OUTCOMES OF THE GFCM THREE-YEAR PROGRAMME ON ELASMOBRANCHS IN THE MEDITERRANEAN AND BLACK SEA

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Abstract

Reverse shark and ray populations’ decline is one of the main objectives of national and regional management plans aimed at guaranteeing the sustainability of fisheries activities worldwide. The biological characteristics of the elasmobranchs make them severely vulnerable to fisheries which, nowadays, are targeting elasmobranch species that in the past were discarded. This document reports the main outcomes of a three-year research programme of the General Fisheries Commission for the Mediterranean (GFCM) launched in 2010 to improve the knowledge and assess the status of elasmobranchs in the Mediterranean and Black Sea.

Keywords: Elasmobranchii, Conservation, Stock assessment, Black Sea, South-Central Mediterranean

Sharks, skates and rays, collectively referred to as elasmobranchs (Class Chondrichthyes) form a relatively small and evolutionarily conservative group that has functioned successfully in diverse ecosystems for over 400 million years. Despite their evolutionary success, many species are increasingly threatened with extinction as a result of human activities. Because of their biological characteristics such as slow growth, late maturity, and low fecundity, elasmobranchs have very low rates of population increase and limited recovering potential from overfishing (direct or indirect) and other threats, such as pollution and habitat destruction [1]. In light of this international organizations developed action plans, such as the FAO International Plan of Action for the Conservation and Management of Sharks and Rays 1998 (FAO IPOA-Sharks), the Action Plan for the conservation of the cartilaginous fishes in the Mediterranean (UNEP-RAC/SPA), the EC Action Plan for the Conservation and Management of Sharks, aimed at promoting responsible fisheries practices and environmental strategic policies which converge into the protection of the elasmobranch stocks. In this view, regional fisheries management organizations (RFMOs), such as the General Fisheries Commission for the Mediterranean (GFCM), have the fundamental role of providing administrations with indications based on the most accurate scientific background. In 2010, the GFCM started a three-year programme on elasmobranchs with the aim of identifying and filling priority gaps in the current knowledge of the status of elasmobranch populations in order to better assess and manage their stocks in the Mediterranean and Black Sea. The programme was divided into three periods of activities. The first period was financed by the GFCM regular budget and included the organization of the First Expert Meeting on the status of Elasmobranchs in the Mediterranean and Black Sea (September 2010), which served as common ground for experts to share valuable information on research carried out in their respective countries and to collate the scarce and disperse knowledge on elasmobranchs in terms of life cycles, population dynamics, ecology, taxonomy and fisheries [2]. The meeting also selected seven species according to various criteria (existing data on age and growth, abundance, conservation status, economic value, knowledge of biological parameters) for which stock assessments were considered a priority. The second and third periods of activities were supported by the European Commission (Agreement Number 512.603726) and included the workshops on Stock Assessment of selected species of Elasmobranchs (December 2011) and on age determination of elasmobranchs in the GFCM area (October 2012). During the stock assessment workshop, 8 stocks of 6 different elasmobranch species were assessed and discussed (Tab. 1). Identification of biological reference points (BRPs) and maximum sustainable yield (MSY) proxies and issues related to the biology, by-catch, growth parameters, trends in catches and sampling approaches of the species were also discussed [3]. The Workshop on age determination of elasmobranchs in the GFCM area consisted in a practical course on age reading and it was a hands-on exercise with an important training component. Prior to the meeting some preparatory work included the preparation of biological raw material with the assistance of the lecturer. A technical manual on age determination of Elasmobranchs, suited to both novice and experienced age readers, was prepared and is going to be published by the end of 2013 [4]. This detailed guide reviews the best methods for ageing sharks, skates and rays with emphasis on vertebral sections and image analysis techniques as applied to elasmobranch species from the Mediterranean basin. Finally, a bibliographic review to sum up the information gathered during the above mentioned meetings, including the outputs of the Workshop on Stock assessment was prepared and published in 2012 within the series GFCM Studies and Reviews [5].

Tab. 1. Summary of the assessments discussed during the Workshop on Stock Assessment of selected species of Elasmobranchs in the GFCM area (GSA=Geographical Sub-Area, 4=Algeria, 9=Ligurian and North Tyrrhenian Sea, 14=Gulf of Gabes, 15-16=Malta Island and South of Sicily, 29=Black Sea. References points: F0=0, FSSB and F1.1 for stocks n 1, 2, 4 and 6; FSSB, FSSB and F1.1 for stocks 3, 5, 7 and 8).

References