January 2011

GENERAL FISHERIES COMMISSION FOR THE MEDITERRANEAN

COMMISSION GÉNÉRALE DES PÊCHES POUR LA MÉDITERRANÉE

GENERAL FISHERIES COMMISSION FOR THE MEDITERRANEAN

SCIENTIFIC ADVISORY COMMITTEE (SAC)

Thirteenth Session

Marseille, France, 7-11 February 2011

STATUS OF THE GFCM ACTIONS IN THE BLACK SEA
(by GFCM Secretariat)

Draft document before editing

Contents

INTRODUCTION

The Black Sea has since the 1960s undergone dramatic and perhaps non-reversible environmental changes. There is presently no overall agreement among scientists about the reasons for and dynamics of the shifts in the Black Sea ecosystem since the 1960s. Caddy (2008) identifies several different approaches, all of which to a certain extent seek to give primacy to one causal factor. In some models, fisheries has constituted a major pressure on the state of the environment – including dwindling stocks and changed trophic structure among target species, while other models stress the importance of other pressures, primarily eutrophication and the introduction of alien species. However, as noted by Caddy (2008), the upheavals in the Black Sea ecology are probably best understood as a complex interaction of qualitatively very different pressures, the most important being:

- eutrophication
- overfishing
- alien species
- removal of top predators, trophic cascade
- climatic variations

The Black Sea ecosystem has seen some recovery over the last 10-15 years, due to reduced nutrient inflow and the introduction of a natural predator (*Beroe ovata*) of the invasive comb jelly *Mnemniopsis leidyi* which disrupted the Black Sea ecosystem during the late 1980s and early 1990s. There are signs of increased biodiversity, hypoxis occurenses have decreased on the north-western shelf, and stocks of anchovy and sprat are to some extent recovering. However, recovery is non-linear, with different opportunistic and invasive species dominating now the benthic and pelagic realms. The system is characterized by ecological instability, manifested in, for example, sustained significant stock decline of most of the large pelagic fishes. The benthic system is under high pressure from fishing and the predating effect of the invasive top predator the Japanese sea snail *Rapana venosa*. Fisheries has been one of the drivers for the changes, but has also been dramatically affected by changes caused by other variables. This also means that the cause and effect role of fisheries remains unclear or unresolved. Anyhow, it is impossible to understand the state of the fish stocks of the Black Sea without taking into consideration the

changing complexity of the Black Sea ecosystem. The Black Sea illustrates very clearly the futility of managing fisheries as if it was isolated from the wider dynamic ecosystems of which the fish stocks are important parts (Knudsen, 2008).

Fish stocks

Assessments of Black Sea fish stocks have been irregular, and in most cases one has to rely on catch data to gain information on status of stocks. Stocks of apex predators in the pelagic system, many of them migratory, started to decline several decades ago. Stocks of short lived pelagic fishes (anchovy, sprat, horse mackerel) collapsed in the late 1980s and early 1990s. Anchovy and sprat stocks have partly recovered since the mid 1990s, while horse mackerel stock remains depleted. Stocks of important benthic species such as turbot, red mullet and whiting have continued to decrease, and stocks of several sturgeon species are threatened. In the pelagic system the bluefish has shown some recovery, while the bonito stocks vary dramatically (with record catches in 2005). Stocks of commercially important invasive species, such as pacific mullet and especially sea snail, have increased. To summarize, stocks of some small pelagics (and occasionally bonito) are in good shape, while stocks of most other commercial species are low and decreasing (Knudsen, 2008).

Commercial species considered by Black Sea scientists to be shared resources, whose exploitation should be regulated cooperatively (from Caddy, 2008).

Species	**Characteristic**
Engraulis encrasicolus (Anchovy)	Endemic
Trachurus m. ponticus (Black Sea horse mackerel)	Endemic
Sprattus sprattus phalericus (Black Sea sprat)	Endemic
Merlangius m. euxinus (Whiting)	Endemic
Squalus acanthias (Piked dogfish)	Endemic
Psetta maeotica (Black Sea turbot)	Endemic
Mullus barbatus ponticus (Black Sea striped mullet)	Endemic
Liza aurata (Golden grey mullet)	Endemic
Mugil cephalus (Flathead grey mullet)	Endemic
Rapana thomasiana (Rapana whelk)	Introduced from the Pacific

Sarda sarda (Atlantic bonito)	Migratory
Scomber spp. (Mackerels)	Migratory
Alosa caspia (Caspian shad)	Anadromous
Pomatomus saltator (Bluefish)	Migratory

Fisheries

There exists no comprehensive overview of the fisheries sector in the Black Sea. It seems evident; however, that there are considerable differences between the various Black Sea countries in fleet composition and organization of the fisheries. The combined effect of resource crisis, and changed conditions for fisheries in the former Soviet States have resulted in a dramatic shift in the relative importance of the fishing fleets of the various Black Sea countries. Turkey has emerged as the most important fishery nation in the Black Sea. Turkish fisheries were just as adversely affected by the resource crisis as the fisheries in the northern Black Sea, but for various reasons they were more resilient during the crisis years (see Knudsen 1997). The composition of Black Sea fish stocks and fish catches differs from the Mediterranean. In the Black Sea the short-lived pelagic species biomass is much higher than in the Mediterranean. Therefore, purse seiners play a much more important role, especially in the Turkish Black Sea fisheries. Fisheries constitute an economically very important sector in some regions of the Black Sea, such as the eastern Black Sea region of Turkey and in Crimea. A large share of the Turkish anchovy and sprat catches is processed in the close to 20 fish meal and oil factories along the coast. The fishery sector is, however, heterogeneous, with important trawler fleets as well as various multi-purpose and artisanal fishing being of importance in most countries. Although no estimates exist, and would be difficult to produce, for what sustainable fishing capacity for the Black sea would be, there seems to be consensus among experts as well as among actors within the sector that there is overcapacity in Black Sea fisheries, especially on the Turkish side. Despite a leveling off in the growth in number of Turkish purse seiners, their total catch capacity has continued to increase due to investments in longer boats, more powerful engines, and improved electronic equipment. There are signs that Ukrainian and Russian fisheries sectors are now slightly increasing their catch capacity again. Some fishing practices, such as dredging for the Japanese sea snail (*Rapana*) and the use of bottom trawl, is believed to have harmful impacts on demersal habitats. Finally, many of the most important commercial species, such as anchovy,

sprat, turbot and bonito, are shared among several or all Black Sea countries, and there is widespread conflict over cross border fishing activities, occasionally resulting in aggression and death of fishers (Knudsen, 2008).

Science and statistics

Fisheries science, including research on the Black Sea, had a long and strong tradition in the Soviet Union. For various reasons, this tradition was weakened during the 1990s. Turkish fishery related science is much younger, with most of the institutions established since the 1980s. In Turkey, fishery science appears to be quite dispersed. The 1990s saw the opportunity for researchers across the Black Sea region to communicate and cooperate better than before, resulting e.g. in the important GFCM report *Environmental Management of Fish Resources in the Black Sea* (Prodanov et al. 1997). However, lack of resources and variable competence in a common language has resulted in the cooperation not having full effect. Social and economic aspects of Black Sea fisheries have received very little academic attention, and Black Sea fisheries hardly figure in the international scene of social science of fisheries. There is close to no indigenous socio-economic research on fisheries in the Black Sea. Shifts and constraints in funding and administration of science have resulted in irregular gathering of data. Moreover, for administrative purposes different standards and categories are used in different countries, resulting in inconsistencies between data sets collected by scientists from different Black Sea countries. The BSC has set up the Black Sea Information System (BSIS) which also contains fisheries-related information (Knudsen, 2008).

Fishery management and regional cooperation

Fisheries management has very different traditions in the various Black Sea countries, with some tradition for applying TACs (Total Allowable Catches) and vessel quotas in the states that were formerly united in the Soviet Union. Turkey uses a range of different regulatory mechanisms, but does not favour TACs/quotas in the Black Sea. Except for some bilateral agreements (e.g. between Georgia, Turkey and Ukraine about anchovy fishing in Georgian waters) there is no overall agreement about regional management of Black Sea fish stocks. A draft text on a fisheries convention has circulated and been negotiated since at least 1996, and there have been articulated ambitions to set up a regional fisheries commission. It seems that at present, the most likely way forward now to agree on a legally binding document on Black Sea fisheries is to sign a protocol to the Bucharest Convention. This way, Black Sea fishery policy will be thoroughly embedded in an institutional structure that takes the larger environmental view on Black Sea fisheries into consideration. Recently there has been some progress on the Legally Binding Document (LBD). According to the *Black Sea Ecosystem Recovery Project EXIT STRATEGY*, "the text of the LBD has been approved by BSC at the 13th meeting in November 2005 … The process of approval has run into a jurisdictional difficulty in that the two countries, Bulgaria and Romania, which are both contracting parties and Member States of the EU can no longer individually address this issue since jurisdiction lies with the European Union (BSERP 2007: 13)" (Knudsen, 2008).

EU accession and the Common Fishery Policy

The citation above points to a recent development with important implications for Black Sea fisheries and fishery management. EU Common Fishery Policy (CFP) has now extended into the Black Sea (in 2008 for the first time EU TACs for sprat and turbot on Bulgarian and Romanian waters were set) and resulted in many issues relevant for a potential GFCM project already being addressed and brought into a standardized format (CFP) in Bulgaria, Romania and (partly) Turkey. In Romania and Bulgaria the transfer to CFP has seemingly met with little problems: these countries have basically accepted and met all requirements for joining the CFP and are now eligible for support from the European Fisheries Fund (EFF). Although Turkey cannot take advantage of EFF support, EU twinning projects and technical assistance has addressed a range of important issues:

- Training of field staff
- Restructuring of administrative institutional composition
- Fisheries Information System and statistics (port offices, vessel monitoring system and information centre)
- Legal issues – new fishery law waiting to be ratified by parliament
- Fishery management plans for 10 major species
- Management advice in favour of TACs
- Vessel registration
- Subsidies and support
- Producer organizations
- Common Organization of the market, market/quality standards

The process of aligning Turkish fisheries policies with the CFP is considerably delayed relative to benchmark dates set in twinning contracts, but is making some significant progress at the level of technical infrastructure (e.g. Port Offices, VMS). The most significant reduction in fishing capacity is expected to result from structural aid for decommissioning, which will most likely only be available with membership (Knudsen, 2008).

The Council agreed on 2011 catch limits for Black Sea

Last December, at the end of the first day of their meeting in Brussels, the Council of Fisheries Ministers reached political agreement on TACs and quotas for turbot and sprat fisheries in the Black Sea. Crucial to this result was an agreement supported by the Member States concerned on an allocation key derived from historical catches which fully recognizes the shared nature of the sprat stock. At present, there is no regional fisheries management system for the Black Sea. Establishing an appropriate multi-lateral system to ensure sustainable fisheries in the region is a priority for the Commission over the next few years. The 2011 decision provides a good basis for future negotiations with the EU's international partners, in particular with Turkey and Russia. In the light of this important progress, and the commitment made by the Member States concerned to work closely with the European Commission to improve monitoring and control in these fisheries, agreement was reached on a reduction of 10% in the TACs for each of the two stocks concerned. As a result, the total allowable catch for the EU in the Black Sea was set at 86.4 tons

for turbot, and 11,475 tons for sprat. Following agreement of an allocation key for sprat, Bulgaria will receive 70% (8 032.5 tons) and Romania 30% (3 442.5 tons) of the TAC.

Fisheries Management related issues

Important challenges, issues or 'unknowns', that somehow will have to be addressed in the process towards a more sustainable Black Sea fishery management system, are identified below (Knudsen, 2008).

Overcapacity

Overcapacity is itself a driver for overfishing and ways should be sought to cut capacity, even before a coordinated Black Sea fisheries management policy is operational (Knudsen, 2008).

Ecosystem approach

The recent environmental history of the Black Sea, with its many dramatic shifts and changes, means that sound fisheries management must be thoroughly addressed. It should be acknowledged that embedding fishery management in an ecosystem approach is no easy task. Although the current development of 10 management plans in Turkey each focus on an individual species, the organization of the fishery science in the Black Sea is not structured along conventional single species research. Advantage should be taken of this to organizationally embed both fisheries science and management structures in organizational structures that can facilitate ecosystem based management (Knudsen, 2008).

Introduced species: management and policy dilemma

Introduced alien species have contributed significantly to the shifts in the Black Sea ecosystem. However, some invasive species, such as the sea snail *Rapana* and Pacific mullet, have become commercially important. This raises a tricky management dilemma: should such species be managed as a threat to the ecosystem and therefore eradicated or contained, or should they be seen as resources to be managed 'sustainably'. Turkish management of the *Rapana*, for instance, have focused on it being a resource and restrict *Rapana* harvesting during their summer spawning season. On the other hand, invasives like this are generally considered a threat to biodiversity (Knudsen, 2008).

Effects on habitats

Fishing practices such as bottom trawling and dredging (for sea snails) are believed to harm demersal habitats (*i.e*. not only on target stocks) and management to a certain extent take this into consideration. However, few studies have actually tried to ascertain the extent to which such fishing practices are harmful in the Black Sea context (Knudsen, 2008).

Illegal, Unreported and Unregulated (IUU) Fishing

A panel of experts from different Black Sea countries considers illegal fishing and destructive harvesting techniques to constitute the largest threat to marine living resources of the Black Sea. For instance, dredging for sea-snail in Turkey is most intense when its fishery is illegal (during summer). However, very little is known about the character and extent of illegal, unreported and unregulated fishing in the Black Sea. There exist no studies of this issue in the Black Sea context. If management is to be based upon careful considerations of stocks, landings, catch capacity etc., this uncertainty is obviously a major obstacle (Knudsen, 2008).

GFCM Decisions concerning the Black Sea

Recommendations and Resolutions

The GFCM Recommendations and Resolutions include the Black Sea area since it is part of the Regional Agreement. Nevertheless, to date, only Turkey has implemented the Recommendations in its National law[1].

Decisions and discussions arisen during recent GFCM Sessions (since 2007)

2007
GFCM report of the 31st session

[...] 14. The Chairperson underlined the efforts made to intensify multidisciplinary and transversal initiatives among the Sub-Committees and to strengthen the cooperation with the Black Sea research institutions, and reported the main results of their work as follows:

- The first meeting of the Permanent Working Group on Stock Assessment Methodologies was jointly organized with the Black Sea Economic Cooperation Organization. Recommendations were made on the implementation of the ecosystem approach to fisheries (EAF) and on the use of different methods for demersal resources assessment such as the use of composite production models and the direct survival analysis.

[...] 42. With respect to the activities of the Commission related to the Black Sea, the Commission agreed as a priority that an invitation should be sent to those coastal states which are not yet Member of the Commission to adhere to its Agreement as soon as possible. In this respect, it requested its Executive Secretary to undertake at the earliest a mission in these countries.

[...] 75. The Commission welcomed the provision of terms of reference for the proposed Workshops and Working Groups. It reiterated the need for major involvement of SAC in the Black Sea area and requested the Secretariat **to draft a project proposal** on cooperation in support of fishery research and management for this subregion, based on the format used by the other subregional projects supporting the work of the Commission.

[1] see table 1

2008
GFCM report of the 32nd session

[...] 32. The GFCM Secretariat presented a draft project framework for strengthening scientific and technical cooperation in the Black Sea on the basis of document GFCM:XXXII/2008/Dma.4 and recalled that the elements for this subregional project had been assembled pursuant to the request made by the Commission at its thirty-first session. It requested guidance on the follow-up to be given to this initiative.

[...] Strengthening technical and scientific activities in the Black Sea
67. The Chairperson referred delegates to document GFCM:XXXII/2008/Dma.4 and invited Members to convey their opinions and guidance on the follow-up to be given to the draft project framework in support of technical and scientific cooperation in the Black Sea, prepared by the Secretariat on request of the Commission. He emphasized the need to identify possible source for funding the finalization of the document and for the timely implementation of the project.

68. The delegate of Romania reiterated the expectation of his Government for strengthened involvement of GFCM, especially through reinforced technical and scientific support, to meet the requirements of SAC and CAQ. He provided comments on the content of the draft project framework and its technical appendixes, with emphasis on the need to also consider issues related to monitoring, control and surveillance (MCS) in the context of IUU fishing and to the development of aquaculture. He insisted on the need for the countries of the Black Sea to benefit from a support similar to that enjoyed in other GFCM subregions. The delegate from Romania also informed the Commission on the ongoing process between Black Sea riparian States with a view at promoting the preparation of an international instrument aimed at specifically addressing the conservation of living marine resources within the general framework of the Convention on the protection of the Black Sea against Pollution (the "Bucharest Convention") which deal primarily with environment issues.

69. The delegate of Bulgaria further stressed that increased consideration should be given to the management of Black Sea fisheries and warmly welcomed a timely finalization of the project document. He however stated that additional time would be necessary to further examine the draft proposal and provide comments accordingly.

70. The delegate of Turkey echoed the statement made by the delegates from Romania and Bulgaria and expressed his country's availability to help in the finalization of the project document, after a more complete examination of the project framework prepared by the Secretariat. He further informed the Commission that discussions were ongoing between Turkey and the EC aiming at the organization of a conference on Black Sea fisheries.

71. The delegate from the EC emphasized the GFCM commitment and responsibility with regard to the Black Sea. She expressed support to all endeavours to promote sustainable fisheries exploitation in this sub-region.

72. There was general agreement on the necessity to specifically focus on enhancing the capacity of Black Sea countries to address the challenge of managing Black Sea fisheries and its ecosystem through the quick formulation and implementation of a scientific and technical project in GSAs 29 and 30. The Secretariat was therefore requested to pursue efforts in the drafting of the project document with the understanding that the issue of financing would be considered at a latter stage.

73. Upon request of the French delegation, the Executive Secretary further reported on action taken towards promoting the adhesion of those Black Sea countries that are not yet Member of the GFCM. He referred to informal discussions held with Senior Officers of these countries on the occasion of the FAO Committee on Fisheries (COFI), followed by official correspondence including an invitation letter to participate in the thirty-second session of the Commission. The Commission entrusted the Secretariat to pursue its effort in monitoring this matter.

[...] 107. The Commission concurred to the relevance of all the activities and meetings proposed by SAC, while emphasizing the importance for an effective implementation of the Task 1 statistical matrix and better geographical coverage of stock assessment work, as well as noting the need for major involvement of SAC in the Black Sea. It endorsed in particular the following main activities [...]:

Joint GFCM/ICCAT Working Group on Large Pelagic Species

- prepare a multidisciplinary study on small tuna fisheries in the Mediterranean and the Black Sea;

This study was done and the resulting document was presented at the 33rd Session of the Commision in 2009 with the reference GFCM:XXXIII/2009/Dma.1, and was published as Studies and Reviews 85, available at:
http://151.1.154.86/GfcmWebSite/GFCM/33/pdf/StuRev85_web.pdf

2010
GFCM report of the 34th session

[...]
25. The report on regional projects was presented by Mr Pedro de Barros, Fisheries Resources Officer, FAO, who informed the Commission on the main activities performed by the FAO Mediterranean regional projects in support of GFCM. He recalled that, for the first time during this intersessional period the whole Mediterranean was covered by FAO
Regional Projects. He highlighted the main activities carried out and the outputs achieved by the projects AdriaMed, MedSudMed, CopeMed II, ArtFiMed, EastMed, Med-Fisis and
MED-LME. Moreover, he announced that the project formulation phase of the **BlackSeaFish project**[2] could probably be initiated soon. The role of the donor countries and of the project coordinators was highlighted.

[2] see Annex II

27. The Delegate of Turkey expressed his full support for the Black Sea-Fish project, the implementation of which is temporarily delayed due to some legislative constraints, on account of the nature of the bilateral agreement within the Turkish Administration.

28. The EU delegation stated that it looks with great interest on the development of scientific cooperation for sustainable exploitation of marine resources in the Black Sea region and is ready to support and participate in any development as considered adequate.

29. The delegate of Romania stated that there is an urgent need that GFCM could focus more on the improvement of sustainable exploitation of fisheries in the Black Sea and collaborate with Romania specifically in the field of assessment of main fish stocks and assessment of bycatches of cetaceans.

Implementation of GFCM Recommendations by Black Sea Members.

Table 1 shows the degree of implementation of some of the Recommendations, up to date only endorsed by Turkey.

Table 1: Implementation of GFCM Recommendations by Black Sea Members

Reference of GFCM Measures	Purpose	Implementing policy, legal or institutional framework
REC-GFCM/29/2005/1	On the management of certain fisheries exploiting demersal and deepwater pelagic.	**Turkey:** The GFCM Recommendation 2005/1 has been reflected into current national legislation governing commercial fishing, *i.e* Notification 1/1 Regulating Commercial Fishing. • Article 4 (e) sets out provisions for a minimum bottom trawl mesh size of 44 mm for fishing on Aegean and Mediterranean Sea • Article 4 (f) sets out provisions for a minimum bottom trawl mesh size of 40 mm for fishing on Black Sea.
REC-GFCM/29/2005/2	Establishment of a GFCM record of vessels over 15 metres authorized to operate in the GFCM area.	**Turkey:** All the Turkish vessel > 15m integrated into GFCM Fleet over 15 m, which was sent on 6 December 2008, reflect white list.
REC-GFCM/30/2006/2	Establishment of a closed season for the dolphin fish fisheries using fishing aggregation devices (FADs).	**Turkey:** • Fishing of dolphin fish is banned from January 1 to August 14 in accordance with the Article 22 (4) of the Notification 2/1 Regulating Commercial Fishing.

REC-GFCM/31/2007/1	Mesh size of trawlnets exploiting demersal resources.	**Turkey:** • Article 10 (bans on deep trawl fishing) of Notification 2/1 Regulating Commercial Fishing. No derogation has been granted to demersal trawl fishing for the use of a minimum diamond or square mesh size of 40 mm for trawl fishing
REC-GFCM/2008/1	On a regional scheme on port state measures to combat illegal, unreported and unregulated fishing in the GFCM area	**Turkey:** The amendments include provisions on the IUU fishing. A technical, infrastructural and operational framework is being developed: Turkey has constructed 36 offices at ports for collection of data on landings. Provisions on the designation of ports for landings have been included into the amended Fisheries Law which requires approval from the Turkish parliament. The following landing ports have been designated for controlling of IUU fishing. 1. Silivri Landing Port, Istanbul 2. Yakakent landing Port, Samsun 3. Güzelbahçe Landing Port, Izmir 4. Iskenderun Landing Port, Hatay These are the fishing ports to which foreign vessels may be permitted access in accordance with the Regulation. The amended Fisheries Law is expected to be approved by the Turkish Parliament within 2010.

REC-GFCM/33/2009/2	On a minimum mesh size in the codend of demersal trawl nets	**Turkey:** • Article 10 (2) of Notification 2/1 Regulating Commercial Fishing Use of a minimum size of 40 mm square mesh codend for trawl fishing is being implemented through legislative provisions. Works on bringing regulations on the use of a minimum legal diamond codend mesh size, in accordance with the Recommendation, is underway.
REC-GFCM/33/2009/4	On reporting of aquaculture data and information	**Turkey:** • Article 13 of Fisheries Law-1380. Turkish Statistical Institute is the main official competent authority for publishing all statistical data. The Ministry of Agriculture and Rural Affairs, the main competent body responsible for fisheries, circulates/reports official data and information on aquaculture to the relevant □rganizations, including FAO Fisheries and Aquaculture Department
REC-GFCM/33/2009/5	On the establishment of the GFCM Regional Fleet Register	**Turkey:** National fleet registry is being updated in real-time. Turkey is technically ready to submit the data required by the Recommendation
REC-GFCM/33/2009/6	Concerning the establishment of a GFCM record of vessels over 15 metres authorized to operate in the GFCM Area.	**Turkey:** Record of Turkish vessels over 15 metres authorized to operate in the GFCM Area is routinely submitted to the Secretariat
REF-GFCM/33/2009/7	Concerning minimum standards for the establishment of a vessel monitoring system in the GFCM Area	**Turkey:** • Ministerial Order on Bluefin Tuna Fishing. • Notification by Under secretariat for Maritime on the Equipment of Vessel with the Automatic Identification System Class-B CS Device and its Technical Specifications. (Date: 11th September, 2007; number:26640). A vessel monitoring system is being currently implemented for the vessel engaged in fishing for bluefin tuna. Vessels over 15 meters are under a legal obligation to have an Automatic Identification System since 1st January 2010. Turkey is technically ready to meet the requirements of that Recommendation.

FAO/Governments Cooperative Programme: the Black Sea Project (BlackSeaFish)

In 2008, at its 32nd Session of the Commision, 4 documents elaborated by the GFCM Secretariat and two consultants (J. Caddy and S. Knudesen) were made available (GFCM/XXXII/2008/Dma.4). Those document were the first step towards the preparation of a Cooperation Project . The outlines of these documents are summarized here below.

Recent experience and future options for fisheries assessment and management in the Black Sea: A GFCM perspective. *(J. Caddy)*
The aim of this paper is to explore a way forward for managing shared and migratory resources of the Black Sea, and to consider how this can be tackled in the GFCM context. Achieving this will need to include a number of basic organizational requirements as well as several innovations, given the significant environmental interactions that have been documented to affect the marine ecosystem of the Black Sea in addition to fishing effort. This paper suggests how the GFCM subregional approach could be adapted to support a closed fisheries management cycle in the Black Sea within a management framework where all parties could participate within their respective mandates and capabilities. (This paper is based on a more extensive summary of historical and useful material resulting from earlier GFCM/FAO involvement in Black Sea Issues).

List of supplementary relevant Black Sea-related documentation reviewed or compiled by the Secretariat *(GFCM Secretariat)*
- *The Trans-Boundary Diagnostic Analysis (TBDA) for the Black Sea developed 1993-6;*
- *The 2006 revised TBDA*
- *The Strategic Action Plan for the Rehabilitation and Protection of the Black Sea.*
- *Excerpts from the draft Project Document for the second phase of the UNDPGEF Black Sea Ecosystems Recovery Project, October 2004 (BSERP).*
- *Other projects and funded activities in the Black Sea.*
- *The Advisory Group on Fisheries and Other Marine Living Resources (AG FOMLR).*
- *Structure and functions of the GFCM and its relevance to Black Sea fisheries management*
- *Proposals relevant to fisheries considered in Phase 2 of the BSERP*
- *A summary of key points in Anon (1996): 'Strategic Action Plan for the Rehabilitation and Protection of the Black Sea'.*
- *Impacts of the transition from planned economies on national activities in support of fisheries.*
- *The closed fisheries management 'cycle': its purpose and components.*
- *Agreements reached within the BSERP on actions that need to be taken in developing indicators for selected commercial species and habitat/environmental indicators.*
- *Establishing a logical framework for using indicators for fishery monitoring and management.*
- *Summary of conclusions from a joint meeting between assessment scientists of the Mediterranean and Black Seas; Istanbul, 14-18 Nov, 2005.*
- *Decisions made at the Thirteenth Meeting of the Commission on the Protection of the Black Sea Against Pollution.*
- *Potential use of a Fisheries Control Law.*
- *Conservation of sturgeons and marine mammal populations.*

GFCM Black Sea programme: preliminary elements for a project framework *(S. Knudsen)*
This short report presents a general review on the knowledge of the state of Black Sea fisheries resources and management and seeks to identify the priorities and essential elements to promote sustainable fisheries in the region. The state of the Black Sea environment and fish stocks have been comprehensively addressed in several recent reports (TDA 2007, Caddy 2008, SOEBS 2008[3]) and this report will therefore not dwell much on these issues beyond outlining the main conclusions of those reports. After a short survey of the current

[3] *TDA 2007. 'Black Sea Transboundary Diagnostic Analysis'. Istanbul: UNDP/GEF Black Sea Economic Recovery Project.*
SOEBS 2008. 'State of the Environment Black Sea'. Istanbul: BSERP/BSC. Draft version.
Caddy, J. 2008. Recent experience and future options for fisheries assessment and management in the Black Sea: A GFCM perspective. GFCM internal report.

status of knowledge and regional cooperation, this report identifies challenges for cooperative responsible management of Black Sea fisheries. Following up on this survey, an outline of a possible GFCM Black Sea fisheries project in close cooperation with the BSC is outlined. The methodology used to produce this document includes, in addition to the author's own knowledge of the Black Sea fisheries, a thorough review of Caddy 2008, desk study of relevant scientific literature and reports, and consultation of project or institution web sites. Knowledge and perspectives were also gathered from some individuals involved in the sector, including the Executive Director of the BSC.

An outline of the series of objectives to be attained by the proposed project was also presented at the 32nd Session of the Commission in 2008. (GFCM/XXXII/2008/Dma.4).

Objectives and components of a possible GFCM-executed project in the Black Sea *(GFCM Secretariat)*

1. *Foster cooperation among fishery scientists and stakeholders from Black Sea coastal states in the fields of fisheries science, socio-economics and management within the framework of an Ecosystem Approach to Fisheries.*
2. *Promote technology transfer among countries and support capacity building in, inter alia, monitoring and assessment of fisheries resources, bio-economic □rganiza, fishing gear technology, catch assessment surveys and statistics and Information Technology tools for fisheries science.*
3. *Develop a multidisciplinary database and regional information system to act as a repository of all available data and information, as well as to serve as a tool to identify gaps in knowledge, perform analyses and produce outputs useful for scientists and managers alike.*
4. *Conduct joint data collection schemes including surveys to promote □rganizations□n methodologies, complete information deficiencies and calibrate national systems, as appropriate.*
5. *Promote discussion among scientists, decision makers and stakeholders, through, inter alia, workshops and symposia, on strategy options for fisheries management in the region □rganiza, in particular, on the integration of ecosystem considerations, bio-economic indicators and reference points, as well as on artisanal fisheries.*
6. *6. Cooperate with other initiatives of Black Sea scientific bodies, national entities and international projects, in order to achieve coordinated results and □rganiza the benefits for the future of the Black Sea environment and sustainable exploitation of Black Sea living marine resources.*
7. *Support the attendance of Black Sea national scientists in international fisheries scientific fora, together with those of related disciplines, and encourage their effective participation in activities of the GFCM Scientific Advisory Committee and those of other regional scientific bodies.*
8. *Promote the presentation and publication of knowledge and results emanating from the Project's activities in international conferences, seminars, scientific meetings of the GFCM and other relevant meetings, contributing to the advisory processes required for the implementation of responsible fisheries management in the Black Sea.*

In May 2010 a draft document on the upcoming Black Sea FAO Regional Project (BlackSeaFish) containing the main features and concepts was draft as a preparatory phase of the project (see Annex III). The overriding objective of the preparatory phase project is to prepare a Project Document for the full phase, based on the results of a formulation mission in the Black Sea countries to assess, in consultation with the relevant national authorities and other relevant stakeholders, the needs and expectations relative to fisheries management and research.

The main expected results of the full phase of the BlackSeaFish Project are:

- Identification of the main issues relevant for cooperation in fisheries research and management in the Black Sea;
- An improved network of Fisheries Research and Management institutions with mechanisms for dialogue and exchange among them;

- A document for a project in support of the countries in developing their capacity and the regional Scientific, Technical and Institutional cooperation and exchange necessary to support responsible fisheries in the Black Sea, in accordance with the FAO Code of Conduct for Responsible Fisheries and the Ecosystem Approach to Fisheries.
- Reinforced regional cooperation on Fisheries issues

The proposed actions of the full phase project document will derive from a participatory process with country representatives and relevant stakeholders. Their involvement at the early stages of the formulation process is central for the success of the project.

Studies or reports on the Black Sea submitted to the GFCM

Stock Assessment Forms (SAF)

In spite of the strong encouragement to scientists of the Black Sea area to actively participate in the subcommittees of GFCM, especially in stock assessments of small pelagic migratory species (see GFCM:SAC9/2006/Inf.14), to date no Stock Assessment Forms from the GSA 29 have been submitted to the GFCM Secretariat. Nevertheless, problems of data collection, as to gather consistent and reliability data on landings, fishing gears, vessels, efforts, etc. (particularly due to unreported illegal fishing) for the Black Sea countries have been already acknowledged (see GFCM:SAC9/2006/Inf.14).

GFCM Task 1 - Statistical bulletin

Updated (2008) information on fleet segment and stocks exploited within the GSA 29 (Black Sea) are available (see also Annex IV).

GSA 29

Black Sea

Reporting countries	Bulgaria BGR, Turkey TUR
Number of Vessels reported	7760
Number of Fleet Segment reported	11
Number of fishing Gear Classes reported	9
Number of Operational Units reported	54

GROUP OF TARGET SPECIES	*Tonnes*	*Countries*
SMALL GREGARIOUS PELAGIC SPECIES (e.g., anchovies, sardines, mackerel)	77 032	BGR+TUR
LARGE PELAGIC (e.g. tunas, amberjacks)	23.978	BGR
DEMERSAL SHELF SPECIES	16 108.72	BGR
DEMERSAL SLOPE SPECIES	25.57	BGR+TUR
SESSILE ORGANISMS (e.g., clams, mussels, warty venus)	35.11	BGR+TUR
MONOSPECIFIC (e.g., lobsters, red porgy)	513.46	BGR

Studies and Reviews

GFCM Studies and Reviews No. 85. Rome, FAO. 2009

- **Regional study on small tunas in the Mediterranean including the Black Sea**
  (Di Natale, A.; Srour, A.; Hattour, A.; Keskin, Ç.; Idrissi, M.; Orsi Relini, L.)
  This study, undertaken upon request by the General Fisheries Commission for the Mediteranean (GFCM), summarizes the available information about the small tuna species in the Mediterranean Sea and the Black Sea. It provides data on their biology and ecology, their exploitation, including the fishery statistics by species, and the socio-economic aspects of these fisheries. The study reverses the widespread perception that these fishing activities were almost irrelevant either in terms of catches or revenues. Indeed it was commonly believed that these fisheries were mostly subsistence activities. On the contrary, important production levels can be achieved. The fleet catching small tunas is scarcely defined or not identified in most of the countries studied, but it is generally known that thousands of small- and medium-sized vessels, engaged in small-scale, artisanal or recreational fisheries, are carrying out activities that also target small tuna species. In addition, catches are also obtained as a bycatch in other fisheries. Many Mediterranean and Black Sea countries are not reporting any catches, or, in the case of a few countries, only a small number of landings are declared. Nevertheless, fishery production data related to the small tuna species show a total official reported landing of 83 386 tonnes in

2005. The underreporting is believed to be significant because landing sites are scattered all along the coastline and the islands – where many thousands of small and medium-sized vessels operate – and the catches are often directly marketed. Moreover, catches from recreational fishery in many countries are seldomly reported. Under such circumstances, the total landings could possibly be estimated at a minimum of about 150 000 tonnes. Considering only the total official production for the four most relevant species, it is likely that the estimation of the real production might reach about 300 millions euros in the best years. A specific problem can be noted in relation to the small tuna species fishery in the Marmara Sea and in the Black Sea. Apart from Turkey, no recent data are present in any of the databases used for this study. The level of catches reported by Turkey in that area is, however, important. A secondary difficulty is the lack of data on fleet segmentation targeting these species, on catch per unit effort (CPUE) and on socio-economic parameters.

GFCM Studies and Reviews No. 87. Rome, FAO. 2010

- **Status of alien species in the Mediterranean and in the Black Sea**
  (Ozturk B.)
  Biota of the Black and Mediterranean Seas have started to change with the introduction of alien species in the last few decades due to Lessepsian migration, Atlantic influx, intentionally or unintentionally introduction and climate change. Dispersion of alien species is a dynamic process showing a sign of increasing and likely to continue for the future. This phenomenon causes severe ecological, socio-economical, and human health problems in the entire basin.

Studies submitted to Workshops and Working Groups (from 2007 to 2010)

SAC-SCESS-SCSA – Transversal Workshop on the Monitoring of Recreational Fisheries in the GFCM Area, Palma de Mallorca, Spain, 20-22 October 2010

- **Characteristics of Marine Recreational Fishery Focusing on Spearfishing in Turkey**
  (Ünal V. and Özgül A.)
  With the income per capita increasing in Turkey in recent years, there is a growing tendency of people sparing more money and time for outdoor and leisure activities, foremost among which is recreational fishing. Undoubtedly, this fact largely owes to the beauty of the Turkish coasts and their convenience for such activities. Presently a substantial percentage of the Turkish coastal population regularly enjoys fishing for pleasure and personal consumption along almost 8,800 kilometers of coastline in the Mediterranean, Aegean, Marmara and Black Seas. In the present study we review the current regulations of marine recreational fishery with a special emphasis on spearfishing in Turkey. The government agency responsible for regulations and management of this activity is the Ministry of Agriculture and Rural Affairs.

SCMEE – Workshop on Algal and Jellyfish Blooms in the Mediterranean and Black Sea, Istanbul, Turkey 6-8 October 2010

- **Gelatinous macrozooplankton composition and seasonal distribution in Sinop peninsula of the central Black Sea of Turkey between 2002 and 2006**
  (Bırıncı Özdemır Z., Bat L., Sezgin M., Satilmis H. H., Sahin F. and Üstün F.)
  Seasonal distribution, biomass and abundance of Aurelia aurita, Pleurobrachia pileus, Mnemiopsis leidyi and Beroe ovata at the central southern Black Sea (Sinop Peninsula) were studied using vertical tows from stations at biweekly or monthly intervals between January 2002 and November 2006. In study period, the most abundant and biomass of gelatinous macrozooplankton were obtained 120 $n.m^{-2}$ on May 2005 and 1073.5 $g.m^{-2}$ on March 2003,

respectively. The maximum abundance values of gelatinous macrozooplankton were determined 42.5 n.m^{-2} on September 2002, 91.25 n.m^{-2} on July 2003, 108.33 n.m^{-2} on July 2004 and 95 n.m^{-2} on May 2006. High biomass values were achieved 230 g.m^{-2} on May 2002, 111.3 g.m^{-2} on March 2004, 447.75 g.m^{-2} on May 2005 and 393.33 g.m^{-2} on July 2006, respectively. Minimum abundance and biomass of macrozooplankton amounts were found in winter sampling periods in all years. In terms of annual abundance, A. aurita was the dominant group in 2002, whereas P. pileus was the highest abundance group in 2004, 2005 and 2006. Moreover, B. ovata was found very low density, except 2002. Percentage of M. leidyi was showed decreasing from 2002 to 2006.

- **Basin-Wide Black Sea Mnemiopsis Leidyi Database (MLDB)**
  (Myroshnychenko V. and Kideys A. E.)
  The database was created in 2008 in framework of the FP6 Black Sea SCENE project and further supported by the Permanent Secretariat of the Black Sea Commission. A team of scientists studying the M. leidyi in the Black Sea organized a consortium on a voluntary basis with purpose to maintain the database and provide their data and metadata on jellyfish in the Black Sea to common use. At the moment database contains ML metadata and data covering all the Black Sea for period 1989-2009.

- **Decreasing methods of jellyfish bycatch on the trawl fishery**
  (Özdemır S.)
  Fishery by-catch and discards are old issues in fishing history but have become one of the most significant problems currently encountered by many fisheries. Large quantities of jellyfish are discarded in the anchovy, horse mackerel, bluefish and bonito fisheries in Turkish waters. The devices varied depending on the need of the particular fisherman. Some fishermen developed grids to exclude turtles, rays, sponges, and jellyfish, because these animals were caught frequently or because the value of their target catch could be increased markedly. Several fishermen took an interest in developing devices to reduce fishery by-catch in Black Sea. Grids are used to expel sea turtles and jellyfish. Grid practice could be preventing to catch of these species, on trawl fisheries in Black Sea. Additional, it is possible more quality of target species and selectivity by grid systems in trawl net.

- **The effect of jellyfish on the small scale fishery in the Black Sea**
  (Özdemır S., Erdem E. and Bırıncı Özdemır Z.)
  By-catch in fisheries has been considered a serious problem. Horse mackerel is a most of the economic fish in the Turkey small scale pelagic trawl fishery. Jellyfish are important by-catch pelagic trawl fisheries in the Black Sea coast of Turkey such as inedible, damage to target species, decreasing catch amount and mean length of fish. The experiments were carried out Black Sea coast (Sinop-Samsun) in October 2008; total 11 night and 11 daytime pelagic trawls were towed. Horse mackerel (Trachurus mediterraneus) and moon jellyfish (Aurelia aurita) were caught by pelagic trawl in the study 19540 kg and 8220 kg respectively. In the present study the effect of moon jellyfish (Aurelia aurita) on the catch efficiency and length composition of horse mackerel caught by the midwater trawl were established. The results showed that moon jellyfish catch amount increased, horse mackerel catch amount decreased in pelagic trawl fishery in the fishing region at night on the other hand jelly fish ineffective on horse mackerel catch and size composition at daytime. Differences between mean length of horse mackerel in the hauls are significant ($p<0.05$).

17-18 September 2008

- **Cetacean-Fisheries conflicts in the Black Sea Region** (Birkun A.)

- **Turbot fisheries and its impact on dolphin by-catch in the Black Sea. (**Öztürk B. and Tonay A. M.)

SCSA – Working Group on Demersals, Athens, Greece, 10-12 September, 2007

- **Experimental Studies on the Restocking of the Turbot *Psetta maxima* Populations in the Eastern Black Sea Coast (GSA 29)**
  (Zengin M, Polat H., Kutlu S. and Gümüs A.)
  Turbot Psetta maxima is one of the most important commercial species among demersal fishes inhabiting Turkish Black Sea Coasts. Unfortunately, the turbot stocks declined because of the over fishing, fishing fleet pressure and faulty fisheries management since the last of 1980s (Figure 1). However, turbot have always been a primary target for marine stock enhancement. The first study for the turbot restocking have been started in the Turkish Black Sea coast in 1999, with collaboration of CFRI (Trabzon Central Fisheries Research Institute) and JICA (Japan International Cooperation Agency). During 1999-2002, around 30.000 hatched and reared fish of 0-age group fish 13.9 (6.5-20.7) cm were released regularly from 11 different locations between Georgian Board and Sinop Cape. All individuals were tagged externally, numbered with Tbar tags having ten different colours. The material of the tag is composed of polyethylene. The tags were placed intramusculary nearly between 10^{th} and 15^{th} rays of the dorsal fin. After releasing, we carried out a recapture programme up to the end of 2005. For the collection of samples, cooperation was conducted with coastal fishermen offering little rewards such as money, t-shirt, cap, some fishing equipment and posters. In a period of 7 years after releasing 2.2% of the turbot were recaptured, by gill-net and bottom trawl fisheries mostly in winter, spring and early summer. Recaptures were made at the coastal sites within a range of about 60 km from the release locations. Maximum vertical migrations reached to the limits of 110 m in direction of the littoral zone from releasing area. Population migrates and concentrated in depths 30-40 m as the spawning occurred. There was a linear relation between vertical/□rganizati migrations and age-size groups. The recapture rate appeared to be positively correlated with size of fish (age).

National Reports submitted by the Black Sea countries to the Scientific Advisory Committee (from 2007 to 2010)

Table 2: analysis of national Reports submitted to the SAC in 2007

Member country	Description of the fisheries	Status of stocks of priority species	Status of the statistics and information system	Status of Research in progress	Status of the social sciences studies in progress	Marine environmental studies in progress	National management measures	Research Suggestions for consideration by SAC
Turkey	Fleet: 18 790 Units. Production: 488 966 tonnes in 2006.	Scientific stock assessment studies are currently not in place in Turkey.	A Fisheries Information System (FIS) has currently been developed in order to create the applications and Procedures needed to both comply with the EC fisheries acquis and improve fisheries management. Data on marine, inland and aquacultural production are collected from 81 Provincial Directorates of Ministry of Agriculture and Rural Affairs (MARA) with collaboration of Turkish Statistical Institute (TURKSTAT). The MARA is planning to launch a work on the integration of GFCM's Task 1 data system into its FIS system.	A project to strengthen national institutional capacity for scientific research on stock assessment. Certain studies on the selectivity of fishing gears with the aiming of reducing bycatch are underway.	The MARA is conducting a comprehensive social-economic study on the Marmara Sea Fisherman. Estimation of socio-economic indicators in marine smallscale fisheries. Socio-economics of fishing enterprises in the Black Sea Region. The role of women in marine capture fishery in the Aegean, Turkey. The relationship between the fish price and the fishing effort in Gokova bay Fishery. Success and failure of fishery cooperatives in the Aegean, Turkey.		Amended draft Fisheries Law is at the Turkish parliament for approval – forms the basics of the new implementation, including Fisheries Information System, Vessel Monitoring System and brings new regulations in respect to enhanced control, enforcement and standards for market.	Improve the conventional Mediterranean type bottom trawl nets used in the Aegean Sea; Selectivity and survival experiments are of importance for fisheries management – supported by basic biological studies related to spawning period, growth, recruitment, and mortality of some important demersal fish species and also studies on fish behavior observations with underwater devices.

Table 2: analysis of national Reports submitted to the SAC in 2008

Member country	Description of the fisheries	Status of stocks of priority species	Status of the statistics and information system	Status of Research in progress	Status of the social sciences studies in progress	Marine environmental studies in progress	National management measures	Research Suggestions for consideration by SAC
Bulgaria (updated 2008)	Fishing activities exclusively in the Black Sea. Fleet: 2,537 vessels Production of main species: 7 830 tonnes	Exploitation biomass of turbot in the north region of the Black Sea is: 2008938.18 tons for autumn and winter period of 2007 b) 1251.55 □rgan for spring season 2008. Exploitation biomass of turbot in the southern region of the Black Sea is: 2008958.38 tonnes for autumn and winter period of 2007 b) 714.63 tonnes for spring season 200 The stock of sprat is not overexploited (current biomass is 32,718.246 tons	National Agency of Fisheries and Aquaculture (NAFA) is responsible for registers of: licenses for commercial and recreational fisheries, persons engaged in fishfarming, fishing vessels, fish markets/ centres, registered customers, organizations of fish producers, trade and processing, licenses for catching fish for scientific purposes.	Trawl surveys since 2005			The Fisheries and Aquaculture Act (FAA) was adopted in 2001 (amended in 2006 and 2008) and determines the management, exploitation, and conservation of the fish resources and the trade with fish and other aquatic organisms.	
Turkey	Fleet: 18 790 units	Scientific stock assessment studies are currently not in	A Fisheries Information System (FIS) has	A project to strengthen national	The MARA is conducting a comprehensive		Amended draft Fisheries Law is at the Turkish	Improve the conventional Mediterranean

	Production: 488,966 tons in 2006	place in Turkey	currently been developed in order to create the applications and procedures needed to both comply with the EC fisheries acquis and improve fisheries management. Data on marine, inland and aquacultural production are collected from 81 Provincial Directorates of Ministry of Agriculture and Rural Affairs (MARA) with collaboration of Turkish Statistical Institute (TURKSTAT) The MARA is planning to launch a work on the integration of GFCM Task 1 data system into its FIS system	institutional capacity for scientific research on stock assessment. Certain studies on the selectivity of fishing gears with the aiming of reducing bycatch are underway.	social economic study on the Marmara Sea fisherman. Estimation of socio-economic indicators in marine smallscale fisheries. Socioeconomics of fishing enterprises in the Black Sea Region. The role of women in marine capture fishery in the Aegean, Turkey. The relationship between the fish price and the fishing effort in Gokova bay Fishery. Success and failure of fishery cooperatives in the Aegean, Turkey.		parliament for approval – forms the basics of the new implementation, including Fisheries Information System, Vessel Monitoring System and brings new regulations in respect to enhanced control, enforcement and standards for market.	type bottom trawl nets used in the Aegean Sea. Selectivity and survival experiments are of importance for fisheries management – supported by basic biological studies related to spawning period, growth, recruitment and mortality of some important demersal fish species and also studies on fish behaviour observations with underwater devices

Table 2: analysis of national Reports submitted to the SAC in 2010

Member country	Description of the fisheries	Status of stocks of priority species	Status of the statistics and information system	Status of Research in progress	Status of the social sciences studies in progress	Marine environmental studies in progress	National management measures	Research Suggestions for consideration by SAC
Bulgaria (not updated)	Fishing activities exclusively in the Black Sea Fleet: 2,537 Vessels Production of main species: 7,830 tons	Exploitation biomass of turbot in the north region of the Black Sea is: 2008938.18 □rgan for autumn and winter period of 2007; b) 1,251.55 □rgan for spring season 2008. Exploitation biomass of turbot in the southern region of the Black Sea is: 2008958.38 □rgan for autumn and winter period of 2007 b) 714.63 tonnes for spring season 2008. The stock of sprat is not overexploited (current biomass Is 32 718.246 □rgan).	National Agency of Fisheries and Aquaculture (NAFA) is responsible for registers of: licences for commercial and recreational fisheries, persons engaged in fishfarming, fishing vessels, fish markets/ centres, registered customers, □rganizations of fish producers, trade and processing, licences for catching fish for scientific purposes.	Trawl surveys since 2005.			The Fisheries and Aquaculture Act (FAA) was adopted in 2001 (amended in 2006 and 2008) and determines the management, exploitation, and conservation of the fish resources and the trade with fish and other aquatic organisms.	
Turkey (updated 2010)	Fleet: 17,816 Units. Production: 453	Scientific stock assessment studies are currently not in	An integrated web-based Fisheries Information System (FIS) has been developed and is able to collect, process, transmit		None.	Ongoing project (partly funded by GEF) entitled:	New technical regulation on fishing and landing of	None.

	113 tons in 2008. Fishing operations in GSAs 22, 24, 28, 29.	place in Turkey.	and disseminate data. MARA is planning to shift the paper-based logbook into the electronic one; A VMS has been started in 2008 with the vessels involved into bluefin tuna fishing (about 200 vessels). As from 2010,fishing vessels over 15 meters(about 1,250 vessels) will be under an obligation to have Automated Identification System (AIS) Installed.			Strengthening Protected Area Network of Turkey.	anchovy has been issued.	

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Knudsen S. 2008. GFCM Black Sea programme: preliminary elements for a project framework. GFCM Meeting document GFCM/XXXII/2008/Dma.4

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Annex I

Organizations working on the Black Sea Fisheries[4] and Ecosystem

A. THE COMMISSION ON THE PROTECTION OF THE BLACK SEA AGAINST POLLUTION

Starting Date *April 1992*

Black Sea Region: *Whole Black Sea Region*

Mission: *Acting on the mandate of the Black Sea countries (Bulgaria, Georgia, Romania, Russian Federation, Turkey and Ukraine) which on the 21-04-1992, signed and shortly thereafter ratified the Convention on the Protection of the Black Sea Against Pollution, the Commission on the Protection of the Black Sea Against Pollution (the Black Sea Commission) implements the provisions of the Convention and the Black Sea Strategic Action Plan.*

Advisory Groups:
ESAS - *Advisory Group on the Environmental Safety Aspects of Shipping;*
PMA - *Advisory Group on the Pollution Monitoring and Assessment;*
LBS - *Advisory Group on Control of Pollution from Land Based Sources;*
IDE - *Advisory Group on Information and Data Exchange;*
ICZM - *Advisory Group on the Development of Common Methodologies for Integrated Coastal Zone Management;*
CBD - *Advisory Group on the Conservation of Biological Diversity;*
FOMLR - *Advisory Group on the Environmental Aspects of the Management of Fisheries and other Marine Living Resources;*

Recent publications:
Black Sea Fish Check-List;
Is the number of the jellyfish increasing as the Black Sea is warming up?;
State of Environment Report 2001 - 2006/7;
Manual for Quantitative Sampling and Sample Treatment of MarineSoft-Bottom Macrozoobenthos

Web-site: www.blacksea-commission.org

Relation with the GFCM (from GFCM/SAC9/2006/Inf.14):
During the Permanent Working Group on Stock Assessment Methodologies (Istanbul, Turkey, 8-10 March 2006) Dr. Tarasova offered a presentation on "Convention on the protection of the Black Sea against pollution", regarding mainly facts and figures governing fisheries in the Black Sea. The purpose of the Convention on the Protection of the Black Sea Against Pollution is to preserve, protect and manage in the sustainable way the environment of the Black Sea. Dr. Tarasova described the unique topographic features of the Black Sea and gave an indication of the Hydrogen Sulfide Zone distribution in relation to the bathymetry in the Black Sea stating that the retention time lasts over 1000 years. Frequently Used Names (Convention on the Protection of the Black Sea Against Pollution, Bucharest Convention, Black Sea Convention) and Protocols to the Convention were presented.
Dr. Tarasova elaborated the BSC Organization Structure which consists of the Black Sea Commission and its Permanent Secretariat based in Istanbul, Turkey, the Advisory Groups, the Activity Centers

[4] No regional scale projects or institutions that focus solely on Black Sea fisheries (except GFCM)

and the Focal Points. Then the Major Environmental Problems of the Black Sea and the Actions Plans and Strategies were presented:

- Eutrophication to which the Danube contributes in a significant way
- Oil Pollution – threats arise from increasing intensity of oil transport
- Exotic species – the invasion of *Mnemiopsis leydyi* had a devastating effect on the fish resources especially for the Sea of Azov
- Overexploitation of marine living resources
- Climate change and its effects on the Black Sea ecosystem
- The Actions Plans and Strategies are:

Strategic Action Plan for Rehabilitation and Protection of the Black Sea, 1996, amended 2002 the Black Sea Contingency Plan to the Protocol on Co-operation in Combating Pollution of the Black Sea Marine Environment by Oil and Other Harmful Substances in Emergency Situations (Emergency Protocol), Volume I, Response to Oil Spills, 2003 –signed by Romania, Bulgaria and Turkey

Further on the main Policy Measures, the Main accomplishments and the Expected Activities in 2005-2006 were presented. Main Policy Measures:

a) Pollution reduction
b) Conservation of biodiversity and marine living resources
c) Sustainable development of coastal zone

Main accomplishments:

1) Establishment of regional cooperation
2) Development and improvement of national environmental legislation
3) Better knowledge of the environmental, economic, and societal issues of coastal population
4) Establishment of dialog with public and stakeholders

Expected Activities in 2005-2006

- Black Sea Assessment of Distribution and Abundance of Cetaceans
- Black Sea Assessments of Stocks of Anchovies and Turbot
- Black Sea Oil Spill Response Exercise
- Satellite Monitoring and Assessment of Sea-based Oil Pollution in the Black Sea (Training course + Workshop, 15 June, Istanbul)
- The 1st Biannual Scientific Conference of the Black Sea Commission

Dr. Tarasova presented, a List of Species whose Exploitation should be regulated and provided details regarding matters such as Mariculture in the Black Sea, Landing and Stock Assessment in Romania (Profile of Fishing Fleet of the Black Sea in 2002-2004), Fish Landings in the Black Sea, Fisheries Regulatory Tools in the Black Sea States, European Anchovy sizes in the Black Sea.

BSC Work Plan 2009/2010 (only activities where GFCM is involved are mentioned):

Area of Work	Activity	Participants	Responsible Entities	Output	Deadline
Support to the process of negotiation on the Black Sea Legally Binding document on fisheries	*Continuing of the work towards convergence of the positions of the Black Sea countries on LBD*	*DG MARE, FAO, GFCM*	*BSC, FOMLR AG, experts*	*Modifications in the Legally Binding Document on fisheries as necessary. Negotiations.*	*2011*
Harmonise and improve methodologies for the collation of fisheries statistic data and for assessment of the fish stocks at a regional level	*Cooperation in fishery assessment with various related organizations*	*FAO, GFCM, Institutions in the Black Sea countries, DG MARE, DG ENV, FOMLR AG*	*BSC PS*	*Agreed methodologies. Regular, and where possible, coordinated stock assessments of all commercially important fish*	*continuous*
Capacity building	*Training course on analytical methods for stock assessments*	*FAO, GFCM*	*BSC PS*	*Course documents; Black Sea EC/STECF, Subgroup continues working*	*tentative*

B. ACCOBAMS

(Agreement on the Conservation of Cetaceans in the Black Sea Mediterranean Sea and Contiguous Atlantic Area)

Mission: *To reduce threats to cetaceans in Mediterranean and Black Sea waters and improve the knowledge of these animals.*

Black Sea Region: *Whole Black Sea Region*

Starting Date: *1995*

Web-site: *www.accobams.org*

Black Sea Organization for Integration and Sustainable Development

Mission: *The mutual integration of the Black Sea region in the fields of economy, society and ecology in order to achieve sustainable development initiatives, as well as the creation and strengthening of economic and social ties with stakeholders - non-residents of the Black Sea region.*

Starting Date: *2010*

Web-site: *www.BlackSea-online.org*

EUROFISH

Mission: *Eurofish is an international organisation established to assist the development of fisheries and aquaculture in Central and Eastern Europe focusing on post-harvest fisheries and aquaculture industries. Eurofish contributes to the development of fisheries and aquaculture sector through the publication of marketing and industry related information in the Eurofish Magazine, Eurofish website, Eurofish Magazine website, as well as through the organization of conferences, workshops and seminars, business – to – business meetings and by executing a variety of projects in the fields of trade and market,, processing and aquaculture. Eurofish has an in-depth knowledge about the fisheries and aquaculture sector in Europe and neighbouring countries and an extensive network in this region.*

Black Sea Region: *Turkey, Romania, Bulgaria*

Starting Date: *1996*

Web-site: *www.eurofish.dk*

C. BSECOrganization of the Black Sea Economic Cooperation

Mission:	*Initiative aimed at fostering interaction and harmony among the Member States, as well as to ensure peace, stability and prosperity encouraging friendly and good-neighbourly relations in the Black Sea region.*
Black Sea Region:	*Albania, Armenia, Azerbaijan, Bulgaria, Georgia, Hellenic Republic, Moldova Romania, Russian Federation, Serbia, Turkey, Ukraine.*
Starting Date:	*1992*
Web-site:	*www.bsec-organization.org/Pages/homepage.aspx*

Annex II

Research projects running on the Black Sea marine ecosystem

A. The Cooperative Marine Science Programme for the Black Sea (CoMSBlack)

Supporter:	*Intergovernmental Oceanographic Commission (IOC)*
Mission:	*The primary purpose of CoMSBlack, the establishment of a scientific basis for the effective and integrated management of the Black Sea, including environmental preservation, protection and optimum utilization, will be achieved by: clarifying the fundamental oceanographic processes and rates contributing to the environmental quality, including variability in space and time; assessing the role of anthropogenic inputs, and long-term climatic variability on the changing ecosystem; developing realistic ecological models coupled with general and regional circulation dynamics in a form usable for management; and establishing a long-term database of fluxes of water and biogeochemical active materials that affect the environment of the Black Sea.*
Black Sea Region:	*Whole Black Sea Region*
Starting Date:	*April 1991*
Ending Date:	*Ongoing*
Web-site:	*n/a*

B. Upgrade Black Sea SCENE

Supporter:	*European Commission FP7 (Seventh Framework Program)*
Mission:	*The project established a Black Sea Scientific Network of leading environmental and socio economic research institutes, universities and NGO's from the countries around Black Sea and developed an initial virtual data and information infrastructure populated and maintained by these organizations.*
Black Sea Region:	*Whole Black Sea Region*
Starting Date:	*2009*
Ending Date:	*2011*
Web-site:	*www.blackseascene.net*

C. SESAME

Supporter:	*European Commission FP6 (Sixth Framework Program)*
Mission:	*Aims to evaluate and predict changes in the Mediterranean and Black Seas ecosystems and in their ability to provide key goods and services.*

Black Sea Region: *North Western and North Eastern Black Sea*

Starting Date: *2006*

Ending Date: *Ongoing*

Web-site: *www.sesame-ip.eu*

EnviroGRIDS @ Black Sea Catchment

Supporter: *European Commission FP7*

Mission: *EnviroGRIDS aims at building capacities in the Black Sea region to use new international standards to gather, store, distribute, analyze, visualize and disseminate crucial information on past, present and future states of this region, in order to assess its sustainability and vulnerability. To achieve its objectives, EnviroGRIDS will build a Grid-enabled Spatial Data Infrastructure (GSDI) becoming one of the integral systems in the Global Earth Observation System of Systems (GEOSS), and compatible with the new EU directive on Infrastructure for Spatial Information in the European Union (INSPIRE), as well as UNSDI developments.*

The scientific aim of the EnviroGRIDS @ Black Sea Catchment project is to start building an Observation System that will address several GEO Societal Benefit Areas within a changing climate framework. This system will incorporate a shared information system that operates on the boundary of scientific/technical partners, stakeholders and the public. It will contain an early warning system able to inform in advance decision-makers and the public about risks to human health, biodiversity and ecosystems integrity, agriculture production or energy supply caused by climatic, demographic and land cover changes on a 50-year time horizon.

Black Sea Region: *Whole Black Sea Region*

Starting Date: *April 2009*

Ending Date: *March 2013*

Web-site: *www.envirogrids.net*

D. PEGASO (People for Ecosystem-based Governance in Assessing Sustainable development of Ocean and coast)

Supporter: *European Commission FP7*

Mission: *The main objective of PEGASO is to build on existing capacities and develop common novel approaches to support integrated policies for the coastal, marine and maritime realms of the Mediterranean and Black Sea Basins in ways that are consistent with and relevant to the implementation of the ICZM Protocol for the Mediterranean.*

Black Sea Region: *Whole Black Sea Region*

Starting Date: *January 2010*

Ending Date: *December 2013*

Web-site: *www.pegasoproject.eu*

E. KnowSeas

Supporter: *European Commission FP7*

Mission: *The overall objective of the project is to provide a comprehensive scientific knowledge base and practical guidance for the application of the Ecosystem Approach to the sustainable development of Europe's regional seas. This will increase the evidence base available for decision makers and facilitate the practical implementation of the Ecosystem Approach, currently seen by some stakeholders as confusing and nebulous. It will be delivered through a series of specific sub-objectives that lead to a scientifically based suite of tools to assist policy makers and regulators with the practical application of the Ecosystem Approach. It is also expected to deliver high quality scientific outputs that advance our understanding of coupled social and ecological systems.*

Black Sea Region: *Whole Black Sea Region*

Starting Date: *April 2009*

Ending Date: *April 2013*

Web-site: *www.knowseas.com*

F. Hypox

Supporter: *GEO (Group on Earth Observations)/European Commission FP7*

Mission: *HYPOX is a EU funded project involving 16 partner institutions located in 11 countries in and around Europe. HYPOX is focusing on a better understanding of the occurrence of hypoxia (low oxygen conditions) in aquatic systems and the influence of anthropogenic impacts on the responsible processes.*
The scientific work focuses on capacity building for improved oxygen monitoring (continuously at high temporal resolution) at a number of target sites as well as on modeling and prediction of hypoxia and ecosystem consequences.
Black Sea related work is focusing on three sites: Istanbul Strait, Crimean Shelf and Romanian Shelf.

Black Sea Region: *Whole Black Sea Region*

Starting Date: *April 2009*

Ending Date: *April 2013*

Web-site: *www.hypox.net*

G. MEECE (Marine Ecosystem Evolution in a Changing Environment)

Supporter:	*European Commission FP7*
Mission:	*MEECE is a European FP7 Integrated Project which aims to increase ecosystem modelling predictive capacities. Both natural and human-induced climate pressures have an impact on the structure and function of marine ecosystems. Using a combination of data synthesis, numerical simulation and targeted experiments MEECE intends to boost our knowledge and develop the predictive capabilities needed to learn about the response of marine ecosystems.* *MEECE will also develop methods to integrate the dynamic response of marine ecosystems to the combined effects of various anthropogenic and natural drivers in order to provide decision making tools to support the EC Marine Strategy, EC Maritime Policy and the EC Common Fisheries Policy.*
Black Sea Region:	*Whole Black Sea Region*
Starting Date:	*September 2008*
Ending Date:	*September 2012*
Web-site:	*www.meece.eu*

H. ODEMM (Options for Delivering Ecosystem-Based Marine Management)

Supporter:	*European Commission FP7*
Mission:	*The overall aim of the ODEMM project is to develop a set of fully-costed ecosystem management options that would deliver the objectives of the Marine Strategy Framework Directive, the Habitats Directive, the European Commission Blue Book and the Guidelines for the Integrated Approach to Maritime Policy. The key objective is to produce scientifically-based operational procedures that allow for a step by step transition from the current fragmented system to fully integrated management.*
Black Sea Region:	*Whole Black Sea Region*
Starting Date:	*March 2010*
Ending Date:	*October 2013*
Web-site:	*www.liv.ac.uk/ODEMM*

Annex III

Draft cover and Table of Contents of the BlackSeaFish Project

Black Sea Project Document (Identification and formulation) May 2010

منظمة الأغذية والزراعة للأمم المتحدة | 联合国粮食及农业组织 | Food and Agriculture Organization of the United Nations | Organisation des Nations Unies pour l'alimentation et l'agriculture | Organización de las Naciones Unidas para la Agricultura y la Alimentación

FAO/GOVERNMENTS COOPERATIVE PROGRAMME
PROJECT DOCUMENT

Project Title:	Identification and formulation of a project to strengthen Scientific, Technical and Institutional cooperation to support responsible fisheries in the Black Sea
Short Title:	BlackSeaFish
Project Symbol:	GCP/INT
Countries:	Countries bordering the Black Sea

Table of Contents

Annex IV

GFCM Task 1 - Statistical Bulletin - GSA 29

http://151.1.154.86/Task1_Bulletin_2010_GSAs/GSA_29.pdf