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## FINAL REPORT OF THE MEETING

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## **Introduction**

1. At their last Meeting (Monaco, November 2001), the Contracting Parties to the Barcelona Convention invited RAC/SPA to prepare an Action Plan for the conservation of Mediterranean species of cartilaginous fish. RAC/SPA, in collaboration with the Istituto Centrale per la Ricerca Scientifica e Tecnologica Applicata Al Mare (ICRAM), organised a Meeting of Experts to elaborate this Action Plan; the Meeting took place in the Jolly Hotel Midas, Rome, Italy, from 10–12 October 2002). This Action Plan will be reviewed by the Sixth Meeting of National Focal Points for SPAs and then submitted to the Contracting Parties to the Barcelona Convention.

## **Participants:**

2. The Meeting was attended by 12 experts representing the following Contracting Parties to the Barcelona Convention: Albania, Bosnia & Herzegovina, Croatia, Cyprus, the European Community, Israel, Greece, Lebanon, Morocco, Syria, Tunisia and Turkey.
3. The international organisations listed below attended the Meeting as observers: IUCN-Centre for Mediterranean Cooperation, IUCN-Shark Specialist Group, and ACCOBAMS.

RAC/SPA provided the Secretariat for the Meeting.

The complete list of participants appears in Annex I to the present Report.

## **Agenda item 1 - Opening of the Meeting**

4. The Meeting was opened at 9.30 a.m. on Thursday, 10 October 2002 by the Director of RAC/SPA, Mr. Mohamed Adel HENTATI, who thanked participants for attending and ICRAM for its support in organising the Meeting. The Chairman of ICRAM, Mr. Giuseppe NOTARBARTOLO DI SCIARA, expressed his satisfaction at having been able to make a contribution to this Meeting, and stressed the importance of the conservation of Chondrichthyans.

## **Agenda item 2 - Rules of procedure**

5. The rules of procedure adopted for the meetings and conferences of the Contracting Parties to the Convention for the Protection of the Mediterranean Sea against Pollution and its related protocols (UNEP/IG.43/6/Annex XI) applied *mutatis mutandis* to this Meeting.

## **Agenda item 3 - Election of officers**

6. The participants at the Meeting unanimously elected the following officers:

Chairman: Mr. Amir IBRAHIM, Syria

Vice-chairmen: Mr. Franco BIAGI, the European Community, and

Mr. Mohamed NEJMEDDINE BRADAI, Tunisia  
Rapporteur: Mr. Nicos HADJISTEPHANOU, Cyprus.

**Agenda item 4 - Adoption of the Agenda and organisation of work**

7. The Provisional Agenda prepared by the Secretariat, UNEP(DEC)/MED/WG.211/1, annotated in document UNEP(DEC)/MED/WG.211/2, was proposed and adopted by the Meeting. The Meeting also reviewed and adopted the proposed timetable; it appears at the end of the second of these documents.

The Agenda of the Meeting appears in Annex II to the present Report.

**Agenda item 5 - The Mediterranean species of cartilaginous fish: status and priorities for conservation**

8. Introducing the work of the Meeting, the Secretariat presented the information document 'The Mediterranean Chondrichthyan Fishes (Sharks, Rays, Skates & Chimaeras): Status and Priorities for Conservation' (UNEP(DEC)/MED/WG.211/inf. 3). This document was intended to provide the basic scientific information necessary for preparing the Action Plan.
9. The Secretariat informed the Meeting about the efforts made to work in coordination with the concerned international organisations to prepare the information document and the draft Action Plan that is the subject of Agenda Item 6, and thanked IUCN, ACCOBAMS and COPEMED for their contribution to the preparing of these documents.
10. Each of the Contracting Parties' representatives informed the Meeting about the state of knowledge about cartilaginous fishes, and the initiatives taken on this subject, in his/her country.
11. The representatives of the international organisations attending the Meeting informed the Meeting about their organisations' activities and initiatives regarding cartilaginous fishes.
12. A summary of these contributions as they were handed in by the participants appears in Annex III.

**Agenda item 6 - Draft Action Plan for the conservation of Mediterranean species of cartilaginous fish (Chondrichthyans)**

13. The Meeting's work on this Agenda item was devoted to reviewing the draft Action Plan prepared by the Secretariat and presented in document UNEP(DEC)/MED/ WG.211/3.

14. The document was presented by the Secretariat, section by section, from the Foreword to Point A (Objectives), and then paragraph by paragraph for the following sections. Each paragraph was discussed.

#### Foreword – Introduction – Objectives – Priorities

15. After a long discussion, a series of suggestions was offered by the participants. The suggested changes were integrated within the revised version of the Action Plan, which appears in Annex IV to this Report.

#### Implementing the Action Plan

16. Most delegates suggested that legal protection be envisaged for only those species about which scientific information on their endangered status at Mediterranean level was available. Another delegate mentioned the need to apply the precautionary principle when quantitative data was lacking, but when a qualitative assessment was, however, available. As regards protection, one delegate expressed doubts about the opportuneness of using the available legal instruments for the protection of certain species. The IUCN representative commented that according to the 2000 IUCN Red List, sawfishes were critically endangered and sand tiger sharks had preliminary been assessed as threatened species in the Mediterranean.
17. A host of suggestions and observations to improve the paragraphs of this section were suggested and debated by the participants. It was proposed that certain paragraphs be split and new paragraphs inserted. All the changes were integrated into the version of the Action Plan which appears in Annex IV to this Report.
18. As regards fishing activities, several delegates stressed the importance of coordinating with the concerned international organisations.

#### Participating in implementation – Title of Action Plan Partner – Assessment of the implementation and revision of the Action Plan

19. After the discussion of this point, suggestions were made by the Meeting. The suggested changes were integrated within Annex IV to this Report.

#### Implementation timetable

20. In the light of a long discussion, a revision of the timetable (fusion of certain actions, adding of others, and revision of deadlines and responsibilities) was requested by the participants. The revised version is appended to Annex IV to the present Report.
21. Following a request made by several delegates, the Secretariat informed the Meeting about certain one-off, limited funding possibilities; requests for funding some operations, which would be carried out as part of implementing the Action Plan, must be handed in by the Focal Points.

**Agenda item 7 - Adoption of the Report of the Meeting**

22. The amended Report was adopted by the Meeting.

**Agenda item 8 - Closure of the Meeting**

23. After the customary exchange of courtesies, the Chairman pronounced the Meeting closed at 7 p.m. on Saturday, 12 October 2002.

**ANNEX I**  
**LIST OF PARTICIPANTS**

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**LISTE DES PARTICIPANTS**

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**ANNEX II  
AGENDA**

## AGENDA

- |                       |  |
|-----------------------|--|
| <u>Agenda item 1.</u> | Opening of the Meeting   |
| <u>Agenda item 2.</u> | Rules of procedure   |
| <u>Agenda item 3.</u> | Election of officers   |
| <u>Agenda item 4.</u> | Adoption of the Agenda and organisation of work  |
| <u>Agenda item 5.</u> | The Mediterranean species of cartilaginous fish: status and priorities for conservation. |
| <u>Agenda item 6.</u> | Draft Action Plan for the conservation of Mediterranean species of cartilaginous fish    |
| <u>Agenda item 7.</u> | Adoption of the report of the Meeting  |
| <u>Agenda item 8.</u> | Closure of the Meeting   |

**ANNEX III**  
**INPUTS FROM PARTICIPANTS**

## ALBANIA

### The exploitation of chondrichthyans in Albania

The Republic of Albania is located in the Southern Europe on the eastern coast of the Adriatic and Ionian Sea, opposite Italy.

Republic of Albania has sip. 28000 km<sup>2</sup> and population around 3.3 millions habitants.

The fishery sector has an important place in our national economy.

Fishery sector in Albania could be classified in these main activities

- Fishing in the Sea
- Fishing in the coastal lagoons and inland waters
- Aquaculture
- Fish processing industry and marketing of fish products.

The total length of coastline is about 430 km, the national waters and fishing areas confiend to territorial waters of 12 miles width.

The actually the fishing fleet is 195 vessels with engine power capacity ranging among 80-400Hp

The fishing activities in marine fish concentrated in four ports: Durres, Vlore, Shengjin, Sarande.

These vessels use following fishing methods: trawls, purse and purse seiners.

The cartilaginous fish at our country take small place in the total catch, as well as the total of each year are shown on Figure 1.

The main species identified are:

#### **SHARKS**

##### **TRIAKIDAE** Hound sharks

Mustelus-mustelus smothhound, Mustelus asterias – starry smothhound.

##### **SCYLORHINIDAE**

Scyliorhinus canicula dogfish, Scyliorhinus stellaris nursehound

##### **SQUATINIDAE**

Squatina aculeata Sawback angelshark, Squatina oculata Smothback, Squatina squatina- Angelshark

##### **SQUALIDAE**

Squalus acanthias piced dogfish, Squalus blainvillei Longnose sprudog

## **CARCHARHINIDAE**

*Carcharhinus plumbeus* Sandbar shark, *Prionace glauca* Blueshark

## **BATOIDS ( Skates& Rays)**

### **RHINOBATIDAE**

*Rhinobatos rhinobatos* Common guitarfish

### **TORPEDINIDAE**

*Torpedo nobiliana* Great torpedo, *Torpedo marmorata* Spotted torpedo.

### **RAJIDAE**

*Raja clavata* Thornback skate, *Raja asterias* Atlantic starry skate

### **DASYATIDAE**

*Dasyatis centroura* Roughtail stingray, *Dasyatis pastinaca* Common stingray

### **MYLIOBATIDAE**

*Myliobatis aquila* Common eagle ray

### **MOBULIDAE**

*Mobula mobular* Giant devilray.

## **CHIMAEROIDS**

### **CHIMAERIDAE**

*Chimaera monstrosa* Rabbitfish

The total chondrichthyan catch of the Albanian fishery is given on table1 for the years 1970 to 2000. These quantities range from 52 kv-5709kv years 1989. This quantity represents about 1.3% of the total catch of the Albanian fishery.

Sharks, skates and rays have a very low wholesale price in the fishmarkets of Albania. For the protection of these species we have taken measures in our legislation, through sublegal acts, where are foreseen the minimum size.

The minimal dimensions for species are: *Mustelus* spp, *Raja* spp *Torpedo* spp, 30cm  
*Squalus* spp, *Scyliorhinus* spp, *Prionace* spp, *Squatina* spp 40cm

The minimal dimensions of fishing nets are:

Trawling gear (in a sack) 40mm

However, we think this is not sufficient. We think in elaborating this action plan it will be important, protection of habitat, over the maintenance of the species and also management for sustainable use.

At this aspect we are very interested and we welcome every action plan in this direction.

<b>TABELA 1</b>	
<b><i>Vitet</i></b>	<b><i>Sasia(kv)</i></b>
1970	919
1971	635
1972	188
1973	752
1974	808
1975	742
1976	907
1977	822
1978	1063
1979	837
1980	2603
1981	3638
1982	3156
1983	2709
1984	1793
1985	1412
1986	785
1987	426
1988	421
1989	5709
1990	667
1991	822
1992	514
1993	
1994	52
1995	212
1996	790
1997	390
1998	98
1999	89.5
2000	97



## CROATIA

### STATUS OF CARTILAGINOUS FISH IN THE EASTERN ADRIATIC (CROATIA)

Alen Soldo

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54 different cartilaginous species were reported in the Adriatic, so far. Within this number, 29 species are sharks, 24 belong to batoids (skates and rays) and 1 to chimaeroids. Some of those species are constantly present in the Adriatic, while some are reported only occasionally.

There are no direct sharks fisheries in the eastern Adriatic, except fishing of various small demersal chondrichthyans with certain type of gillnet. Lately, even those gillnets are intended for cartilaginous fish, they are mostly used for fishing of lobsters and scorpaenid fish. In accordance with fisheries legislation, shark catches and bycatch are not reported.

Current Croatian legislation doesn't have any regulations considering sharks, except of minimum landing size for piked dogfish, *Squalus acanthias*. Hence, there is no kind of shark management in the Eastern Adriatic.

Since 1999 monitoring of large sharks in the Adriatic was started and conducted by members of Institute of Oceanography and Fisheries. Monitoring was based on voluntary collaboration of marine scientists, fisherman, journalists, marine police, harbour offices, private citizens etc. Collected records illustrate status of six large sharks in the Adriatic since 19<sup>th</sup> century.

#### **Great white shark, *Carcharodon carcharias*:**

Since 1868. a total of 61 records on occurrence of the great white shark in the Eastern Adriatic have been collected. The records show a distribution of the great white throughout whole eastern coast of Adriatic, but mainly in the Northern Adriatic, especially in the area of Kvarner Bay and adjacent islands. Higher number of records has been reported in last third of the 19<sup>th</sup> century then in whole 20<sup>th</sup> century (32 records against 29).

Last record was reported in 1974 and since then there were no more records of the great white shark in the Eastern Adriatic.

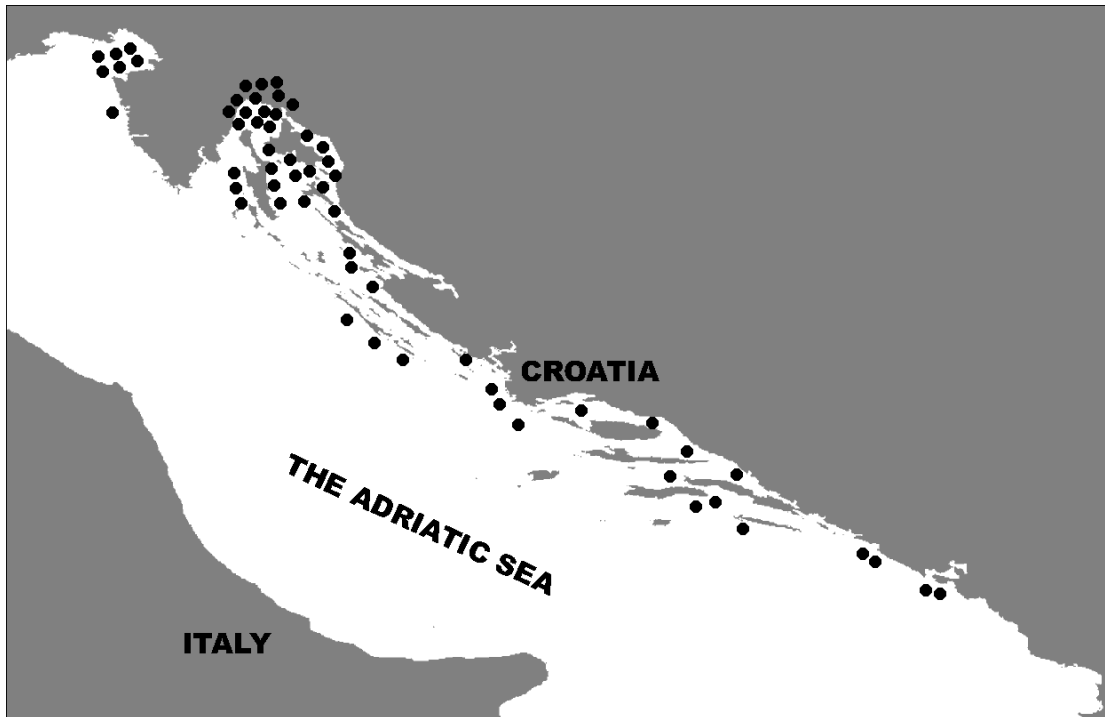


Figure 1: Distribution of records of great white shark (·) in the Eastern Adriatic

### **Shortfin mako, *Isurus oxyrinchus***

Records of shortfin mako shark have been reported 48 times, with total of 51 reported specimens. Decline in number of records during 20<sup>th</sup> century is even more significant than in case of the great white shark (43 of 48 records are reported during 19<sup>th</sup> century). Many authors have reported a presence of shortfin mako in waters of the Eastern Adriatic and even considered shortfin mako as a most common species in the Eastern Adriatic during 19<sup>th</sup> century. Last record of shortfin mako was reported in 1972.

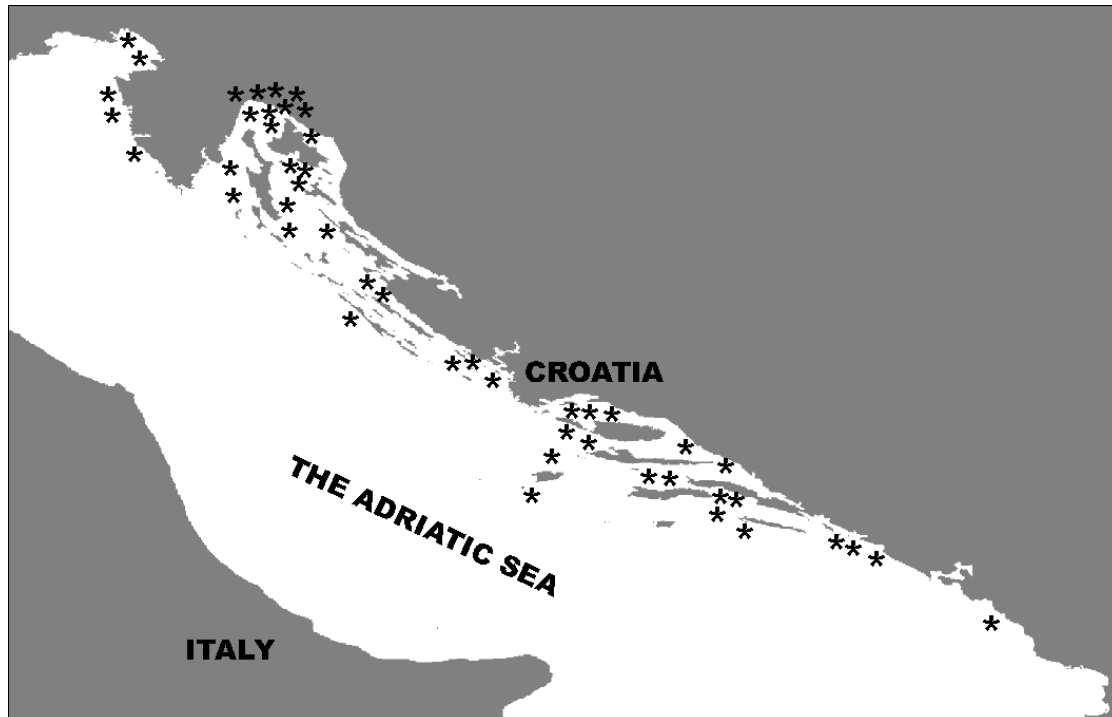


Figure 2: Distribution of records of shortfin mako (\*) in the Eastern Adriatic.

#### **Porbeagle, *Lamna nasus*:**

Presence of the porbeagle shark in the Eastern Adriatic has been reported 9 times, most of them in 20<sup>th</sup> century. All records were reported in open waters of the Adriatic. Records prove the general opinion of marine biologist that porbeagle is rare species for the Adriatic.

#### **Hammerheads, *Sphyrna sp.*:**

The 16 records of the smooth hammerhead, *Sphyrna zygaena*, have been collected for the area of Eastern Adriatic. 10 records have been reported during 19<sup>th</sup> century, while in 20<sup>th</sup> century only 6. Recent publications considered smooth hammerhead as a rare species in the Adriatic.

*Sphyrna tudes*, small eye hammerhead, is the most questionable shark species in the Adriatic. Only 2 records, both from 19<sup>th</sup> century, have been reported in the Eastern Adriatic when several young specimens of small eye hammerhead were determined and reported. All succeeding lists of the Adriatic sharks, where *Sphyrna tudes* was listed, are based on that report. Considering that it is very easy to identify a family of Sphyrnidae, but identification of exact species within that family is often difficult, it is possible that within records of *Sphyrna zygaena*, there are some records of *Sphyrna tudes*, or even some

other hammerhead species, but their occurrence in the Adriatic would need a new and better conformation.

### **Basking shark, *Cetorhinus maximus*:**

In the period 19<sup>th</sup> century – 2000, 27 records of the basking shark have been collected in the Eastern Adriatic, which prove an opinion that basking shark is a relatively rare but constant species in the Adriatic. Records are distributed throughout whole Eastern Adriatic, with highest number of records in the Northern Adriatic. Although, the records are reported during a whole year, the highest occurrence of the basking shark has been reported from springtime until autumn, what is in relation with higher abundance of zooplankton in the Adriatic.

Most of the records have been reported during the 20<sup>th</sup> century (23 records against 4 records during 19<sup>th</sup> century). Since 2000 high increasement of records in the Eastern Adriatic have been reported (21 new record in whole Adriatic), which could have relations with zooplankton migrations and abundance, but that would need more thorough investigation.

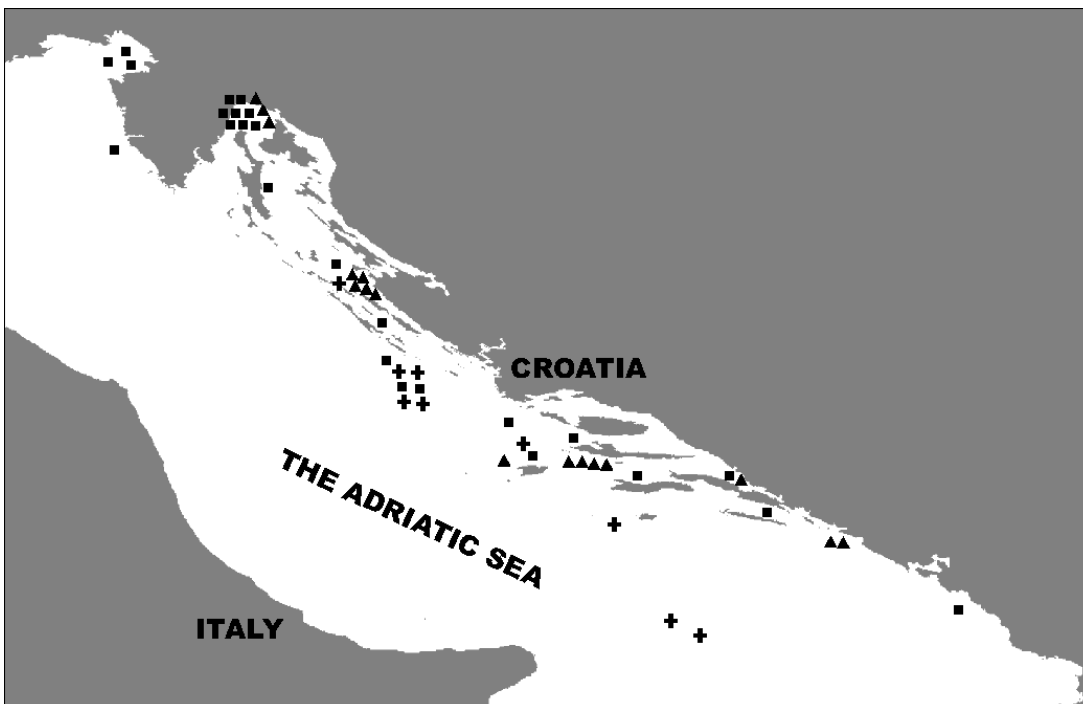


Figure 3: Distribution of records of porbeagle (+), smooth hammerhead (.) and basking shark (▲) in the Eastern Adriatic.

Comparison of catches of chondrichthyan fishes caught during trawling from “Hvar expedition” 1948-49 and “MEDITS” program 1997-98 shows considerable decline for 26

species (Fig.4). Evidently, abundance ( $\text{kg}/\text{km}^2$ ) of those species after 50 years is decreased, while their distribution area is considerably smaller then before. Extracted data for thornback ray, *Raja clavata*, are even more significant (Fig.5). From species with high abundance and widespread distribution throughout whole Adriatic, thornback ray was restricted to small limited area with low abundance.

Presented results illustrate considerable decline of investigated chondrichthyan fishes. Unfortunately, for major number of chondrichthyan data are still insufficient. Therefore, more thorough investigations on chondrichthyan biology and ecology are necessary in order to comprehend their role and status in marine ecosystem. Accomplishing of these objectives would result with possibility for implementation of rational chondrichthyan management plan, not only in the Eastern, but also in whole Adriatic, which would prevent overexploitation and extinction of chondrichthyan fishes and preserve their variety and important role in the Adriatic.

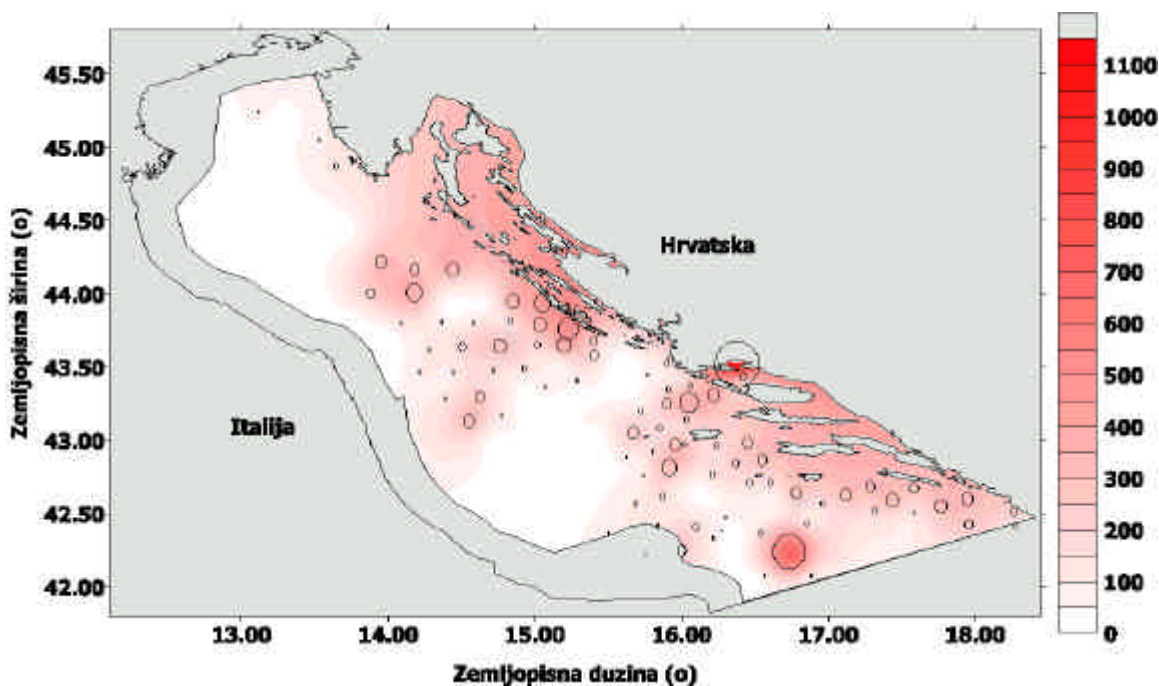


Figure 4: Abundance of cartilaginous fish (kg/km<sup>2</sup>) during Hvar expedition, 1948-49 (up) and MEDITS research program, 1997-98 (down).

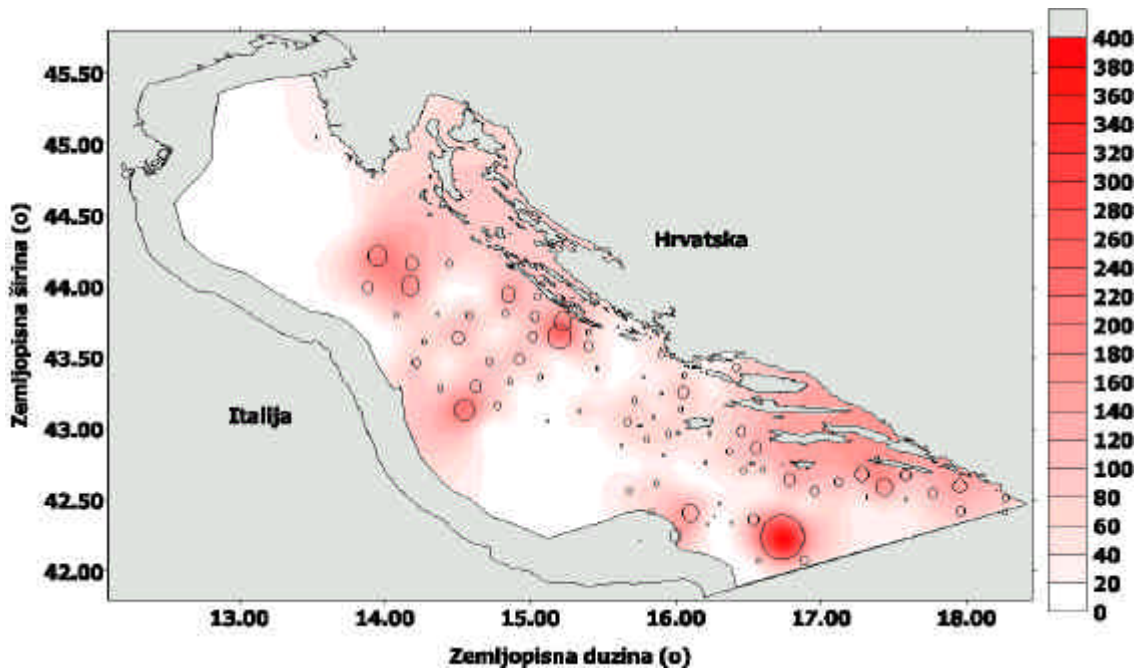
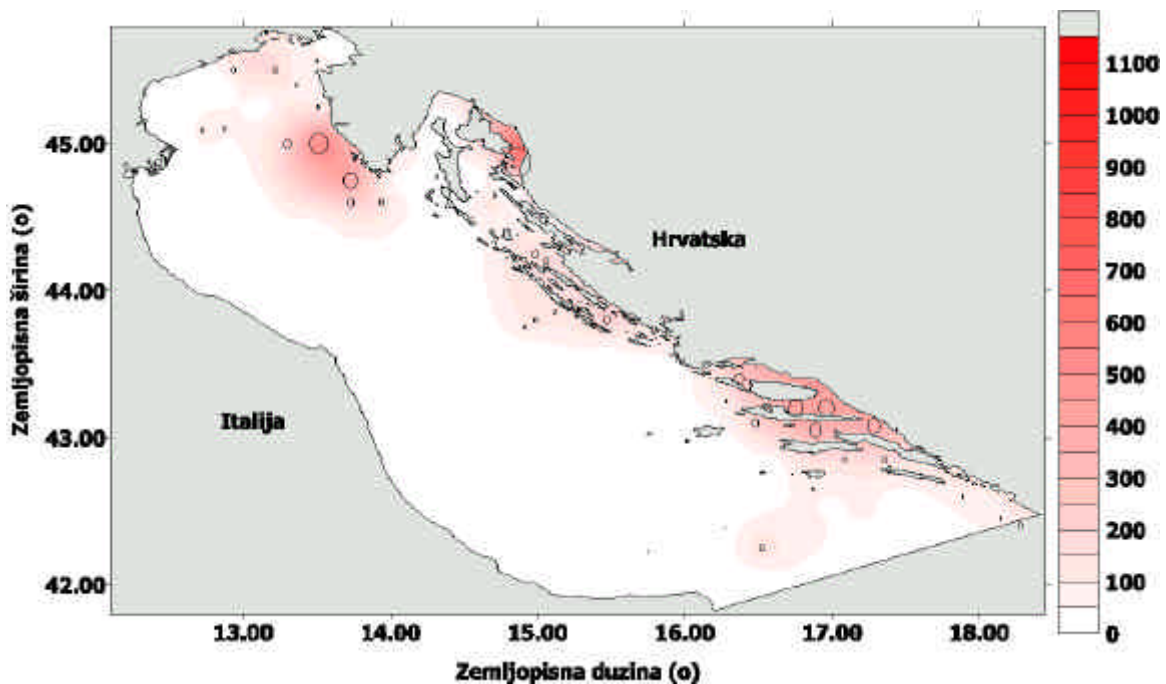


Figure 5: Abundance of thornback ray, *Raja clavata* (kg/km<sup>2</sup>) during Hvar expedition, 1948-49 (up) and MEDITS research program, 1997-98 (down).



## GREECE

### The status of cartilaginous fish in Greece

**Mary Labropoulou**

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In the Greek waters, 62 species of elasmobranchs have been listed within 447 fish species (Papakonstantinou 1988). The contribution of elasmobranchs in commercial fisheries is low, since there is no fishery targeting directly to these species, but they are caught as by-catch in longlines, bottom trawl fisheries and other nets.

According to the official Greek fisheries statistics, the contribution of elasmobranchs to the total landings is not very high, as follows:

Species	1997*	1998*	1999*
Thornback ray	615.4 (0.40%)	461.8 (0.40%)	436.6 (0.37 %)
Black-mouthed godfish	490.6 (0.33%)	341.2 (0.34%)	552.5 (0.49%)
Rassa	275.1 (0.18%)	275.4 (0.24%)	280.8 (0.24%)
Guitarfish	62.4 (0.04%)	88.3 (0.07%)	72.5 (0.06%)
Dog fish	239.0 (0.15%)	319.1 (0.28%)	258.4 (0.22%)
Total elasmobranchs	1682.5 (1.1%)	1485.8 (1.33%)	1600.8 (1.38%)
Total landings	147737.5	106984.6	109558.4
<b>Fishing gears</b>			
Trawl nets	950.3	879.1	918.9
Ring nets	116.9	53.0	160.0
Seine nets	87.4	65.2	68.4
Others	527.9	488.5	453.5

\* Quantities in metric tones, numbers in parentheses: % contribution to the total landings

Official statistics, though, are neither full nor accurate and so they're not always reliable. According to the cases, underestimation of the catches is detected, as well as overestimation of some products. Regarding the small-scale fishery, data available in the national administrations are generally quite incomplete. Another problem is the fact that in most cases cartilaginous fish catches are not separated into species, but in broader groups which includes many species, as indicated in the above mentioned table.

Data on bathymetric distribution, species composition and abundance of elasmobranchs for the Greek waters have been collected from 1994 to 2001, during the MEDITS project (EU, DGXIV). However, most of the species caught during the surveys are typical demersal, living over sandy and muddy bottoms at depths between 10 to 800 m (Bertrand et al. 2000). Furthermore, discarding and landing data of bottom trawl fishery, including elasmobranchs have been collected in the framework of DISCARD project (EU, DGXIV), from 1995-1998 (Machias et al. 2001). Moreover, there are also information on elasmobranchs from other national and EU funded projects, undertaken in Greek waters, but in any case the number of projects targeting only to elasmobranchs is rather limited.

The fisheries legislation in Greece contains a great variety of conservation/management measures, which can be broadly separated into two major categories: those aiming to keep the fishing effort under control and those aiming to make the exploitation patterns more rational (Papaconstantinou and Farrugio 2000). The first set of measures is based on restrictions imposed on the number or fishing capacity of the vessels, rather than on catch limits and control of discards and by-catches. Among these, some aim at preventing the expansion of the number of fishing vessels through a licensing system, and can be characterized as direct, while other measures aim at placing upper limits on the fishing capacity of individual vessels, through engine power and tonnage limitations, and can be characterized as indirect.

The second set of measures is based on provisions concerning gear specification, gear deployment, fishing practices or techniques, closed fishing seasons and areas and resource exploitation patterns, which are commonly known as technical measures. Apart from these, the regulations of the EU Common Fishery Policy have been also incorporated into the national laws. However, no specific management measures have been forced up to now concerning exclusively the elasmobranch fish species.



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## CYPRUS

# THE EXPLOITATION OF CHONDRICHTHYANS IN CYPRUS

Nicos Hadjistephanou and Demetris Konteatis

### 1. The Chondrichthyan species caught in Cyprus

The chondrichthyan fishes are caught by almost all kinds of fishing methods in Cyprus, i.e the trawl, the inshore and the swordfish fishery. As it happens with most Mediterranean fisheries, the Cyprus fishery is not directed at chondrichthyans. Especially the majority of sharks are caught incidentally by the mentioned fishing gear.

Although some identification was tried, more systematic work has to be done. The species identified are:

#### a. Sharks

*Sphyrna zygaena* - smooth hammerhead shark

*Carcharodon carharias* - great white shark

*Squalus acanthias* - piced dogfish

*Alopias vulpinus* - thresher shark

*Prionace glauca* - blue shark

*Scyliorhinus canicula* - dogfish

*Scyliorhinus stellaris* - nursehound

*Galeus melastomus* - black-mouthed dogfish

*Mustelus asterias* - starry smooth-hound shark.

Other reported species, occasionally or rarely caught are:

*Squatina squatina* - angel shark

*Hexanchus griseus* - six-gill shark

*Heptranchias perlo* - seven-gilled shark

*Isurus oxyrinchus* - mako shark

*Mustelus mustelus* - smoothhound

*Odontaspis ferox* - ragged-tooth shark

*Eugomhodus taurus* - sand shark

*Lamna nasus* - porbeagle

b. Skates and Rays

The common species of Ray caught in Cyprus are:

*Raja clavata* - thornback ray

*Dasyatis pastinaca* - stingray

Occasionally the following species are caught:

*Rhinobatos rhinobatos* - common guitarfish

*Torpedo marmorata* - marbled electric ray

*Torpedo nobiliana* - dark electric ray

*Raja radula* - rough ray

*Raja miraletus* - brown ray

*Raja asterias* - Mediterranean starry ray

*Raja oxyrhynchus* - long-nosed skate

*Dasyatis violacea* - pelagic stingray

*Gymnura altavela* - spiny butterfly ray

*Pteromylaeus bovinus* - bull ray

*Mobula mobular* - devilfish

## 2. Quantities of chondrichthyans caught in Cyprus

### a. Catch of the Trawl and Inshore Fishery

Chondrichthyans are caught by stationary nets or trawl nets. Their number is rather insignificant in the by catch.

Trawl fishery takes place within the territorial waters of Cyprus, as well as within the international waters, mainly in the eastern and southern Mediterranean. The fishing grounds of the catches are distinguished by the trawlers' reports to "Cyprus waters" and "International waters".

Both trawl and inshore fishery report their cartilaginous fish catch in the general category of "Sharks and Rays". An effort to separate the various chondrichthyan groups started last year, when the fishermen were provided with new logbook sheets. This will enable the Department of Fisheries and Marine Research to estimate the proportions of each group within the reported catch.

The quantities of "Sharks and Rays" caught by the trawl and by the inshore fishery from 1975 to 2000 are given on Table 1. Total quantities range from 3.8 tons (1999) to almost 162 tons (1989) per year. However the catch ranges from about 12 to 24 tons in a normal year.

### **b. Swordfish fishery**

Sharks are quite often caught by the swordfish surface drifting long-lines. These sharks were categorized as "by catch" together with the other large pelagics of the swordfish fishery. In 1998 the sharks started being reported in a separate category of the logbooks.

The shark species predominate among the other large pelagics, representing a mean of 75.1% of the by catch (range 56.7% to 100%). However, their quantities are rather small in comparison to the total swordfish catch, representing a mean of 11.22% (range 6.8 to 16.0%).

The quantities of sharks caught by the swordfish fishery of Cyprus from 1976 to 2001 are given on Table 2. These quantities range from 3.9 tons (1983) to 33.9 tons (1990). The catch ranges from about 7 to 16 tons in a normal year. It must be pointed out, however, that the figures on Table 2 were derived by estimation and they may be far from the actual catch. One of the reasons, according to Economou and Konteatis (1993), is that the fishermen prefer to cut the sharks loose or leave them dead in the open sea, instead of landing and selling them to the fishmongers, because of the low market prices they offer.

### **c. Total Chondrichyan catch**

The total chondrichthyan catch of the Cyprus fishery is given on Table 3 for the years 1976 to 2000. These quantities range from 15.5 tons (1999) to 180.6 tons (1989). However, excluding the extreme catches, the quantities of the chondrichthyans caught in a normal year average 30 tons. This quantity represents about 1,4% of the total catch of the Cyprus fishery.

The quantities of chondrichthyans caught by the trawl, the inshore, the swordfish fishery, as well as the total of each year are shown on Figure 1.

### **3. Marketing of Chondrichthyans**

Sharks, skates and rays have a very low wholesale price in the fishmarkets of Cyprus. Fishmongers often refuse to buy these species; the fish in Cyprus is mostly marketed fresh and the cartilaginous flesh deteriorates quickly if kept outside the refrigerator even for a short period of time. For this reason sometimes fishermen try to sell their catch by themselves, offering it to the consumers in prices lower than the prices of the fishmarkets.

The wholesale price for sharks is about 2,5€ dressed weight (headed, gutted, finned). The same price is given to skates and rays, but they attain a slightly higher retail price in the market. It is worth mentioning for comparison that the wholesale price of the swordfish is 6,4€ and for *Mullus surmuletus*, 14,5€. Although these species have such a low price, the consumers are not interested in buying them, mostly because they do not appreciate their taste.

### **4. The Cyprus policy on the Chondrichthyans**

Cyprus has always included the chondrichthyan groups in the statistics, and followed their catch. The recent years the various cartilaginous groups have been separated in the statistics, as special attention is given to them. The conservation of the Mediterranean species of cartilaginous fish falls within the targets of Cyprus.

**Table 1:** The quantities of “Sharks and Rays” caught by the Cyprus trawl inshore fishery in kg.

YEAR	TRAWL FISHERY			INSHORE FISHERY	TOTAL
	CYPRUS WATERS	INTERNATIONAL WATERS	TOTAL		
1975	4300	1320	5620	14410	20030
1976	4700	220	4920	7280	12200
1977	6180	420	6600	14320	20990
1978	3070	0	3070	13210	16280
1979	860	0	860	10880	11740
1980	1840	0	1840	17290	19130
1981	170	280	450	17330	17780
1982	120	2430	2550	16080	18630
1983	350	1410	1760	13020	14780
1984	385	0	385	17665	18050
1985	10560	360	10920	44160	55080
1986	320	1080	1400	136255	137655
1987	1900	440	2340	30610	32950
1988	1380	1520	2900	88820	91720
1989	2080	4200	6280	155750	161750
1990	1290	1390	2680	8190	10870
1991	450	570	1020	6220	7240
1992	10130	60	10190	13450	23640
1993	4910	460	5370	25040	30410
1994	680	2220	2900	15710	18610
1995	1120	1490	2610	18380	20990
1996	250	510	760	13160	13920
1997	670	1350	2020	15410	17430
1998	270	280	550	9520	10070
1999	290	870	1160	2650	3810
2000	0	610	610	13190	13800

**Table 2:** The quantities of Sharks caught by the swordfish fishery of Cyprus.

<b>YEAR</b>	<b>WEIGHT</b> <b>kg</b>
1976	10495
1977	15573
1978	7366
1979	7315
1980	6573
1981	8489
1982	17498
1983	3932
1984	9329
1985	5916
1986	12072
1987	16892
1988	18318
1989	18832
1990	33850
1991	13306
1992	9742
1999	15507
1994	24556
1995	13687
1996	8404
1997	8006
1998	10606
1999	11644
2000	8848
2001	8070

**Table 3:** Total chondrichthyan catch of the Cyprus fishery.

YEAR	WEIGHT
	tons
1976	22,7
1977	36,6
1978	23,6
1979	19,1
1980	25,7
1981	26,3
1982	36,1
1983	18,7
1984	27,4
1985	61,0
1986	149,7
1987	49,8
1988	110,0
1989	180,6
1990	44,7
1991	20,5
1992	33,4
1993	45,9
1994	43,2
1995	34,7
1996	22,3
1997	25,4
1998	20,7
1999	15,5
2000	22,6



## IUCN - SHARK Specialist Group (SSG)

### **The IUCN Red List Programme and the status of Mediterranean cartilaginous fish**

#### **What is the Red List?**

The IUCN Red List is the world's most comprehensive inventory of the global conservation status of plant and animal species. It uses standardised criteria to evaluate the extinction risk to thousands of species and subspecies. The Red List is recognized as the most authoritative guide to the status of biological diversity. Its overall aim is to convey the urgency and scale of conservation problems to the public and policy makers, and to motivate the global community to try to reduce species extinctions. Red List assessments have no legal status, but are often used by governments and management bodies to set priorities for conservation action.

#### **Some uses of the Red List**

- Identifies and documents those species most in need of conservation action
- Establishes a baseline from which to monitor the future status of species
- Provides information to help establish regional and local conservation priorities and guide conservation action
- Helps influence national and international policy, and provides information to international agreements

#### **Cartilaginous fishes and the Red List**

To date, the IUCN Shark Specialist Group (SSG) has assessed the threatened species status of over 100 sharks, rays and chimaeras (the cartilaginous fishes) for the Red List. These assessments can be found on <http://www.redlist.org>. In order to assess all 1,000+ species, the SSG is focusing on regions of the world in turn, beginning with the

Mediterranean, where it is hoped that RL assessments will be able to contribute to the development of the UNEP Mediterranean Action Plan for cartilaginous fish. RL assessments will enable species of particular conservation concern to be highlighted, and

help to inform the development of priorities for action for their research, conservation and management.

Table 1. Existing *global* RL assessments for cartilaginous fishes known to occur in the Mediterranean

<b>RL Category</b>	<b>No. of species</b>
Critically Endangered (CR)	1
Endangered (EN)	3
Vulnerable (VU)	7
Lower Risk (LR)	17
Data Deficient (DD)	4
Not Evaluated (NE)	56

#### Regional Red List Assessments: Cartilaginous fishes in the Mediterranean Sea

In September 2002, the SSG held a short meeting during the international NAFO symposium "Elasmobranch fisheries: managing for sustainable use and biodiversity conservation" (Santiago de Compostela, Spain). This meeting, attended by about 50 experts (including non-SSG members), initiated a process of drafting assessments of the Red List status of Mediterranean sharks.

Preliminary discussions during this meeting indicate it is highly likely that many of the species will be confirmed as being 'Data Deficient' (DD – inadequate information to assess extinction risk). This assessment does not mean that these taxa are not of conservation concern – indeed in many cases the lack of knowledge of their distribution and/or population may be because of their rarity. Rather, it highlights the lack of scientific and fisheries research that could provide data on these poorly known fishes. The SSG has now launched an initiative to create a Mediterranean regional subgroup to help address these information needs.

Table 2. Preliminary regional RL assessments for cartilaginous fishes in the Mediterranean.

(NB: none are official at this stage\*).

<b>RL Category</b>	<b>No. of species</b>
Critically Endangered (CR)	5 (2 may even be regionally extinct)
Endangered (EN)	13 (in Italian seas, elsewhere

	possibly DD)
Vulnerable (VU)	30 (in Italian seas, elsewhere possibly DD)
Lower Risk (LR)	10 (in Italian seas, elsewhere possibly DD)
Data Deficient (DD)	20
Not Applicable (NA)	10
Not Evaluated (NE)	All*

## Conclusion

The biological vulnerability of the cartilaginous fishes is now widely acknowledged. Concerns over their status have led to the establishment of the IUCN Shark Specialist Group, the adoption of a Resolution and several Decisions of Parties to the Convention on International Trade in Endangered Species (CITES), the development of the FAO International Plan of Action for the Conservation and Management of Sharks (IPOA-Sharks), the listing of some species under the Barcelona, Bern and Bonn Conventions and national legislation and, most recently, to the preparation of a draft Action Plan for the conservation of cartilaginous fish in the Mediterranean Sea.

The elaboration of this Action Plan for the Conservation of Cartilaginous Fish is particularly important in that it represents the first regional contribution to the FAO IPOA-Sharks known to the SSG; this ground-breaking initiative of UNEP's Mediterranean Action Plan is most welcome.

Initial efforts to produce Red List Assessments for Mediterranean cartilaginous fish species have, however, confirmed that there is a significant lack of information on the status of most species. There is an urgent need, through the Mediterranean Action Plan,

to promote and encourage research on this group in order to provide a clear and reliable assessment of the status of their stocks (including the establishment of a baseline from which to monitor future progress with conservation and management under MAP), to identify stocks and species that are most in need of conservation and management action, and hence to guide future management priorities.

Finally, despite frequent reference to the limitations of available data, enough is known about shark biology and the dynamics of shark fisheries to begin implementing basic management measures wherever these fisheries exist. That is, lack of data must not be used to justify lack of management. Increased human-induced pressures are rapidly intensifying the risk of shark population collapse, species endangerment and even extinction. Increased commitment to shark research, management and conservation at the national, regional and international levels is crucial to the future viability of these exceptionally vulnerable animals (Camhi *et al*, 1998).

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## LEBANON

### Lebanon Presentation

The Lebanese coastline is about 220 km long stretching along a north-south axis in the eastern Mediterranean. It is characterized by its narrow continental shelf and a straight coastline extending along the Mediterranean Sea.

The Lebanese fishery is artisanal or traditional. Trawling is prohibited by law while the most commonly used gear includes trammels and long-lines, roudhaul nets and beach seines. Nevertheless, fishing nets with illegal mesh sizes are widely available on the black market increasing the by-catch of non-target species and most probably leading to negative impacts on recruitment rates. According to the Ministry of Agriculture (the body responsible for the management of fisheries), Lebanese fishermen harvest a total of 8000 metric tons of seafood products per year while the country imports approximately 15000 metric tons per year.

The past four years have experienced a serious shift towards conservation on every scale, including the marine environment, mostly through the efforts of the Ministry of Environment. Efforts in this regard have led to the declaration of two coastal marine nature reserves by law: the “Palm Islands Nature Reserve” in the North of the country and the “Tyre Coast Nature Reserve” in the South as well as four RAMSAR sites with three coastal. The management of protected areas in Lebanon fall under the jurisdiction of the Ministry of Environment. To the benefit of the conservation of our marine species, collaboration between the Ministry of Environment and the Ministry of Agriculture is growing in the arena of the management of fisheries resources. To date though, no data is available to show whether the protected areas are used as nursery grounds for chondrichthyans or any other fish.

In terms of sharks, they are not in demand on the fish market. Fishermen perceive chondrichthyans more as a nuisance and complain that sharks destroy their nets. Catching these fishes is a media event instead of being a financial asset. Sharks in Lebanon appear

to be concentrated off the coast of Beirut in a sea valley aptly named the “Pit of the Dogs” but scientific studies on these animals are mostly lacking.

In conclusion, the Ministry of Environment is looking forward to start the creation of a chondrichthyan database for the coast of Lebanon by participating in RAC/SPA initiatives and by working closely with academic institutions to fill the scientific data gap.

## MAROC

### **L'état des poissons cartilagineux vivants dans les eaux méditerranéennes marocaines**

Le Maroc, par l'étendu de son littoral (3500 km déployés sur une double façade méditerranéenne et atlantique) et la biodiversité de ses ressources marines, possède un véritable potentiel de production halieutique pouvant faire du secteur de la pêche un véritable moteur de développement économique et social.

Au regard, de ces atouts naturels, le Ministère de la pêche Maritime a mené un ensemble d'actions ouvrant la voie à de nouvelles réformes touchant la préservation de la ressource et du milieu marin, l'amélioration des techniques et des conditions de pêche ainsi que la promotion socio-économique des gens de mer.

En effet, la gestion rationnelle de la ressource et son exploitation durable constitue un axe central de la nouvelle politique des pêches en vue d'assurer la viabilité des pêcheries. Cette prise de conscience s'est traduite par la mise en place des plans d'aménagements de certaines pêcheries, maîtrise de l'évolution de l'effort de pêche et la protection de l'environnement marin contre la pollution.

Les ressources biologiques peuplant les eaux marocaines sont diversifiées et se répartissent en trois catégories :

- ✦ Les ressources pélagiques, se composent, principalement, de sardines, maquereaux, anchois, chinchards et thonidés. Ces ressources à forts déplacements et instables, connaissent des fluctuations plus ou moins importantes au niveau de leur abondance et de leur répartition. On distingue quatre pêcheries pélagiques : méditerranéenne, atlantique Nord, atlantique centre et atlantique sud ;
  
- ✦ Les ressources démersales ou de fonds se caractérisent par la diversification des espèces, des engins et moyens utilisés pour leur exploitation. Les principales pêcheries

sont la pêche céphalopodière au sud, la pêche du merlu/crevettes au Nord et la pêche méditerranéenne ;

✦ Les ressources littorales sont composées des algues, corail et coquillages.

Les principaux sites de débarquement des produits de la pêche, sont au nombre de 27 dont 8 basés sur la façade méditerranéenne, en l'occurrence, Ras Kebdana, Nador, Al Hoceima, Cala Iris, Jebha, Oued Laou, Martil, M'diq. La flotte de pêche attachée à ces circonscriptions maritimes est de l'ordre de 2777 barques de la pêche artisanale et de 588 bateaux de la pêche côtière totalisant un TJB de 14 700 tx.

Les statistiques officiels publiés annuellement par le Ministère de la pêche Maritime, ne font pas référence aux débarquements des espèces de chondrictyens qui représentent une pêche accessoire ou accidentelle de la flotte de pêche opérationnelle sur la façade méditerranéenne.

Toutefois, une étude, d'identification des espèces vivantes dans les eaux marocaines, menée sous l'égide de la FAO et par une sommité des experts marocains, a identifié 79 espèces de Chondrictyens dont 47 espèces de requins, 31 espèces de raies et une espèce de chimère (ci-joint la liste exhaustive de ces espèces). Compte tenu des échanges des eaux marocaines méditerranéennes avec celles de l'Atlantique, il est délicat de différencier, en l'absence d'une étude spécialisée, entre les espèces cartilagineuses autochtones des deux étendus maritime.

Par ailleurs, et suite aux constats des missions d'enquêtes sur les lieux de débarquement de la façade méditerranéenne, il est à signaler que les pêcheurs appellent communément les requins débarqués par: "kelb el bahr, requin ou kerch al bahr" et presque toutes les espèces batoides par les raies. Il en découle, et faute d'une

campagne de sensibilisation sur la nomenclature des espèces de chondrictyens, que les statistiques de débarquements de toutes les espèces cartilagineux, fera mention de deux grandes catégories à savoir les requins et les raies.



En effet, ces statistiques ne permettront pas d'atteindre les objectifs escomptés du plan d'action de la sauvegarde des espèces cartilagineux de la Méditerranée notamment l'identification des espèces de chondrichthyens en danger d'extinction et qui appellent des mesures d'urgence de sauvegarde.

**Liste des espèces cartilagineuses vivantes dans les eaux marocaines**

Ordre	Famille	Espèce	Nom vernaculaire français	Nom vernaculaire espagnol	Nom vernaculaire anglais
<b>Requins</b>					
<b>Lamniformes</b>	Alopiidae	<i>Alopias superciliosus</i> (Lowe, 1840)	Renard à gros yeux	Zorro ojon	Bigeye thresher
		<i>Alopias vulpinus</i> (Bonnaterre, 1788)	Renard	Zorro	Thresher shark
	Cetorhinidae	<i>Cetorhinus maximus</i> (Gunnerus, 1765)	Pèlerin	Peregrino	Basking shark
	Lamnidae	<i>Carcharodon carcharias</i> (Linnaeus, 1758)	Grand requin blanc	Jaqueton blanco	Great white shark
		<i>Isurus oxyrinchus</i> (Rafinesque, 1810)	Taupe bleu	Marrajo dientuso	Shortfin mako
		<i>Lamna nasus</i> (Bonnaterre, 1788)	Taupe commune	Marrajo sardinero	Porbeagle
	Odontaspidae	<i>Eugomphodus taurus</i> (Rafinesque, 1810)	Requin-taureau	Pez toro	Sand tiger shark
		<i>Odontaspis ferox</i> (Risso, 1810)	Requin féroce	Solrayo	Smalltooth sand tiger
<b>Carcharhiniformes</b>	Carcharhinidae	<i>Carcharhinus altimus</i> (Springer, 1950)	Requin babosse	Tiburón baboso	Bignose shark
		<i>Carcharhinus brachyurus</i> (gunther, 1870)	Requin cuivre	Tiburón cobrizo	Copper shark
		<i>Carcharhinus brevipinna</i> (Muller & Henle, 1841)	Requin tisserand	Tiburón aleta negra	Spinner shark
		<i>Carcharhinus falciformis</i> (bibron, 1841)	Requin soyeux	Tiburón jaqueton	Silky shark
		<i>Carcharhinus leucas</i> (Valenciennes, 1841)	Requin bouledogue	Tiburón sards	Bull shark
		<i>Carcharhinus limbatus</i> (Valenciennes, 1841)	Requin bordé	Tiburón macuira	Blacktip shark
		<i>Carcharhinus longimanus</i> (Poey, 1861)	Requin océanique	Tiburón oceanico	Oceanic whitetip shark

		<i>Carcharhinus obscurus</i> (LeSueur, 1818)	Requin sombre	Tiburón arenero	Dusky shark
		<i>Carcharhinus plumbeus</i> (Nardo, 1827)	Requin gris	Tiburón trozo	Sanbar shark
		<i>Carcharhinus glauca</i> (Linnaeus, 1758)	Peau bleu	Tiburón azul	Blue shark
		<i>Sphyrna lewini</i>	Requin marteau halicorne	Cornuda comun	Scalloped hammerhead
		<i>Sphyrna mokarran</i> (Ruppell, 1835)	Grand requin- marteau	Cornuda gigante	Great hammerhead
		<i>Sphyrna zygaena</i> (Linnaeus, 1758)	Requin marteau commun	Cornuda cruz	Smooth hammerhead
	Scyliorhinidae	<i>Galeus melastomus</i> (Rafinesque, 1810)	Chien espagnol	Pintarroja bocanegra	Blackmouth catshark
		<i>Scyliorhinus canicula</i> (Linnaeus, 1758)	Petite roussette	Pintarroja	Smallspotted catshark
		<i>Scyliorhinus stellaris</i> (Linnaeus, 1758)	Grande roussette	Alitan	Nursehound
	Triakidae	<i>Galeorhinus galeus</i> (Linnaeus, 1758)	Requin-hâ	Cazon	Tope shark
		<i>Mustelus asterias</i> (Cuvier, 1821)	Emissole tachetée	Musola coronada	Starry smoothhound
		<i>Mustelus mustelus</i> (Linnaeus, 1758)	Emissole lisse	Musola	Smoothhound
		<i>Mustelus punctulatus</i> (Risso, 1826)	Emissole pointillée	Musola punteada	Blackspotted smoothhound
<b>Squaliformes</b>	Centrophoridae	<i>Centrophorus grannulosus</i> (Schneider, 1801)	Squale-chagrin commun	Quelvacho	Gulper shark
		<i>Centrophorus squamosus</i> (Bonnaterre, 1788)	Squale-chagrin	Quelvacho negro	Leafscale gulper shark
		<i>Centrophorus uyato</i> (Rafinesque, 1810)	Petit squale-chagrin	Galludito	Little gulper shark
		<i>Deania calceus</i> (Lowe, 1839)	Squale savante	Tollo pajarito	Birdbeak dogfish
	Dalatiidae	<i>Centroscymnus coelolepis</i> (Bocage & Capello, 1864)	Pailona commun	Pailona	Portuguese dogfish

		<i>Centroscymnus crepidater</i> (Bocage & Capello, 1864)	Pailona à long nez	Sapata negra	Longnose velvet dogfish
		<i>Dalatias licha</i> (Bonaterre, 1788)	Squale liche	Carocho	Kitefin shark
		<i>Etmopterus spinax</i> (Linnaeus, 1758)	Sagre commun	Negrilo	Velvet-belly
		<i>Oxynotus centrina</i>	Centrine commune	Cerdo marino	Angular rough shark
		<i>Scymnodon ringens</i> (Bocage & Capello, 1864)	Squale-grogneur	Bruja	Knifetooth
		<i>Somniosus rostratus</i> (Risso, 1826)	Laimargue de la Méditerranée	Tollo boreal	Little sleeper shark
	Echinorhinidae	<i>Echinorhinus brucus</i> (Bonnaterre, 1788)	Squale bouclé	Tibuton de clavos	Bramble shark
	Squalidae	<i>Squalus acanthias</i> (Linnaeus, 1758)	Aiguillat commun	Mielga	Piked dogfish
		<i>Squalus blainvillei</i> (Risso, 1826)	Aiguillat-coq	Galludo	Longnose spurdog
<b>Hexanchinoformes</b>	Hexanchidae	<i>Heptranchias perlo</i> (Bonnaterre, 1788)	Requin perlon	Canabota boquidulce	Sharpnose sevengill shark
		<i>Hexanchus griseus</i> (Bonnaterre, 1788)	Requin-griset	Canabota gris	Bluntnose sixgill shark
<b>Squatiniformes</b>	Squatinae	<i>Squatina aculeata</i> (Cuvier, 1829)	Ange de mer	Angelote espinoso	Sawback
		<i>Squatina oculata</i> (Bonaparte, 1840)	Ange de mer ocellé	Pez angel	Smoothback angelshark
		<i>Squatina squatina</i> (Linnaeus, 1758)	Ange de mer commun	Angeloto	Angelshark
<b>Poissons Batoides</b>					
<b>Rajiformes</b>	Dasytidae	<i>Dasyatis centroura</i> (Mitchill, 1815)	Pastenague épineuse	Raya latigo	Roughtail stingray
		<i>Dasyatis pastinaca</i> (Linnaeus, 1758)	Pastenague commune	Raya latigo comun	Common stingray
		<i>Dasyatis violacea</i> (Bonaparte, 1832)	Pastenague violette	Raya latigo violeta	Blue stingray
	Gymnuridae	<i>Gymnura altavela</i> (Linnaeus, 1758)	Raie-papillon épineuse	Raya mariposa	Spiny butterfly
	Myliobatidae	<i>Mobula mobular</i>	Mante	Manta	Devil ray

		(Bonnaterre, 1788)	méditerranéenne		
		<i>Myliobatis aquila</i> (Linnaeus, 1758)	Aigle commun	Aguila marina	Commun eagle ray
		<i>Pteromylaeus bovinus</i> (E.Geoffroy St-Hilaire, 1817)	Aigle	Chucho vaca	Bullray
		<i>Rhinoptera marginata</i> (E.Geoffroy St-Hilaire, 1817)	Mourine échanquée	Arzobispo	Lusitanian cownose ray
	Pristidae	<i>Pristis pectinata</i> (Latham, 1794)	Poisson-scie commun	Pez sierra comun	common sawfish
		<i>Pristis pristis</i> (Linnaeus, 1758)	Poisson-scie tident	Pejepeine	Smalltooth sawfish
	Rajidae	<i>Raja</i> (Dipturus) <i>batis</i> (Linnaeus, 1758)	Pocheteau gris	Noriega	Skate
		<i>Raja</i> (Dipturus) <i>oxyrinchus</i> (Linnaeus, 1758)	Pocheteau noir	Picon	Longnosed skate
		<i>Raja</i> (Leucoraja) <i>circularis</i> (Couch, 1838)	Raie circulaire	Raya falsa vela	Sandy ray
		<i>Raja</i> (Leucoraja) <i>fullonica</i> (Linnaeus, 1758)	Raie-chardon	Raya cardadora	Shagreen ray
		<i>Raja</i> (Leucoraja) <i>naevus</i> (Muller & Henle, 1841)	Raie fleurie	Raya santiaguesa	Cuckoo ray
		<i>Raja</i> (Raja) <i>asterias</i> (Delaroche, 1809)	Raie étoilée	Raya estrellada	Starry ray
		<i>Raja</i> (Raja) <i>brachyura</i> (Lafont, 1873)	Raie lisse	Raya boca de rosa	Blonde ray
		<i>Raja</i> (Raja) <i>clavata</i> (Linnaeus, 1758)	Raie bouclée	Raya de clavos	Thornback ray
		<i>Raja</i> (Raja) <i>microocellata</i> (Montagu, 1818)	Raie mêlée	Raya colorada	Small-eyed ray
		<i>Raja</i> (Raja) <i>miraletus</i>	Raie-miroir	Raya de espejos	Brown ray

		(Linnaeus, 1758)			
		<i>Raja</i> ( <i>Raja</i> ) <i>montagui</i> (Fowler, 1910)	Raie douce	Raya pintada	Spotted ray
		<i>Raja</i> ( <i>Raja</i> ) <i>polystigma</i> (Regan, 1923)	Raie tachetée	Raya manchada	Speckled ray
		<i>Raja</i> ( <i>Raja</i> ) <i>radula</i> (Delaroche, 1809)	Raie-râpe	Raya aspera	Rough ray
		<i>Raja</i> ( <i>Rostroraja</i> ) <i>alba</i> (Lacepède, 1803)	Raie blanche	Raya bramante	White skate
		<i>Raja</i> <i>undulata</i> (Lacepède, 1802)	Raie brunette	Raya mosaico	Undulate ray
	Rhinobatidae	<i>Rhinobatos</i> <i>cemiculus</i> (E.Geoffroy St-Hilaire, 1817)	Poisson-guitare	Guitarra barba negra	Blackchin guitarfish
		<i>Rhinobatos</i> <i>rhinobatos</i> (Linnaeus, 1758)	Poisson-guitare commun	Guitarra comun	Commun guitarfish
		<i>Zanobatus</i> <i>schoenleinii</i> (Muller & Henle, 1841)	Guitre bouclée	Raja de arena	Sand guitarfish
	Torpedinidae	<i>Torpedo</i> ( <i>Teronarce</i> ) <i>nobiliana</i> (Bonaparte, 1835)	Torpille noire	Tremolina negra	Electric ray
		<i>Torpedo</i> ( <i>Torpedo</i> ) <i>marmorata</i> (Risso, 1810)	Torpille marbrée	Tremolina marmol	Marbled electric
		<i>Torpedo</i> ( <i>Torpedo</i> ) <i>torpedo</i> (Linnaeus, 1758)	Torpille ocellée	Tremolina	Common torpedo
<b>Chimères</b>					
Chimaeriformes	Chimaeridae	<i>Chimaera</i> <i>monstrosa</i> (Linnaeus, 1758)	Chimère commune	Quimera	Rabbit fish

## TUNISIE

### STATUT DES POISSONS CARTILAGINEUX EN TUNISIE

#### 1 - Espèces présentes

La dernière liste révisée des poissons cartilagineux mentionne la présence dans les eaux tunisiennes de :

- 33 requins ;
- 29 batoides ;
- 1 chimère.

Soient 63 poissons au total dont au moins 11 sont abondants. A part la chimère, la centrine et les petites raies, tous les autres sont exploités commercialement et consommés. Ces poissons cartilagineux sont en effet très prisés et appréciés, ils sont consommés frais, séchés et salés.

#### 2 - Production

La production moyenne des Elasmobranches de 1995 à 1999 est d'environ 2000 T/an. Soient 2,09 % de la production halieutique totale moyenne (90 T/an) et 3,2 % de la production des poissons en Tunisie.

L'essentiel de la production est débarqué dans la région du golfe de Gabès. (60% de la production nationale) la production a été en augmentation de 1995 à 1998 et une légère chute a été enregistrée en 1999. Un effort dans la collection des statistiques doit être déployé.

#### 3 - Techniques de pêches

##### - Le chalut benthique :

Des nouveau-nés sont souvent débarqués vue le maillage adapté aux poissons osseux.

**- Le filet trémail :**

**- Les palangres**

Les palangres de fond et de surface ciblent principalement les mérus, les espadons et les requins.

**- Les sennes tournantes :**

Elles pêchent accidentellement les espèces pélagiques.

**- Les filets à requins :**

Cet engin est constitué d'une seule nappe de forme rectangulaire maintenue par une ralingue supérieure à flotteurs et une ralingue inférieure à plombs. Les filets destinés à la pêche destinés à la pêche des chiens de mer ont des mailles de 110 à 140 mm, ceux des roussettes 60 mm. Les dimensions des pièces sont généralement de 50 m de longueur sur 2 à 3 m de hauteur.

Ces filets appelés localement "Kallabia" sont employé principalement au sud tunisien de fin mars à fin juin.

#### **4 - Effort de protection**

A côté des conventions internationales ratifiées par la Tunisie, un arrêté du Ministère de l'Agriculture de 28/09/95 (art.9) interdit de pêcher les raies en dessous de 40 cm et les torpilles en dessous de 20 cm, taille mesurée de la pointe du museau à la naissance de la queue.

#### **5 - Intérêt Scientifique**

Au cours des années 70 et 80 plusieurs études de biologie, écologie et distribution et systématiques ont concerné l'essentiel des espèces rencontrées dans des eaux tunisiennes. L'essentiel des travaux est publié dans des revues internationales.

Actuellement un effort est consenti pour une meilleure connaissance du statut des poissons cartilagineux. Deux Magistères ont été soutenus concernant d'une part les hypotrèmes (Raies) et d'autre part les pleurotrèmes (Requins), deux thèses en cours pour l'étude principalement de la biologie des Rhinobatidés et des Triakidés. Nous nous intéressons plus particulièrement à l'étude de la reproduction, du régime alimentaire, de l'âge et la croissance et l'évaluation des stocks.



Il est à noter que la région du golfe de Gabès constitue très probablement une frayère et des nurseries pour plusieurs poissons cartilagineux.

Conscient de la protection de la biodiversité marine, un plan d'action national est prévu pour la protection des poissons cartilagineux.

**ANNEX IV**  
**DRAFT ACTION PLAN FOR THE CONSERVATION OF**  
**CARTILAGINOUS FISH (CHONDRICHTHYAN) IN THE**  
**MEDITERRANEAN SEA**

## **DRAFT ACTION PLAN FOR THE CONSERVATION OF CARTILAGINOUS FISHES (CHONDRICHTHYANS) IN THE MEDITERRANEAN SEA**

### **FOREWORD**

Chondrichthyan fishes constitute a class within the zoological classification which includes the cartilaginous fish commonly named sharks, skates, rays and chimaeras. The skates and the rays, or batoids, are flattened shark-like fish.

The Action Plan for the Conservation of Chondrichthyan Fishes in the Mediterranean Sea is in line with 1) the Barcelona Convention adopted by the Mediterranean countries, in particular the Protocol concerning Specially Protected Areas and Biological Diversity in the Mediterranean; 2) the International Plan of Action for the Conservation and Management of Sharks (IPOA-Sharks) proposed by FAO and adopted by the UN member states in 1999 [Note: in the FAO documents 'sharks' is used for chondrichthyans]; 3) the UN Fish Stocks Agreement (UN Agreement on Straddling Fish Stocks and Highly Migratory Fish Stocks) in effect since 11<sup>th</sup> December 2001; 4) paragraph 31 of the Implementation Plan of the Resolution of the World Summit for Sustainable Development adopted in Johannesburg in September 2002.

In the implementation of the IPOA-Sharks, the Mediterranean Action Plan for the Conservation of Chondrichthyan Fishes constitutes a proposal for regional strategies, pointing out priorities and actions to be undertaken at national and regional level, since regional coordination is needed to ensure implementation of conservation measures. The IPOA-Sharks suggests that member states of the FAO should develop national action plans when their fishing fleets conduct target or by-catch fisheries for sharks. With regard to this recommendation, the Contracting Parties to the Barcelona Convention are strongly urged to elaborate national action plans according to the priorities herein defined, in order to ensure the conservation, management and long-term sustainable use of the chondrichthyan resources in their environment.

Within the framework of the Barcelona Convention, some chondrichthyans are already protected: namely the great white shark (*Carcharodon carcharias*), the basking shark (*Cetorhinus maximus*) and the Mediterranean devil ray (*Mobula mobular*). Also, some Mediterranean countries have taken specific protection measures for these species to reinforce their conservation status. Other chondrichthyans appear on the IUCN Red List and in the appendices to the Bern and Bonn Conventions, and some have been proposed for inclusion in the CITES appendices.

Although such conservation measures that focus on particular species have been proving to be useful at species level, they are not sufficient at ecosystem level. That is why habitat and environment parameters should be included in the Action Plan. As a result, the guidelines for elaborating an Action Plan are the following:

- species conservation

- biodiversity maintenance
- habitat protection
- management for sustainable use
- scientific research
- monitoring
- funding for research, implementation and monitoring
- public awareness
- international co-operation for controls in the open sea.

Thus, implementation of the Action Plan should involve a great number of stakeholders and its success requires increasing cooperation between different jurisdictions, professional fishermen, conservation and environmental bodies, recreational and game fishing associations, scientific and research organisations and academic institutions, and military and administrative bodies, at national, regional and international levels.

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## **DRAFT ACTION PLAN FOR THE CONSERVATION OF CARTILAGINOUS FISHES (CHONDRICHTHYANS) IN THE MEDITERRANEAN SEA**

### **INTRODUCTION**

1. The Contracting Parties to the Barcelona Convention, within the framework of the Action Plan for the Protection of the Marine Environment and the Sustainable Development of the Coastal Area of the Mediterranean (MAP Phase II), give priority to ensuring the protection of sensitive species, habitats and ecosystems in the Mediterranean Sea.
2. The decline of some chondrichthyan populations has become a matter for international concern, and a growing number of organisations have expressed the need for urgent measures to be introduced for the conservation of these fish. To this end, RAC/SPA was entrusted (Monaco, November 2001) by the Contracting Parties to the Barcelona Convention with the task of elaborating an action plan, herein presented, for the conservation of the chondrichthyan populations of the Mediterranean.
3. Chondrichthyan fishes have specific biological characteristics, such as low reproduction productivity due to late sexual maturity and low fecundity, which make them vulnerable to long-lasting stresses and disturbances and slow to recover once depleted.
4. For chondrichthyan fishes, there also exists a close relationship between the number of young produced and the size of the breeding biomass (stock-recruitment relationship) and complex spatial structures (size/sex segregation and seasonal migration) that contribute to their vulnerability to habitat deterioration, environmental pollution, and over-exploitation.
5. Most sharks and some skates and rays are apex predators and have an important trophic function in the marine ecosystem. Therefore, the ecosystem approach is particularly important to understand the role of these fishes in the structuring and functioning of this system. The integrated effects of irresponsible fishing<sup>1</sup>, pollution, and habitat destruction can result in changes in abundance, size structure and biological features, and in the extreme could lead to extinction. The indirect impacts include changes in species prey/predator composition, with species replacement, since fishing tends to remove larger species and larger individuals from ecosystems. Exploitation of chondrichthyans should respect the principles of sustainability and the precautionary principle as defined in the FAO Code of Conduct for Responsible Fisheries.

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<sup>1</sup> The terms 'fishing' and 'fisheries' refer to both commercial and recreational fishing/fisheries throughout the entire text.

6. The chondrichthyan fish fauna of the Mediterranean is relatively diverse, with a total 86 species including 47 species of shark, 38 species of batoid and one chimaera. Some of them have commercial importance and have been exploited over the ages as target species or by-catch; others are very rare and may never have been common. However, there is evidence of the important negative impact of unmanaged and irresponsible fisheries on the populations of these chondrichthyan species.
7. Today, the serious threats to the populations of chondrichthyan fishes are widely acknowledged: mainly unmanaged and irresponsible fishing, pollution and the negative aspects of some littoral development. These threats affect both chondrichthyan biodiversity and abundance. The Mediterranean Sea being a semi-enclosed sea with strongly populated coastal countries, critical habitats have been damaged by some littoral development and pollution. Pollution may harm the marine ecosystem because contaminants, concentrating along the food webs, can alter the physiology and good functioning of individuals and populations.
8. Although the Mediterranean chondrichthyan fish fauna have been studied for a long time, scientific research still needs to be undertaken to study the biology, ecology, population dynamics and status of stocks of most of the species. These studies are necessary to better understand their ecological role. The taxonomic status of several species is still uncertain. A few species are endemic to the Mediterranean. Some Red Sea species penetrate into the eastern Mediterranean through the Suez Canal (Lessepsian migrants); the evolution of the populations of these species, and the effect of these invaders on the Mediterranean ecology, should be carefully studied.
9. Since many chondrichthyans are wide-ranging and/or migratory, regional coordination is required for research, monitoring and enforcement. Also, information should be widely disseminated amongst the public to make it aware of the threats to chondrichthyans and the urgent need for their conservation and the management of their exploitation.

## **A. OBJECTIVES**

10. The present Action Plan is aimed at promoting:
  - 10.1. The general conservation of the chondrichthyan populations of the Mediterranean, by supporting and promoting national and regional programmes for sustainable fisheries of commercial stocks either as they are target and accessory species;
  - 10.2. The protection of selected chondrichthyan species, whose populations are considered endangered;
  - 10.3. The protection and the restoration of critical habitats, such as mating, spawning and nursery grounds;

10.4. The improvement of scientific knowledge by research and scientific monitoring, including the creating of regional standardized databases;

10.5. The recovery of depleted chondrichthyan stocks;

10.6. Public awareness and capacity-building about conservation of chondrichthyans.

## **B. PRIORITIES**

11. The following general priorities are recommended:

11.1. Urgent provision of legal protection status for the endangered species identified at regional and national level. To this end, the following species should have priority: sawfishes (*Pristis* spp, assessed as "Critically Endangered" (CR) in the IUCN Red List 2000), the sand tiger sharks (*Carcharias taurus* and *Odontaspis ferox*) and the gray skate (*Dipturus batis*), preliminarily assessed as "Critically Endangered" (CR) and "Endangered" (EN) by the IUCN at the Mediterranean level, respectively), as has already been achieved at regional level for the basking shark (*Cetorhinus maximus*), the great white shark (*Carcharodon carcharias*), and the giant devil ray (*Mobula mobular*).

11.2. Other species are currently data-deficient with inadequate information to assess extinction risk. Thus there is an urgent need to assess the threatened status of species such as hammerhead sharks (*Sphyrna* spp.), guitarfishes (*Rhinobatos* spp.), and the speckled skate (*Raja polystigma*).

11.3. Develop management programmes for sustainable fisheries catching, as target or by-catch, the following species:

11.3.1. Primarily for the main commercial species: the dogfish (*Squalus acanthias*), the thresher sharks (*Alopias* spp.), the makos (*Isurus* spp.), the porbeagle (*Lamna nasus*), the blue shark (*Prionace glauca*).

11.3.2. Secondly, for the other commercially important species: the angel sharks (*Squatina* spp.), the catsharks (*Scyliorhinus* spp. and *Galeus melastomus*), the hound sharks (*Mustelus* spp. and *Galeorhinus galeus*), the requiem sharks (*Carcharhinus falciformis*, *C. limbatus*, *C. obscurus* and *C. plumbeus*), the skates (*Leucoraja* spp., *Raja* spp.), and the stingrays (*Dasyatis* spp.).

11.4. Encourage fishing practices that reduce unwanted chondrichthyan by-catch and/or facilitate live release and ban wasteful practices such as finning.

11.5. Identify critical habitats for their protection and restoration, especially mating areas, and spawning and nursery grounds.

11.6. Develop research programmes on general biology, ecology and population dynamics especially for the above species, with particular regard to reproduction and growth parameters and.



11.7. Develop both systems for the monitoring of fisheries and fishery-independent monitoring programmes.

11.8. Develop training to ensure capacity-building at national and regional level, mainly in the following fields: taxonomy, biology, ecology, monitoring methods and stock assessment.

11.9. Develop information and education programmes for professional and public awareness.

## **C. IMPLEMENTATION MEASURES**

In order to implement the above-mentioned general priorities, specific measures should be taken at national and regional level.

### **C.1 Protection**

12. Legal protection should be given to endangered species (cf. paragraphs 10.2 and 11.1) in accordance with national and international laws and conventions. The status of Mediterranean chondrichthyans should be regularly reviewed in order to recommend, when necessary, legal protection for threatened species.

### **C.2 Fisheries management**

13. According to the principles of the IPOA-Sharks and of the UN Straddling Fish Stocks Agreement, states that contribute to fishing mortality for a species or stocks should participate in their management.

14. Existing assessment reports and fisheries management programmes should be adjusted to chondrichthyan fishes or specific plans should be developed within the framework of the IPOA-Sharks.

15. It is urgent to collect precise fisheries statistics, mainly on catches and landings by species. For this purpose, field identification sheets should be published in appropriate languages, with the vernacular names included, and dispatched to fishery people. Also, data on fishing efforts should be collected, as far as possible.

16. Management programmes for chondrichthyan fishes should be based on sustainable management based on studies of the assessment of stocks and populations.

Management should also concern by-catch and reduce incidental catches.

To this end, guidelines for reducing and releasing unwanted by-catch and protected species should be published in the appropriate languages and circulated to all potential users.

17. Implementing a permanent monitoring of fisheries where chondrichthyans are target or by-catch species is a fundamental management measure, useful for the conservation or sustainable exploitation of these species. This action would permit the timely detection of an obvious decline in their biomasses, or capture, that could be an unequivocal sign of over-fishing. This monitoring could be done through surveys, landing-site observation, and the examining of logbooks. This action should also address sightings (strandings and observations at sea) and incidental catches.

18. For most species, cooperative management is necessary at national, regional and international levels. The mechanisms for achieving a cooperative approach may consist of the following elements:

- information on existing exploited resources and management systems
- the defining and provision of legal instruments
- the use of a participatory planning approach
- the defining of clear management agreements
- the building and development of national groups.

19. Mediterranean countries should ban finning (i.e. the wasteful practice of slicing off the shark's fins and discarding the body at sea). Mediterranean countries should oblige fishermen to land shark specimens whole. This is partly to promote standardized data reporting and facilitate species identification.

### **C.3 Critical habitats and environment**

20. Field studies are needed to inventory and map critical habitats around the Mediterranean.

21. Legal protection should be given to these habitats, in conformity with the national and international laws and conventions on the subject, to prevent their deterioration due to the negative effects of human activity. When these habitats have deteriorated, restoration programmes should be undertaken. One example of legal protection is the creation of marine protected areas in which human activity is regulated.

22. Such protection measures could be part of fishery management programmes as well as of integrated coastal zone management.

### **C.4 Scientific research and monitoring**

23. Parallel to protection and conservation measures, properly funded and staffed scientific research programmes should be undertaken or developed, mainly on species biology and ecology, emphasizing growth, reproduction, diet, geographical and bathymetric distribution, migration, population genetics and dynamics and risk assessment. Regional tagging (conventional, pop-up and satellite tag) programmes should be developed for migratory species. Also, fishing efforts exploratory cruises, and the status of resources within the precautionary principle, should be assessed. In the same way, discard should be evaluated in terms of quantity and composition. Research on tools to avoid or reduce by-catch should be fostered.

24. For the monitoring of fisheries, the standardized collection of data at landing places and fish markets should be supplemented and completed by on-board observation programmes to gather precise data on fisheries and on species biology. Also logbooks adapted to chondrichthyan fisheries should be distributed to fishermen. The following set of data would be required for commercial target and by-catch species:

- species composition of the catch with length frequency distribution by sex
- retained catch by species in number and weight
- discarded catch in number and weight + reasons for discard
- product form (whole, headed, gutted, fillets, fins)
- gear and vessel specifications and cruise characteristics
- trade and market values.

Furthermore samples (vertebrae, dorsal spines) should be taken and adequately preserved for age determination, and also tissue samples for genetic analysis (DNA).

25. Mediterranean countries should design, at both national and regional level, specific programmes, or widen existing ones, to cover the whole Mediterranean Sea, and to collect standardized quantitative data to estimate fish density (relative abundance). This would help evaluate the risk status of the various species.

### **C. 5 Capacity building/training**

26. The Contracting Parties should promote the training of specialists, fisheries officers and managers in the study and conservation of chondrichthyan fishes. To this end, it is important to identify already existing initiatives and to give priority to taxonomy, conservation biology and techniques for monitoring research programmes (cf. above paragraph on scientific research).

27. Training programmes should also focus on methods of fisheries data collection and stock assessment, especially data analysis.

### **C. 6 Education and public awareness**

28. For protection and conservation measures to be effective, public support should be obtained. In this respect, information campaigns should be directed at national authorities, residents, teachers, visitors, professional fishermen, sport anglers, divers and any other stakeholder. Publication materials should be produced to present the life history, and vulnerability, of chondrichthyans.

29. Also, guidelines for chondrichthyan watching should be published and widely distributed to potential observers such as anglers, yachtsmen, divers, shark-fans, etc, in order to make them actively involved in the conservation of chondrichthyan fishes.

30. In this process of education and public awareness, the help of associations and other bodies involved in nature conservation should be solicited.

### **C. 7 Regional coordinating structure**

31. All the above-mentioned recommended actions related to the protection and the conservation of species and their habitats, and the research and educational programmes, should be monitored and implemented, with as much regional cooperation between all the countries operating in the Mediterranean basin as is possible.

32. These actions should be undertaken in cooperation with, and with the support of, other regional fisheries organisations (e.g. GFCM, ICCAT). Non-governmental organisations associations and national environmental bodies should also be involved.

33. Implementation of the present Action Plan will be regionally coordinated by the Mediterranean Action Plan's (MAP) Secretariat through the Regional Activity Centre for Specially Protected Areas (RAC/SPA). The main functions of the coordinating structure shall consist in:

- favouring and supporting the collection of data and publishing and circulating results at Mediterranean level
- promoting the drawing up of inventories of species and areas of importance for the Mediterranean marine environment
- promoting transboundary cooperation
- preparing reports on progress in the implementation of the Action Plan, to be submitted to the Meeting of National Focal Points for SPAs and to meetings of the Contracting Parties
- organising meetings of experts on specific subjects relating to Mediterranean chondrichthyans, and training courses
- promoting the review of status of species and fisheries by relevant organisations
- three years after the adoption of the Action Plan, coordinating the organisation of a Mediterranean symposium aiming at defining the state of knowledge on chondrichthyan fishes and taking stock of the progress made in implementing the Action Plan
- five years after the adoption of the Action Plan, organising a meeting to review the progress of the Action Plan and to propose a revision of the Action Plan if needed.

34. Complementary work done by other international organisations with the same objectives shall be encouraged by RAC/SPA, promoting coordination and avoiding possible duplication of effort.

35. Initiatives aiming at ensuring enforcement of the current Action Plan, particularly in international waters, should be promoted.

### **D. PARTICIPATION IN THE IMPLEMENTATION**

36. Implementing the present Action Plan is the responsibility of the national authorities of the Contracting Parties. Parties should facilitate coordination between their national, environmental and fisheries departments to ensure implementation of

activities directed at protected and non-protected chondrichthyan species. Organisations or bodies concerned are invited to associate themselves with the work of implementing the present Action Plan. At their ordinary meetings, the Contracting Parties may, at the suggestion of the Meeting of National Focal Points for SPAs, grant the status of 'Action Plan Associate' to any organisation or laboratory which so requests and which carries out, or supports (financially or otherwise) the carrying out of, concrete actions (conservation, research, etc.) likely to facilitate the implementation of the present Action Plan, taking into account the priorities contained therein. NGOs can submit their applications directly to RACS/PA.

37. The coordinating structure shall set up a mechanism for regular dialogue between the Action Plan Associates and, where necessary, organise meetings to this effect. Dialogue should be conducted mainly by mail, including e-mail.

#### **E. TITLE OF ACTION PLAN PARTNER**

38. To encourage and reward outside contributions to the Action Plan, the Contracting Parties may at their ordinary meetings grant the title of 'Action Plan Partner' to any organisation (governmental, NGO, economic, academic etc.) that has to its credit concrete actions likely to help protect chondrichthyan fishes in the Mediterranean. The title of Action Plan Partner will be awarded by the Contracting Parties following recommendations made by the Meeting of National Focal Points for SPAs.

#### **F. ASSESSING THE IMPLEMENTATION AND REVISION OF THE ACTION PLAN**

39. At each of their Meetings, the National Focal Points for SPAs will assess the progress made in implementing the Action Plan, on the basis of national reports and of a report made by the RAC/SPA on implementation at regional level. In the light of this assessment, the Meeting of the National Focal Points for SPAs will suggest recommendations to be submitted to the Contracting Parties, and, if necessary, suggest adjustments to the timetable given in the Annex to the Action Plan.

## DRAFT ACTION PLAN FOR THE CONSERVATION OF CARTILAGINOUS FISHES (CHONDRICHTHYANS) IN THE MEDITERRANEAN SEA

### Annex: Implementation Timetable

ACTION	DEADLINE	BY WHOM
<b>Tools</b>		
1. Establishing of network (e.g. FTP site) and directory of collaborators (cf. § C.7 "Regional coordination")	1 year after adoption	RAC/SPA
2. Field identification sheets available in appropriate languages (cf. § 15 of C.2. "Fisheries management")	1 year after adoption	Contracting Parties & RFMOs
3. Support the defining of a protocol for monitoring commercial landings and discards by species (cf. § C.2. "Fisheries management")	1 year after adoption	RAC/SPA and Contracting Parties
4. Protocols for recording data on rarely observed, endangered and protected species (cf. § C.1. "Protection")	1 year after adoption	RAC/SPA
5. Information campaigns and publishing materials for public awareness (cf. § C. 6 "Education and public awareness")	2 years after adoption	RAC/SPA
6. Guidelines for reducing the presence of sensitive species in by-catch and releasing them if caught, prepared and published in appropriate languages (cf. § 16 of C.2 "Fisheries management")	2 years after adoption	RAC/SPA
7. Guidelines for chondrichthyan watching (cf. § 29 of C.6 "Education and public awareness")	3 years after adoption	RAC/SPA
8. Symposium on Mediterranean chondrichthyan fishes (cf. § 33 of C.7 "Regional coordinating structure")	3 years after adoption	RAC/SPA
9. Meeting to review progress made on the Action Plan (cf. § 33 of C.7 and § F "Assessing the implementation and revision of the Action Plan")	5 years after adoption	RAC/SPA
<b>Legal processes</b>		
10 a. Legal protection established for endangered species, recommended in this Action Plan, identified by country 10 b. Urgent assesment of the status of data deficient species (cf. § 11.1. of B "Priorities"; C1 "Protection")	1 year after adoption	Contracting Parties, intervening at national and regional level
11. Regulations enacted for prohibiting "finning" (cf. § 19 of C.2 "Fisheries management")	2 years after adoption	Contracting Parties & RFMOs
12. Critical habitats legally protected to reduce negative effects of human activities (cf. § C.3 "Critical habitats and environment")	4 years after adoption	Contracting Parties
13. Facilitating the enforsement of legal measures aiming to set up a system for enforcement of monitoring fisheries in international waters (cf. § 35 C. 7 "Regional coordinating structure")	4 years after adoption	Contracting Parties and RAC/SPA
<b>Monitoring and data collection</b>		
14. Establishing research programmes, mainly on the biology, ecology and population dynamics of the main species identified by the countries (cf. § C. 4 "Scientific research and monitoring")	1 year after adoption	Contracting Parties

15. Implementing a monitoring system for commercial and recreational fisheries (cf. § C.2. "Fisheries management")	1 year after adoption	Contracting Parties
16. Support the establishing of, or feed the existing, centralized databases (cf. § C.7 "Regional coordinating structure")	1 year after adoption	Contracting Parties and RAC/SPA
17. Preliminary inventory of critical habitats (mating, spawning and nursery grounds) (cf. § 11.4 of "Priorities" and § C.3 "Critical habitats and environment")	2 years after adoption	Contracting Parties
<b>Management and assessment procedures</b>		
18. Review of the status of Mediterranean chondrichthyan species (cf. § 11.2 of B "Priorities"; 12 of C.1 'Protection'; 25 of C.4 "Scientific research and monitoring" )	1 year after adoption	International organisations
19. Description of fisheries and identification of management needs (cf. § C.2. 'Fisheries management')	1 year after adoption	Contracting Parties & RFMOs
20. Elaboration of National chondrichthyan Plans (cf. § C.1 'Protection', C.2. "Fisheries management", & C.3 "Critical habitats and environment")	1 year after adoption	Contracting Parties
21. Elaboration of management plans for fisheries exploiting chondrichthyan fishes (cf. § 11.3.1 and 11.3.2 of B "Priorities")	4 years after adoption	Contracting Parties & RFMOs