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**GENERAL FISHERIES COMMISSION  
FOR THE MEDITERRANEAN  
COMMISSION GÉNÉRALE DES PÊCHES  
POUR LA MÉDITERRANÉE**



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**GENERAL FISHERIES COMMISSION FOR THE MEDITERRANEAN**

**Scientific Advisory Committee (SAC)  
Thirteen Session Marseille, France, 7-11 February 2011**

**Report of the Transversal Workshop on the monitoring of recreational  
fisheries in the GFCM area  
Palma de Majorca, Spain, 20-22 October 2010**

**OPENING, ARRANGEMENT OF THE MEETING AND ADOPTION OF THE  
AGENDA**

- 1) The transversal Workshop on the monitoring of recreational fisheries was held at the Universitat de les Illes Balears, in Palma de Mallorca (Spain), from 20 to 22 October, 2010. It was attended by 30 participants from 6 GFCM members (Egypt, Morocco, Italy, France, Spain, and Turkey) as well as from RAC-SPA, WWF, Oceana, Confederación Española de Pesca Recreativa Responsable, Federaciones Española y Catalana de Actividades subacuáticas, Confédération Internationale de la Pêche Sportive (CIPS), European Anglers Alliance (EAA), United Kingdom, and Portugal. The list of participants is provided in Appendix B.
- 2) Mrs. P. Arbona, Deputy General Fisheries of the Balearic Islands Government (Spain) welcomed the participants and thanked them for attending this meeting. She stressed the relevance of the topic and the need to further address it. Prof. B. Morales-Nin, Director of the Mediterranean Institute for Advanced Studies (IMEDEA, UIB/CSIC) welcomed the participants, presented the main issues to be discussed as well as the arrangements of the meeting.

- 3) Mr. A. Srouf, Acting Executive Secretary of the GFCM, welcomed the participants and thanked the authorities of the Balearic Islands as the IMEDEA, for their kindness in hosting and arranging the meeting. He introduced the GFCM and its functioning and recalled the frame of the workshop.
- 4) Mr. V. Ünal, coordinator of the Sub-Committee on Economic and Social Sciences (CESS), welcomed the participants and opened the meeting. He recalled the context and the main objectives of the meeting:
  - To analyze the status of the recreational fisheries and its socioeconomic impacts in the Mediterranean and the Black Sea;
  - To find a common definition of recreational fisheries to be used in the monitoring framework;
  - To analyse the different national regulatory systems in connection with recreational fishing activities in the member countries;
  - To identify the key elements for a monitoring framework which includes the required data and information.
- 5) Mr. I. Cowx chaired the meeting. He also acted as Rapporteur with Mr. V. Ünal, Ms. C.Samier, and Prof. B. Morales-Nin for each section of the agenda.

#### **ADOPTION OF THE AGENDA**

- 6) The agenda was discussed and adopted without change. The final agenda is reproduced as Appendix A.

#### **REVIEW AND DISCUSSION OF TRANSVERSAL ISSUES**

- 7) A total of nine presentations were exposed by national experts from Spain, Italy, Portugal, Turkey, Morocco and Egypt on the status of the recreational fisheries and its socioeconomic impacts in the Mediterranean and the Black Sea. The abstracts as submitted by their respective authors are listed in Appendix C.

#### **ANALYSIS OF THE STATUS OF THE RECREATIONAL FISHERIES AND ITS SOCIOECONOMICS IMPACTS IN THE MEDITERRANEAN AND THE BLACK SEA**

##### **Preliminary review of the status and trends in recreational fisheries (*by I. Cowx*).**

- 8) Mr. Cowx made a presentation through which he provided a global overview of the status and trends in recreational fisheries. He highlighted that approximately a tenth of the population across all countries engages regularly in recreational fishing. In Europe there are 25 million anglers; in USA, 30 million; in Australia, 3.5 million. The economic value of recreational fisheries is high. For example, in USA anglers generate \$45 billion (\$900 / angler) in retail sales annually (overall economic impact, \$125 billion). In Europe annual expenditure by anglers is €25 billion (€1000 / angler) and in Australia, As\$1.8 billion, (As\$552 / angler).

- 9) He stressed that the basic recreational fisheries resource needs to be managed to optimize the social, economic and environmental benefits from its sustainable exploitation; improving the quality of life and enhancing wildlife, but information on the status and trends are largely lacking to support recreational fishing regulations and management.
- 10) The recreational fisheries sector has a number of key responsibilities. Within the limits set by ecology, economics and society, the sector should:
- promote high quality recreational fishing experiences;
  - adopt measures for long term conservation and sustainable use;
  - adopt the ecosystem approach as the guiding philosophy;
  - identify all stakeholders and engage them in the management process;
  - base management action on pre-defined fisheries management plans;
  - consider all values and impacts in the appraisal of management measures.
- 11) There are many issues to be considered for the future. To encourage participation, it is necessary to understand types and desires of recreational fishermen. Conflicts between users need to be addressed; including horizontal conflicts between potential users, vertical conflicts between authorities and users. Stocking to meet the demands of fishers can conflict with protection of the environment. In particular, the stocking of non native fish for recreation can have serious detrimental effects. Commercial fishing has caused fishery collapse but the recreational sector also has the potential to affect negatively the fish and fisheries. Fish welfare is an important aspect. Public influence is having increasing impacts in different countries and public acceptance of recreational fishing is essential. Catch and release fishing is increasingly important, both mandatory release of protected fish and the voluntary catch-and-release of non-protected fish. Education at all stakeholder levels is necessary to help strengthen the sector for the benefit of fish, the environment and those that enjoy recreational fishing.
- 12) Mr. I. Cowx also stressed that the resources comprise not just fish stocks but also their habitat and all the economic and social features of the fisheries which the stocks support. An ecosystem approach to recreational fisheries management should be adopted wherever feasible. The ecosystem approach strives to balance diverse societal objectives, by taking into account the knowledge and uncertainties about biotic, abiotic and human components of ecosystems, and their interactions.

**Balearic Islands (NW Mediterranean) recreational fisheries overview (by B. Morales-Nin and M. Palmer).**

Mrs. Morales-Nin described a project to assess the marine recreational fisheries around the Balearic Islands. The aim was to characterise the fisheries in terms of who, what, how many and when does fishing take place. She reported a combination of household surveys with on-site intercept methods and visual surveys to provide maximum coverage, but highlighted biases with no-response and recall problems. The fishery was dominated by boat fishing (62.9%) followed by shore-based fishing (32.4%) and spear fishing (3.6%), with the latter having low response rates to queries about activities. The survey methodology provided good spatial coverage of effort distribution, but biases in catch reporting, especially from spear fishers.

**Recreational fisheries in Mallorca Island: A socioeconomic approach**

*(by F. Cardona Pons).*

Mr. Cardona Pons provided the socio-economic dimension to the Balearic Island study. The main questions posed were: how many people practice recreational fishing in Mallorca, how much do they spend in this activity, and what do they catch? This was evaluated using a combination of mail, tourist and nautical tourist (those arriving by boat) surveys. Response from the tourist and nautical tourist surveys was high (> 90%) but low for the mail survey of residents (5.6%). Official data suggests there are 34,014 recreational fishing licenses. Some 2.35% of tourist and 23.1% of the nautical tourist fished in Mallorca, equivalent to 204,892 and 67,005 people extrapolating from 2009 data. The economic importance of recreational fishing can be broken down into licensed - 60 million euro (note fish and mollusc sales from the commercial fleet < 9 million euro), total tourist contribution of 9 million euro and total nautical tourist contribution of 5.2 million euro.

**An integrative study on the recreational shore fishing in the south of Portugal**

*(by P. Veiga, J. M. S. Gonçalves and K. Erzini).*

Mr. Veiga described an integrated study on recreational shore fishing in the south of Portugal that aimed to evaluate the recreational shore fishing relative impact (*vs* commercial fishing) and evaluate the socioeconomic importance of the activity in the region. The study has been conducted because of a decline in most of the fisheries resources and an increasing tension between recreational and commercial sectors, coupled with an emerging need to regulate marine recreational fishing in the region. Data were collected through roving creel surveys (catch and socio-economic data), aerial surveys (fishing effort) and fishing logbooks (long term catch and CPUE information). Fishing effort in the region was estimated as 166,430 fishing trips (705,235 angler hours) retaining a catch of some 147t (= 0.8% of the commercial landings, for common species). Total estimated expenditure by marine recreational fisheries in the area was 2.2 million € plus 1.6 million € on fishing licenses (estimated values). Overall, recreational shore fisheries in the area were shown to be an economically important activity. Although a multispecies fishery, it is dominated by White sea bream *Diplodus sargus* (most targeted species). Catches are, however, low compared with commercial fishing, except for White Sea bream.

**Bluefin Tuna Migratory Behavior in the Western and Central Mediterranean Sea**

**Revealed by Electronic Tags** *(by G. Quílez-Badia, S. Tudela, S. Sainz Trápaga, P. Cermeño, E. Hidas, E. Graupera).*

Ms Quílez-Badia provided an insight in the movements of bluefin tuna around the Mediterranean using pop-up and acoustic tags. The results showed that some fish stayed around the location of tagging whilst other migrated long distances. The fish also exhibited crepuscular movement inhabiting deeper waters during the day but surface waters at night.

**Evaluation of the phenomenon of recreational fisheries in Italy: biological and socio-economic aspects (by S. Colella, F. Donato, N. Cingolani and A. Santojanni).**

Ms. Colella described the outputs of the EU project Sport fisheries in Eastern Mediterranean (Greece & Italy): parameter estimates, linkages and conflict with professional fisheries” (EU project n 96/018). The study analysed the quantity aspects of this fisheries (numbers of recreational fishermen and vessels, catches, fishing effort, etc.), the laws and the administrative framework regulating this activity, and various socio-economic aspects (profile of recreational fishermen, productive capacity, conflicts with professional fishermen, etc.). The total estimated catch of recreational fishermen in Italy was about 24,000 t compared with 237,000 t for professional fishermen (ISTAT, 1994 the last available data), of which tunas represent only a small fraction. Coastal professional fishermen are in direct competition with recreational fishermen, because both moor in the same harbours, fish in the same areas, have the same target species and use the same fishing gears. No conflict seems to exist among recreational fishermen, except those who fish illegally. The reasons for these conflicts are mostly because the illegal fishers cause real recreational fishers to be discredited.

**Characteristics of Marine Recreational Fishery Focusing on Spearfishing in Turkey (by V. Ünal and A.Özgül).**

Mr. Ünal, based on a study of spear fishing in Turkey, stressed the need to consider key problems which appear to be lack of monitoring and illegal fishing done under the pretence of recreational fishing. It was mentioned that although the regulations are quite detailed and cover most fundamental aspects of recreational fishing, current rules and regulations fall short in eliminating the disputes between artisanal fishery and recreational fishery as well as contributing to fishery management (both recreational and commercial fishery) and ensuring the sustainability of recreational fishing.

**Review of the recreational fisheries in the Mediterranean Coast of Egypt (by A. M. Salem Eid).**

Mr.Salem Eid indicated that recreational fishing in Egypt is a traditional hobby, particularly in the coastal large cities like Matrouh, Alexandria, Damietta, Port Said and Al Areah. Such fishing activities are practice individually or in groups, with or without a boat, for leisure purposes, and they not sell catching fish. Recreational fisheries are regulated in Egyptian law, but there is no compulsory licensing system. Thousands of people practice the RF without licenses at least in the larger cities on the Mediterranean Sea: only 3500 have licenses. Licenses are issued and recorded by the General Authority for Fish Resources Development (GAFRD), Ministry of Agriculture and Land Reclaims. A license is required for underwater diving using SCUBA (or other artificial breathing apparatus). Underwater recreational fishing is prohibited at night for security reasons. Fishing from boats is either hand-lines or trolling line with or without bait. Sport fishing is organized by fishing societies who have the right to organize a contest among their memberships or for open participants.

**Recreational Fishery in the Moroccan Mediterranean Sea (by B. Abdellaoui).**

Mr. Abdellaoui indicated that marine recreational fisheries in Moroccan waters of the Mediterranean fell into two types: - underwater fishing (pêche sous marine) for groupers, sea-breams, dentex, sea-bass, and rod fishing (pêche à pied) for sea-breams, sea-bass, combers. Underwater fishing requires a specific fishing authorization, is prohibited at night and cannot use a source of light, is not allowed <100 m from artisanal fishery operating areas and less than 50 m from the beach, and it is not allowed to sell the catch. Rod fishing is subjected to all the marine fishery regulations, mainly those dealing with fishing gears and marketing and requires a specific fishing permit. The number practicing these fishing methods is small and not evenly distributed along the coast.

**DEFINITION OF RECREATIONAL FISHERIES TO BE USED IN THE MONITORING FRAMEWORK****Overview of the existing definitions of “recreational fisheries” (by V.Ünal).**

13) Mr. Ünal presented an overview of the existing definitions of recreational fisheries. He stated that recreational fishing has many different definitions and categorizations. However, considering all these definitions and the objective of the workshop, he underlined also the definition of monitoring which means “the continuous requirement for the measurement of fishing characteristics and resource yields” (FAO, 1995) and it covers data collection, analysis and diffusion. In this respect, Mr Ünal stressed on expected outcomes of the workshop which should provide information on, at minimum, the following:

- a consensus on the common definition of recreational fisheries to be used in the monitoring framework
- an identification of the key elements for a monitoring framework which includes the required data and information.

14) Mr. Ünal summarized the definitions provided by different organizations, scientists and authorities, such as the European Anglers Alliance, the Confederation Internationale de la Pêche Sportive (CIPS), the European Inland Fisheries Advisory Commission (EIFAC), GFCM.

15) First, the working group discussed on the alternatives of recreational fisheries classification and recalled the GFCM Report No.81 on “*Recreational Fisheries in the Mediterranean Countries: A review of existing legal frameworks*”, which was published in 2007. In this report, recreational fishing was classified as follows:

1. Amateur fishing
2. Sport fishing
3. Tourism fishing

- 16) The working group recalled the Report of the 10<sup>th</sup> Meeting of the Sub-Committee on Economic and Social Sciences (SCESS) in which recreational fishing was defined as:

*“Non commercial fishing activities exploiting marine living aquatic resources. It is prohibited to sell or trade the catches obtained.”*

and the classification of recreational fishing evolved into four “independent” segments, at the Mediterranean level, which are:

1. Leisure
2. Sport
3. Underwater
4. Charter fisheries

- 17) Mr. Srour informed the working group that at that stage, a consensus had to be made to reach a common definition, which remains a key element for the monitoring activities. From this point on, he asked participants to work on existing definitions rather than creating a new one.
- 18) Mr. Cowx argued that one must pay attention on the impact of the meaning and gave the example of sport fishermen who earned good income for competitions, which eroded the scope of “sport” purposes. The group decided to write a new definition for the sport fishing since this field has different arrangements (such as the obligation of having license in some countries, affiliation to a federation, or special authorizations from the authorities).
- 19) Some participants commented that the fishing modalities (i.e. boat-based, shore-based and underwater) as its segments (i.e. leisure, sport, charter fishing) should not be mixed but redefined.
- 20) It was suggested working on the existing segments, since these definitions were a result of five years of study carried out by their own experts.
- 21) It was also suggested removing the word “independent”, since the segments could not be considered as such from each other and the need was also stressed to identify the reason why definitions were needed. These reasons were actually clearly explained in the EAA angling definition as:

- to direct research
- to guide lobbying
- to be used for local management purposes
- for legal uses

**The term “recreational fisheries” too generic for management? Experiences and views from a recreational angling perspective (by J. Kappel).**

- 22) Mr. Kappel stressed that nobody really knows how much fish is taken out of the Mediterranean Sea by which recreational segment or the sector as a whole due to lack of data. More data production is of paramount importance, not the least the production of

socio-economic data. To this work adequate terminology is needed. Mr. Kappel informed that EAA and EFTTA find that the terms “recreational fisheries” and “recreational fishing” are too generic to secure fair and equitable monitoring and management of the various recreational fishing segments, recreational angling in particular. Proper terms and definitions are needed for recreational fishermen, scientists and decision makers to use a common language, to understand each other, to direct research, to guide lobbying, for local management purposes and for legal uses. He gave an introduction to the EAA recreational angling definition of 2004, which has served as input to the EIFAC CoP. He explained on which points the EAA definition and definitions in the EIFAC CoP differ. The two are not in conflict but complement each other, he stressed.

23) After an extensive discussion, it was agreed on the following definitions:

*“Recreational Fishing: Fishing activities exploiting marine living aquatic resources from which it is prohibited to sell or trade the catches obtained”.*

24) For GFCM fisheries management purposes it comprises two segments: leisure and sport:

*Leisure fishing is defined as fishing practiced for pleasure.*

*Sport fishing is defined as fishing contest practiced within an established institutional framework which sets rules, collects data on catches and informs on the outcomes of the event.*

25) In addition, it was agreed that the following definitions of charter fishing and underwater fishing are added to the GFCM Glossary:

*Charter fishing: Recreational fishing practiced from a rented boat, with a captain or fishing guide on board, for leisure or sport purposes.*

*Underwater fishing Fishing activity practiced as a sport or for leisure by snorkeling techniques without the help of mechanical devices (e.g. scooter).*

## **ANALYSIS OF THE DIFFERENT NATIONAL REGULATORY SYSTEMS IN CONNECTION WITH RECREATIONAL FISHING ACTIVITIES IN THE MEMBER COUNTRIES**

### **Overview of the recreational fisheries legal frameworks among the Mediterranean countries (by C. Samier, GFCM Secretariat).**

26) The objective of this overview was to understand where and how the regulations regarding recreational fisheries will need to be harmonized in the GFCM area to ensure their better management in the future.

27) It began with an overview of relevant international initiatives regarding fisheries management and a description of the main management measures adopted by Member countries including: (i) access regimes to fisheries resources; (ii) conservation measures; (iii) special recreational fisheries regulations; and (iv) monitoring, control and surveillance of recreational fisheries.



- 28) Currently, the access regimes are heterogeneous in the Mediterranean basin: some countries opted for general licence provisions (such as Croatia which set “a sport fishing licence” regardless of the type of recreational fishing involved) while others, like Spain, require a special licence regarding the fishing modality (shore-based, boat-based or underwater fishing) or the purpose/context of the recreational fishing (leisure, sport or tourism) and in that case, the tendency was for the existence of compulsory licenses for sport fishing (such as in Italy or France), while leisure fishing remained open access.
- 29) In addition, special authorizations are sometimes necessary (i.e. in Turkey, for foreign tourists or non-residents) notably to fish species under specific conservation measures. Species-based licences are especially appropriate for species at risk or vulnerable to over-fishing, such as the GFCM priority species list. The need for an appropriate period of a licence was also emphasized during the presentation since few countries in the Mediterranean specified it in their recreational fisheries regulation. Little information was also generally available on licence fees, licence transferability and eligibility restrictions within the Mediterranean countries having a recreational fishing licence system, conditions however essential to ensure a proper management system. The transparency and appropriate reallocation of the use of the fees-related funds was particularly underlined by the participants.
- 30) An effective and coherent licensing system was also seen by many participants as a necessity for managing access to and effort in the fisheries and as a way for sensitizing recreational fishermen about their rights and obligations. EAA and EFTTA however dissented from the majority in not considering licensing system as a ‘necessity’ and an integral part of fisheries management.
- 31) Common conservation measures were found in many Member Countries, such as the prohibition of sales, the limitations on fishing modalities and tackles, daily bags or even the use of commercial boats (with certain exceptions in the case of fishing competitions in certain countries). Of course, restrictions may also vary depending on the species targeted but coherence across Mediterranean countries merits certainly attention.
- 32) The establishment of minimum landing sizes, often valid for both commercial and recreational fisheries, has been adopted by most of the Member countries as an essential means to allow juveniles to mature and to reproduce. Some Mediterranean countries have also included in their recreational fisheries regulations some provisions prohibiting the taking or fishing of particular species due to biological and ecosystem considerations (i.e. the sturgeon, the grouper in Turkey). The adoption of marine protected areas, temporal restrictions/closed seasons, yet not consistently diffused throughout the Basin are also part of the regulations of many countries and when not, should be.
- 33) Participants raise also the fact that recreational fisheries are often described as an “interference” with commercial fishing, while they have more often than not, their own particularities. This is the case of the underwater recreational fishing, the sport fishing (understood as sporting contests) and tourism fishing, which are specifically addressed in some countries. The exercise of underwater fishing activities (and particularly, the use of spearguns) is therefore often subject to some requirements as age or security or spatial and temporal restriction. As regard the sport fishing regulatory frameworks, every discipline in the Mediterranean countries has its own competition regulations but under comprehensive management systems, marine sport fishing competitions would normally

require authorizations from the relevant authorities. Some other conditions exist like being a citizen of the country where the competition is taking place, being affiliated and holding the licence of the federation organizing the competition (such as CIPS), having an insurance coverage. Since tourism fishing is a growing activity in the Basin but not harmoniously regulated among the Member countries, the need for an effective charter licensing system has been underscored by participants. They also cautiously remind the Secretariat that the activity of *pesca turismo* could not be considered as part of the recreational fisheries given its commercial nature.

- 34) While the adoption of strong monitoring, control and surveillance (MCS) systems was also reemphasized among participants to ensure that both recreational fisheries policies in general and their conservation and management dispositions are fully implemented, these practices are still not consistently diffused throughout the Mediterranean basin, in many of them, there is actually no obligation for recreational fishermen in the Mediterranean to report their catch. Systematic inspections in-port or on board of recreational fishing boats in the Mediterranean are nonetheless unfeasible. Adequate sanctions against violation of regulations were found more suitable (i.e. payment of fees/fines, disqualification from practising fishing activities (permanently or otherwise), seizure of products obtained illegally, confiscation of fishing gears, seizure of boat, cancellation or non-renewal of licences, etc..). Throughout the basin, they were either the same for both recreational and commercial fishers who commit infractions or specific to recreational fishermen (like in France). Yet, adopting special sanctions for recreational fishermen could be expedient, as commercial and recreational fisheries are different regarding the manner in which they are performed.
- 35) Preventive enforcement through communication of rights, rules and regulations to recreational fishers were considered by participants as the most essential element for the success of any legislative framework as ignorance or lack of comprehension of such rules may prove a large factor in fishing infractions. Examples of sensitization methods have already been developed by the circulation of informative booklets regarding regulation distributed by recreational fisheries federations or associations (such as the Fédération Nationale des Pêcheurs Plaisanciers et Sportifs de France) or by public authorities (like in Turkey or the Balearic Islands) as part of the licensing process. In addition, the participatory development of codes of conduct for responsible recreational fisheries may prove useful in further sensitizing fishers (i.e. in 2004, the elaboration of the Italian voluntary code of conduct for both freshwater and saltwater recreational fisheries or more recently, in 2008, the EIFAC Code of Practice).

**Integration of the EIFAC Code of Practice towards sustainable exploitation of recreational fisheries in the Mediterranean (by I. Cowx).**

- 36) Mr. Cowx presented the Global Code of Practice (CoP) for Recreational Fisheries developed in 2007-2008 under the auspices of the European Inland Fisheries Advisory Commission, a regional body within the Food and Agricultural Organization (FAO) of the United Nations in Rome. The CoP is a voluntary code, specifically framed towards recreational fisheries practices and issues. The CoP is intended to complement and extend the 'FAO Code of Conduct for Responsible Fisheries'. The CoP describes the minimum standards of environmentally-friendly, ethically-appropriate and depending on local situations-socially-acceptable recreational fishing and its management.

37) Although it is clear that many of the provisions presented in this first global code for recreational fisheries are already addressed through national fisheries legislation and regional fisheries management regulations in the GFCM area, Mr. Cowx underlined the fact that adopting a common CoP across multiple jurisdictions would provide a common framework for best practices in recreational fisheries to promote the long-term viability of recreational fisheries in the face of expanding threats (e.g., falling participation, anti-fishing movement) to the activity.

### **Evolution of the Spanish recreational fishing regulation in external waters (by E. Graupera).**

Mr. Graupera presented an overview of the Royal Decree recently adopted by the Spanish Government on recreational sea fishing in exterior waters which will be implemented in the next coming weeks. He underlined the fact that marine recreational fishing has been generally overlooked by the Mediterranean fisheries administrations; therefore, the different regulations were not so much established to regulate the sector but rather to prevent any interference with the commercial fisheries. According to the estimated figures released in 2007 by TRAGSA for the Spanish Mediterranean recreational fishing fleet, the Spanish marine recreational fishers from vessels yet contribute to society with 69 euros for every kilo of fish caught and consumed.

The text of the new Royal Decree reflects the growing interest of the Spanish fishing administration in the situation of the resources and their conservation, acknowledging the requested proposals by the associations of recreational responsible fishing. It defines the recreational fishing as a “non-commercial fishing activity that exploits the living aquatic resources for leisure purposes” and reiterates the prohibition of sales or trade of the catches in recreational fishing, but without mentioning sport fishing or tourism fishing, as these activities are considered as sub-segments and transferred to the Autonomous communities. Recreational fishing on foot, from the coast, from vessels but in interior waters, and underwater fishing are also transferred to them (some articles regarding their regulation apply nationally though).

The priority objective was to regulate recreational fishing from vessels and therefore, to raise awareness of the fleet involved, since recreational fishing from vessels shares species, ports and fishing grounds with the professional sector. Hence it settles down the **“fishing recreational license from vessel”** with the objectives of knowing the composition data of the fleet of the recreational Spanish fishing, that which allows communication with vessel owners about the catches they are authorised to make and request information about the catches done.

With reference to the Royal Decree, the exterior waters of the national fishing ground will be divided into four different administrative units: the Cantabrian Sea, the Northwest, the Gulf of Cadiz and the Mediterranean (the Canary Islands having their own regulations), for each of which will be established a maximum daily catches per vessel. In order to catch species subject to differentiated protection (Annex III of the Royal Decree), vessels must have specific authorization issued by the General Secretariat for Sea Fishing and make periodic (2 months) catch declarations, preferably through “responsible recreational fishing associations”.

The new Royal Decree also introduces the concept of “catch and release” (understood as an ethical attitude and not as a method of fishing in itself). It provides also specific articles regarding sport and tourism-charter activities (such as authorizations, licences, catch declarations, etc...) but also general dispositions (i.e. species and tackles limitations,

prohibition on the interference with professional fishing, on the use of some commercial gears, toxic substances, etc...). It does not contain however any specific articles on fines but refers to the State Maritime Fishing Act 3/2001.

## IDENTIFICATION OF THE KEY ELEMENTS FOR A MONITORING FRAMEWORK WHICH INCLUDES THE REQUIRED DATA AND INFORMATION

- 38) This session consisted of six presentations dealing with different aspects of monitoring and basic data gathering. One of the presentations was an example of the efforts done in the Balearic Islands by the Regional Fisheries Government (**“The recreational fisheries in the Balearic Islands. Experiences on monitoring recreational fisheries”** by *A. Grau*), another one on how to monitor the underwater fisheries presented by a Catalonian Federation (**“Key elements to take into account on monitoring spearfishing”** by *O. Sagué Pla*), the guidelines for the management of shark and rays recreational fishing were presented by UNEP/MAP (**“Guidelines for the management of shark and ray recreational fishing in the Mediterranean”** by *D. Cebrián*), the example of the study carried out in Italy was presented by the CNR Institute of Marine Science of Ancona (**“Evaluation of the phenomenon of recreational fisheries in Italy: design and implementation of an integrated monitoring system”** by *S. Colella and al.*) and finally, two presentations on fishing mortality and skid recreational fisheries monitoring were presented by IMEDEA (**“A new approach to estimate fishing mortality based in the angler behaviour and catchability”** and **“Recreational fishery assessment of the European squid in NW Mediterranean”**, by *M. Cabanellas-Reboredo and J. Alós*).
- 39) From the presentations and the lively general discussion of the issue, some main points could be summarized as followed:
- a) The fragmented nature of the fishery, with many landing ports and marinas, the multi-gears and multi fishing modalities, added to the heterogeneity of the Mediterranean countries makes difficult to develop a common approach to monitor and manage the recreational fisheries. However, **the need to develop a common framework is clear due to the economic relevance and social implications** of the recreational fisheries, albeit the catches are not so important in terms of landings.
  - b) The reason to establish a monitoring framework is to know the resource use, the economic and social aspects linked to the recreational fishery, to develop policies allowing planning and implementing their management, with the aim to guarantee their sustainability in the context of other resources use. The future implementation of an ecosystem based management would require the increase in the knowledge of all aspects related to the fishery, including the resources biology.
  - c) Many participants recognized the necessity of establishing a license system as a way of obtain information on the number of participants and to establish contacts for further collaborations. This system is already enforced in some countries successfully, the cost is low and this small fee is used in administration of the system. The license system does not imply taxing the recreational fisher.
  - d) It was also widely accepted the necessity of establishing a mutual trust between the scientists, managers and the recreational fishermen, identifying as a common interest

the need to improve and sustain the fishery. This trust is very important to obtain the cooperation of the stakeholders and to use the recreational fishermen as a source of reliable data.

- e) The seasonal nature of the resource distribution, related fishing modalities, fishing effort etc. require that any established framework encompasses all year, to obtain reliable quantitative and qualitatively information. A long term monitoring has to be established.
- f) The common framework development was recognized as a need, requiring that the States provide the required funding. The first step in such development is to establish common guidelines to: describe the fishery and identify the main modalities, determine the impact upon the resources (effort measures, catch composition), characterize the recreational fishermen profile, evaluate the socio-economic factors and analyze the data assessing uncertainty. Methods to develop awareness of the stakeholders are also required. The group also recognized that such development has to be step by step, being a middle term goal. The cooperation with other similar approaches carried out in Europe is necessary.

## GENERAL CONCLUSIONS AND RECOMMENDATIONS

### General conclusions

40) As general conclusions, the workshop agreed on the following issues faced by the recreational fisheries sector in the Mediterranean:

- Management conflicts and synergies between recreational, commercial fishermen, aquaculture and other aquatic resource users (esp. the interactions with commercial fisheries and aquaculture on the use of space and on the exploitation of the same target species).
- Lack of recognition of the multi-species/multi-gear nature of recreational fisheries.
- Inadequacy of the regulatory frameworks in some Member countries (including weak enforcement and penalties, illegal fishing hidden under the umbrella of recreational fishing).
- Lack of robust scientific support, lack of basic data on the status, exploitation patterns, socio-economic importance of recreational fisheries, and thus lack of information to manage and promote the sector in a sustainable manner<sup>1</sup>.
- Need to test the reliability of the data used to determine exploitation patterns and direct expenditures at the level of fishing trip (for extrapolation to regional assessment) collected from off-site methods (e.g. internet, telephone surveys) in combination with on-site catch assessment survey
- Lack of financial support for monitoring, research and development of the recreational fisheries sector.
- Lack of knowledge, poor communication and dialogue between user groups and recreational fisheries interests, lack of empathy of the needs and aspirations of each other and lack of finance and knowledge on integrated management of recreational fisheries.

### Recommendations

41) Considering the biological and socio-economic importance of the recreational fisheries in the region, the Transversal workshop on monitoring recreational fisheries in the GFCM area agreed on the following recommendations:

**(a) To adopt the following definitions:**

*“Recreational Fishing: Fishing activities exploiting marine living aquatic resources from which it is prohibited to sell or trade the catches obtained”.*

42) For GFCM fisheries management purposes it comprises two segments: leisure and sport:  
*Leisure fishing is defined as fishing practiced for pleasure.*

*Sport fishing is defined as fishing contest practiced within an established institutional framework which sets rules, collects data on catches and informs on the outcomes of the event.*

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<sup>1</sup> The available information is generally limited in space -restricted to case studies and small areas-and time - studies are generally only conducted once, thus a need for more robust assessment of recreational fisheries in relation to stock dynamics and aquatic biodiversity.

43) In addition, it was agreed that the following definitions of charter fishing and underwater fishing are added to the GFCM Glossary:

*Charter fishing: Recreational fishing practiced from a rented boat, with a captain or fishing guide on board, for leisure or sport purposes.*

*Underwater fishing: Fishing activity practiced as a sport or for leisure by snorkeling techniques without the help of mechanical devices (e.g. scooter).*

**(b) To develop a common and harmonized monitoring framework protocol including, where appropriate, the following measures:**

-Establishment of an effective licencing system to enable understanding of the number and distribution of participation in recreational fisheries (not to be seen as a tax or levy, but used only for monitoring and enhancement of the sector).

*(N.B. EAA and EFTTA however were not in favour of any licensing system unless negotiated with the stakeholders and administered by the recreational fishing community(ies). CIPS favoured its establishment but stressed that the income should benefit the development of the sector and its monitoring).*

-Adoption of gear limitations (prohibition of passive gears), access restrictions (e.g. closed areas and close season- MPAs..), catch limits (species, bag limits, size...), species limitations, backed by reliable monitoring and scientific conclusions, independently verified and including all fishing modalities<sup>2</sup>.

-Elaboration of technical guidelines/Codes of Practice on recreational fisheries for national implementation, in support of the responsible development, promotion and management of recreational fisheries in the GFCM area (available in the GFCM official languages).

-Adoption of adequate regulatory frameworks, including proportionate sanctions.

-Promotion of recreational fishing in the GFCM area, education, awareness among the population and the fishermen communities.

-Promotion of research and development (i.e. best methods, biological and environmental data gathering and treatments, models implementation, risk analyses etc...).

-Adoption of the precautionary approach and assessment of the cross-sectoral interactions (e.g. commercial fisheries, tourism), as the indirect impacts of recreational fishing, and the potential impacts of new technologies on the sub-sector and the environment.

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<sup>2</sup> More particularly, specific, timely, monitoring schemes should be conducted on the species affected by MRF as identified by GCFM member institutions. A combined scheme of monitoring the CPUEs of both the commercial and recreational fishing sectors is required for this purpose.

-Strengthen the political and institutional support (i.e operational resources and finance) in order to resolve conflicting ecological/environmental and socioeconomic objectives arising from user interactions and to involve all stakeholders in the management process.

44) Enough funding must be earmarked to allow for the implementation of the protocol. A gradual deployment may be necessary.

#### **OTHER MATTERS**

45) The workshop thanked Spain (Balearic Government) and IMEDEA for hosting the meeting and their kind hospitality and organization.

46) Participants also unanimously thanked Mr. I. Cowx for his precious contribution to the success of the meeting.

#### **ADOPTION OF THE REPORT/RECOMMENDATIONS**

47) The Workshop formally adopted the Conclusions and Recommendations and agreed to adopt the entire Report by e-mail by the 5<sup>th</sup> of November 2010.



### **Adopted Agenda**

- 1. Opening, arrangement of the meeting and adoption of the agenda**
- 2. Analysis of the status of the recreational fisheries and its socioeconomic impacts in the Mediterranean and the Black Sea**
- 3. Definition of recreational fisheries to be used in the monitoring framework**
- 4. Analysis of the different national regulatory systems in connection with recreational fishing activities in the member countries**
- 5. Identification of the key elements for a monitoring framework which includes the required data and information**
- 6. General conclusions and Recommendations**
- 7. Adoption of the report and closure of the meeting**

## Appendix B

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### List of Abstracts

#### **Balearic Islands (NW Mediterranean) recreational fisheries overview**

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The recreative fisheries in Mallorca Island have been studied by IMEDEA in collaboration with the Balearic Islands D.G.Fisheries since 2003. In a first step the best census methodologies were explored, combining visual census (from aircraft, fixed points in the coast and in harbors and on board own boats), in situ and telephonic interviews, voluntary log-books and data from licenses and tournaments. From these we can conclude that recreational fishing is one of the islands' main leisure activities, with around 10% of the population participating (population of the Balearic Islands around 1 million people). Anglers tend to be middle class (most anglers own a small boat moored at marinas or use ramps), middle-aged males (90% male, mean age 46.2 years). The most popular fishing method is from a boat (62.9%), followed by fishing from shore (32.4%) and spearfishing (3.6%). The mean time for a fishing trip is around 3.5 h d<sup>-1</sup>. Typically, anglers use more than one type of gear (mean 1.27). The frequency of fishing is 4 to 6 times per month, mainly on holidays and weekends, increasing in summer (Morales-Nin, 2005).

The activity has a sizeable impact on the coastal fauna, with diverse catches of at least 1209.25 t year<sup>-1</sup> (i.e., about 615 000 fishing outings year<sup>-1</sup>). Thus, the amount of carbon extracted annually is at least 137 kg C km<sup>-2</sup> year<sup>-1</sup>, and the recreational fishery removes about 31% of production at the trophic level 4. Although these are gross estimates and more detailed studies of the effects of recreational fishing are needed, it is unquestionable that there exists an important impact on coastal fish communities (Morales-Nin, 2005). Finally, another relevant characteristic of the recreational fishery at the Balearic Islands is that it is largely multispecific.

These initial studies focused on measuring the size of the recreational fishery, have been continued to evaluate the catch and effort, fishing mortality, biological impacts and socio-economy of the recreational fishery in Mallorca by means of: visual census on board own embarkations, experimental fishing, mail surveys and interviews. The possible interrelations with the small scale fishery are explored by means of surveys and sampling on the Fishing Wharf.

## **Recreational fisheries in Mallorca Island: A socioeconomic approach**

F. Cardona Pons  
*IMEDEA*

The Mediterranean is the world's leading tourist area, accounting for approximately 35% of all international tourist arrivals and revenues and the Balearics are one of Europe's leading sun, sea and sand tourism destinations. In 2009 the Balearic archipelago welcomed 11.609.161 visitors and Mallorca accommodated 8.718.788 of them.

It is assumed that about 5% of the resident population practices recreational fishing in Mallorca while the total number of tourists who practice recreational fishing is unknown. During 2009 IMEDEA developed three different surveys to better understand who goes fishing and how much they spend. The first one focused on the resident recreational fishing activities, while the two others were focused on tourism and nautical tourism respectively. Methodologies used and preliminary results will be presented.

## **An integrative study on the recreational shore fishing in the south of Portugal**

P. Veiga, J. M. S. Gonçalves and K. Erzini  
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In Portugal, although recreational fishing is an important leisure activity involving approximately 6% of the Portuguese population, until recently little attention has been paid to this activity by fisheries scientists and managers. The aim of our study was to characterize and quantify shore-based recreational fisheries in the south and southwest Portugal (250 Km coastline). Specific objectives were to: 1) estimate recreational shore-angling catch, harvest and effort and investigate spatial and temporal differences; 2) quantify undersized catches and discarding; 3) evaluate the socioeconomic importance of the activity in the regional context. A non-uniform probability complemented survey was conducted monthly between August 2006 and July 2007, using roving creel surveys, aerial surveys and fishing logbooks. Roving creel surveys and logbooks were used to gather information on socioeconomic variables and fishing trips, including angler demographics, expenditures, target species and catches (released and retained). Aerial surveys provided information on fishing effort. A total of 192 roving creel surveys and 24 aerial surveys were carried out, and 256 logbooks were distributed to volunteer anglers. During the roving creel surveys, 1321 anglers were interviewed, resulting in usable fishing trip data from 1318 questionnaires, and socioeconomic information from 1201 questionnaires. While response rates were high (~95%) in the roving creel surveys, fishing logbooks had a low return rate (~7%). The majority of recreational anglers sampled were male, married, professionally active, in their late forties, with a low level of education, and with an average monthly income of 500-1000€ (excluding taxes). Seventy-seven per cent lived in one of the two regions of the sampling area (Algarve or Alentejo). On average, anglers had 23 years of fishing experience. Most anglers claimed fishing all year round, with an average of 65 fishing trips/year. Overall, anglers spent 13.2€ per fishing trip, and 865€ per year, although only bait, tackle and transportation expenditures were considered in this study. Annual expenditures for the above mentioned items were estimated to total 2.2 million Euros in the study area.

Based on the aerial surveys we estimated a total fishing effort of 705,236 angler-hours, corresponding to 166,430 fishing trips. Average time spent per fishing trip was 4.7 hours. Of the 1318 creels observed during roving creel surveys, 831 (63.1%) had catches. A total of 48

species were recorded, belonging to 22 families. The most important family was Sparidae, represented by 16 fish species and accounting for 78% of the total catches in number and 75% in weight.

Estimated recreational shore fishing harvest was 160.2 tons of fish (788 048 individuals), of which 147.4 tons (589 132 individuals) were retained. The most commonly caught species were white seabream *Diplodus sargus* (44%), common two-banded seabream *Diplodus vulgaris* (14%) and bogue *Boops boops* (8%). Overall, shore based recreational harvests represented 0.8% of the commercial landings, for the same period, area and species. Only white seabream (65%), grey triggerfish (33%) and spotted seabass (16%), showed recreational harvest values higher than 10% of the recorded commercial landings.

### **Bluefin Tuna Migratory Behavior in the Western and Central Mediterranean Sea Revealed by Electronic Tags**

S. Tudela[1], S. Sainz Trápaga[1], P. Cermeño[1], E. Hidas[1], E. Graupera[2], and G. Quílez-Badia[1]

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The objective of the study was to assess the migratory behavior of the Atlantic bluefin tuna (juvenile and adults) in the Western and Central Mediterranean as well as other ecological features of the species, using electronic tags. A total of 19 pop-up tags, 2 mini pop-ups and 25 internal archive tags were deployed in the Mediterranean in 2008, 2009 and 2010 on large adults (pop-ups) and small adults & juveniles (mini pop-ups and archival) of Atlantic BFT. Data were recovered on tracks, depth, external temperature and also body temperature. From the results obtained in 2008 and 2009 from those individuals with tags attached for more than 30 days (i.e. 10 pop-ups and 1 archival), we found extended use of suitable Mediterranean habitats by the species outside the breeding period. None of the tagged tunas left the Mediterranean during the tracking period.

### **Evaluation of the phenomenon of recreational fisheries in Italy: biological and socio-economic aspects and design and implementation of an integrated monitoring system.**

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This abstract is the result of two Research Programs funded by the European Union (EU Study project n 96/018 titled “Sport fisheries in Eastern Mediterranean (Greece & Italy): parameter estimates, linkages and conflict with professional fisheries” and EU Study project n. 00/003 titled “Sport Fisheries in Eastern and Central Mediterranean: Design, implementation and economic evaluation of an integrated monitoring system”) in order to evaluate the phenomenon of recreational fisheries in Italy. The projects took into account only the recreational fishermen who practice the activity at the sea and by vessels. The first project analysed the quantitative aspects of this fishery (numbers of recreational fishermen and vessels, catches, fishing effort, etc.), the laws and the administrative framework regulating this activity, and various socio-economic aspects (profile of recreational fishermen, productive capacity, conflicts with professional fishermen, etc.). The main objective of the second one was to propose an efficient and feasible data collection system and also to provide a software package named STARFISH\_RF (STATistics RealiabLe for FISHery - Recreational

Fisheries) for managing computer data. STARFISH\_RF was developed using Microsoft Visual Basic 5.0 language. In Italy, regulations of recreational fishery were almost lacking: each fisherman had the permission to catch a maximum quantity fixed in 5 kgs of fish and 3 kgs of mussels per day or to catch a record size fish. During the survey any license was required unless some local authorities required an authorization for fish-pots (maximum 2) and 1 longline with a maximum of 100 hooks for each vessel. The recreational fisheries were under the control of the Port Authorities (the Capitanerie di Porto).

Due to the absence of licensing system in Italy, the evaluation of number of recreational fishermen was based on data provided by Ministry of Transport and Navigation related of number of pleasure boats below 7.5 m.: we obtained about 1500000 recreational fishermen (we assumed that occasionally most of these pleasure vessels practiced recreational fishery and that an average of 2 persons fished in the same boat). Due to the great extension of Italian coastline and on the basis of EU proposal, were chosen five Italian regions (Veneto, Marche, Latium, Liguria Sicily). In these areas were extracted 12 ports with probability proportional to size (number of mooring places for the pleasure boats). In order to select a sample of recreational fishermen available to collaborate to research, we organized before “face to face” meetings in headquarters of recreational fishermen associations (FIPSAS for example). A sample of 102 fishermen was selected during the meetings. We utilized “telephone interviews methodology”, to collect both data on fishing activity of previous year and structural characteristics of vessels, and to collect data monthly. In order to estimate the various aspects related to this complex phenomenon, seven questionnaires were planned, each type addressed to following sections:

- Single recreational fishermen
- Recreational fishermen associations
- Suppliers of equipment
- Professional fishermen
- Professional fishermen associations
- Public authorities
- Patrol service

The majority of vessels was between 4 and 6 m in length and had an engine power lower than 100 HP. The most popular recreational fishing gears were rod, tuna fishing line and handline (bolentino). Although seasonal fluctuations of usage for these gears were not considerable; the usage of rod decreased in winter while tuna fishing was more practiced from summer to winter. The trend was the same for the usage of bolentino, because seasonal values were quite similar. The total data (collected monthly and of the previous year) showed that bogue (Boops boops), striped sea bream (*Lithognathus mormyrus*), horse mackerel (*Trachurus trachurus*), seabream (*Diplodus* spp), Tuna (*Thunnus* spp) and mackerel (*Scomber scomber*) were the most fished species. Regarding the estimation of catches, fishing effort and production, we obtained that the average number of fishing days of a fisherman was around 27 for the year 1998 (on the basis on monthly data) while a number of 56 fishing days was estimated for the previous year (on the basis on yearly data). The average daily catch was 6.3 kg and average annual catch was 167 kg per recreational fishermen vessel. At national level, the total production of the recreational fishermen was about 24000 tons which was equal to 10% of the total fisheries production. Regarding the status of recreational fisherman our data collection showed that the typical recreational fisherman was a male, from 30 to 50 years old, employed, and graduated as level of education. No conflicts seemed to exist among recreational fishermen, but conflicts exist between recreational fishermen and those who fish illegally. For this reason, conflicts between illegal recreational and professional fishermen were frequent:



competition for space seemed to be one of the most important causes of conflict, but also market competition was quite considerable one. Generally these conflicts were resolved with arguments and seldom the authorities acted as mediators. For all interviewed categories the lack of specific rules (license system, regulation of fishing gears and fishing areas) was a critical point of the inefficacy of the authorities' interventions.

The holding of the second project has enabled to design and test two different databases:

- Database a, in order to collect data on annual basis to target a general picture of phenomenon, and to collect “una tantum” information
- Database b, in order to collect data on monthly basis and describe tendency of recreational fisheries over the time.

Data collected by questionnaires were processed using the software package STARFISH –RF to test all different phases of data processing (data input, data checking, data printing, etc). In order to collect data comparable to those of professional fishery, to develop this data collection system, we took into account two main sources: the Council regulation no 1543/2000 and the Commission regulation no 1639/2001.

#### REFERENCE

M.G. Pawson, H. Glenn, G. Padda, 2008. The definition of marine recreational fishing in Europe. *Marine Policy* 32 (2008): 339–350.

### **Characteristics of Marine Recreational Fishery Focusing on Spearfishing in Turkey**

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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. The recreational fishery is open access. There is no compulsory recreational fishing license system. However it is given a certificate to recreational fishers whenever it is demanded. Although this certificate does not give any privilege to users, many (approx. 100,000) of the recreational fishers purchase certificate voluntarily. Monitoring recreational fishery has always been insufficient, however, some data pertaining to recreational fishers will be available with the help of the new Fisheries Information System (FIS) currently developed for Turkey in order to create the application and procedures needed to both comply with the EC Fisheries Acquis and improve fisheries management. This system provides also the list of licence holders. In the scope of this study, data related to spearfishing, both a most preferred and problematic way of recreational fishing, have been collected and processed. For this purpose, surveys were conducted with the managers of the spearfishing associations and members thereof, totaling 45 spearfishers so far. There are 4 spearfishing associations in Turkey, all of which were established within the last five years. These associations have a

total of 439 members and they carry educational, informational and lobbying activities. Three of these associations which find the legal regulations insufficient have stated that fishing groupers should be free. Associations arguing that they are not the ones harming fish stocks but trawlers and purse seiners, have different opinions on permitting the marketing of spearfished goods. Three of the associations refrain from commenting while one argues it should be prohibited. Spearfishing is performed by males and the mean age of spearfishers is  $31.6 \pm 8.9$ . Among those favouring this hobby, level of education is significantly high (82% have some college degree). Almost half (48%) are married and have recreational fishing licence and 88% of the fishers surveyed stated that the notice regulating recreational fishing is incompetent and faulty. One third of the spearfishers state that groupers fishing should be free, that a 5 kg daily quota is insufficient and the catch should be free to sell. Contrarily, a 92% argued that speargun is the most selective and nature friendly gear. 80% hold trawlers responsible for the decline in fish stocks. Spearfishers declare that their average fishing time is  $37 \pm 20.3$  days/year and they spend  $314.1 \pm 175.9$  € for replace gears per year. Total travel cost for per spearfisher is  $493.2 \pm 265.5$  € per year. Although spearfishers state that they consume all of their catches, the high demand among respondents that marketing should be free could be a cursor that there is indeed illegal marketing. 60% of the spearfishers perform the activity close to the coast, 4% on the vessel and 36% both. Vessel length varies from 3.2 to 6.6 meters and engine power is between 9-25 HP. Only 24% of the spearfishers stated they had been inspected by the coastguard. Catch quantity changes between 3-17 kg with an average weight of  $7.6 \pm 4.1$  kg. Spearfishers declared that their target species are *Sparus aurata*, *Dicentrarchus labrax*, *Dentex dentex*, *Diplodus sargus* and *Mugil* sp. However it is known that groupers are the most targeted species in spearfishing. Most of the problems spearfishers face is stated to be lack of community awareness, inspectors, coast guard, professional fishers and owners of aquaculture cages. However, from an administrative and managerial point of view, the key problems appear to be lack of monitoring and illegal fishing done under the pretence of recreational fishing. Regulations are quite detailed and cover most fundamental aspects of recreational fishing. However, current rules and regulations fall short in eliminating the disputes between artisanal fishery and recreational fishery as in contributing to fishery management (both recreational and commercial fishery) and ensuring the sustainability of recreational fishing.

### **Recreational Fishery in the Moroccan Mediterranean Sea**

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Recreational Fishery in the Moroccan Mediterranean Sea became more and more important activity. It shows a very important increase of the number of people who practise it. It is represented by two types: the fishing-rod and underwater fishing controlled by Dahir of 1962 and 1972. The available information of this activity, at Marine Fishery Department, show that there was no socio-economic study, made until now, except one related to continental recreational fishery. The different species captured, are essentially those of the littoral rocks, as Grouper for underwater fishing and Sparidae for the fishing-rod. In order to better understanding of this activity and determine its evolution, we propose to develop an information system of data collection and processing which will be integrated, like a component in the Halieutique information System (SIH) in course of establishment by the INRH.

## Is the term ‘recreational fisheries’ too generic for management?

J. Kappel

*EAA and EFTTA*

*EAA and EFTTA find that the terms “recreational fisheries” and “recreational fishing” would often be too generic to secure fair and equitable management schemes and measures. In particular recreational angling has no interest in but suffers from being mixed up with other recreational fishing practises and artisanal, subsistence and semi-commercial fishing.*

**EAA’s work on a recreational angling definition<sup>3</sup> – adopted by the EAA general assembly 2004<sup>4</sup>.**

*To separate recreational fishing and fisheries into well-defined sub-segments is not a simple straightforward task either in one language or a number of languages. Some common terms in use have more than one meaning, others have different names but the same meaning. Some terms are common in some languages but cannot be found in other languages e.g. angling and recreational angling. However, anglers and other recreational fishers, managers, politicians, scientists etc. have a great need for proper terms and definitions simply to use a common language, to understand each other, to direct research, to guide lobbying, for local management purposes and for legal uses.*

Some years ago EAA made an effort to clarify the numerous terms in use for recreational angling and sport fishing. Finally, in 2004 a recreational angling definition was agreed by the EAA’s general assembly, which at the time was made up of key angling organisations from 18 European countries. It has to be said that from a scientific point of view the end result is not the end of the story but it has helped in bringing more clarity and less confusion and has served us well as a guideline for angling organisations, the scientific community and decision makers.

The definition was worked out in the English language first and then, with great difficulties, translated or maybe more correctly *transformed* into the French language. Both language versions were adopted.<sup>1</sup> However, by then, and still today, they both rightfully can be criticized for not being as clear or unambiguous as they could be or ought to be. Furthermore, the French version can be criticized for making use of “artificial” or “odd” language slightly distant from common French language at the expediency of making it to fit with English terms and vocabulary.

The problem with the English version was and is that it defines *recreational angling* not in one but two terms “recreational angling” and “sport fishing”. The preparatory work aimed at one term only. Many terms were put forward and scrapped during the process (e.g. “leisure fishing with rod and line”, spare time fishing ... “, “pleasure fishing”). In the end the two said terms were preferred with a majority of organisations in favour of “recreational angling” for its precision but with almost all against deleting the term “sport fishing” for various reasons (one reason was/is that many recreational angling organisations (still) have the sport word in the name of their organisation). Also the tackle trade (EFTTA) would like the sport word to have a say. So the general assembly finally agreed to let both terms remain while being well aware that this was not an optimal solution from a scientific point of view.

<sup>3</sup> English: [http://www.eaa-europe.eu/fileadmin/templates/eaadocs/DEFINITION-EAA\\_Angling\\_Def\\_long\\_FINAL\\_EN.pdf](http://www.eaa-europe.eu/fileadmin/templates/eaadocs/DEFINITION-EAA_Angling_Def_long_FINAL_EN.pdf)

French: [http://www.eaa-europe.eu/fileadmin/templates/eaadocs/EAA\\_Angling\\_Def\\_long\\_ver7\\_FINAL\\_FR.pdf](http://www.eaa-europe.eu/fileadmin/templates/eaadocs/EAA_Angling_Def_long_ver7_FINAL_FR.pdf)

<sup>4</sup> EFTTA has made a formal decision that they support the EAA definition as it reads.

In this regard some issues remain open for dispute. Both the English and the French version make no difference between recreational angling and sport fishing but make them equal as two expressions/terms for the same thing (which is “recreational angling”). Competition or tournament angling is not mentioned but implicitly taken as a sub-discipline of recreational angling/sportfishing. However, in the French version the term “Pêche sportive” in common French would have a distinct notion towards competitive fishing and tournaments and organisations, which core activity it is to arrange and take part in fishing competitions.

An important outcome it was that the EAA general assembly set in stone once and for all (in the definition) that recreational anglers do not sell their catch and that that principle should extend to include all kinds of recreational fishing/fisheries.

Internally within EAA this “definition-exercise” also helped to clarify among the membership that some member organisations have not only anglers as affiliates but also other recreational fishermen, and they defend those fishermen’s interest on an equal footing with their angling members. In France there is no tradition for organising or defending rod and line fishermen only but a whole range of recreational fishers and fishing practises and that the angling term doesn’t exist in that and other (latin) languages.

Time will tell if and how many angling organisations will change name (delete the sport word) in future as a consequence of this definition work. Time also will tell if the French “odd” terms in this definition someday may be accepted as the preferred and common terms by the French speaking angling community. And finally time will show if other Latin-language countries will work on their vocabulary to find and promote an unambiguous term for angling, which works fine in their language. This is not a necessity, but it could be practical.

**Recreational Angling is only one segment under the generic term Recreational Fishing but a most important one – that should be recognised by scientists and decision-makers**

*Management schemes and decisions should be science based and reasoned. That all can agree on no matter their occupation be it fisherman, scientist or decision maker. However, in the scientific literature and studies it is often seen that the two terms recreational fishing and sport fishing or angling are used synonymously. However, this has been a cause for confusion and bias with regard to undertaking surveys, the interpretation of findings and conclusions, which at the end of the day are influencing to the greatest extent the decision makers’ minds and policies.*

Various sub-segments of recreational fishing can be defined by fishing method or gear (rod and line, traps, long-lines, pots, nets, spears) and/or by fishing place (shore, beach, pier, wading-out, boat, under-water) and/or modality (leisure, sport, subsistence, tourism). There are also identifiable differences in motivation for going fishing. These are both catch and non-catch related. The sub-segments often show differences with regard to how and how much of an impact they may have on the environment and the fish stocks; and they show even greater differences measured by their socio and economic contribution to society and their participants. From the few segmented studies available it is clear that recreational angling (rod and line) when identified – be it for leisure or sport – shows the highest values of all recreational fishing segments measured by the number of participants and in socio-economic value per sector, fisherman or per fish caught. These segment differences should not be overlooked. Various recreational segments cannot be managed by the same measures. Non-segmented management would not be a fair and equitable treatment of the fishers. It would produce sub-optimal management to the detriment of the fishermen but also the environment and the local communities and businesses dependant on the spending from recreational fishermen and their families.

### **Unambiguous terms and terminology - of paramount importance**

*Ambiguous terms and terminology can lead to sub-optimal management or even mismanagement of the various kinds of recreational fishing segments and fishers. Some might be denied access to fisheries or the use of certain fishing gear for reasons of bias in the scientific advice due to ambiguous or bogus terms and wording, wrong or misleading data. Lack of recreational fishing data is a problem in general and for segments in particular. Often when catch data is collected it is not accompanied by any kind of socio or economic figures. For this reason alone the recreational fishing sector at large and recreational angling in particular is placed at a disadvantage with other marine uses and users.*

At the present time we see the evolving transition to ecosystem based management of fisheries. Marine spatial planning is pushed highest up the European agenda and new policies and initiatives are put in place to secure and preserve biodiversity. We see a dramatic increase in Marine Protected Areas these years, globally and in European marine waters. This is a cause for worry among all kinds of fishermen.

The above mentioned issues all make segmentation, proper terms and terminology for recreational fisheries a much needed and urgent task. The designation of MPAs for example, the physical placement of them and which activities can or cannot be allowed in them ought to be reasoned and based on the best science available. The problem is that the “best science available” might not be fit for purpose.

However, we have high hopes that the present work on the monitoring of recreational fisheries in the GFCM area will provide an important contribution to remedy the situation for the Mediterranean Sea area and eventually other European marine waters.

### **Guidelines for the management of shark and ray recreational fishing in the Mediterranean**

D. Cebrián

*UNEP/MAP RAC/SPA, Tunis*

Guidelines are under elaboration to reduce the negative impacts of recreational fisheries on sharks and rays in the Mediterranean. The guidelines will educate recreational fishermen in the use of simple management tools and best practice fishing and handling techniques to reduce fishing mortality. In addition, the guidelines will provide recommendations for tag and release and reporting of catches of sharks and rays. Uptake of these guidelines will reduce the harmful impacts of recreational fisheries, which can become a source of valuable data for biological research, fisheries management and conservation. The creation of these guidelines forms part of RAC/SPA activities to promote the implementation of its Action Plan for the Conservation of Cartilaginous Fishes in the Mediterranean Sea. The guidelines consist of four sections: A brief rationale: this explains in easily understood language the potential harmful impacts of recreational fisheries on sharks and rays and the need for a transition to catch and release fishing methods and uptake of the guidelines. A code of conduct for capture and handling of sharks and rays. The fishing methods and handling protocols recommended will reduce post-release mortality and the risk of sub-lethal consequences resulting from injury or stress. Guidelines for tagging of sharks and rays. The guidelines describe best practice for tagging, to minimise the risk to animals and maximise the value of data obtained. Reporting guidelines: these include a protocol for reporting recreational catches of sharks and rays and recommendations for the type of catch information that should be recorded and submitted. The guidelines will reflect current understanding of best practice for recreational shark and

ray fisheries, based on national and regional recreational fishing regulations, best practice recommendations of world and regional recreational fishing organisations and expert opinion. A full list of resources and links to relevant organisations will be provided.

### **Key elements to take into account on monitoring spearfishing**

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Studies that evaluate recreational fisheries impact are limited, and the great majority dedicated to boat fishing. Even more difficult is to find studies including a part, or being only about spearfishing, and their evaluation is mainly tackled from a negative bias, aesthetics of the activity taking preference over real impact. From the Catalan and Spanish Federations of Underwater Activities (FECIDAS/FEDAS) we consider that this is due to spearfishing reality ignorance. With the aim of correcting this distorted perception and in order to contribute to establish the basis to get a scientific and objective analysis of the activity, some of the key elements less known of this type of fishing are provided.

### **A new approach to estimate fishing mortality based in the angler behaviour and catchability**

J. Alós and M. Cabanellas-Reboredo  
*IMEDEA*

An accurate scientific data (i.e., objective data) is a key consideration in the stock assessment of the recreational fisheries (RF). Novel sampling techniques and data assessment could be implementing in a long term manner to understand the processes that occurs both at individual and population level. Here a novel frame-work to monitor recreational fisheries in the Balearic Islands (GFCM Area) is presented as complement to traditional monitor methods. The method was based in an accurate description of the spatial-temporal of the effort based in individual observation done using visual census method. This methodology seems to be more robust and reliable that other methods such surveys (due the objective of the data) and creel surveys (due the number of observations per day). This novel form to monitor RF also included an improved individual-based information of the angler behaviour, the knowledge of the biological aspects of fish stock (i.e. such as movement) and the aspects regarding the catchability (the probability to a fish would be catch by a an angler) allow us to establish a new framework to monitor RF and a new approach to estimate fishing mortality (F). All of this information is key topic in population dynamic of exploited stock and it is a useful tool to management due predictive capacity of different management scenarios.

### **Recreational fishery assessment of the European squid in NW Mediterranean**

M. Cabanellas-Reboredo and J. Alós  
*IMEDEA*

The European squid *Loligo vulgaris* is one of the most important species targeted by commercial fisheries in the NW Mediterranean. Only, the declared captures by this professional fleets amount to 119.5 tons/year. The study by Morales-Nin et al. (2005) reported that the recreational fishery is one of the main leisure activities in Mallorca Island, being *Loligo vulgaris* one of the most important specie targeted by this sector. Moreover, this

species represents high socio-economical value, rising like an icon of the traditional fishing. In this sense, the captures by Recreational fleet should be considered. While, the captures of the professional sector were registered by landings records at Wharfs, the captures by Recreational Fishery were not registered. For that reason, is necessary an assessment of these recreational sector.

Therefore, we would determine the population dynamics and exploitation of the species, by: 1) the characterization of the spatial-temporal distribution of the professional and recreational fishing efforts, 2), the determination of the annual fishing mortality and 3) the study of the biology and the population dynamics of this species. Methods include visual census to characterise the effort patterns, the evaluation of landing data recorded in Palma Wharf and experimental angling. As well as reproductive indexes and age and growth using daily growth increments in the statoliths. Moreover, the movement and behavioural patterns will be investigated combining conventional and acoustic tagging. All the information will be integrate in models of population dynamics in order to obtain the bases for the managements a sustainability of this important fishery.

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