J. Black Sea/Mediterranean Environment
Vol. 24, No. 1: 91-96 (2018)

TECHNICAL CONTRIBUTION

National action plan for the conservation of cartilaginous fishes in the Turkish water of the eastern Mediterranean Sea

Bayram Öztürk

Department of Marine Biology, Faculty of Aquatic Sciences, Istanbul University, TURKEY

Turkish Marine Research Foundation, P.O. Box 10, Beykoz, Istanbul, TURKEY

Corresponding author: ozturkb@istanbul.edu.tr

Abstract

National action plan for the conservation of cartilaginous fishes in the Turkish water of the eastern Mediterranean Sea is discussed. Four main threats for the cartilaginous species are listed, as bycatch in trawl, trammel nets and purse seines, unreported and unregulated fishing, marine pollution and habitat loss. Some action plans are proposed for the conservation of the cartilaginous species in the area.

Keywords: Turkey, National Action Plan, cartilaginous fishes, eastern Mediterranean Sea, threats, conservation

Introduction

The commitment of Turkey to the conservation of sharks and rays in the Turkish water of the eastern Mediterranean Sea was underlined with the ratification of the Barcelona Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean in 1976 (signed on 10 June 1995 and ratified on 18 February 2002). This includes the Protocol concerning Specially Protected Areas and Biological Diversity in the Mediterranean (1995) and its annexes. Turkey also adopted the Action Plan for the Conservation of cartilaginous fishes in the Mediterranean and its related updates (UNEP-MAP -SPA/RAC, 2003, 2007, 2013). In this context, the national action plan for the conservation of sharks and rays in the Turkish water of the eastern Mediterranean Sea was prepared.

For that reason, a national workshop was organized in Istanbul on 10 March 2017 by Turkish Marine Research Foundation (TUDAV). It was attended by 24 people including experts from universities, NGOs, a municipality, a ministry, a fisheries

cooperative, media representatives and university students. The target of the workshop was to compile all relevant data for and discuss the national action plan. Cartilaginous fishes have a vital importance in terms of ecology due to its position in the marine food web. They are sensitive to environmental and anthropogenic pressure because of high age at maturity, small number of newborns, slow growth and reproduction rate. In addition, they are also directly or indirectly affected by fisheries.

There are 67 recorded cartilaginous fish species in the Turkish waters, five of which are protected according to the Fisheries Law no. 1380. These are namely *Cetorhinus maximus, Carcharhinus plumbeus, Squalus acanthias, Lamna nasus* and *Galeorhinus galeus.*

A. Main threats

Main threats for the cartilaginous species are listed below:
a) Bycatch: Trawl, trammel nets and purse seines
b) Unreported and unregulated fishing
c) Marine pollution
d) Habitat loss

In the Turkish part of the Aegean Sea, there are a total of 57 species including 31 species of sharks, 25 species of rays and 1 species of Chimeroid. In the Mediterranean, 65 species have been reported, including 32 species of sharks, 32 species of rays and 1 species of Chimeroid. Among these species, two species (*Himantura uarnak, Himantura leoparda*) are recorded as alien species in the Eastern Mediterranean Sea.

B. Priorities

Topics indicated below were discussed for the cartilaginous fishes in the Turkish waters and priority issues were identified by the participated experts as below:

1. Sustainable fisheries and bycatch of relevant cartilaginous species
2. Conservation status of the cartilaginous species in Turkey
3. Intensification of scientific studies on the cartilaginous species
4. Statistical data collection for the cartilaginous fishes and separating them under each species.
5. Identification of important habitats for cartilaginous fishes
6. Raising public awareness

C. Action Plans (High/Middle/Low Priority)

1. Developing a program for making sustainable fisheries of relevant cartilaginous species and continuing bycatch studies. Workshops and meetings with General Directorate of Fisheries for developing special monitoring programs for bycatch of sharks and rays in the Turkish waters should be organized. Those programs should be implemented immediately and the data will be shared openly with experts: **High Priority**

For effective management measures to reduce bycatch of cartilaginous fish gear selectivity and modification of the fishing equipment are discussed and the requirement should be announced to fisheries cooperatives.

2. Evaluating the conservation status of the cartilaginous species according to the IUCN criteria: **Middle Priority**

It is recommended to organize a workshop by Ministry of Environment and Urbanization, Ministry of Forest and Water Affairs, Ministry of Food, Agriculture and Livestock and General Directorate of Fisheries and Aquaculture to determine the species that are needing to be in the Red List according to IUCN criteria.

Re-evaluation of protected species and their protection status are recommended for the thirteen species which are selected according to IUCN critera. These species are *Alopias vulpinus, Mobula mobular*, *Mobula japanica, Squatina oculata, Squatina squatina, Squatina aculeata, Rhinobatos rhinobatos, Rhinobatos cemiculus,Oxynotus centrina, Isurus oxyrinchus, Squalus blainville, Squatina squatina,* and *Raja clavata*. These thirteen species proposed should be added to the list of species under permanent protection.

Currently only a few species are evaluated according to the IUCN criteria for Red List of Threatened Species. All species of rays and sharks in the Eastern Mediterranean need to be evaluated based on the best available knowledge. A committee or a task force will be established to assess the status within the relatively short time frame, so that this will be used to further develop conservation projects for some of the endangered or threatened species.

3. Enhancing and promoting the scientific studies on the cartilaginous fish: **High Priority**

In general, there is lack of information for the biology and ecology of most cartilaginous species found in the Eastern Mediterranean Sea. It is important to enhance and promote scientific studies on these species in the area. It is also crucial to develop standard methods and protocols for data collection to carry out such studies, for example, tagging method, acoustic and visual monitoring method. In this way, all data collected will be evaluated in a harmonized manner and comparable to those collected in neighboring countries. International/National workshops can be organized to discuss this matter and the results will be shared widely online.

It is also crucial to collect bibliography on the cartilaginous fishes. Moreover, it is necessary to support the deep-sea studies for data collection. Recently there some important studies on the cartilaginous fishes in Turkey but systematic and

biodiversity studies are dominant. On the contrary, there are only a few studies on fishing methods, population dynamics, molecular studies and reproduction biology. Research intensity should be increased for the cartilaginous fishes in the Turkish part of the Eastern Mediterranean Sea for the purpose of conservation biology.

It is also important to have a national monitoring program about the cartilaginous fishes in Turkish seas, which should be carried out by experts from various universities and partners with allocated funds by relevant Turkish authorities.
It is recorded that by recent studies there is a resident population of sandbar sharks, *Carcharhinus plumbeus,* in Boncuk Bay. It is also recommended that the next step should be conduct studies on population dynamics, specifically to assess the number of population size. Developing a special study including monitoring with acoustic devices and tagging is requested for this species in Gökova Bay, the Aegean Sea.

Himantura uarnak and *Himantura leoparda* are the only rays which are alien species and entered the Mediterranean Sea from the Red Sea through the Suez Canal. It is important to investigate their impacts to the native biodiversity in short time.

4. Statistical data collection for the catch of cartilaginous fishes and separating them under each species: **High Priority**

Some cartilaginous species have been commercially exploited. Currently fisheries statistics have been improved but still there are many gaps to fill to reflect the actual situation. In particular, the species of rays and sharks are usually grouped together and not identified by species in the official statistics. Training seminars or publication of guidelines can be arranged to ensure the identification of species at fish markets. At the same time, data should be collected more regularly and strictly, so that they can be used to evaluate the population status of the shark and ray species in our water.

Coordination meetings with the Turkish Statistic Institute to manage better data collection for sharks and rays.

5. Identifying feeding and reproduction areas to elaborate strategies for habitat protection: **High Priority**

As mentioned above, cartilaginous species are sensitive to environmental stress due to its slow breeding and growing characteristics. It is thus particularly important to protect their habitats for feeding and reproduction. This has been realized only a few species, e.g. sandbar shark in Boncuk Bay. It is necessary to identify these areas to ensure the sustainability of some other threatened species.

Preparation of project proposals to relevant funding agencies in Turkey for sharks and rays in order to understand feeding and reproduction areas is crucial.

6. Raising awareness of the public, especially fishermen: **High Priority**

Depending on the target stakeholders, the best strategies to raise awareness will be identified and those activities should be implemented as soon as possible.

Visual materials such as posters, leaflets, and brochures will be prepared by experts, for fishermen and general public for better understanding the importance of sharks and rays in the Turkish waters with the help of General Directorate of Fisheries**.** It is expected to have wide coverage by mass media.

D. Implementation

Implementation should be done by Ministry of Food, Agriculture and Livestock and General Directorate of Fisheries and Aquaculture with relevant stakeholders such as Coast Guard, universities, NGO's and fisheries cooperatives etc.

E. Capacity building

It is recommended to inform the target groups about the selected priority topics and to build education programs. Another education program is also recommended for relevant partners such as coast guards, non-governmental organizations and related ministries.

F. Compatibility and sustainability of the National Plan with the international agreements

RAC/SPA, CITES, Barcelona Convention, CBD (Convention of the Biological Diversity), FAO-GFCM are important institutions that we need to set our legislations and harmonize our efforts accordingly. Besides, it is also important to follow the latest development of the European Union Fisheries Policy.

It should be noted that the national action plan for the conservation of sharks and rays in the Turkish water of the eastern Mediterranean Sea can benefit from being implemented in conjunction with other national and regional action plans as well as projects, which also include species that can be affected by fisheries (e.g., the action plans on cetaceans and Monk seal), particularly the by-catch.

Lastly, it is also recommended to make regional cooperation with the neighboring countries for the protection and the management of the cartilaginous fishes.

Acknowlegment

The author thanks to all the participants at the Workshop for their valuable contribution, RAC/SPA, Dr. Lobna Ben NAKHLA, Dr. Nuri BAŞUSTA and Dr. Ayaka Amaha ÖZTÜRK for their kind advices and suggestions. The preparation of this action plan is supported by UNEP/MAP RAC/SPA with N°: CONTRACT N°45/RAC/SPA_2016.

Türkiye’nin doğu Akdeniz sularındaki kıkırdaklı balıkların korunması için ulusal eylem planı

Öz

Türkiye’nin Akdeniz kıyılarında yaşayan kıkırdaklı balıkları için ulusal eylem planı önerilmektedir. Bu balıklar için dört ana tehdit sıralanarak Bu eylem planının safhaları uygulanması için de öneriler geliştirilmiştir.