



The recreational fishing in the Central and Western European Mediterranean frame

Ramon Franquesa*, Ana Gordo**, T. Mina**, S. Nuss**, Juan Ramón Borrego*

* GEM-UB, Gabinet de Economia del Mar, Universitat de Barcelona

** CEAB-CSIC, Centro de Estudios Avanzados de Blanes

Abstract

In the European Mediterranean region, recreational fishing represent not only an important leisure activity that increases the pressure on the resources, but also in a poor studied economic activity. This paper tries to present the analysis methodology as well as the results that from an economic perspective can be obtained from this activity in the Central and Western European Mediterranean frame. In the paper we present the advances on the results achieved within the Communitarian project SFITUM (Sport Fishing: an informative and economic alternative for tuna fishing in the Mediterranean) coordinated by Ana Gordo, where the GEM of the University of Barcelona contribute to develop the economic analysis.

The project has a multidisciplinary approach, it focus on the Big Game recreational fishing in Spain, France and Italy. It has been designed an universe of study, an economic classification of the activity, a process of several systems of samples with indicators to evaluate their weighed importance, considering the direct and indirect economic activity and the added value generation that recreational fishing contributes in the countries economies. For the analysis design it has been adapted to the conditions of Mediterranean Sea, the analytical methodology developed in the Northern Europe project *Economic Value of Recreational Fisheries in the Nordic Countries*, as well as it has been developed with own methodology.

The proposed indicators tries to evaluate in terms of the pressure over the resources and value added generation the importance of the recreational fishing in comparison with the professional fishing activity for the fisheries. It is also pretended to define reference point indicators in order to apply Communitarian action policies in the recreational fishing.

Keywords: recreational fishing, SFITUM, Sport Fishing, direct and indirect economic activity, value added generation, pressure over the resources.

1. Introduction

In the European Mediterranean region recreational fishing has been a traditional leisure activity which nowadays is becoming more significant and emerges as a new alternative for the tourism sector and also for the commercial fishing. Although, the social and economic impact of this fishery no attention has been paid on assess its impact over the resource and on the economic yield.

The communitarian project SFITUM (Sport Fishing: an informative and economic alternative for tuna fishing in the Mediterranean) try to develop a multidisciplinary approach to the recreational fisheries problem. This project Directed by Ana Gordoia involved three countries (Spain, France and Italy) and six institutions: CEAB (Centro de Estudios Avanzados de Blanes) from Spanish Research Council-CSIC; Gabinete de Economia del Mar from University of Barcelona (GEM-UB); Spanish Oceanography Institute (IEO); *Oceanic Development*; *Aquastudio* and *Federation International de la Pêche Sportive*¹. The project financed by EU Directorate-General Fisheries begun in January 2003 and will end by October 2004. Additional support from the regional Government of Catalonia (*Generalitat de Catalunya*) is in progress to realize a large specific enquiry in their area.

SFITUM Project is particularly addressed to describe the activity on Big Game Fishing, where the Tuna Recreational Activities is the more relevant one. Despite that the project is mainly focused on Red Tuna Fishery, the team try to establish also a first approach to the global problem of recreational fisheries in the Mediterranean region.

This paper present the analysis methodology that from an economic perspective, tries to evaluate this activity in the Central and Western European Mediterranean frame for management purposes.

2. The recreational fishing activity in the Area analysed by SFITUM

2.1 The Geographical Areas analysed

The Mediterranean EU area comprises a large area of this sea. After 1st of May, when Malta, Slovenia and Cyprus join the Union, the waters Communitarian area comprises a big part from West to East of Mediterranean, as can be showed in the map. This supposes an important responsibility for the Union, over the sustainability of the marine resources. The proposed Regulation on Mediterranean² is a first step to assume this fact.

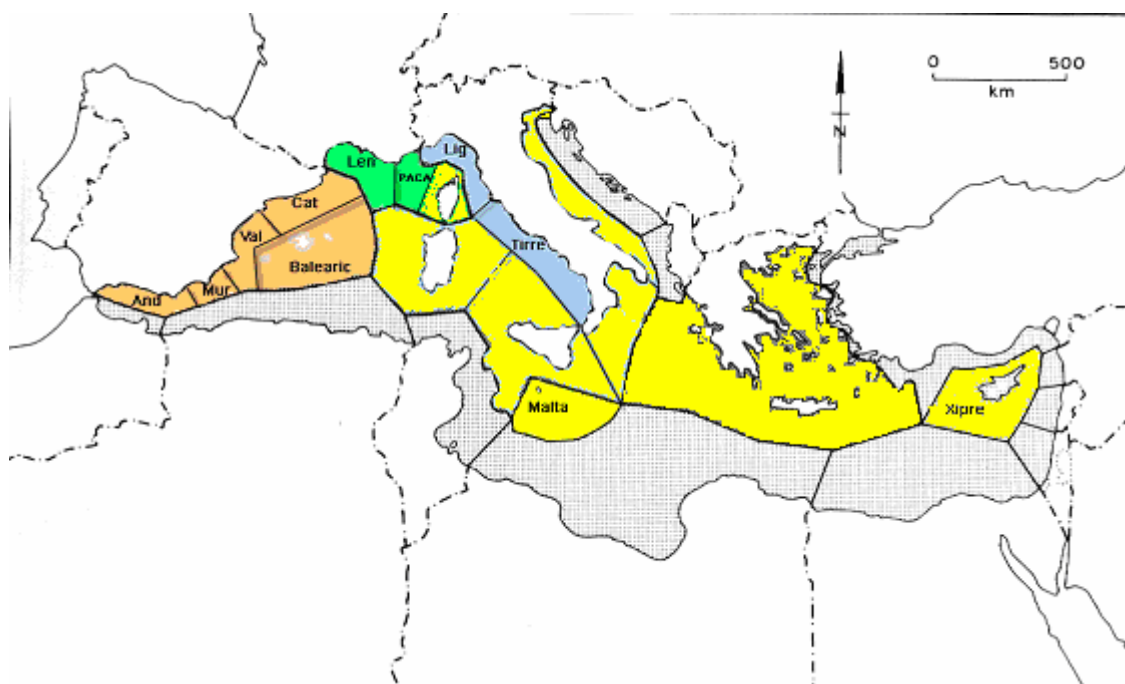
The colored areas suppose the waters that with the enlargement of EEZ, can be managed under national and Communitarian Rules.

In Blue, Green and Orange is showed the area cover by this study. In yellow the Communitarian area not covered.

¹ The people envolved are Ana Gordoia, T. Mina, S. Nuss (CEAB-CSIC); Ramon Franquesa, Juan Ramón Borrego (GEM-UB), J.M de la Serna (IEO), L. Mazaudier, B. Cailliat (Oceanic Development), Antonio DiNatalle (AQUASTUDIO), M. Ordan (FIPS/M)

² Council Regulation concerning management measures for the sustainable exploitation of fisheries resources in the Mediterranean Sea COM (2003) 589 final

Map of Mediterranean waters



GEM estimation and draw

General Data on Professional and Recreational Fisheries in SFITUM area

<i>Areas</i>	<i>Recreational Fishing Licenses</i>	<i>Recreational Ports</i>	<i>Recreational Mooring</i>	<i>Professional Vessels</i>	<i>Professional Landings Tones</i>	<i>Professional Fishermen</i>
<i>Andalusia</i>	26500	34	11300	880	12800	1350*
<i>Murcia</i>	8200	11	3700	314	3700	480*
<i>Valencia</i>	25600	33	14140	500	42000	760*
<i>Balearic Is.</i>	23000	42	16600	503	3900	770
<i>Catalonia</i>	50000	16	20100	1564	45000	4500
SPAIN	133300	124	65840	3761	107400	7860
<i>Languedoc</i>	No licenses	31	22000	1141	40000	No data
<i>PACA</i>	No licenses	122	57000	549	No data	No data
FRANCE	No licenses	153	77000	1690	No data	No data
<i>Ligurian</i>	No licenses	135	69500*	1742	20800	3100
<i>Tirreno,</i>	No licenses	129	66500*	3736	27200	8600
ITALY	No licenses	264	136000*	5478	88000	11700
TOTAL		540	155840	10829		

GEM elaboration and estimation³ (*)

³ This table is an estimation produced by GEM. The Italian data on professional fisheries is obtained from IREPA (www.irepa.org), but included in Liguria all Lazio Region (that in SFITUM is only partially) and in Tirreno all the data from Calabria Region (that half part is have a coast out of Tirreno). The spanish data are collected from Regional authorities by GEM. In particular, data on Spain mooring from TURESPAÑA. All data was contrasted with Franquesa & Oliver (2004) and STECF (2004).

No total figures are available in this moment on the weight of recreational activity in the area. As provisional way some data has been collected to give a first picture on the total weight of the fishing recreational activity.

As can be observed, the recreational activities have a relative importance in the region face to professional fishing activity. In many areas as Balearic, Catalonia or PACA the recreational activities and tourism absorbed employment from the fisheries sector. But it is frequent that need a generation to produce this adaptation.

Some basic data are not collected in this moment and we are in progress to produce this information in SFITUM Project.

2.2 Characteristics by countries

The recreational fisheries have a different regulation by countries and regions. No relevant Communitarian framework is developed by the moment. To understand the actual situation the star point is to describe the different legal frame in the EU countries.

Recreational fishing is a very complex activity owing to the diversity and heterogeneity of the pursuit itself and of the social and economic sectors and administration associated with it. Consequently, the working frame is multidimensional though it can summarise in three qualitative different, but not independent components: legislative, economic and biological. SFITUM approach this study through three major goals.

The first is to describe the legislative framework on the different segments of recreational fishing in Spain, France and Italy, necessary to assess the impact of future common regulatory measures to be passed by the EC in each country. The second objective is to assess the economic yield of this activity in these countries and to consider its potential in the tourist sector. The third is to launch a network of biological information from volunteer recreational fishermen and sportive and fishing federations, which will give a starting point to assess the impact of this activity over Red Tuna and other Big Pelagics.

This paper presents the methodological approach designed to achieve the second objective that from an economic perspective search to evaluate this activity in the Central and Western Mediterranean region for further management purposes.

The present and future development of this activity and economic sectors associated also depend on the present and future regulatory policies. Briefly we present the different topics on which SFITUM have analysed their current legislation in each country.

The general prohibitions of Recreational Fisheries as well as limitations on fishing modalities has been studied in detail as well as any requirement for its practice (licences, authorisations..). Conservation measures applied in each country and region as: limit of catches, minimum lengths, forbidden species, restrictions in protected area and periods. Control measures from specific instruments and control bodies to sanctions. Moreover, general sailing conditions from recreational sailing qualifications to recreational boats and taxation have been thoroughly analysed. Requirements for tourism or charter fishing, key factor for the fully development of this activity in the tourist sector is also analysed. Finally, Recreational Fisheries as a sportive activity has also been analysed through Competition's requirements.

Preliminary results show clearly big differences in the current legislation between countries. Briefly, Spain present the most restrictive policies in every of the topics analysed which has both positive and negative effects. The positive is that the impact of apply

Communitarian action policies will be low and easily handled because the providing and receiving bodies of control measures is already established. The negative is that present restrictions for its practice as a commercial leisure activity prevent the development of charter and tourism companies in Spain. The opposite scenario is the one observed in Italy where the lack of policies is such that SFITUM is facing almost an unworkable scenario. France provides an intermediate situation where the sportive federation plays a major role on this activity.

The economical yield of Recreational Fisheries, main subject of this presentation, lies on the 3 different major sectors. The impact on primary sector although weak because the sale of catch from Recreational Fisheries is prohibited, with the exception that from fishing contest, in certain regions like southern Italy the catch from Recreational Fishery is put on the black market. Nevertheless the main sectors favoured by Recreational Fisheries are naval industry (nautical, gears, electronics, etc.) and services.

Recreational fishing from boats requires certain facilities as availability of harbours or natural bays. These vary within and between countries and may ease or difficult the development of this fishing. Differences in shoreline topography and economical level are key factors on the existence of harbours and associated services. In order to assess number of harbours and moorings along the coast of these countries and the associated facilities, availability and prices, two different types of data and collecting procedures are performed.

Number of ports and moorings and general facilities are collected through letters sent to port departments, private organisations and finally through the World Wide Web.

Ports activity, occupation, prices, fuel consumption and services is being collected by sending a designed questionnaire by post. The ports questionnaire collected data on equipments and services that we have considered relevant in this study.

At present, SFITUM have collected data from the 95% of Spanish Mediterranean leisure ports and related services; 111 French Mediterranean leisure ports (72%) and 812 Italian ports and recreational societies.

Preliminary research on collecting data shows strong regional differences. This is the case of certain areas as in southern Italy, without facilities but with natural bays and beaches crowded of small recreational fishing vessels. This result jointly with the almost absent Italian legislative framework on this activity reveals the difficulty on monitoring this activity in those places where the economical impact on other sectors is slight but significant on the social one.

Naval industry sector is also directly beneficiary from Recreational Fisheries; differences in the taxes applied in each country also influence its development. In France the Value Added Tax is 19,6% and in Spain 16% but in Spain fee registration of 12 % of the boat price is required for vessels of 7,5 meters of more. Because the registration fee is extremely high in Spain and rental boats are exempted from it, many purely recreational boats are disguised under the rental category. Consequently, to obtain a reliable figure of rental boats in Spain is impossible and the magnitude of overestimation is at present unknown.

In order to approach each economical sector associated with this activity and its impact on marine resources a specific questionnaire addressed to each recreational fisherman have been designed. Each questionnaire includes 38 questions grouped on three different types. The first gathered questions about the social and geographical component as; city, vessel length, sex, age and years of experience in Recreational Fisheries. The second group of questions deal with the type and intensity of fishing activity as well as of the annual catch by species on each modality of fishing. The third group is on associated costs of Recreational Fisheries practice.

The latter consider from mooring rent, insurance, licences fee, insurance, ships maintenance, electronic material, fuel, lodging, transport and Competitions' associated expenses.

The distribution of this questionnaires have done by different ways, personal approach during fishing contests, distribution through fishing clubs, included in specialised recreational fishing magazines, and direct approach in Nautical Fairs. The latter has been the most efficient method. In Spain 240 forms are already collected figure that should be at least doubled by the dead line of collecting this type of data (June, 2004).

In France a specific effort is developed on gathering information of the economical activity of charters. Charter companies in France are more developed than in other countries and 23 companies have been found and 6 have already answered the specific questionnaires. In Italy the available information is mainly of estimates on Bluefin Tuna recreational fisheries fleet, fishermen and catch. All information collected by SFITUM during 2003 can be found in annex I.

In a limited area (Catalonia) we sent by mail a large enquiry to cover by stochastic procedure the total population of licenses owners on recreational fisheries. It's an enquiry directed to the fishing licenses owners, with the intention to obtain an approximated view of the global recreational fishing, which includes the offshore fishing as well as the shore, underwater and continental fishing (as in lakes and rivers). This enquiry is limited due to budget restrictions to the Catalonian geographic area. The shipment and reception of the enquiries has done by mail services. The sample size is 14000 Catalan citizens that they have sent the licences of recreational fishing. This enquiry is addressed over a total of 70000 people that are registered some time one license, the actual is around 50.000. The time necessary to fill up the survey makes it between the seven and ten minutes as maximum.

In these enquiries it was obtained socio-economic information that included: sex, age, years of recreational fishing experience, port, residence, owner of the vessel, length of the vessel, annual fishing days, type and number of fishing licenses on board and fishing gears used. On an economic level it is collected information about annual costs that fishermen gets in order to do the activity, including licenses cost, lodging (number of days per year), daily expenses (lodging, food, services, bait, etc.), yearly costs (gear, vessel maintenance, electronic equipment, oil cost) and transportation costs from the residence to the vessel.

The management and legal frame, drive us to establish 9 study areas. For Spain 5 *Comunidades Autonomas* (regional governments): Catalonia, Balearic Islands, Valencia, Murcia and Andalusia. For France two Regions: Languedoc and PACA. For Italy, Tirreno and Ligurian Sea.

At the end of the project is expected to provide a first picture on different regulations systems as licenses, forbidden techniques, limitations (gears, quantity, size), area exclusions, legal figures, prices, etc. To goal is also tries to understand as this regulations affect the recreational fisheries activity, affect the resources and the fishing zones.

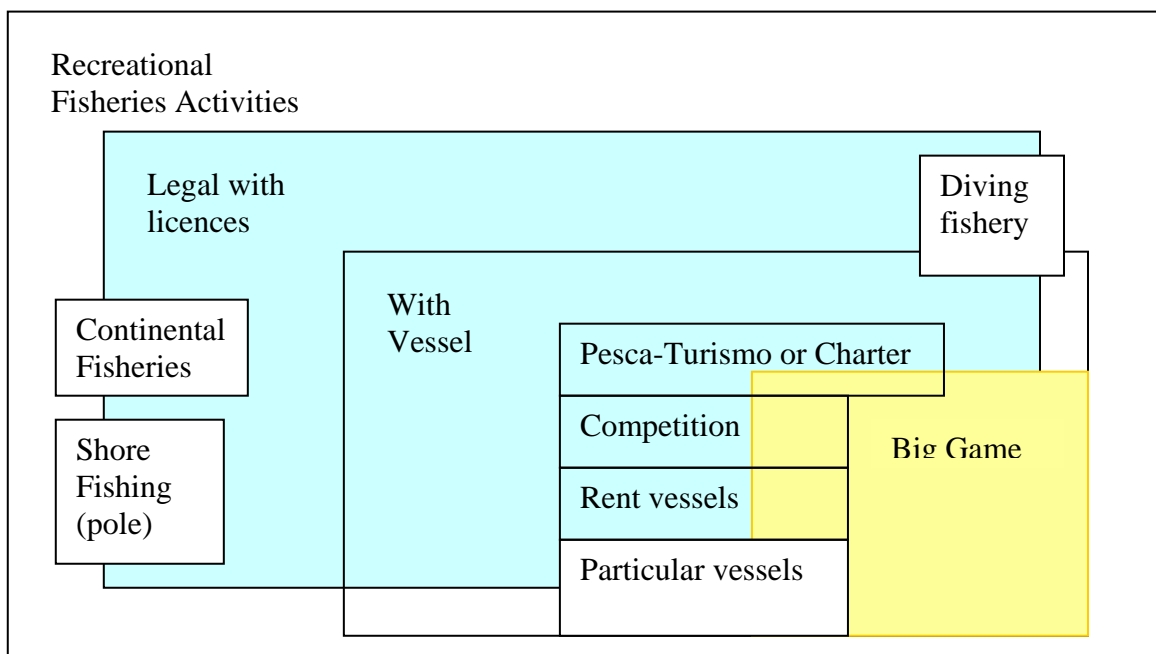
2.3 Marine Recreational Fishing Segments.

The Marine Recreational Fisheries present many segments. One of the first outcomes of the project is to establish a common classification between all participant countries. We try to explain this diversity with the help of the attached graphic.

From the Economic and Social perspective a first distinction is the difference with the activity developed in or out of the law. In Spain the limit is established by the use of the licenses. But in Italy and France they are not licenses, but while in France this activity present policies similar to those in Spain in Italy is almost all legal.

The recreational fisheries also comprises from management purposes, the **continental fisheries** (important in Pyrenees, Delta Rivers as Ebro and Rhone and dams). This kind of activity is not considered in SFITUM.

Other kind of activity is the fishery by pole from the **shore fishing**. Do not suppose significant expenses from users, but can incentive the tourist activity. They activity affect littoral species and interfere in certain areas with swimming and scuba watching activities. No data is available on this fishery at this moment, but with the survey developed in Catalanian we can beginning to evaluate the importance of this and the precedent presented segments (excluded the illegal activity).



The **diving fishery** is other specific case, which can be developed from the coast or from vessel. They have strong impact over some species as the coral or the Dusky Sea Perch (*Cerna Gigas*), despite that this activities are not allowed; but for the major part are very selective and not have high impact. In all Mediterranean coast many leisure enterprises growing in this activity.

From vessels is possible to distinguish different groups:

- One of the activities is the **competition**, which supposes a large economic impact: hotels, restaurants, services, inscriptions, vessels rent, etc. In some areas there are hundreds of competitions in summer (many every day) and the coastal villages have strong competence to attract people in their organisation.
- Other is the **Pesca-Turismo** or **charter activity**. Some specialised enterprises o particulars, rent the vessel and their services. The tourist rent the vessel to go for a sea walk and fish watching, and occasionally fish for lunch on board. Normally have a low impact over the resource. One particular case is the

charter addressed to fish Tuna. The tourist use one or more days to have an adventure race to catch big pelagic. Their impact is low, because in many hours only some catches is normal to be registered. In fact to catch only a Tuna can demand some times many hours to put on board the piece. But, if the number enterprises growth without control can produce some effect.

- **Recreational Fishery by Particular or Rented Vessels.** One of maritime activities practiced from the vessels (rented or particular) is the fishing activity. They affect some species (demersal species, squids, etc) in a not evaluated dimension. The individual pressure is low, but the large number of recreational vessel can produce important impact. It is difficult to control the catch, but easy to limit the gears.

Many of these activities can be involved or specialised in the Big Game Fisheries. To participate in this fishery demand some adaptations in the vessel to have an acceptable performance (special chair, elevated bridge). The Big Game Fisheries have an important economic place, but concerned a low number of vessels and fishermen of each recreational segment.

In green is represented the segments that suppose an economic activity. Apparently Recreational fisheries are leisure activities, but in fact exists an economic activity with the rent of vessels, the organisation of competition, the charter enterprises or to give diving courses or excursions. These economic activities can play an important role to provide alternatives to professional fishing activities and to develop the coastal areas.

All this activities can have conflicts with the professionals and between them. The reduction of the fishing resources, the economic improvement of some activities (face the economic difficulties of some professional activities), the absence of regulation (that push the economic recreational activities to grey economy) it allows to foresee potential conflicts, that can be reduced by preventive management actions.

One line of action is to **regulate as economic and legal activities** (included fiscal rules), over the new activities as Pesca-Turismo, Vessel Rent, etc.

The second line is to **regulate the access to resource** according the fish possibilities. The difficulties in this second line (by data absence, conflicts, etc.), obstructs the solution of the precedent line. But this line supposes to evaluate the dimension of the activities, the status of fishing resources affected and introduce criteria to distribute fishing rights between activities

3. Economic Analysis Methodology

3.1 The Recreational Economic Activities

Recreational fishing generates an increase in the demand of the services sector in the place where it is practiced. It causes an increase in the tourist sector activity by demanding for hotels as well as for restaurants on the zone. Also it favours the naval industry, whose works increase thanks to the income generated from the sell and repair of the recreational boats. The practice of recreational fishing has generated the appearance of new economic activities from the supply side as they are the creation of stores specialized in the sale of recreational vessels, electronic equipment for navigation and detection, as well as equipments and articles of recreational fishing arise in villages and cities near the sport ports with the purpose to supply

the demand generated by the activity. On the other hand, it has implied the adjustment and creation of recreational ports being necessary to extend the supply of the harbour services in order to fulfil the needs of this sector as it is the creation of new moorings, dry docks for the reparations, waiting piers, ramps, weather forecasts, security and monitoring the 24 hours of the day, restaurants in ports, parking, etc. The transportation sector also benefits from the growth that experiences the recreational fishing offering a full range of activities, packages and circuits related to the activity in any destiny where it is practiced.

If we analyzed the social component, recreational fishing generates an increase in the employment in hotels, restaurants, general services in harbors, recreational boat stores and recreational fishing articles shops. It can also produce a seasonal employment, specially during summer, in order to satisfy the demand peaks for these services. It also influences to a lesser extent the sector services in general by the increase of the tourism and therefore of the effective consumption the zone that is translated in a greater demand of the goods and services that offer.

The creation, existence or upgrade of a recreational port supposes a change in the village physiognomy, which is translated in a generation of new house and the upgrade of the public services due to the increase in the Council's income that feed with the taxes over housing and economical activities. It also implies a revalorization on the housing prices. For citizens it supposes an increase in the patrimonial value and its incomes which results in an increase in the income per capita.

On a national level, it supposes an increase in the current account income derived from the tourism that recreational fishing generates, becoming a tourist consolidated attraction for the country. Furthermore, it generates an important income flow through the taxation on consumption (VAT), special taxes over navigation and mooring. The recreational fishing is the sector worse treated by taxation. In Spain, for instance, as four different taxes are applied to it, that during the first year they reach about the 30 % of the vessel's value.

The empirical analysis of this activity is difficult because the absence of data. The quantity and the quality of the data is very limited, give that the low importance of this activity in the past. Also a part of the problem is that give that the definition of recreational fisheries excludes to sale the catch, any economic (or quantitative) data is collected.

When exist economic activity (pesca-turismo, etc.) the existence of regulation, incentive to develop the activity (France case) or the absence or bad regulation, push this activity to grey area (Spain case). When the activities are out of the legal framework, off course, it is more difficult to collect no economic data.

By this reason, we are forced to develop a new collection of data, where the team tries to establish a common method over the tree analysed countries.

To be consistent with the economic theory, the recreational fishermen must have positive benefits in order to develop the activity. The problem is that in some segments of the activity, benefits are not economic, but come from the satisfaction of doing the activity.

There is no direct monetary reference, as there is no market that generates prices to do the monetary valuations. So forth. It must be developed a methodology that calculates profits in a indirect way.

It is to evaluate the total costs for the recreational fishermen (consumer) to develop their activity. Given the large quantity of inputs that constitute these costs, a feasible way to obtain this information is from enquiries. The methodology that is used is the Conventional Theory of the consumer. It is supposed that marginal profits are equal to the marginal costs

that the recreational fishermen face in order to do the activity. From the enquiries it is possible to estimate the cost, and the value that the consumers give to this activity.

Contingent valuation is not operative for the type of enquiries we have developed, as well as is not right the willingness to pay theory.

The only valid methodology seems to be the use of the cost-benefit analysis to compare the recreational fishing with the professional fishing. This technique makes the most precise statements about which policy choices are efficient, it also imposes the largest requirement for information in order to provide those statements. It is fairly easy for most people to accept the general premise that the benefits and costs of actions should be weighed prior to deciding on a policy choice. To solve the problem that the market prices do not prevail and the demand of the recreational fishermen is not revealed, we have the data of surveys to apply a technique similar of Clawson-Knetsch method.

3.2 The experience of Northern Countries

The Recreational Fisheries was beginning to be analyzed in the Northern European countries, some time before. Some facts can explain this development: the highest sensibility to environment subjects, the upper economic level and the upper research capacity.

A study with certain similarities to our work is the *Economic Value of Recreational Fisheries in the Nordic Countries* (NAF Project 661040-90761). This study presents the results and the methodology used to estimate the Total Economic Value (TEV) of recreational fisheries in Denmark, Finland, Iceland, Norway and Sweden⁴. In this study it has been used the total expenditure used for recreational fishing and the market value of the catch, in order to estimate properly the total economic value of recreational fisheries it has been included the non-use value for the overall population (both fishermen and non-fishermen) attach to preserving the existence of the current Nordic fish stocks and the possibility to be inherited by future generations. The instrument used to collect data has been the questionnaire, using the Contingent Valuation method to measure TEV, estimating the willingness-to-pay for recreational fisheries and the preservation of fish stocks. The sample size was 25000 Nordic citizens between ages 18 and 69 with a response rate of the 45,8%. The mail survey was conducted in the five Nordic countries through October 1999 and January 2000. The annual economic values of the use value of recreational fisheries represent the willingness-to-pay of the recreational fishermen for their fishing experience over and above their actual expenditures during the last 12 months. The results can be used for cost-benefit analyses of alternative uses of the water flow, projects affecting water flow and measures to restore and protect recreational fisheries and fish stock.

Nowadays, the situation of the recreational fishing in the Mediterranean has a lot of differences when comparing with the Nordic recreational fishing. Fishing is among the most popular recreational activities in the Nordic Countries and there are approximately about seven millions of citizens in the five countries who practice recreational fishing in all modalities (in sea, rivers, lakes, glace, etc.). The Mediterranean activity is in a growing process and at the present stage there are many less recreational fishermen, from the data obtained from the number of fishing licenses.

Climatology is an important factor because the greater added value of the recreational fishing in the Nordic countries takes place in the fresh water fishing. On the contrary, the recreational activity in the sea is the one that contributes with a greater value added to the

⁴ Economic Value of Recreational Fisheries in the Nordic Countries, FEMTI, Teamnord Fisheries, 1999

economy in our three countries of study. In addition we have a longer warm season to practice the activity. These structural differences affect the costs composition as there are used inputs in different costs proportions as well as with a greater frequency on the Mediterranean.

The economic analysis developed in SFITUM project benefit from the work developed in the Northern Europe, but need to adapt the methodology to specific conditions of the Mediterranean area.

3.3 Proposed indicators

The production of indicators is addressed to establish a common language to allow compare the recreational fisheries with other users (professionals), in relation of the resource and between different regions. Their practical use is concerned with the management of fishing resources, that every year is a task more sensible and complex.

From the data obtained from the enquiries a first objective is to describe the actual situation in the analysed areas. The expected outcome allows estimating a first picture on the recreational fisheries in the area.

One of our first objectives is the production of figures more accurate on:

- People concerned on recreational fisheries by segment and region
- Number of vessels by segment and region
- Economic expenses by concept, segment and region
- Catches by segment and region
- Expenses (fixed, variable, direct, indirect, etc.)
- Recreational fisheries investments by segment and region

From other sources is possible to process information on:

- Authorised vessels
- Mooring places
- Employment on direct services concerned: reparation, harbours, services, etc.

From this data, collected and processed can be possible to produce some indicators to represent the relative weight of the activity in each area. Some of expected indicators to produce are:

- Kg per license or vessel
- Direct expenditure in the area per license or vessel
- Fishing days per recreational vessel
- Relative biological pressure from recreational and professional by sensible species
- Relative cash flow recreational and professional activities by segment and regions

From other side, the allowable information can be used to estimate other figures as:

- Direct and indirect employment related with recreational fisheries
- Economic activity induced
- Regional incomes induced by the activity
- Recreational Fisheries Activity Add Value

3.4 Providing economic criteria for managers

The development of recreational fishing activities can produce conflicts between users. In this case the administrators need to dispose criteria to distribute the fishing rights between the potential users. Exist many potential criteria (historical rights, first in the demand queue, etc.), but the economy can provide objective criteria to help the managers in their decision.

We consider three possibilities: Payment by equivalent use, maximise the add value or maximizes the economic impact.

3.4.1 Payment by equivalent use

In fact is the most simple and academically correct decision. The solution is establish a auction on the right to use the resource. No any economic estimation is demanded, the fishing rights is assigned by ITQ system between users. In this case the criterion is clear; how that is disposed to pay more, have the right to fish.

Here the problem is try to introduce the system in the Mediterranean context, were any body pay for fishing at this moment. No many administrators like the use this system that probably not solve the conflict between users but produce a conflict from all users against the administrator.

3.4.2 Maximise the economic impact

A second solution is to establish a payment only over one of the kind of users, to equilibrate the add value produced by the activity. In this case the initial use is free, but when appears two alternatives (professional or recreational), the administrator evaluate the economic contribution to development. To equilibrate both contributions to total activity, the administrator establish a tax over the activity that generate a lowest add value.

The professional activities have economic impact on naval sector, naval services, fishing gears industry, processors and trade.

The recreational activities have economic impact on naval sector, naval services, fishing gears industry, restaurants, hotels and other tourist services

Here the problem is to evaluate this impact, give the large number of activities concerned, and the different weight in each sector of each activity. For instance: the professional gears are more expensive, but the recreational are a upper number, etc.

It is not easy, and not clear methodology to evaluate how and the exact dimension on tax payment to equilibrate the add value of the different activities.

3.4.3 Maximise Cash Flow

A third solution is to maximise the cash flow produced in each activity in relation to use of the resource. The philosophy here is to consider that any euro induced by the activities, supposes a positive economic push to the local area, that go from buy fishing services to restaurants or hotels.

In this case we can consider the cash flow of the professional segment as the total value of their landings, and the resource use the weight of landings.

For the recreational the equivalent of total cash flow, is the total expenses in the activity. The satisfaction for the consumers has an equivalent economic value, in the expenditure to develop this activity.

In this case is possible to establish an equilibrium point if:

$$\frac{VP + T_p}{LP} = \frac{VR + T_r}{LR}$$

Where VP is Value of Professional Landings, LP Weight of Professional Landings, and T_p the potential tax over the professionals, VR is Value of Recreational Landings, LR Weight of Recreational Landings, and T_r the potential tax over the recreational.

The value of LP, LR, VP and VR depend of characteristics of the activities. Their value is obtained or estimated from the data collection. The variable of equilibrium is T, where T_p or T_r are equal to zero. This tax can be distributed in proportion to the landings volume, in fact we can transform the T in a t as rate over the landings.

The activity that produces less cash flow, it is forced to pay an equivalent tax for use of the resource. Then, by kilo used, the cash flow induced should be the same.

With this methodology not try to provide an exact figure, that allow equilibrate all activities in an optimal point, but to orient the manager around how kind of tax pressure can be established over the activities.

4. Expected outcomes and utility for management purposes

The purpose of the SFITUM Project is to evaluate the impact of the Big Fish over the professional activity and over the coastal economic activity, to provide more criteria to the managers to decide the distribution of fishing rights. The project is limited to area of Spain, France and Italy of European Mediterranean.

As a collateral outcome the project can contribute to understand the recreational fisheries as Mediterranean phenomenon and to introduce the evaluation of other recreational fisheries more far that Big Fish.

In the last twenty years the professional fisheries are face to a transformation that improve the productivity by technological innovation but reduce the number of vessels and employment to maintain the status of the resources. Only in the Catalonia region the employment from 1986 (access to EU) to now, moves from 8500 people to 4500. This tendency demands the development of the new alternative activities, but in a context of special attention to assure the sustainability of the resources.

The tourism activity is an economic sector that increases their importance in the Mediterranean Area. With a privileged climate, the development of infrastructures, the change of consumers behaviour, incentives to accelerate this tendency in the future. From the last years, tourism activities contribute to replace traditional activities in the coastal areas. But in some cases this new activity can produce conflicts with traditional activities, in special fisheries.

A path to solve potential problems with the professional fisheries and to use the potential capacities of the recreational activities to push the economic development is to establish a common legal framework for the recreational fisheries at level of EU Mediterranean countries to regulate them. If the particularities of each country not allow go too far in this common regulation, at less is important to establish a common criteria and methodology to evaluate this activities.

The indicators proposed can contribute to evaluate, over objective data, the importance of the activity and the marginal value added by each segment, and over a particular specie or group of species.

In particular these indicators can contribute to evaluate the impact over the Tuna, one of the most sensible resources in the Mediterranean area. Probably in the short time, some new measures can be established under the limits established by ICCAT. The conflicts between different economic activities can be reoriented to objective analysis. From this information it is possible to distribute the TAC reductions and perhaps to establish payment contributions, to distribute the incomes and costs in an equilibrate way.

5. Bibliography

European Council, Council Regulation concerning management measures for the sustainable exploitation of fisheries resources in the Mediterranean Sea COM (2003) 589 final

STECF (2004) Report of the SubGroup on the Mediterranean of STECF on Fleets, Technical Measures and Alternative Management Options in Mediterranean Fisheries, Brussels.

FEMTI, Economic Value of Recreational Fisheries in the Nordic Countries, Teamnord Fisheries, 1999

Franquesa & Oliver (2004), Chap 7 Fisheries, CIHEAM Annual Report 2003

Annex I

Information collected by SFITUM during year 2003.

Background information:

- terms and segments of recreational sea fishing (RSF).
- Conditions and requirements of RSF in Spain and France.
- Requirements for competitions in Spain and France.
- General Sailing Conditions.
- Tourism fishing and charter activity in Spain and France.
- General conditions for Tuna sport fishing in Italy

Data collected:

Spain (Catalonia, Valencia, Murcia, Andalusia and Balearic Islands). CEAB-CSIC:

- RSF licenses: number and price by region 1998-2003
- Big Pelagic special authorizations: number by region 1999-2003
- RSF contests taken place by region 1998-2003
- Data from 110 boat RSF contests in Catalonia 2002-2003.
- Data from RSF contests in Murcia 2002-2003.
- Data from shore RSF contests from the Club de Pesca Quatre Jotes (Cassà de la Selva, Girona) 1996, 2002 and 2003..
- Data from RSF contests boat (1995-2003) and shore (1998-2003) from de Club de Pesca El Mero (Algeciras, Cádiz).
- List of 177 leisure ports and related services.
- 105 anonymous questionnaires of fishing activity and associated costs.

Spain (Catalonia). GEM:

- - Data from 14.000 enquiries to licenses owner, financed by Regional Government

France (Languedoc-Rousillon, PACA). OCENANIC:

- Data from BGF contests 1992-2002.
- Big Pelagic BGF contests total catch 1993-2003.
- Big Pelagic BGF contests total catch by clubs 2003.
- List of member boats of the FFPM, and list of boat with Bluefin Tuna BGF Special Authorization.
- List of 111 leisure ports and related services from 20 of them.
- Distribution of 200 anonymous questionnaires of fishing activity and associated costs.
- List of 23 charter fishing companies and activity questionnaires from 6 of them.

Italia. AQUASTUDIO:

- List of 812 ports in the Italian coast.
- Data from voluntary requests for Bluefin Tuna RSF catch quota.
- Summary of catch declarations from Bluefin Tuna RSF.
- Estimate of the Bluefin Tuna RSF fleet and fishermen.
- Estimate of Bluefin Tuna RSF catch data: total catch; weight class frequency; size class frequency; kg. and pieces per boat.