



measure programmes for conservation and management of the elasmobranchs

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ARPAToscana
Regional co-chair IUCN-SSG





Identification of the species is a priority



REGIONAL GUIDES EXCERPTS



Eastern Central Atlantic
1981



Western Indian Ocean
1984



Southern Ocean
1985



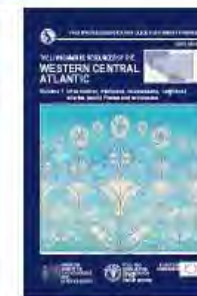
Mediterranean and
Black Sea
1987



Eastern Central Pacific
1995



Western Central Pacific
1998-2001



Western Central
Atlantic 2002

WORLD CATALOGUES



Sharks of the World
part I 1984



Sharks of the World
part II 1984



Sharks of the World
vol2 2001

SHARKS, RAYS and CHIMAERAS

Excerpts from
FAO Species Identification publications
as of 2007

New documents

FIELD GUIDES

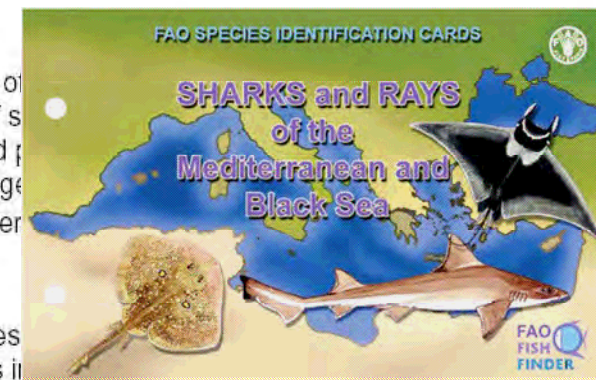
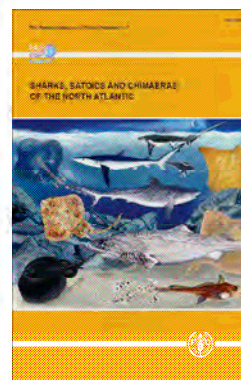


Red Sea and
Gulf of Aden
2004



Mediterranean and
Black Sea
2005

IPOA SHARKS





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della Toscana



Food
and
Agriculture
Organization
of
the
United
Nations

Regione Toscana




FAO Taxonomic Test Fauna Teneriffe (Spain) 2002





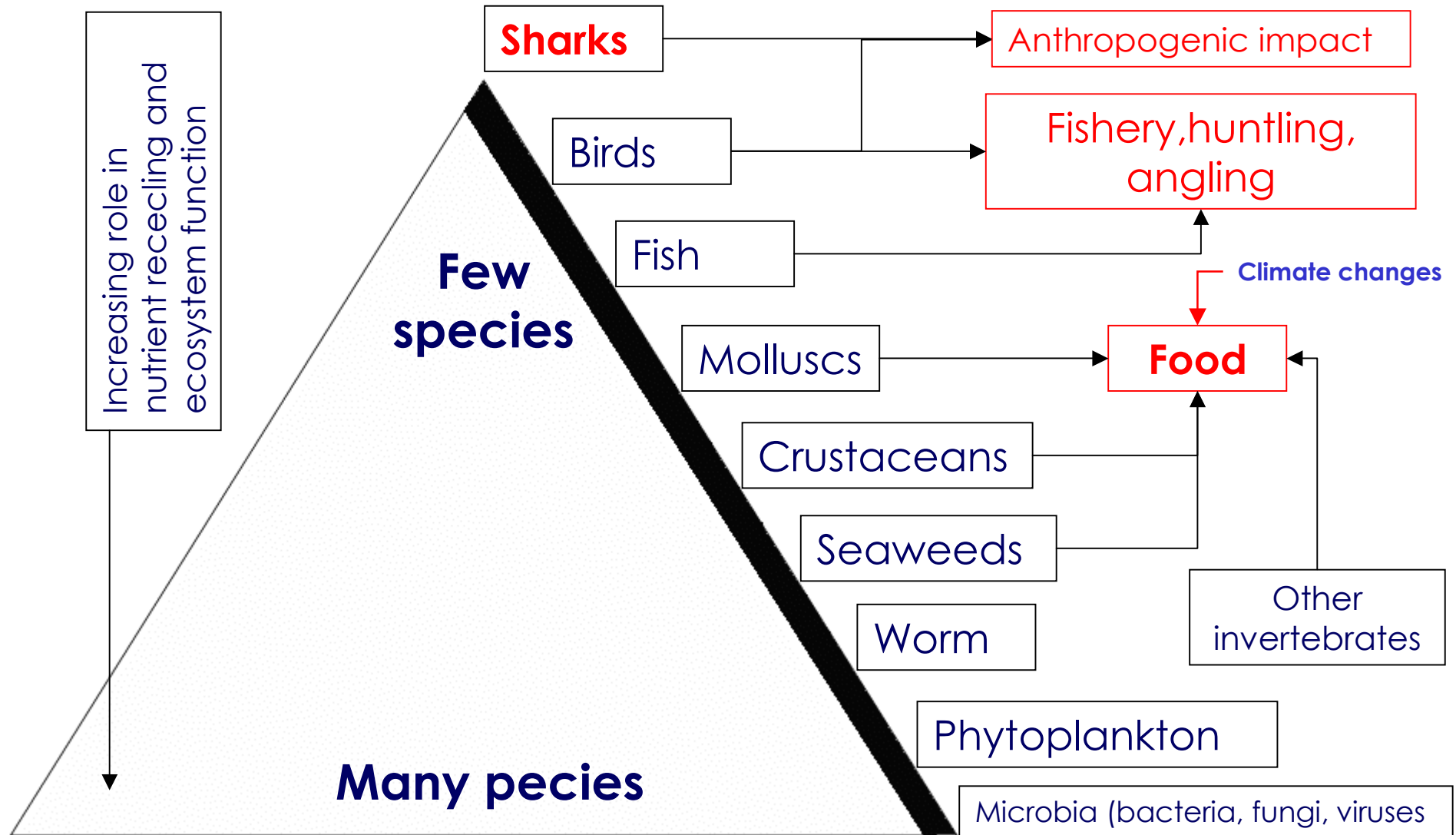
Synoptic table of the chondrichthyans living in the Mediterranean basin

 Mediterranean fauna <i>Sensu Serena, 2005</i>							World fauna <i>Sensu Compagno, 1999</i>
	Orders	SubOrders	Families	Genera	Species	% Med/World	Species
Sharks	5		17	26	47	10%	~ 470
Batoids	1	4+1	8+1	15+1	33+2	5%	~ 650
Chimaeras	1		1	1	1		~ 50
Total	7		27	42	83+2	7%	~1170

About **eighty four elasmobranchs** live in the Mediterranean Sea, 2 batoids species are endemic and 3 others could be considered endemic .



Trophic web

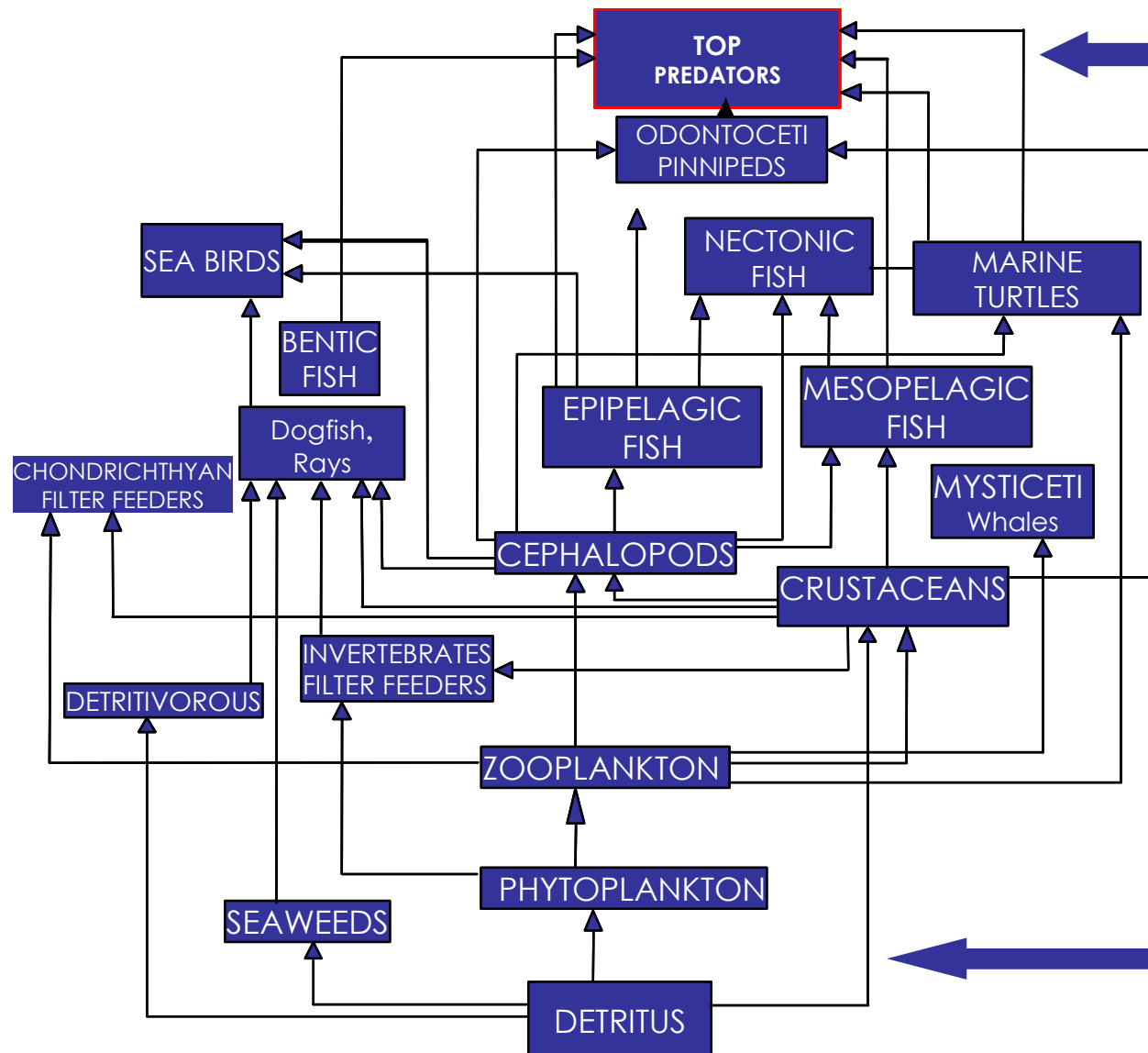


Trophic web

**Uman activities
Fishery,
Navigation,
etc.**



**Environmental
Effects**



LOSS of TOP PREDATORS



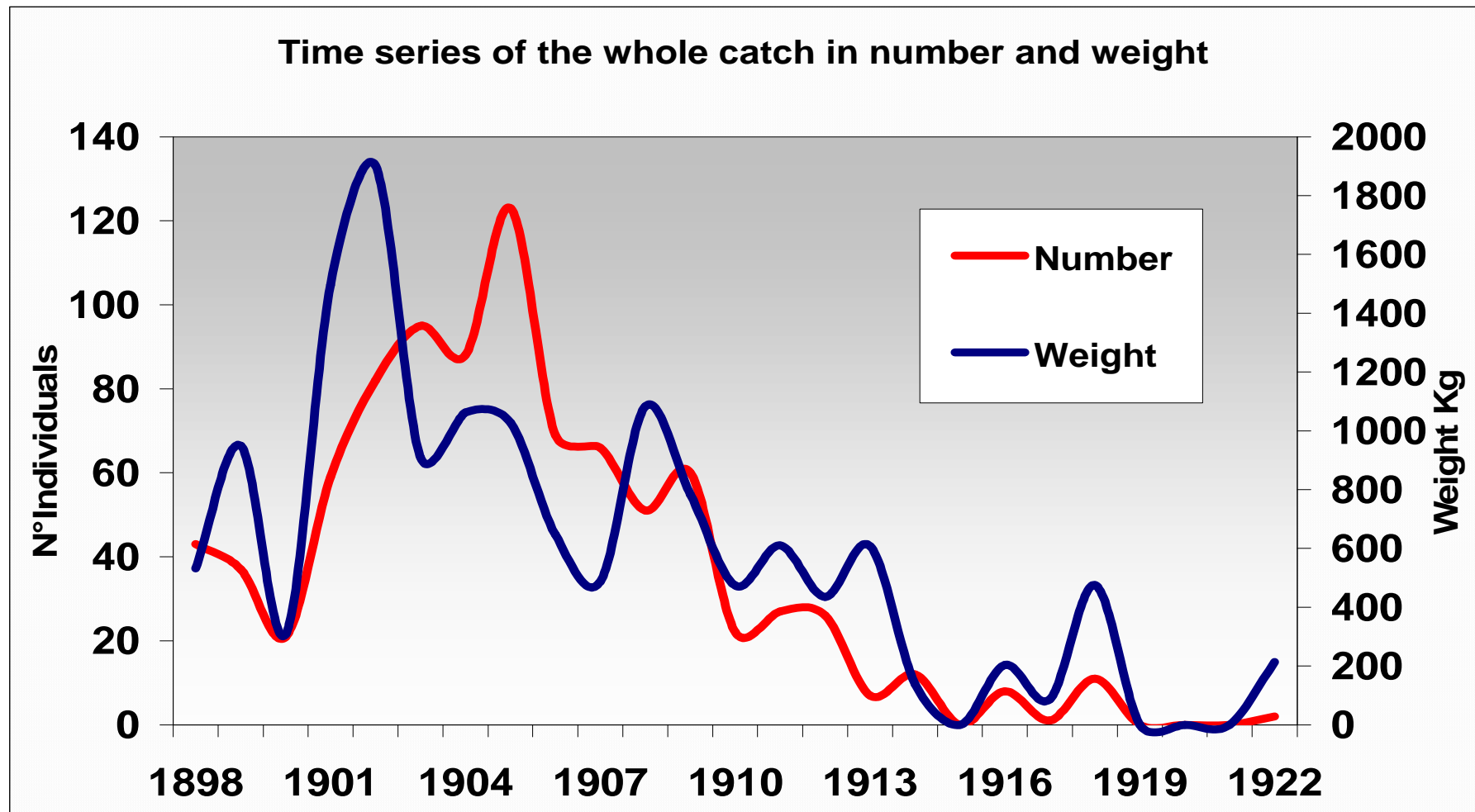
We are reconstructed population trends of large sharks over the last **200 years** in the Mediterranean Sea. We found that all species studied decreased in numbers and size over time.

Their findings suggest several Mediterranean shark species are at **risk of extinction**, especially if current levels of fishing pressure continue.



LOSS of TOP PREDATORS

e.g. Tuna trap in Baratti bay Tuscany, Italy



LOSS of TOP PREDATORS

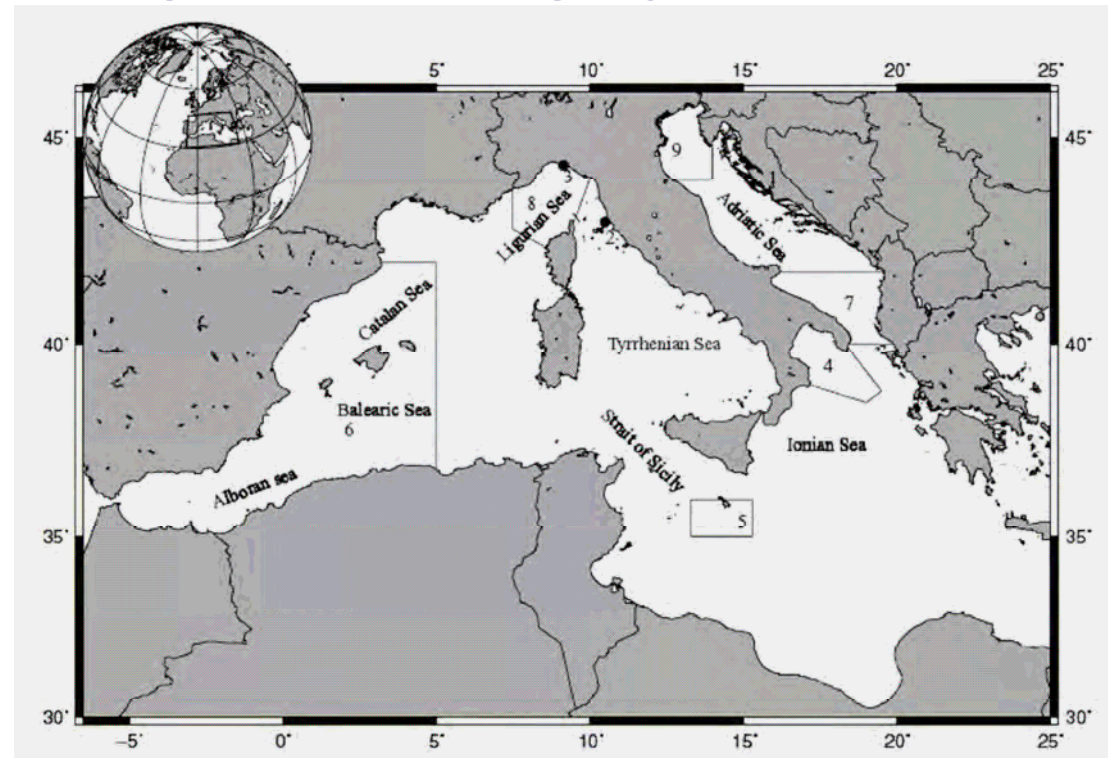


Recent our estimates for
the Mediterranean basin
suggest that populations
of migratory **large sharks**
have **declined** by
90% or more.

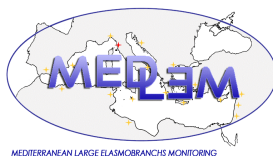


LOSS of TOP PREDATORS

This **decline** may classify
 some sharks species as
Critically Endangered
 according to World
 Conservation Union-
 IUCN Red List criteria.



**Global Sharks
 Assessment**



Type of Shark (<i>species</i>)	Abundance	Biomass
Hammerhead (<i>Sphyrna</i> spp.)	>-99%	>-99%
Blue (<i>Prionace glauca</i>)	-97%	>-99%
Mackerel (<i>Isurus oxyrinchus</i> and <i>Lamna nasus</i>)	>-99%	>-99%
Thresher (<i>Alopias vulpinus</i>)	>-99%	>-99%

Reproductive strategy of the elasmobranchs

K- selected life history

- growth slow
- mature at a relatively late age
- only a few young with low natural mortality
- populations increase very slowly



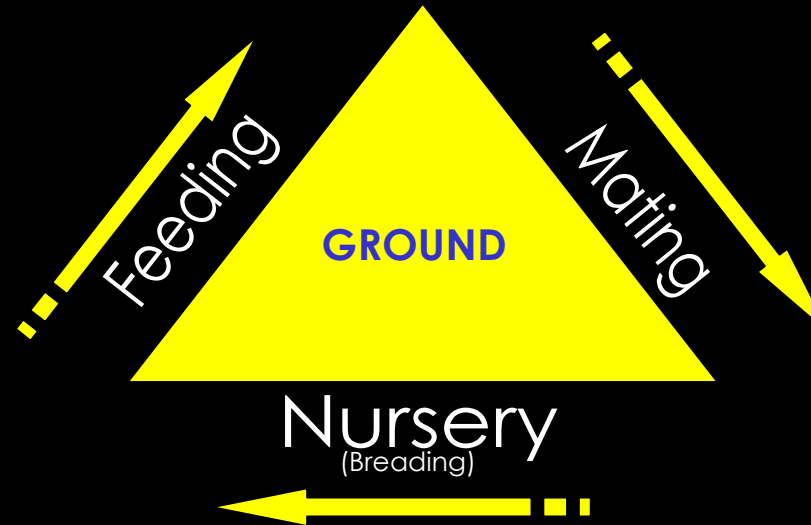
Reproduction strategy



Oviparous

Copula

Viviparous



F. Serena

K

LOSS of TOP PREDATORS

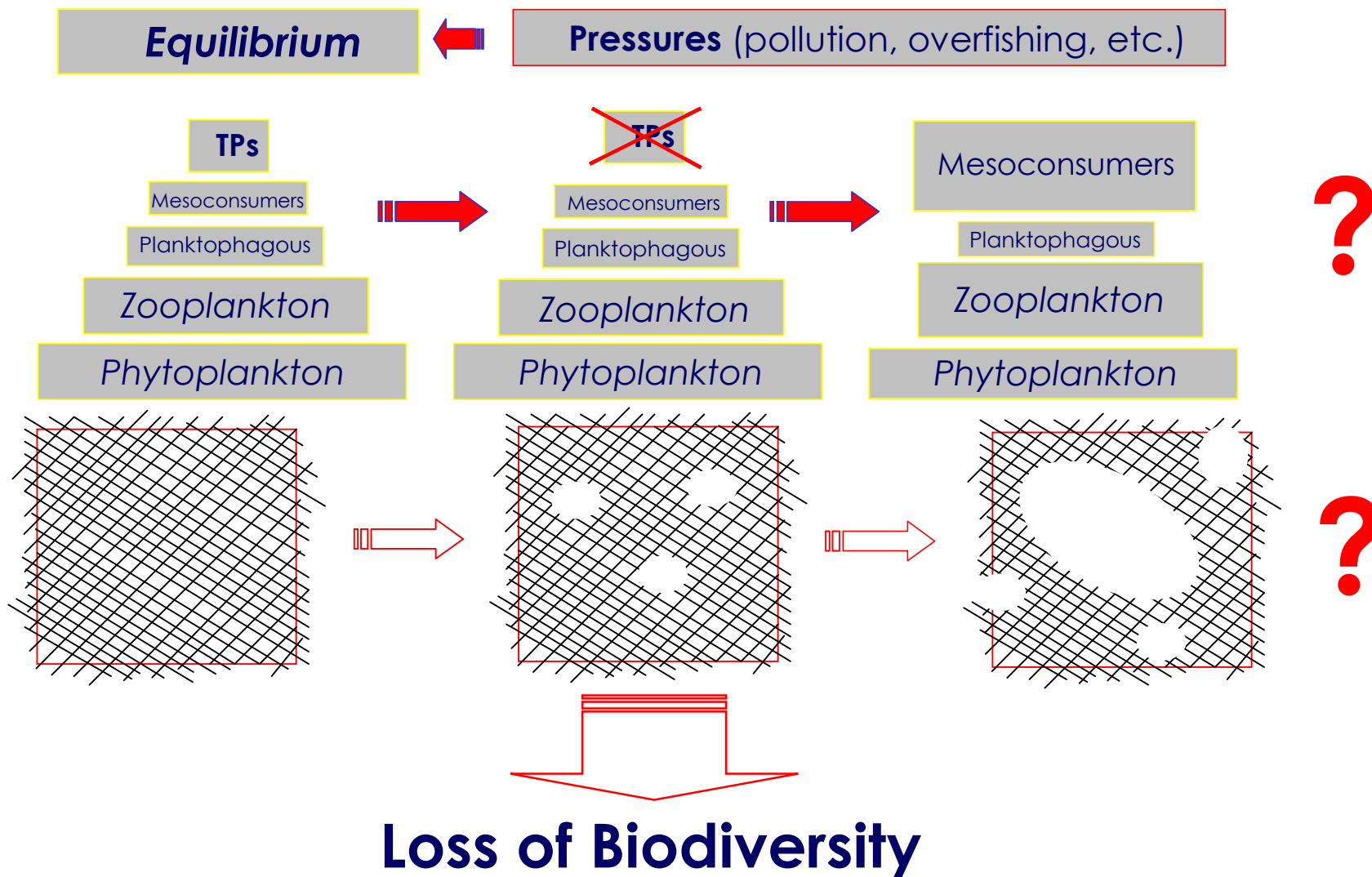
The reasons of this decline can be related to two different actions:

- 1) **INDIRECT:** climate change
 - 2) **DIRECT:** antropogenic impact (Fishing pressure, etc.)
-

Because of their **k reproduction strategy**, sharks have very **low resilience**. This determines the decline in very short times of the elasmobranch populations.

LOSS of TOP PREDATORS

Trophic relationships





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per la protezione ambientale
della Toscana

IPOA-Sharks

Regione Toscana



**Ecosystem
in
balance**



Pressure



**Loss
of top predators
(TPs)**



**Loss
of biodiversity**

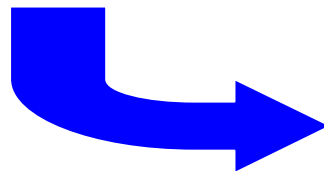
ADOPTION
1998-99



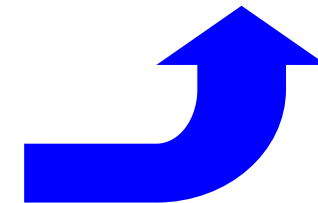
IPOA

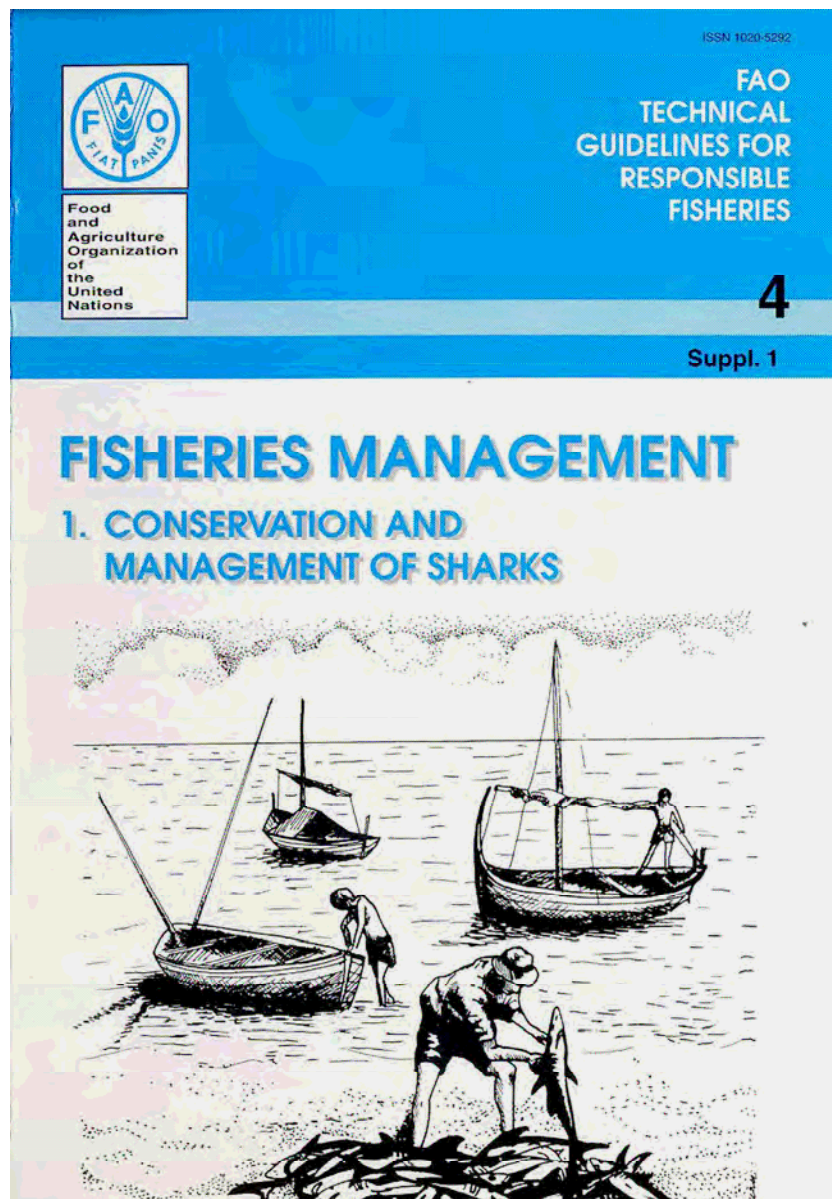


**Measures
for
conservation and
management
of TPs**

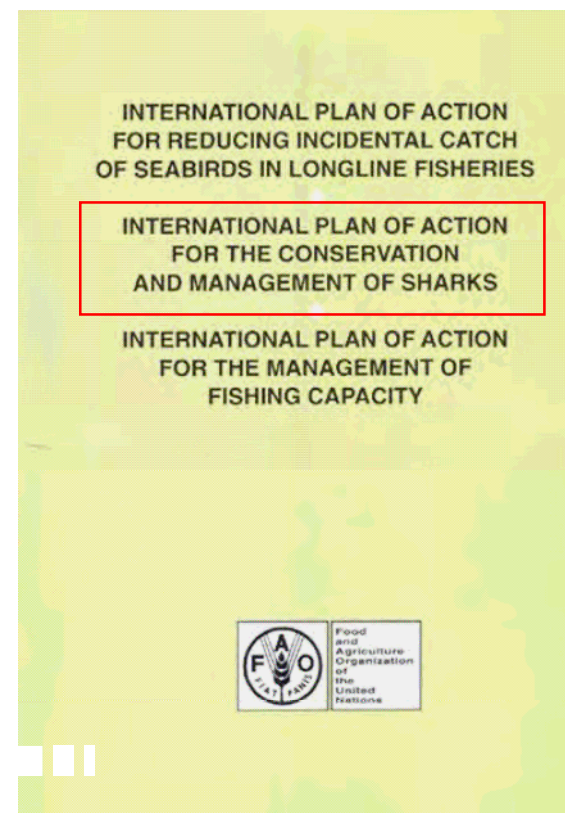


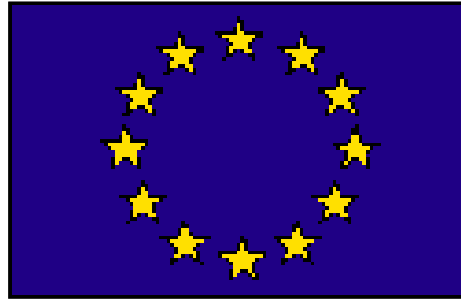
**Risk
for ecosystem**





The goal of the **IPOA-SHARKS** is to ensure the conservation and management of sharks for their sustainable use





In 2009 the EU adopted unanimously the guidelines of the **European Action Plan** for protection and management of cartilaginous fish. This has been the first step toward a specific Directive.



COMMISSION OF THE EUROPEAN COMMUNITIES

Brussels, 5.12.2003
SEC(2003)1427

COMMISSION STAFF WORKING PAPER

REPORT OF AD WORKING GROUP

ELASMOBRANCHES FISHERIES

Brussels, 22-25 July 2003

This report has been evaluated and endorsed by the Scientific, Technical and Economic Committee for Fisheries (STECF) in its plenary session of 3-7 November 2003.



COUNCIL OF
THE EUROPEAN UNION



Council Conclusions on a European Community Action Plan for the Conservation and Management of Sharks

2937th AGRICULTURE and FISHERIES Council meeting
Luxembourg, 23 April 2009

The Council adopted the following conclusions:

THE COUNCIL

1. RECALLING the objective of the Common Fisheries Policy¹ to apply the precautionary approach in taking measures designed to protect and conserve living aquatic resources, to provide for their sustainable exploitation and to minimise the impact of fishing activities on marine eco-systems;
2. RECALLING that a shark action plan supports – amongst others – the implementation of an ecosystem approach to the management of oceans²;

¹ Cf. notably Council Regulation (EC) 2371/2002.

² Cf. Council Conclusions of 29.9.2008 on the Commission Communication on the role of the CFP in implementing an ecosystem approach to marine management (doc. 12769/08 PECHE 224)

P R E S S

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press.office@ec.europa.eu <http://www.ec.europa.eu/Newsroom>

1
EN



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della Toscana

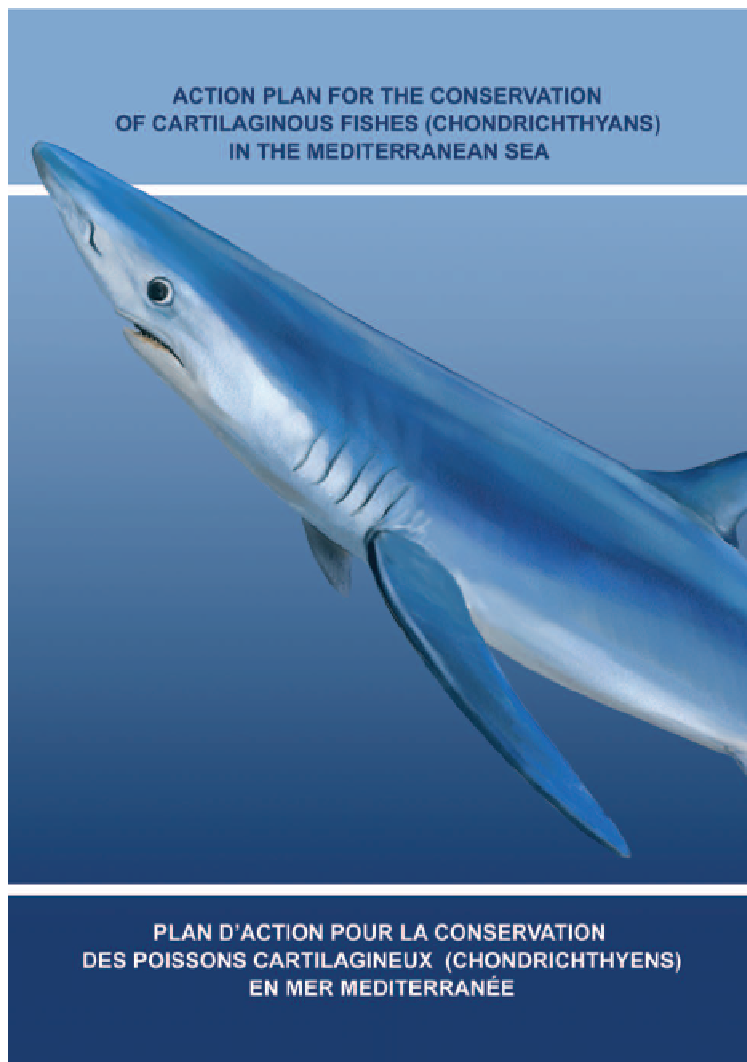
IPOA-Sharks

Regione Toscana



RAC/SPA (Regional Activity Center for Specially Protected Areas)

www.rac-spa.org.tn



RAC/SPA

Steps of the

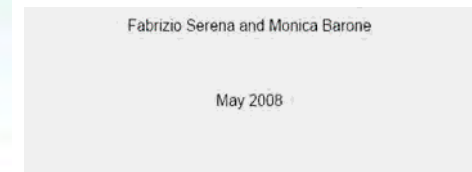
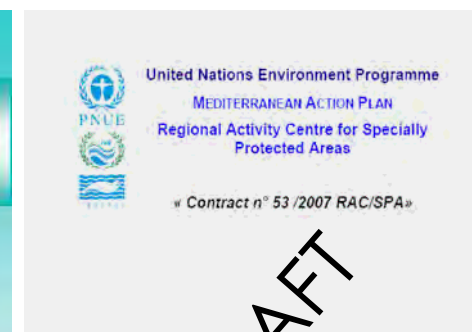
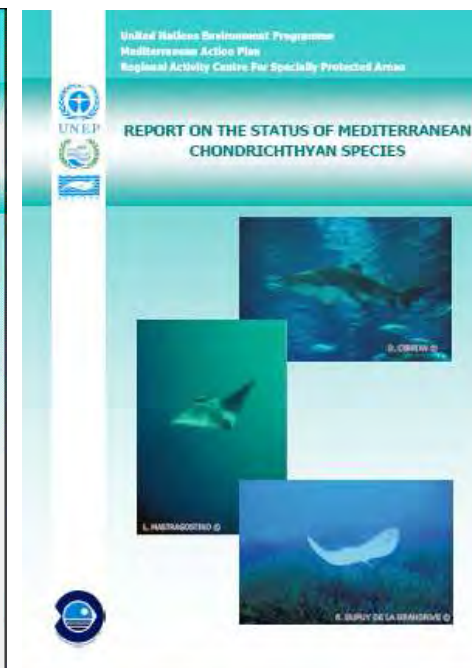
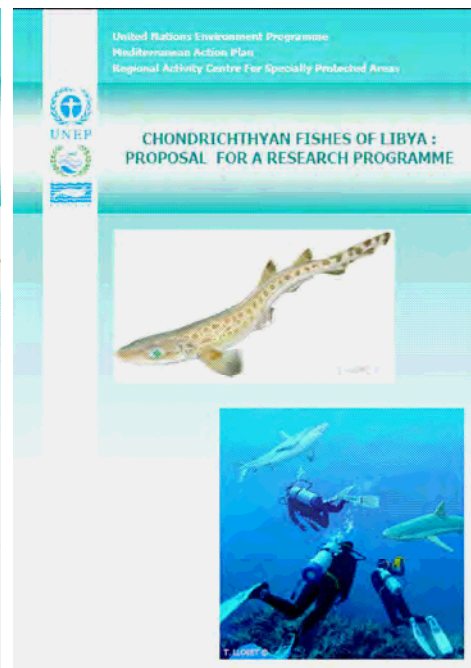
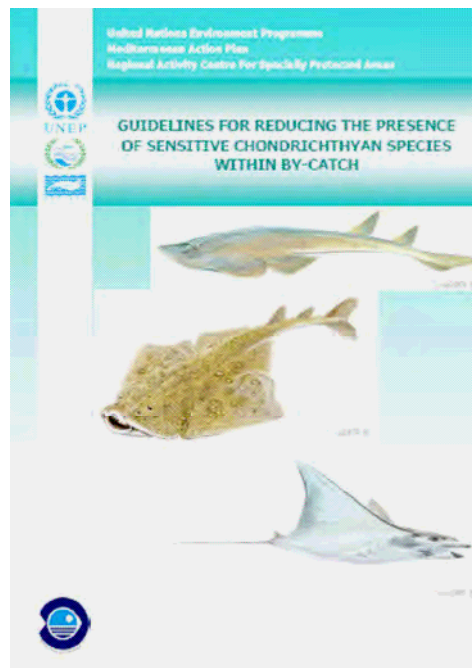
Mediterranean Action Plan

1. Rome, October 2002
2. Istanbul, October 2005
3. **Updating in 2009**



Regional AP RAC/SPA

Libya, Croatia, Slovenia, Montenegro,
Bosnia & Herzegovina



DRAFT



Italian National Plan of Action



MiPAAF



MiATTM

Italy, with its projects **ELASMOIT** (MiATTM) and **ELASMOSTAT** (MiPAAF), answered to the orientation of the EU, drawing up guidelines to formulation of a real **National Plan of Action**.



GENERAL OBJECTIVES

- to develop a network of regional experts
- to assist in regional planning and policy development



Categories and Criteria

www.redlist.org

IUCN Red List Categories	Number of Mediterranean chondrichthyan species	
	Regional Assessment	Global Assessment (IUCN Red List, 2006)
Critically Endangered (CR)	13	5
Endangered (EN)	8	4
Vulnerable (VU)	9	7
Near Threatened (NT)	13	12
Least Concern (LC)	10	3
Data Deficient (DD)	18	4
Not Evaluated (NE)	0	36
Total number of species	71	71

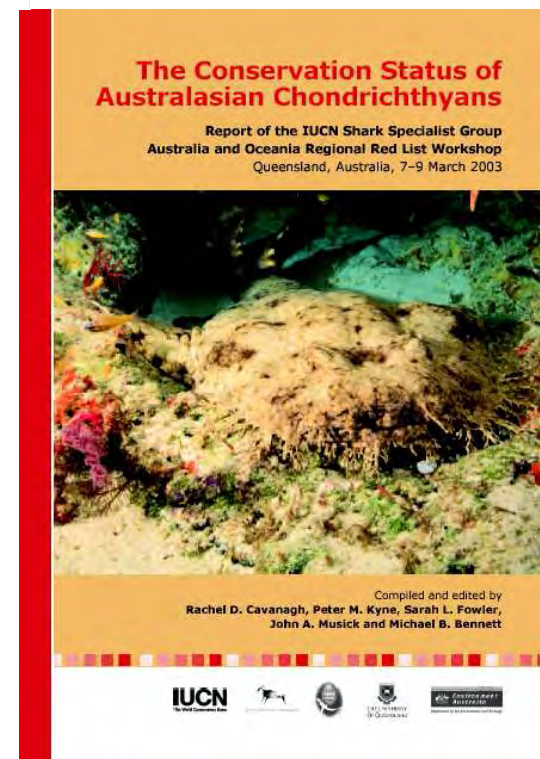
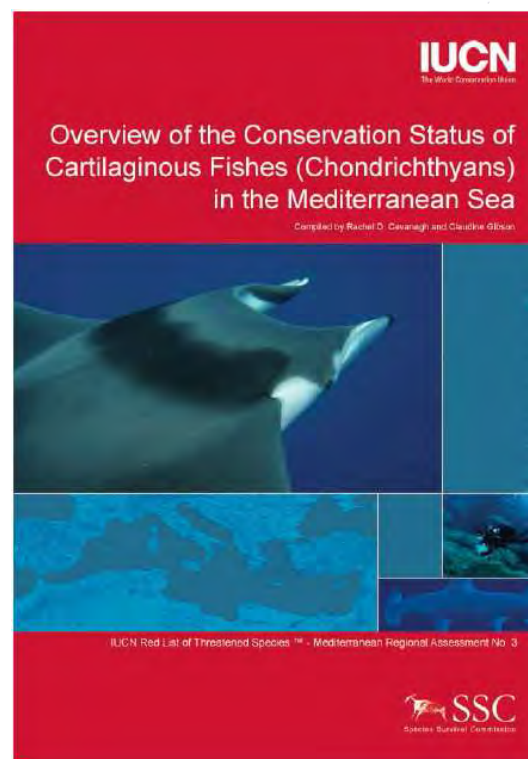
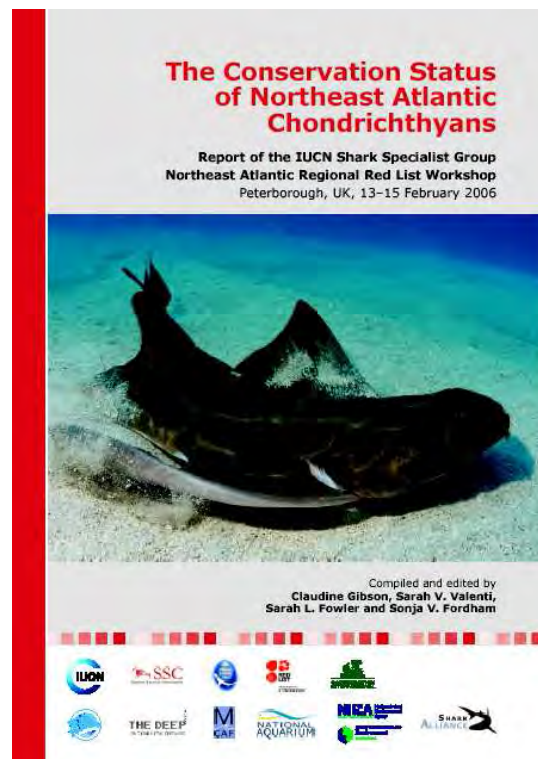
DD = Data Deficient; **EN** = Endangered; **EW** = Extinct in the wild; **EX** = Extinct; **CR** = Critically Endangered; **VU** = Vulnerable; **LR/cd** = Lower Risk, conservation dependant; **LR/nt** = Lower Risk, near threatened.

The IUCN Shark Specialist Group's Red List programme

The SSG is currently part way through a programme to complete global assessments for all chondrichthyan species (~1,200 worldwide). Regional assessments are collated to produce the global assessment for each species. Workshops have been held for seven regions: Australia and Oceania, sub-equatorial Africa, South America, North and Central America, the **Mediterranean**, Northeast Atlantic and West Africa.



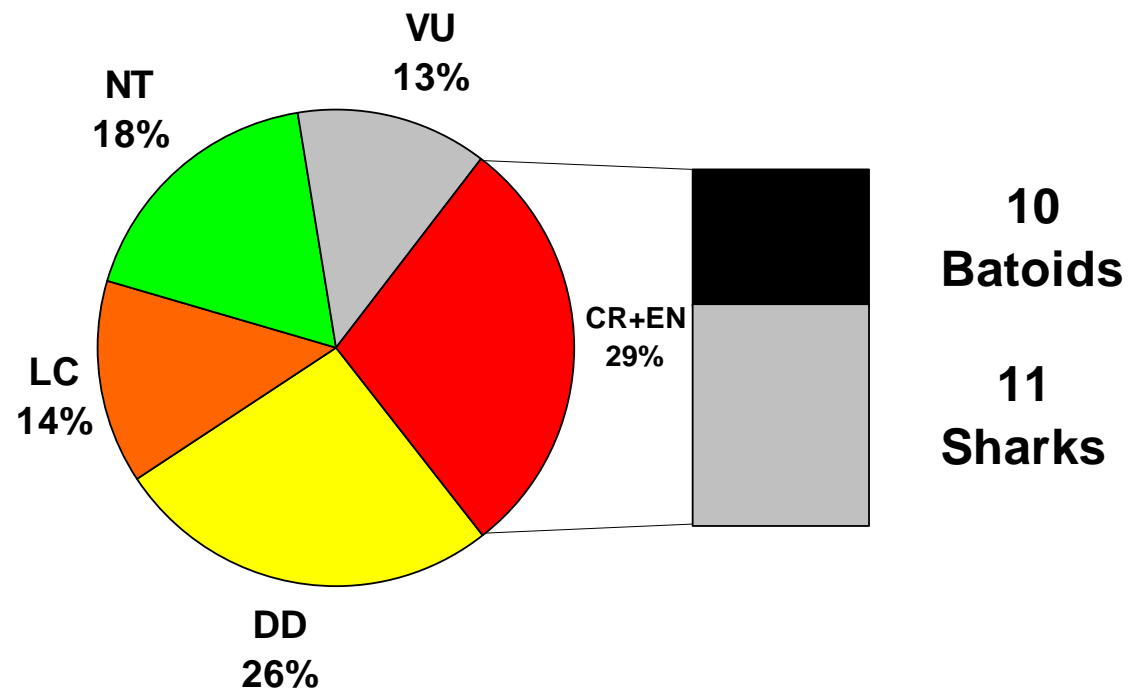
IUCN-SSG global Assessment





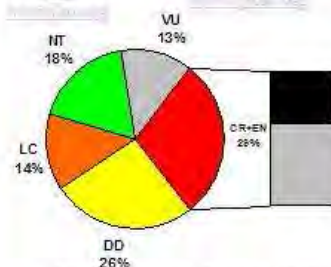
2007- IUCN-SSG Mediterranean Assessment

Percentage of Mediterranean species within each IUCN Red List category, regional assessment and the global status of the **30 threatened Mediterranean species**





Poster



IUCN regional RedList 2006. 71 species assessed in about 82+4 living in the Mediterranean and Black Sea

10
Batoids

11
Sharks

Twenty one Critical Endangered or Endangered species in the Mediterranean Sea

Three of them are in the appendixes of some Conventions plus one species Vulnerable

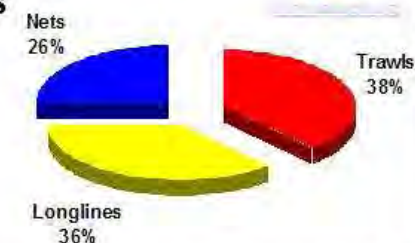
Categories and Criteria

DD = Data Deficient; **EN** = Endangered; **EW** = Extinct in the wild; **EX** = Extinct; **CR** = Critically Endangered; **VU** = Vulnerable; **LR/cd** = Lower Risk, conservation dependant; **LR/nt** = Lower Risk, near threatened.

ABCD (1-4) (a-e) (i-v): an integral part of the Red List assessment is the hierarchical alphanumeric numbering system of criteria and subcriteria (three levels).



Member



Percentage of chondrichthyan species bycatch in different metier.



Oxynotus centrina
CR A2bd



Squatina oculata
CR A2bcd-3cd-4bcd



Squatina squatina
CR A2bcd-3cd-4bcd



Squatina aculeata
CR A2bcd-3cd-4bcd



Pristis pectinata
CR A2bcd-3cd-4bcd



Pristis pristis
CR A2bcd-3cd-4bcd



Squalus acanthias
EN A2bd-4bd (VU Black Sea)



Gymnura altavela
CR A2bcd



Leucoraja melitensis
CR A2bcd-3cd-4bcd



Carcharhinus plumbeus
EN A2bd-4bd



Lamna nasus
CR A2bd



Rhinobatos rhinobatos
EN A4cd



Rhinobatos cemiculus
EN A4cd



Carcharias taurus
CR A2bcd-3cd-4bcd



Odontaspis ferox
EN A2abd-4abd



Rostoraja alba
CR A2cd-4cd



Leucoraja circularis
EN A2bcd-3bcd-4bcd



Dipturus batis
CR A2bcd-4bcd



Cetorhinus maximus
Appendix 2 of Berna Convention
Appendix 2 of Barcelona Convention
Appendix II of CITES
VU A2bd



Carcharodon carcharias
Appendix 2 of Berna Convention
Appendix 2 of Barcelona Convention
Proposed for CITES listing on Appendix I, II
EN A2bc+3bc+4bc



Isurus oxyrinchus
Appendix 3 of Berna Convention
Appendix 3 of Barcelona Convention
CR A2acd+3cd+4acd



Mobular mobular
Appendix 2 of Berna Convention
Appendix 2 of Barcelona Convention
EN A4d





IPOA-Sharks



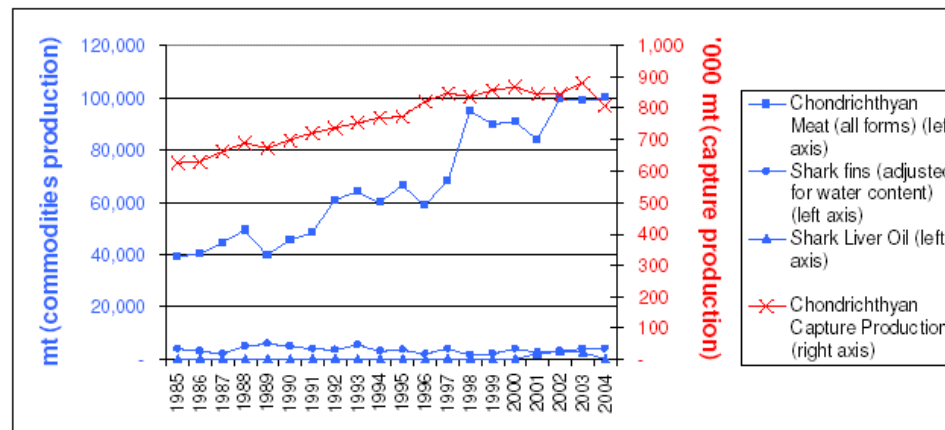
European Elasmobranch Association

European shark fisheries:

a preliminary investigation into
fisheries, conversion factors, trade
products, markets and management
measures

Hareide, N.R., J. Carlson, M. Clarke, S. Clarke,
J. Ellis, S. Fordham, S. Fowler, M. Pinho,
C. Raymakers, F. Serena, S. Seret, and S. Potti

2007



The catch of elasmobranchs contrast with the production, in terms of tons, the amount of meat, liver oil and **fins**

1985–2004





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della Toscana

IPOA-Sharks

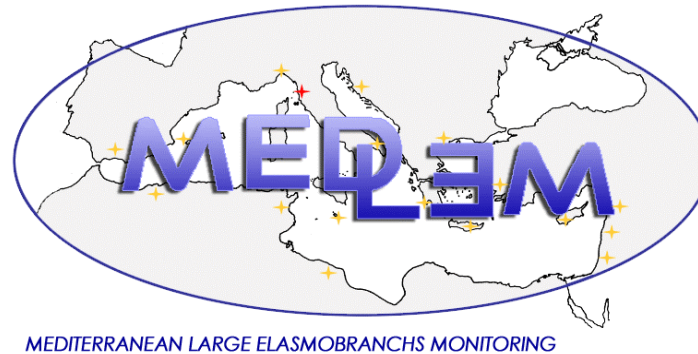
Regione Toscana



**LENFEST
OCEAN
PROGRAM**



Food
and
Agriculture
Organization
of
the
United
Nations

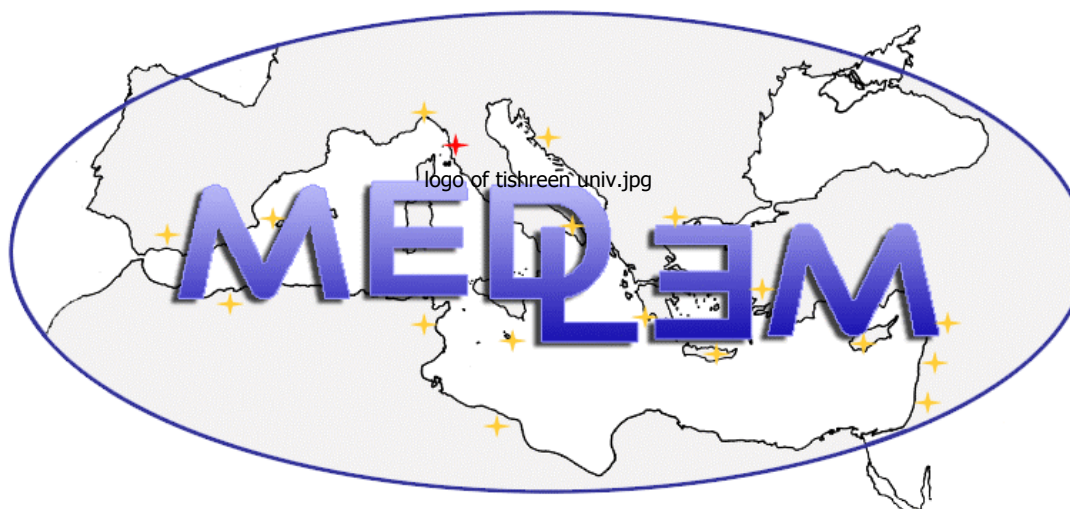


MEDLEM officially started in **1985**

an update of the analyses on the
database, up to now, reports more than
1800 records and about **2000 individuals**
of Large Elasmobranchs in the
Mediterranean



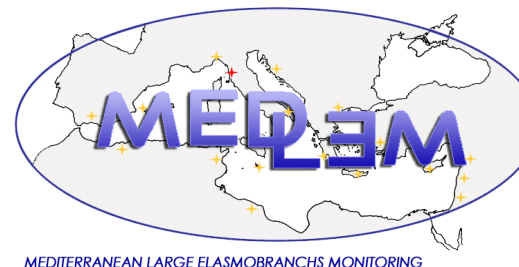


MEDITERRANEAN LARGE ELASMOBRANCHS MONITORING





SHARKS
<i>Hepranchias perlo</i> (Bonnaterre, 1788)
<i>Hexanchus griseus</i> (Bonnaterre, 1788)
<i>Hexanchus nakamurai</i> Teng, 1962
<i>Echinorhinus brucus</i> (Bonnaterre, 1788)
<i>Squatina aculeata</i> Cuvier, 1829
<i>Squatina oculata</i> Bonaparte, 1840
<i>Squatina squatina</i> (Linnaeus, 1758)
<i>Carcharias taurus</i> Rafinesque, 1810
<i>Odontaspis ferox</i> (Risso, 1810)
<i>Alopias superciliosus</i> (Lowe, 1839)
<i>Alopias vulpinus</i> (Bonnaterre, 1788)
<i>Cetorhinus maximus</i> (Gunnerus, 1765)
<i>Carcharodon carcharias</i> (Linnaeus, 1758)
<i>Isurus oxyrinchus</i> Rafinesque, 1810
<i>Isurus paucus</i> Guitart Manday, 1966
<i>Lamna nasus</i> (Bonnaterre, 1788)
<i>Carcharhinus altimus</i> (Springer, 1950)
<i>Carcharhinus brachyurus</i> (Günther, 1870)
<i>Carcharhinus brevipinna</i> (Müller & Henle, 1839)
<i>Carcharhinus falciformis</i> (Bibron, 1839)
<i>Carcharhinus limbatus</i> (Valenciennes, 1839)
<i>Carcharhinus melanopterus</i> (Quoy & Gaimard, 1824)
<i>Carcharhinus obscurus</i> (Lesueur, 1818)
<i>Carcharhinus plumbeus</i> (Nardo, 1827)
<i>Prionace glauca</i> (Linnaeus, 1758)
<i>Rhizoprionodon acutus</i> (Rüppell, 1837)
<i>Sphyrna (Mesozygaena) tudes</i> (Valenciennes, 1822)
<i>Sphyrna (Sphyrna) lewini</i> (Griffith & Smith, 1834)
<i>Sphyrna (Sphyrna) mokarran</i> (Rüppell, 1837)
<i>Sphyrna (Sphyrna) zygaena</i> (Linnaeus, 1758)
BATOIDS
<i>Pristis pectinata</i> Latham, 1794
<i>Pristis pristis</i> (Linnaeus, 1758)
<i>Rhinobatos (Glaucostegus) cemiculus</i> E. Geoffroy Saint-Hilaire, 1817
<i>Rhinobatos (Rhinobatos) rhinobatos</i> (Linnaeus, 1758)
<i>Dipturus batis</i> complex Linnaeus, 1758
<i>Rosteoraja alba</i> Lacépède, 1803
<i>Dasyatis centroura</i> (Mitchill, 1815)
<i>Himantura uarnak</i> (Forsskål, 1775)
<i>Taeniura grabata</i> (E. Geoffroy Saint. Hilaire, 1817)
<i>Gymnura altavela</i> (Linnaeus, 1758)
<i>Pteromylaeus bovinus</i> (E. Geoffroy Saint-Hilaire, 1817)
<i>Rhinoptera marginata</i> (E. Geoffroy Saint-Hilaire, 1817)
<i>Mobula mobular</i> (Bonnaterre, 1788)





The elasmobranchs considered in MEDLEM correspond to those species which could achieve **total length** greater than **one meter**.

30 Sharks
13 Batoids


Goals







Mediterranean Large Elasmobranchs Monitoring
<http://www.arpat.toscana.it/medlem>



ARPAT **ISPRA**

Data collection field sheet

Date (dd/mm/yyyy) Time (hh:mm)

Locality Country

Latitude Longitude

Depth (m) Total length (approx) Weight (approx)

Photo YES ☐ NO ☐ Video YES ☐ NO ☐

If you don't know the coordinates:
Direction from locality (N, S, E, W, NE, NW, SE, SW) Distance from coast (NM)

Type of report:

☐ Sighting → Number of sharks sighted

☐ Accidental catch → Gear


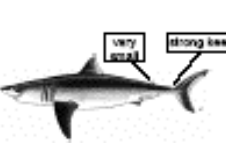

☐ Stranding


Species:

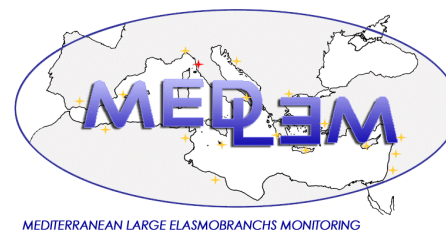
Scientific name

Common name

The most threatened species:

 <p>Basking shark <i>Cetorhinus maximus</i> Appendix 2 of Berna Convention; Appendix 2 of Barcelona Convention; Appendix II of CITES.</p>	 <p>Great white shark <i>Carcharodon carcharias</i> Appendix 2 of Berna Convention; Appendix 2 of Barcelona Convention; Proposed for CITES listing on Appendix I and II.</p>	 <p>Devil fish <i>Mobula mobular</i> Appendix 2 of Berna Convention; Appendix 2 of Barcelona Convention.</p>
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 Guardia Costiera



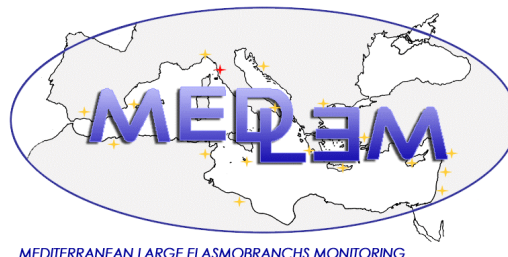
MEDLEM

Is an official programme adopted by FAO-GFCM in 2005 and by UNEP-RAC/SPA in the 2009.

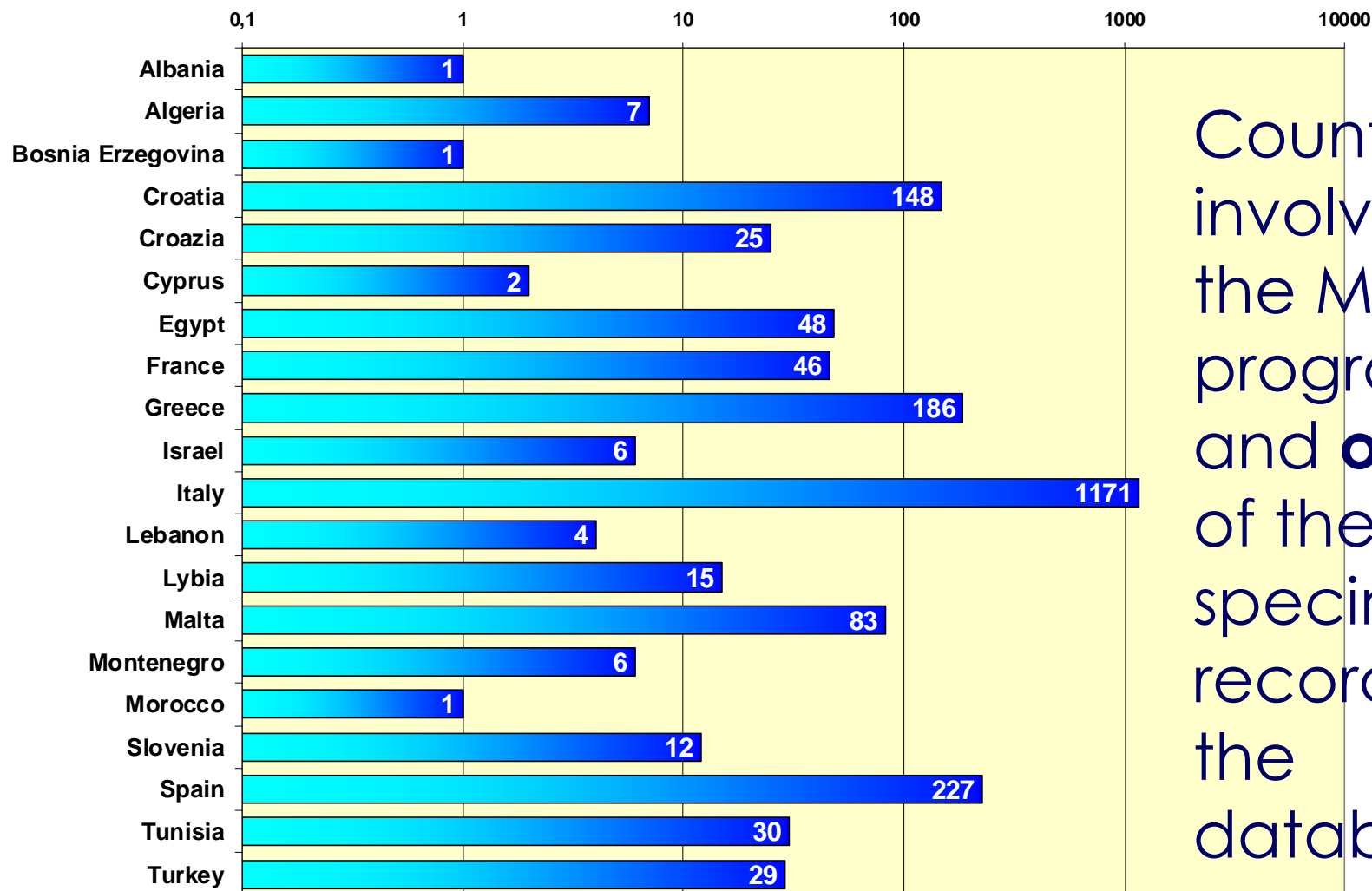
IUCN-SSG and EEA are the main partners

MEDLEM

Is a shared tool for study the conservation and exploitation status of the elasmobranchs in Med. Is closely linked to **IPOA-Sharks**



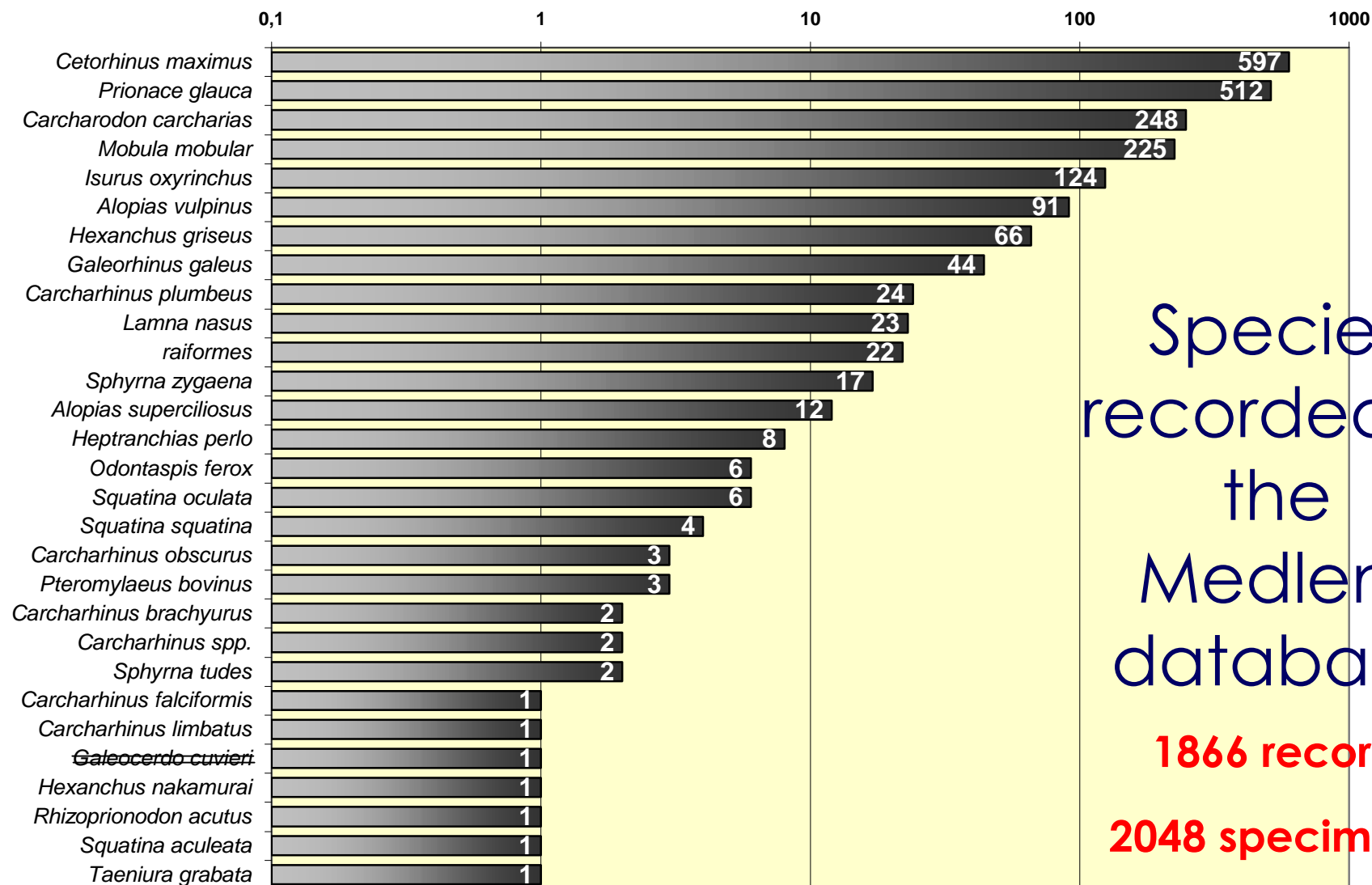
MEDITERRANEAN LARGE ELASMOBRANCHS MONITORING



Countries
 involved in
 the Medlem
 programme
 and **origin**
 of the
 specimens
 recorded in
 the
 database



number of reported specimens



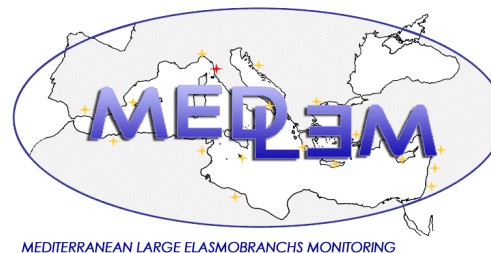
Species
recorded in
the
Medlem
database

1866 records

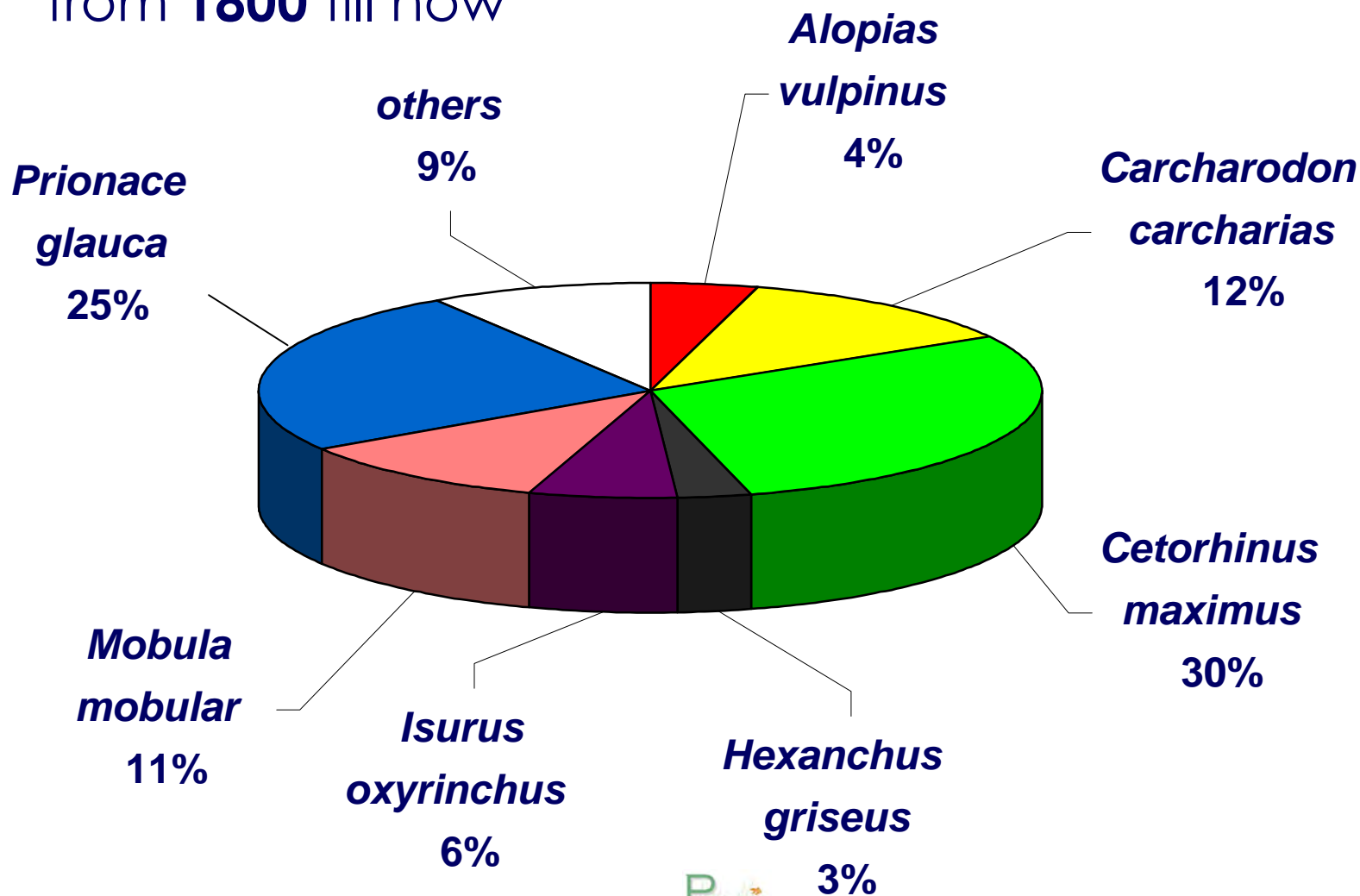
2048 specimens



Main species recorded in the Medlem database from **1800** till now

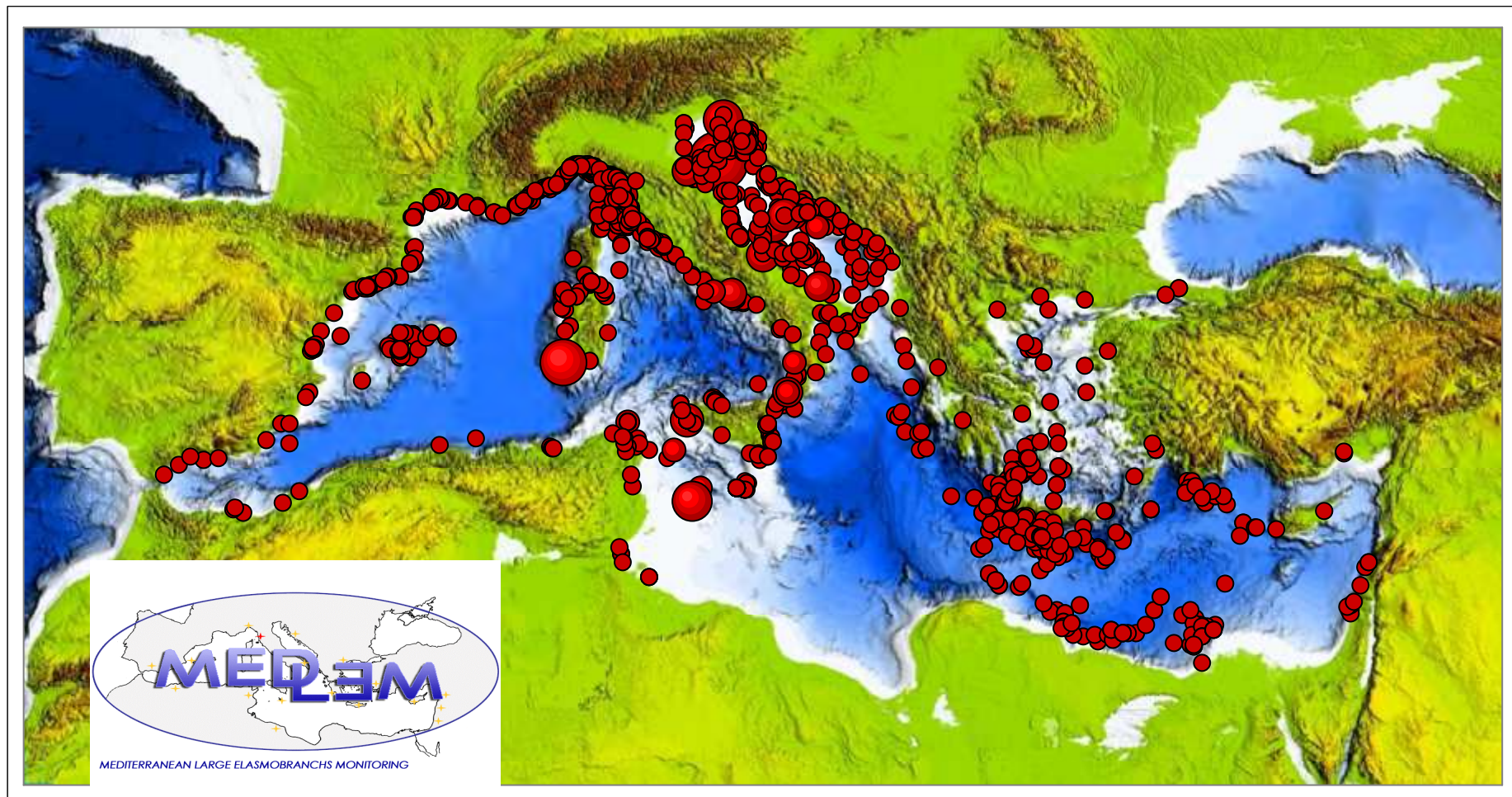


MEDITERRANEAN LARGE ELASMOBRANCHS MONITORING

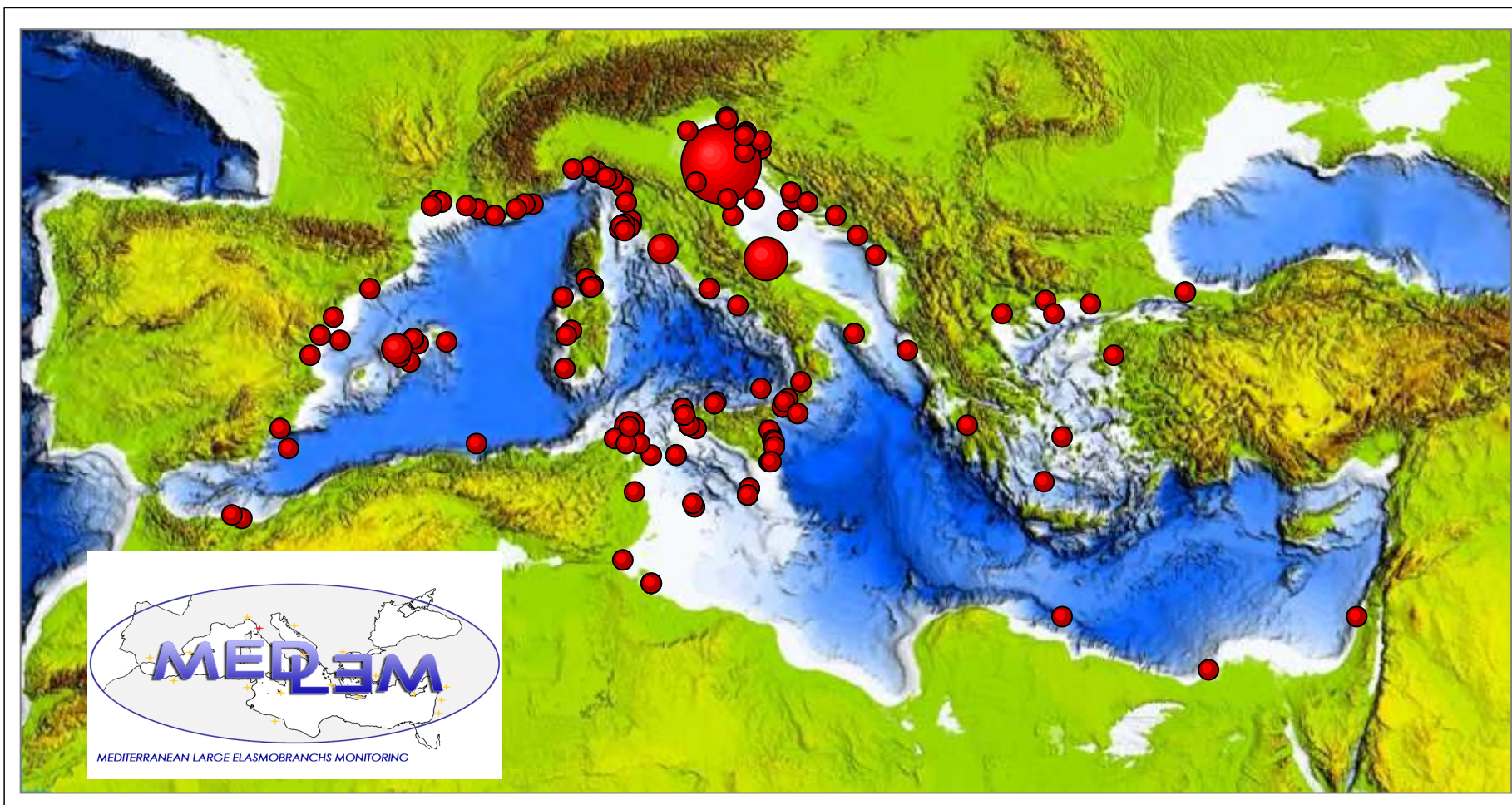
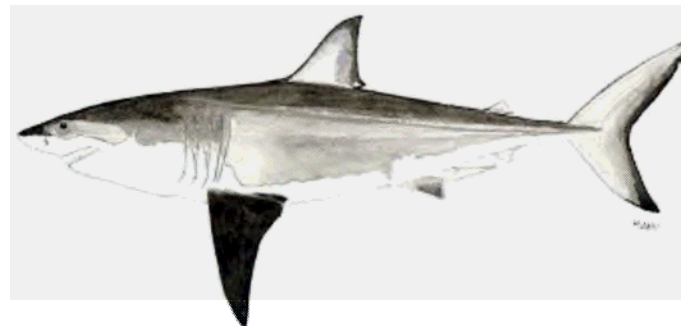


2048

specimens recorded in the Medlem database



Carcharodon carcharias





Mobula mobular

