounding nets similar to a purse-seine. When the boat is near an FAD various trolls made out of feathers or artificial bait are set and when one fish is caught, a decoy Dolphin Fish is thrown into the sea to attract any others that may be present under the FAD. When the number of fish present makes it worthwhile the surrounding operation is then undertaken.
Troll line	Simple line, provided with natural or artificial bait and trailed near the surface or at a certain depth by a vessel. Several lines are usually towed at the same time, by using outriggers.*
Tuna nets	Drifting gillnets to catch tuna
Beach seine	A beach seine is a seine net operated from the shore. The gear is composed of a bunt (bag or lose netting) and long wings often lengthened with long ropes for towing the seine to the beach. The headrope with floats is on the surface, the footrope is in permanent contact with the bottom and the seine is therefore a barrier which prevent the fish from escaping from the area enclosed by the net.*
Octopus long-handled tool	Picking of specimens (with knife). Very specific. It also can be made by underwater seeking (snorkel).

Trap	Fishing by means of devices able to trap fish in confined environment (traps, pots) often designed and baited to catch a particular species: Crab pot, lobster pot, tuna trap, fyke nets.*
Electric reel hook and line	Line used by an electric reel, with several (10-20) medium-size hooks (4/0, 5/0), placed very near to the bottom. Monofilament wire, then mother line of 1.6 mm thick with the hooks at the end of pieces of nailon of 1.2 mm thick that come out of the mother line each 1.5 m. Quite specific used in the right place and time of the year. Medium-size boats.
Harpoon	Or harpoon gear means fishing gear consisting of a pointed dart or iron attached to the end of a line several hundred feet in length, the other end of which is attached to a floatation device. Harpoon gear is attached to a pole or stick that is propelled by hand or mechanical means into the body of the aquatic animal.*
Skin diving	Piking of specimens with knife by underwater seeking (snorkel)
Drift nets	Kept near the surface, or a certain distance below it, by numerous floats, the net drifts freely with the current, separately or, more often with the boat to which they are attached. A driftnet may be used close to the bottom (e.g. shrimp driftnet) or at the surface (e.g. herring driftnet) usually across the path of migrating fish schools. Aquatic animals strike the net and become entangled in its meshes. Large Scale Pelagic Driftnets are surface or sub-surface drifnets of large dimensions (exceeding 2.5 km and up to 50 kms) the use of which is banned by a UN resolution. Also referred to as driftnets.*
Trap net	A spiral-shaped simple net designed to intercept and retain fish in a confined space.
Combined gillnet-trammel net	Consist in two parts: an upper one being a standard gillnet where semi demersal or pelagic fish may be gilled and lower part being a trammel net where bottom fish may entangle.
Boat seine	The type most representative of this category is the Danish seine. The design of these nets, consisting of two wings, a body and a bag, is similar in many ways to that of trawls. Operated from a boat, they are generally used on the bottom, where they are hauled by two ropes, usually very long, set in the water so as to ensure that as many fish as possible are driven or herded towards the opening of the net.*

Angling	Art of fishing with hook and line using a rod

* Source: FAO Fisheries Global Information System (FIGIS), (http://www.fao.org/figis/servlet/static?dom=root&xml=index.xml)
# Source: Jennings S., Kaiser M.J. & Reynolds J.D., 2001. *Marine Fisheries Ecology*. Blackwell Science Ltd., Oxford. (http://www.blackwell-science.com)

List of species caught in the fisheries

Species	Common Name (English)
Acanthocybium solandri	wahoo
Alosa alosa	Alice shad
Aphia minuta	transparent goby
Aristaeomorpha foliacea	deep-sea shrimp
Aristeus antennatus	rose shrimp
Atherina hepsetus	Mediterranean sand smelt
Atherina presbyter	sand smelt
Atherina spp.	genus of Atherinidae (silversides)
Auxis rochei	bullet tuna
Auxis spp.	genus of Scombridae (mackerels, tunas and bonitos)
Balistes capriscus	trigger fish
Belone belone	garpike
Beryx decadactylus	alfonsino
Beryx splendens	splendid alfonsino
Beryx spp.	genus of Berycidae (alfonsinos)
Bodianus scrofa	barred hogfish
Boops boops	bogue/boga
Brama brama	Atlantic pomfret
Canthidermis sufflamen	ocean triggerfish
Caretta caretta	loggerhead sea turtle
Citharus linguatula	spotted flounder
Conger conger	conger eel
Coris julis	Mediterranean rainbow wrasse
Coryphaena hippurus	common dolphinfish
Dentex dentex	common dentex
Dentex spp.	genus of Sparidae (porgies)
Dicentrarchus labrax	European seabass
Diplodus cervinus	zebra seabream
Diplodus cervinus cervinus	zebra seabream
Diplodus puntazzo	sharpsnout seabream
Diplodus sargus	white bream
Diplodus sargus cadenati	Moroccan white seabream
Diplodus vulgaris	common two-banded seabream
Diplodus ssp.	genus of Sparidae (sea breams)
Eledone cirrosa	lesser octopus
Eledone moschata	musky octopus
Enchelycore anatina	fangtooth moray
Engraulis encrasicolus	European anchovy
Epigonus telescopus	bulls-eye
Epinephelus costae	striped grouper
Epinephelus marginatus	dusky grouper
Epinephelus spp.	genus of Serranidae (sea basses: groupers and fairy basslets)
Galeorhinus galeus	tope shark
Gymnothorax maderensis	moray eel
Gymnothorax miliaris	goldentail moray
Gymnothorax polygonius	polygon moray
Gymnothorax unicolor	brown moray

Gymnothorax spp.	genus of Muraenidae (moray eels)
Helicolenus dactylopterus	blue-mouthed redfish
Helicolenus dactylopterus dactylopterus	bluemouth rockfish
Homarus gammarus	European lobster
Katsuwonus pelamis	skipjack tuna
Kyphosus sectator	Bermuda sea chubb
Labrus spp.	wrasses
Lepidopus caudatus	silver scabbardfish
Lichia amia	leerfish
Lithognathus mormyrus	striped seabream
Loligo vulgaris	common squid
Lophius piscatorius	anglerfish
Lophius spp.	monkfish
Makaira nigricans	Atlantic blue marlin
Merluccius merluccius	European hake
Merluccius spp.	genus of Merlucciidae (merluccid hakes)
Mola mola	ocean sunfish
Molva dipterygia	blue ling
Mora moro	common mora
Mugilidae	mullets
Mullus barbatus	plain surmullet
Mullus surmuletus	striped red mullet
Mullus spp.	genus of Mullidae (goatfishes)
Muraena augusti	black moray
Muraena helena	Mediterranean moray
Mustelus mustelus	smooth-hound
Mycteroperca fusca	island grouper
Naucrates ductor	pilotfish
Nephrops norvegicus	Norway lobster
Oblada melanura	saddled seabream
Octopus vulgaris	common octopus
Octopus spp.	genus of octopodidae (octopus)
Osilinus spp.	genus of Trochidae (top shells)
Pagellus acarne	axillary seabream
Pagellus bogaraveo	blackspot seabream
Pagellus erythrinus	common pandora
Pagellus spp.	genus of Sparidae (porgies)
Pagrus auriga	redbanded seabream
Pagrus pagrus	common seabream
Palinurus elephas	European spiny lobster
Paracentrotus lividus	purple sea urchin
Parapenaeus longirostris	pink shrimp
Parapristipoma octolineatum	african striped grunt
Patella candei crenata	limpet species
Patella ulyssiponensis aspera	limpet species
Patella spp.	limpet
Phycis blennoides	greater forkbeard
Phycis phycis	forkbeard
Plesionika narval	narwal shrimp
Polymixia nobilis	Atlantic beardfish
Polyprion americanus	wreckfish
Pomatomus saltatrix	bluefish

Pontinus kuhlii	offshore rockfish
Prionace glauca	blue shark
Promethichthys prometheus	Bermuda catfish
Psetta maxima	turbot
Pseudocaranx dentex	white trevally
Raja spp.	genus of Rajidae (skates)
Ruvettus pretiosus	oilfish
Sarda sarda	Atlantic bonito
Sardina pilchardus	European pilchard
Sardinella aurita	round sardinella
Sardinella spp.	genus of Clupeidae (Herrings, shads, sardines, menhadens)
Sarpa salpa	goldline/salema
Schedophilus ovalis	imperial blackfish
Sciaena umbra	brown meagre
Scomber japonicus	chub mackerel
Scomber scombrus	atlantic mackerel
Scomber spp.	genus of Scombridae (Mackerels, tunas, bonitos)
Scombridae	mackerels, tunas, bonitos
Scorpaena porcus	black scorpionfish
Scorpaena scrofa	large-scaled scorpionfish
Scorpaena spp.	genus of Scorpaenidae (scorpionfishes or rockfishes)
Scorpaenidae	genus of Scorpaenidae (scorpionfishes or rockfishes)
Sepia officinalis	common cuttlefish
Seriola dumerili	Mediterranean greater amberjack
Seriola fasciata	lesser amberjack
Seriola rivoliana	almaco jack
Seriola spp.	genus of the Carangidae (jacks and pompanos)
Serranus atricauda	blacktail comber
Serranus spp.	genus of Serranidae (sea basses: groupers and fairy basslets)
Solea vulgaris	common sole
Solea spp.	genus of Soleidae (soles)
Sparidae	porgies
Sparisoma cretense	parrotfish
Sparus aurata	gilthead seabream
Sphyraena sphyraena	European barracuda
Sphyraena viridensis	yellowmouth baracuda
Spicara flexuosa	blotched picarel
Spicara maena	blotched picarel
Spicara spp.	genus of Centracanthidae (picarels)
Spondyliosoma cantharus	black seabream
Squalus acanthias	spiny dogfish
Squatina squatina	angelshark
Symphodus spp.	genus of Labridae (wrasses)
Synodus saurus	Atlantic lizardfish
Thunnus alalunga	albacore
Thunnus albacares	yellowfin tuna
Thunnus obesus	bigeye tuna
Thunnus thynnus	bluefin tuna

Todarodes sagittatus	European flying squid
Torpedo marmorata	spotted torpedo
Trachinotus ovatus	derbio
Trachinus spp.	genus of Trachinidae (weeverfishes)
Trachurus mediterraneus	Mediterranean horse mackerel
Trachurus trachurus	Atlantic horse mackerel
Trachurus spp.	genus of Carangidae (Jacks and pompanos)
Trigla lucerna	tub gurnard
Triglidae	gurnards
Uranoscopus scaber	Atlantic stargazer
Xiphias gladius	swordfish

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