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WHAT KIND OF MANAGEMENT FOR MEDITERRANEAN FISHERIES?

NOTE

EN

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This document was requested by the European Parliament's Committee on Fisheries.

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Abstract

This study analyses the management tools for fishery management in the Mediterranean proposed by the amendment of the Parliament and their pro's and con's. Management tools currently available are discussed to learn lessons and consider possible drawbacks. Conclusions show that future policies should consider specific strategies for each fishing area and gear, by drawing specific management plans depending on whether resources are shared or not shared.

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LIST OF ABBREVIATIONS

ADRIAMED	Scientific Cooperation to Support Responsible Fisheries in the Adriatic SeaCommon Fisheries Policy
CFP	Common Fishery Policy
CE	Collective Effort
CLMP	Community–Level Management Plan
CO.GE.MO.	Molluscs management Consortium
CO.GE.PA.	Artisanal Fisheries Management Consortium
CQ	Collective Quota
CTE	Collective Transferable Effort
CTQ	Collective Transferable Quota
EFF	European Fishery Fund
EU	European Union
FAD	Fish Aggregation Device
FAO	Food and Agriculture Organisation of the United Nations
GFCM	General Fisheries Commission for the Mediterranean
GSA	Geographical Sub Area
IE	Individual Effort
ITE	Individual Transferable Effort
IQ	Individual Quota
IREPA	Istituto Ricerche Economiche per la Pesca e l'Acquacoltura
ITQ	Individual Transferable Quota
LMFP	Local Management Fishery Plan
MEDITS	Mediterranean Trawl Survey

MedSudMed	Assessment and Monitoring of the Fishery Resources and the Ecosystems in the Strait of Sicily
MRAG	Marine Resources and Fishery Consultants
MEY	Maximum Economic Yield
MSY	Maximum Sustainable Yield
NFMP	National Fishery Management Plan
RBM	Right Based Management
NFMP	National Fishery Management Plan
SAC	Scientific Advisory Body
SG.MED	Sub-group on the Mediterranean sea and on the Black sea
STECF	Scientific, Technical and Economic Committee for Fisheries
TAC	Total Allowable Catch
TURF	Territorial User Right for Fisheries

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EXECUTIVE SUMMARY

Background

Management of marine biological resources is a series of measures to guarantee the sustainability of exploitation of fish stocks in time. As experience shows, this is not an easy task since fish stocks are common goods and as such characterized by rivalry and non-exclusivity. These two factors jointly determine excessive levels of exploitation, given that each enterprise tends to catch the largest amount of stock in the shortest time possible, also by increasing investments. Therefore, the management objective is to erase common property and particularly rivalry, in order to help reaching a fishing effort compatible with safe biological limits.

The introduction of right-based management measures is the main tool to help removing common property, and possibly rivalry, amongst fishing enterprises. Both the Commission's proposal and the European Parliament amendment pursue this aim, although in different ways, by introducing two kinds of right-based management measures: **territorial use rights** and **use rights on resources**. The former empowers a community of fishermen to define and implement rules of exploitation in a limited area, decentralizing the decision making process and acknowledging fishermen culture and experience. Use rights on resources allocate catch or time quota to each fishing enterprise. Catch quotas assign each single enterprise an exclusive right on a specific quantity of a specific stock.

Since Mediterranean fisheries are mainly artisanal, and target multi-species stocks making it impossible to link the activity of an enterprise to a single stock, the most appropriate management tool is therefore effort quota. Where fishing activities target a mono-specific stock, catch quotas are a possible and strong alternative.

Right-based management has been implemented internationally with positive results. In the Mediterranean, with the exception of bluefin tuna, only territorial use rights have been introduced. Each case was different and experience shows that there is no single strategy valid in all situations. On the contrary, it is necessary to draw up specific intervention strategies based on the peculiarities of each area, including the homogeneity of territorial right holders, the extension of the area and the structure of interested biological resources.

The introduction of innovative management measures cannot overshadow some important management tools currently implemented in the Mediterranean in compliance with Reg. (CE) 1967/06. Within this Regulation, Article 19 requires all Member States to adopt national management plans addressing each fishing system, while art. 18 introduce Community management plans for specific fishing activities carried out within or outside territorial limits. Some interesting and positive results have emerged after the implementation of some of these plans, in terms of a better balance between fishing effort and biological resources.

Aims

The aim of this present study is to provide a comprehensive qualitative analysis of the tools introduced by the amendment of the EU Parliament, to propose recommendations and policy-relevant advice to decision-makers. The approach is focused on five main issues regarding the implementation of successful management options. These are:

- Definition of Rights-Based Management and conditions for its application in fisheries

- Analysis of pro's and con's of TURFs, based on case studies
- Analysis of other existing tools and assessment of their success
- Analysis of new management tools introduced with the amendment
- Identifying synergies between the territorial use rights approach and regionalization
- Recommendations for future management strategies in Mediterranean fisheries.

Key findings

Right-Based Management includes territorial use rights and use rights on resources. Both systems are supposed to remove the issues of common property. While non-excludability is easily addressed, neither approach necessarily excludes rivalry, thus limiting efforts to reduce overexploitation of biological resources.

The main distinction between use rights on resources and territorial use rights lies on the power to set, enforce and defend the rules. Individual catch or effort quotas allocated by a central authority do not translate into a territorial use right. In this case the territorial use right is equivalent to a special fishing permit.

TURFs could be successfully introduced in fisheries exploited by small-scale vessels fishing in areas very close to the coast. The smaller the delimited area, the greater their efficiency. In this case, a TURF may be the most appropriate tool in a local management plan.

There is no unique TURF scheme valid for all situations, rather a range of different opportunities depending on the history and on socio-economic and biological context. Ex-novo introduction of a TURF approach requires an incentive scheme.

Management plans and other tools introduced by the existing Mediterranean Regulation are still in the experimental stage. Credibility of new proposals will be enhanced if continuity between current and new tools is guaranteed.

When current tools are properly introduced, as with permanent and temporary withdrawal schemes, they prove to be effective in the stock rebuilding process. Nevertheless, further actions limiting access to the newly rebuilt stocks are needed to avoid compromising achieved results.

Right-Based Management tools do not guarantee per se the efficiency of a management strategy. In particular, individual effort quota does not remove the "race to fish and to invest" tendency, since fishermen will try to get the maximum yield per unit of time spent at sea.

Non-transferability of the quota and termination of permanent withdrawal schemes do not remove overcapacity. More complex schemes need to be implemented, but this may not be applicable to artisanal fisheries.

In any case, coordination of management measures is required in drawing national or Community management plans.

Management plans should be designed depending on whether resources are exploited by a single fleet or fleets of different countries, regardless if within or outside territorial waters.

1. FEASIBILITY OF INTRODUCING COMMON PROPERTY RIGHTS IN THE FORM OF TURFS

KEY FINDINGS

- Removal of free access to fisheries stock(s) exploitation can be achieved by introducing **Use Rights on Resources** which consist of individual or collective catch or effort quotas, or a combination of both and **Territorial Use Rights**. Both Use Rights remove the non-excludability characteristic of common property, but not necessarily the rivalry.
- When introducing Right-Based Management measures, the Public Authority retains ownership of resources and allocates the industry use of the resource or of a territory.
- The main difference between the two Rights-Based management measures lies in the power to set, enforce and defend the rules. Establishing individual catch or effort quota at central level, cannot be considered a territorial use right.
- The two groups of rights are not mutually exclusive and both contribute to decentralize fishery management.
- Individual catch quotas are better enforced in monospecific fisheries exploited by medium/large vessels and remove the rivalry principle of collective goods. In multispecies fisheries, like in the Mediterranean case, individual effort quota are more appropriate, but the rivalry principle of collective goods is not removed.
- Territorial Use Rights are better suited to fisheries exploited by small artisanal vessels, fishing in coastal areas targeting species with a restricted or limited range.
- TURF efficiency increase when associated with a local management plan where rules are shared, defined and enforced by the fishermen themselves.

1.1. Introduction

The proposals for the reform of the Common Fisheries Policy (CFP), presented by the European Commission in July 2011, have been discussed in the Committee of Fisheries of the European Parliament, and a draft report on the Proposal for a new regulation on the CFP has been prepared. The draft report suggests specific rules for the Mediterranean (amendment 177 - the new Article 33a), requiring the Member States to establish a system of territorial use rights in fisheries (TURF) in their territorial waters (Annex I) [1].

This amendment is particularly innovative and designs an alternative management scheme to transferable fishing concessions introduced by the European Commission's new regulation proposal. As it stands, this amendment allows Member States to define fishing grounds within their territorial waters, excluding protected areas from fishing activity, and entrust only selected vessels to fish in those areas. In the newly-conceived TURF, each

[1] The draft report is available at http://www.europarl.europa.eu/sides/getDoc.do?pubRef=-//EP//NONSGML+COMPARL+PE-483.528+01+DOC+PDF+V0//EN&language=EN

right holder is allocated either a non-transferable individual catch quota (IQ), or a non transferable individual effort quota (IE), or a combination of the two.

At least three issues need to be addressed:

a) What would be the difference between this and a traditional management scheme introducing IQ or IE, given that both area and regulation are still assigned by the State, which allocates the holder a Use Right on catch or effort, or a combination of the two?

b) What would be the added value of the territorial limit, since:
   i) with very limited exceptions, Mediterranean vessels do not move from one fishing area to another, and
   ii) in most cases, medium and large size fleets fish inside and outside territorial waters, competing with smaller vessel fishing inside territorial waters only;

c) Since the aim of the proposal is the recovery of stocks and the reduction of fishing effort, it is questionable whether non-transferability of individual quotas, within or outside a TURF, would produce a concentration of cost and earning and reduction of the fleet. Unless a permanent withdrawal incentive is provided, there seems to be no drive to concentrate effort.

In the following paragraphs we will try to clarify these issues.

1.2. Property rights in fishery resource management

Biological, economic, social and institutional viability is the main goal of a public authority. While this is generally a common goal, the strategies, tools and measures to pursue them may not be equally shared. In particular, the same tool may have a totally different impact depending on the specific fishery it has been introduced, thus generating some confusion. We will therefore outline the main issues addressed in this study.

Resource management specifies the set of actions administrated by the government to ensure the sustainable exploitation of fisheries stocks by the industry. This is obviously a complex task given that the same objectives may sometimes be conflicting: the need to ensure employment levels and income of workers in a given area is, for instance, hardly compatible with the reduction of fishing effort, especially in the short term. The latter is usually necessary not only to secure the protection of overexploited stocks, but also to ensure the efficient allocation of production factors and income maximization over time. On the other hand, some factors may be more decisive than others in the choice of initiatives to administer: these include the biological structure of resources, characteristics of the area, the economic and social structure of the community, the flexibility with which enterprises may implement new regulations.

These issues may become even more critical considering that the fishing industry is universally characterized by a high degree of uncertainty, by incomplete and asymmetrical information and by a variety of administrative and jurisdictional actors that may intervene in the same area.

The choice of management model therefore depends on the way the regulator will address all these features. There is clearly no single answer to the needs of a management authority, rather specific strategies based on the peculiarities of the area. Actions of a conventional strategy may include: the introduction of property rights; regulation of fishing

activities; output and input control measures. Within the range of possible actions, those associated with property rights are by far the most effective since they are supposed to remove the common property feature of the resource, as well as rivalry and non excludability - the source of well-known entrepreneurial behaviour like the "race to fish" and the "race to invest" that lead to resource overexploitation.

Property rights may be classified based on the use of resources and use of fishing area. Both contribute to internalization of the externalities generated by the common property of the resource, but with considerable operating differences (Figure 1):

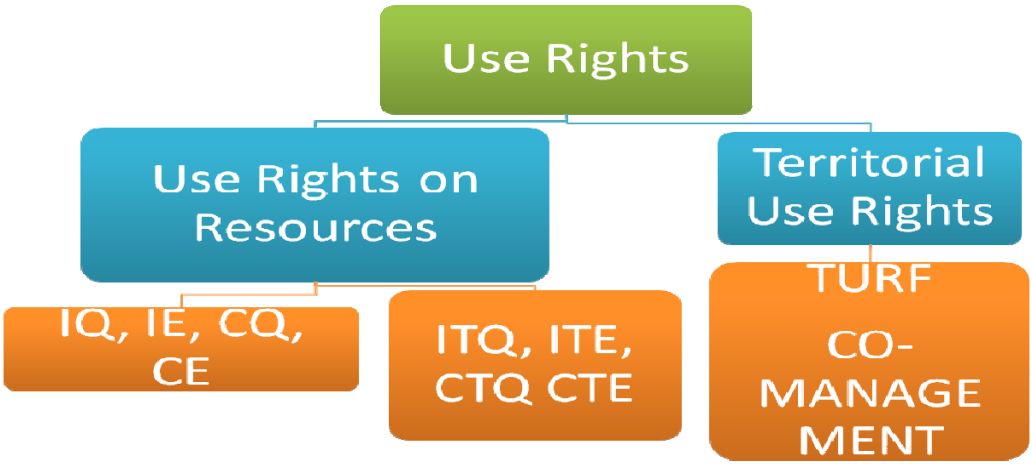
- Use rights on resources, divided into individual or collective quotas on catch or effort (IQ, IE, CQ, CE) and individual or collective transferable quota on catch or effort (ITQ, ITE, CTQ, CTE)
- Territorial use right, where management is shared between the public authority and the local organization.

Individual and transferable quotas allocated by the management authority, may assign actual use of the resource to the right holders given that each one is guaranteed to fish its assigned quota. In this case, the collective nature of resources may be completely removed.

There are several different implications associated with territorial use rights. The law grants individuals sharing the exploitation of resources in a limited area, the right to self-manage, fully or in part, fishing activities. Under this circumstance, the area is not removed from either the community or the public authority: it is only the right to exploit its resources that is assigned. The management of the area may be referred to as "individual", in that all right holders share rules that they themselves contributed to draw and all have an interest in enhancing revenues generated by the resource.

Either way, the efficiency of a management scheme depends on the extent of the attributes provided within the right by the management authority as described by Tony Scott in 1955. Transferability, exclusivity, durability and security are the main attributes of property rights and "*the greater the extent of these attributes, the higher the overall quality of the right in terms of its classification as a property right*." (MRAG Consortium, 2009).

Figure 1: Use rights: use rights on resources and territorial use rights



Source: Spagnolo (2006)

The main issue in this kind of resource management is transfer of use rights. Transferability produces a market and its development progressively leads to concentration of costs and benefits. The most efficient enterprises tend to acquire shares of the less efficient ones and will therefore be induced to organize production factors in the most profitable way. In turn, fishing effort will be then reduced to Maximum Sustainable Yield (MSY) or Maximum Economic Yield (MEY).

When no transfer of rights is allowed and the management authority resolves to reduce fishing effort to MSY or MEY, further initiatives are needed to induce enterprises to cease or reduce activities. For instance it will be necessary to launch buy-back schemes directed to the removal of fishing capacity, which might also compensate the rise in effort due to technological innovations.

In territorial use rights, features like durability, security and sharing of the right determine the efficiency of a management scheme, triggering virtuous behaviour in the fishing community empowered to manage a specific area.

It should be clear by now that the two kinds of use rights are not mutually alternative. While the former is best applied to mono-specific stocks or to multi specific offshore stocks, the latter may be the best approach to manage coastal resources, especially sedentary species.

1.3. Territorial Use Rights in Fisheries

There is no single formal definition of a TURF in literature. Since Christie's seminal paper in 1982, TURFs are described based on the specific context where they are introduced and some confusion may therefore arise. For the purpose of this study it is important to clarify the difference between use rights on resources and territorial use rights. In the following pages, some of the features more directly linked with the amendment to the Commission proposal will be highlighted.

One of the main sources of confusion regards the extension of the territory defined by a TURF. In his seminal paper, Christy (1982) referred to "*localized or generalized TURFs*". He stated: "*In addition there is no clear cut distinction between generalized and localized TURFs… At one extreme, an extended economic zone can be a form of TURF, in that fishery use rights can be controlled within the territory represented by the zone. At the other extreme, the owner of an oyster bed has a right to control use over a much more limited territory*". What is relevant is that the area is "*defendable and protected by the laws and institutions of the country. The boundaries of the territory should, therefore, be clearly demarcated and identifiable*". Of course, a small coastal area is more defendable, more clearly demarcated and identifiable than a large territorial area whose boundaries are far and where increasing the value of the right can be difficult to achieve. Moreover, territorial use rights introduced in a small area could also be efficiently defended by the fishermen community itself.

While in the rest of the paper Christy clearly advocates the use of a TURF in localized small territories, it is also true that in principle a TURF could be independent of its size. Other conditions are, therefore, required to differentiate use rights.

Regarding the removal of non excludability, TURFs "*confer on the individual members of the fishermen community an exclusive right of access to a fishing zone*" (EU, Communication Staff Working Document, SEC(2007) 247). But rights on resources too

have an identical feature. All rights-based management measures may give individuals the exclusive right to enter a given fishing ground. All individuals holding a use right may exclude others from entering the fishing ground. In this respect, there is no clear cut difference between rights on use of the resources and territorial use rights.

An obvious difference lies in the power to draw, enforce and defend use rights. The main distinction between rights on resources and territorial use rights is the right to define and enforce management rules at a territorial level. In right on resources, catch or effort quotas and fishing areas are all defined by the public authority and then granted to the industry. The public authority also retains the power of surveillance and control of the rules - and it could not be any other way, given the extent of the area and the usually large number of right holders involved, likely using different gears competing against each other. Right holders are empowered to take decisions concerning the efficient combination of production factors leading to maximization of their own profit. If allowed by the type of rights, they can also decide to sell or lease it.

This is not the case of territorial use rights. In a TURF, the public authority may entirely delegate the power to draw, enforce and defend the rules and to delimit fishing areas to the local management organization in charge of exploiting resources in the area whose members have been assigned the territorial use right. In case of a co-management approach, the difference lies in the sharing of competences between the public management authority and the fishermen organization. In any case the power to decide, enforce and, eventually, defend the rules is entrusted to the fishermen community, even if within a legally binding negotiation procedure with the public management authority.

The most important ingredients to the successful implementation of use rights – even more important than the characteristics of the right – are the social and economic conditions within and around an area. These are some of the factors that may directly contribute to its success:

- The level of cohesion and social sameness in the community where the territorial right is assigned. The more the members share problems, strategies, goals and results connected to the activities they are empowered to decide on, the higher the chances of success of the strategy. If this is the case, it is likely that internal regulations will be respected fully and the level of conflict may be reduced, to the benefit of all members.
- The existence of well defined and agreed entry requirements, in order to reduce conflicts between members of the community that hold territorial use rights and outsiders striving to take part. In principle, regulations should allow the participation of all members of the community if they fulfil basic and shared conditions.
- The areas subject to TURFs have well-defined physical boundaries based on fishing grounds and other economic activities taking place. The easier it is to identify and define the boundaries of an area, the easier it is to monitor and defend territorial rights.
- The presence and credibility of scientific and research organizations associated with TURF management. Management of a TURF requires scientific personnel with expertise spanning environmental, biological, economic and social issues, all of which are important ingredients to increase the economic gains within the area.
- The confidence of fishermen in the local management to define and implement management strategies effectively taking into consideration the members' needs. This requires active participation by the members, leading to a sense of ownership and self interest in the good implementation of its activities.

- A set of clear, fair, credible, efficient and agreed management regulations. Every member is required to follow these rules, in order to avoid penalties and, more importantly, because the expected benefit of complying will be much higher than the advantages of breaking rules he himself has contributed to design.
- A set of incentives aimed at:
  - reinforcing the credibility of the local management authority
  - compensating fishermen through appropriate measures of social support
  - introducing measures to protect biological resources.

These factors comprise: characteristics of the resource; the extension of marine areas; technologies; the management system; the legal, institutional and cultural context and issues related to the effects of wealth distribution.

As previously mentioned, resources best managed by territorial use rights and TURFs are sedentary species. Nonetheless, other species with limited mobility, those aggregating within restricted spaces (like crustaceans) and those that may be attracted by fishery aggregation devices (FAD) are also often managed with TURFs.

The implementation of a TURF significantly depends on adopted fishing technologies. Fixed gears like pots, traps or some kind of longlines are particularly suited to being managed with these kinds of rights, because their selectivity and limited mobility reduce competition with other gears. On the contrary, less selective and more mobile gears like trawl gears may generate conflicts with other segments of the fleet.

These limits can be overcome if territorial use rights also include the adoption of local management plans regulating the demarcation of fishing zones, restocking areas, fishing calendars based on gears, closures of nursery and spawning areas, adoption of appropriate technical measures relative to exploited species and the presence of adequate monitoring and enforcement controls. If resources are shared in a larger area where separate and adjoining TURFs have been established, it would be desirable that either rights are extended over nearby areas or, if separate communities have been allocated territorial rights, areas are merged.

In this case, the success of the management plan and value of territorial use rights will directly depend on the degree of exploitation of the resource in neighbouring TURFs. The Japanese experience shows that in similar cases a higher level of coordination among neighbouring TURFs helped planning exploited activities (Cancino *et al*., 2007).

2. OUTLINE OF LOCAL TURFS IN THE MEDITERRANEAN

KEY FINDINGS

- . There is no unique TURF scheme valid for all situations, rather a range of different opportunities depending on each history, socio-economic and biological context.
- TURF schemes in the Mediterranean are always used as a management tool for small-scale artisanal fisheries and their geographical coverage is limited.
- Industrial and medium - large size fleets are excluded from a TURF approach.
- TURFs in the Mediterranean always require rules to be drawn and enforced by local fishermen management authorities. To reinforce and better defend regulations locally decided by TURF community, it may be the case they are also adopted by the public management authority.
- There is no standard procedure for delimiting the area managed through a TURF approach. Some were established in the Middle Ages. Today it depends on the scheme drawn by the public management authority.
- TURFs may remove the non excludability feature of collective goods, but not necessarily rivalry.
- "Ex novo" introduction of a TURF approach may require an incentive scheme

2.1. Introduction

This chapter will address some of the most relevant examples of management of fishing resources through Territorial Use Rights in the Mediterranean: the Cofradias in Spain, the Prud'homies in France, the Molluscs management consortia (CO.GE.MO) and the artisanal fisheries management consortia (CO.GE.PA), which were both implemented in Italy. The latter were recently introduced through the EFF Operational Programme.

In all these cases, territorial rights are allocated to manage near-shore coastal resources; but as it will be shown, each has unique features and management mechanisms according to its specific biological and socio-economic background.

Differences also emerge between areas where territorial rights have strong historical roots and management rules have been applied for years, as in Spanish Cofradias and French Prud'homies, and those in which these rights have only recently been introduced. The former are managed by well-established social organizations that gradually acquired stable and well-defined management functions accepted by all members of the association; implementing TURF management schemes in the latter have proved to be rather more complicated.

2.2. Overview of the main features

Considerations drawn in the first chapter outline the main features that classify territorial use rights and define their level of complexity:

- the right to designate an area
- the right to draw and enforce management regulations
- selecting the holders of the rights
- the defence of territorial use rights
- incentives

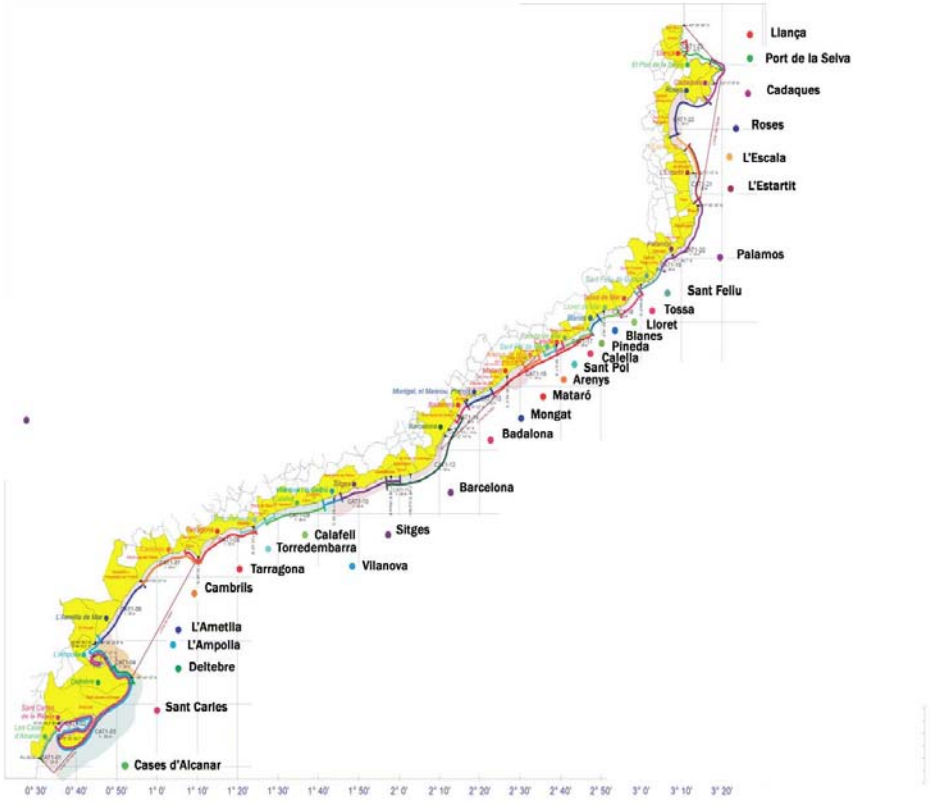
As for the **right to designate an area**, i.e. the object of territorial use right, every case is different. In Cofradias, the selection of an area stems from historical traditions and coincides with administrative territorial boundaries decided by the king, while Prud'homies started to consort by themselves in the XII century and their geographical limits were lastly recognized by the State in 1993, through a Ministerial Decree. In CO.GE.MO. the Italian state took upon itself the responsibility of drawing the limits of the area, based on administrative criteria. In CO.GE.PA., it was conversely the fishermen themselves who defined the area, based on a local management plan.

Cofradias stand out from the other cases in the allocation and definition of boundaries of the areas subject to territorial rights, since they have deep historical roots tied to a medieval social structure. Originally - some were established in the XII century as religious-based economic associations - the allocation of use rights was the result of a trade-off between Cofradias and the Monarchy: the fishing community agreed to restore coastal areas, mostly unhealthy lagoons, and the King granted them the right to fish (Alegret 2003). Since at the time there was no need of fishery management measures of the kind required today, areas were allocated based on geographical and administrative boundaries, and their extent depended on the agreement of the parties. It is interesting to note that a similar situation in Japan also gave rise to TURFs in feudal times: there, territorial limits coincided with prefecture boundaries along the coast and led to a mature management scheme developed through a bottom-up process (Makino and Matsuda 2005).

Cofradias have been for centuries a self-managed fishery organization within its own territory (Figure 2). Some Cofradias manage coastal fisheries, like in the Mediterranean; others manage more specific fishing activities targeting sedentary species, like molluscs in Galicia.

What must be noted here is that the extension of the area subject to use rights depends on historical and administrative causes, and is not linked to an efficient mix of fleet/available resources/area productivity, the definition of which is left to each local organization. It must be also pointed out that only small-scale coastal fisheries are currently managed through Cofradias. Industrial and medium and large-scale fisheries are excluded by territorial use rights management.

Figure 2: Territorial limits of Catalan Cofradias

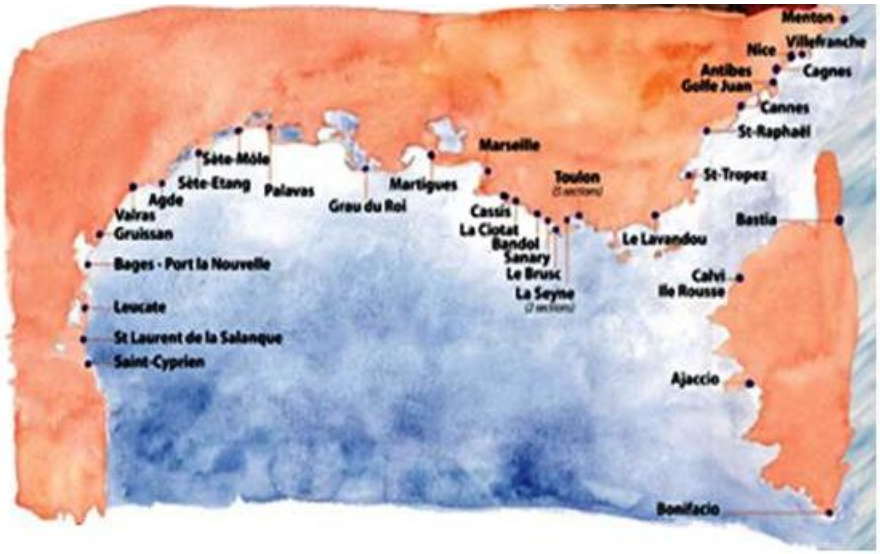


Source: Franquesa (2004)

It is truly remarkable that in spite of the importance of Cofradias and the time elapsed since the introduction of territorial rights, they were simply socially accepted "de facto", and only recently were regulated by law. It was only in 2002 that the Autonomous Region of Catalunia adopted the Cofradias Catalonian Law, 22/2002 on 12 July, which simply reaffirmed both the number and historical boundaries of individual Cofradias, without introducing any management innovation - possibly to avoid any disorder in the established social stability (Franquesa 2004).

Prud'homies in France show a similar evolution, but unlike Cofradias, fishermen started to consort in the XII century to solve internal and external conflicts among professionals. Prud'homies were recognized by the French Law in 1481 and ever since they have had regulatory, legal and disciplinary powers over fishermen in their territory. The imperial decree of 19/11/1859 confirmed and detailed their jurisdictional powers and competences. In this respect they are very similar to Cofradias, which for centuries self-managed their own small scale fisheries, defining and enforcing their own rules and ensuring they were respected. In principle, Prud'homies members may also act as auxiliary police. These competences have been progressively erased. In fact, Prud'homies competences and powers do not extend to larger vessels, such as trawlers and seiners fishing inside and outside the territorial waters. In other words, the main asset of the Prud'homies, i.e. the cohesion among all professionals in the area, was progressively lost and now different fisheries management regimes coexist. The larger fleet segments are regulated by regional fisheries committees, which are independent from the Prud'homies (Alegret *et al.*, 2003). The increasing importance of larger vessel, and the number of entities representing the interests of the fleet gave rise to ambiguities and conflicts between small scale and larger fleet segments, reducing the role and importance of Prud'homies. A particular source of contrast is their territorial competence, which is stated to be within territorial waters, where small and larger vessels belonging to different groups operate (Figure 3).

Figure 3: Distribution of Prud'homies in France



Source: www.l-encre-de-mer.fr

The regulating, jurisdictional and enforcing powers of the Prud'homie waned progressively with the implementation of higher-ranking European regulations, which so far do not recognise any historical right. Finally, the European Court of Justice ruled that the prud'homie de pêche is not a court or tribunal, so definitively solving the ambiguities as regard to the prud'homies competences[2].

In spite of these difficulties met in recent years, Prud'homies, still actively involved in the local fishing community, prove that this form of collective management may have a role in local management.

When national management authorities resolve to introduce territorial rights "ex-novo", procedures will necessarily be different, as we will see.

Consortia for the management of molluscs (CO.GE.MO.), introduced in Italy in 1995, are a first example of newly introduced rights (Figure 4). During the 1990s clam stocks were near collapse due to overfishing. The national management authority decided to introduce a co-management scheme in order to empower fishing enterprises to rebuild those stocks they were harvesting. Since the targeted species is sedentary, boundaries of the areas were defined according to administrative criteria which effectively overlapped with local maritime districts. Based on stock assessment, a sustainable balance between fishing capacity and available resources was determined, and the maximum number of vessels was established for each consortium.

Since both clam stocks and the interested fleet could be easily linked to the territorial boundaries of each maritime district, a Ministerial decree (D.M. 12 January 1995, n.44) stated that:

- management of clams could only be introduced on a local district scale
- management of clams was assigned exclusively to ad-hoc management consortia
- applicants must already have had a licence to harvest clams
- a management consortium would only be valid if it included at least 75% of the authorized enterprises registered within the maritime district.

[2] European Court of Justice, Order 14/5/2008, Case C - 109/07.

Figure 4: Distribution of CO.GE.MO in the Adriatic Sea

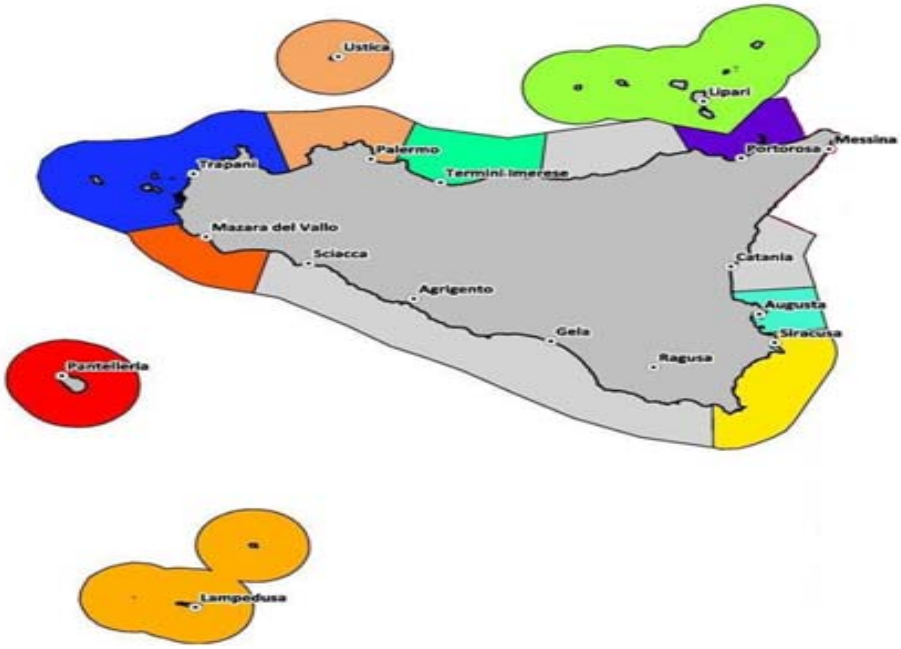
Source: Spagnolo (2007)

In essence, boundaries of the areas subject to territorial use rights were decided based on administrative criteria by the State, which concurrently defined access rules, promoted the creation of management consortia and established the maximum number of vessels based on the carrying capacity of the area.

The other case in Italy is represented by management consortia of artisanal fisheries (CO.GE.PA.), established by art. 37, lett. m) of the European Fishery Fund (EFF). This regulation empowers fishermen and their local organizations to design local management plans and a regulation framework specific for limited areas. Boundaries of these areas are set following a completely different "bottom-up" approach. This procedure requires first the designation of a management body, like a consortium, open on a voluntary base to all fishing enterprises registered within a determinate area. When the consortium accounts for at least 70% of the registered fishing companies, it has the power to design a local management plan, aided by scientific researchers, imposing very specific rules of exploitation. Boundaries of the area are defined according to the number of members, but mostly depend on the unity of intent of the group setting new and more stringent exploitation limits. Obviously, the larger the area where fishermen decide to agree on new limitations, the larger the number of potential members, the harder it becomes to reach an agreement on concerted regulations. Also, the larger the area, the harder it will be to defend the right, especially considering the high level of conflict that generally characterise coastal fisheries. As an example, the average coastal length of the ten Sicilian consortia, ranging from 50 to 242 km, is 100 km (Figure 5).

The constant in all the examples provided is **the right of fishing enterprises and their local associations to define and introduce management regulations** in a specific area; although with different mechanisms, local management bodies adopt specific measures that must nonetheless comply with higher level regulations. These measures are easier to plan and implement where the right is targeted to harvesting sedentary species, and more complex in coastal areas where multi-gear fleet operate competing against each other over a multitude of species.

Figure 5: Distribution of CO.GE.PA in Sicily



Source: Bertolino (2012)

Territorial use rights assign fishermen the power to design a set of management regulations shared within a well-defined area to:

- reduce fishing effort
- contribute to rebuilding fish stocks in the area
- reduce conflicts among different fishing gears
- increase income of enterprises.

An interesting issue, which for the moment remains purely theoretical, regards the coexistence of a management system based on both territorial rights and the obligation to respect more general rules adopted at EU level. In a context of over-exploitation of resources, the introduction of a rights-based system aims to promote re-stocking thorough the introduction of a system of detailed regulations, both on a biological and a socio-economic perspective, that account for the specific needs of a limited area.

The framework of European legislation prescribes that local rules may only be more restrictive than existing regulations. Within a context of overexploitation of resources, regulations defined by local management bodies must necessarily comply with existing regulations. But there may be a case, due to the positive outcome of the management plan and of territorial rights, in which these regulations may no longer be necessary and might be against the needs of a good management of the area subject to TURFs. In this case, territorial rights would be clearly severely weakened unless procedures that grant it some autonomy are provided.

A possible solution could be to identify features of territorial rights applied within local management plans, in order to guarantee that local management bodies are completely autonomous in their decision making, as long as the public management authority approve their plans.

Presently, Cofradias and Prud'homies too may only introduce more restrictive regulations compared to hierarchically superior rules. Limitations usually involve fishing time, sometime fishing hours, the use of fishing gears, the exclusion of new members, limited access to fishing areas etc. These are clearly very specific local rules that cannot be incorporated within European regulations, even at a Mediterranean scale. The introduction of these regulations is not formally subject to approval by external management bodies, although are usually made official by the relevant public management authority.

Management regulations within CO.GE.MO. are mainly addressed to secure the sustainability of exploitation and improvement of product value. Regulations are therefore aimed at setting fishing times, especially the numbers of hours allowed per day, catch limits by species, product size, designated areas and procedures to rebuild stocks, the rotation of harvesting areas.

Here again, if all enterprises belonging to a consortium and registered in the area share common management regulations, no further approval by external management bodies is required. Should any company disagree with the management body, the new rule would have to be validated by the national management authority.

In CO.GE.PA. regulations set by the operators, which too must be more rigorous that existing ones, involve fishing effort control and are defined within a local management plan and must be valid "erga omnes". Limits are imposed on technical measures such as mesh size, fishing gear dimensions, voluntary fishing suspensions, closure of nursery areas etc. Since the efficiency of this scheme depends on all authorized fishermen to fully respect existing rules in the defined area, they must be adopted in co-management with the relevant public administration, which approves the local management plan and grants enforcement and control through the routine activity of police forces.

The selection of fishermen who are assigned territorial use rights follows different paths.

In the area managed by Cofradias, fishing activities are allowed only to members of the association. Whoever wants to perform a fishing activity must first join the local Cofradia which, in this respect, has the power to exclude third parties.

In CO.GE.MO. all fishing enterprises registered within one maritime district subject to TURF, and holding a licence to use the hydraulic dredge, may join the consortia promoted by national fishermen associations. These consortia are fully operative and only officially recognised and assigned use rights if they account for at least 75% of the local companies. The law does not require enterprises to join but, save for some marginal cases, they mostly do. Companies registered within the maritime district that have not become members, must nonetheless comply to management regulations approved by the Consortium.

In CO.GE.PA. the selection mechanism is yet again different. All fishing enterprises registered in a determined area can join the Consortium, which proposes to design a local management plan. If at least 70% of the local enterprises become members, the Consortium can proceed to draft the local management plan with the aid of a research institute.

In this case it is interesting to note that the right to exclude associated with territorial right is significantly reduced since there is no access limitation to the area for third parties holding regular fishing permits; nevertheless, all must abide to the area regulations. In order for the rule to be valid "erga omnes", the plan is also adopted by the Ministry. As it

applies mostly to coastal areas, where mobility of fishing vessels among different areas is marginal, no significant fishing pressure from the outside is expected.

Protection of the right is strictly connected to the power of surveillance, control and sanction defined within the fishermen community.

In Cofradias, all members take part in defending collective agreements, and since catches are mandatorily sold through fish markets run by Cofradias (where the fish market exists), in case of infraction *"transgressors are punished in real time at the market: their product is not allowed to be sold in the market or it is forced to be sold last" fetching a lower price* (Franquesa 2004).

Prud'homies follow a different approach. They were created to exercise legal and jurisdictional powers to defend their members. Ever since their inception, their "institutional" task was to control, enforce and sanction. But as mentioned before, these competences waned as national and European regulations were implemented and as other fishing activities, not represented by Prod'homies, expanded.

In CO.GE.MOs, the consortium has the power to monitor and sanction infractions. The proposed sanction is presented to the Disciplinary Council, and the amount set based on regulations agreed by the members. Sanctions, which are proportional to the severity of the infraction and recurrence, are economic and definitively levied by the Board of Directors of the consortium.

In CO.GE.PAs surveillance, controls and sanctions are delegated to the routine activity of police forces. The reason lies on the implementation procedure of this TURF: although regulations within each management plan are the result of a debate with local fishermen, these are later adopted at a central level which give it the force of law. Controls are therefore not performed internally and target both members of the consortium and outsiders.

Incentives are an essential ingredient of TURF-based management schemes, but the kind and objectives vary whether they involve "historic" rights or support a strategy to promote the introduction and launch of new territorial use rights.

In Spain and France, where TURFs are historically part of the management system, all features defining territorial rights - particularly exclusion rights, the definition of regulations, surveillance and control - can be considered an important incentive towards coastal fishing management. In Cofradias and in Prud'homies the quality of territorial rights is in itself an incentive aimed at strengthening the management body.

On the contrary, in areas where the public authority intends to introduce territorial rights ex novo, incentives represent a nearly unavoidable transaction cost towards the aggregation of right holders who must agree on more restrictive regulations, and thus incurring income losses.

In CO.GE.MO. the introduction of TURFs was followed by two specific management plans, characterized by a number of incentives supporting various initiatives to promote the recovery of the resource and to create an efficient organization that would regulate exploitation. Financial aid was specifically provided to compensate enterprises for permanent or temporary withdrawal, for rebuilding clam stocks, for rotating exploitation areas, for scientific studies aimed at a more effective management of resources etc. At the beginning, measures were mainly intended to reinforce the credibility of the local

management body, empowering it to implement several stock rebuilding programmes. In a second phase, most financial resources where assigned to rebalancing fishing effort and available resources through a decommissioning scheme.

Results of the new management plan, although variable amongst the different consortia, have been largely positive, as demonstrated by the increased value of licences for hydraulic dredges.

It could be of some interest to notice that the conclusion of management plans also meant an end to economic aids to fishermen.
Implementation of CO.GE.PA. required an appropriate incentive scheme which has been essential to promote the launch of the territorial use rights management system.
Incentives were meant to overcome the main obstacles to its success which are:

- traditional individualism,
- conflicts amongst artisanal fishermen and between these and trawlers,
- the need to reduce fishing effort by different gears through even more restrictive management measures than existing ones, implying further income reductions.

2.3. Italy's CO.GE.PA

Italy recently applied use rights in the management of mobile species, providing an interesting example of procedures used to promote the management of coastal resources through TURFs involving fishermen. Regulation 1198/06 of the European Fishery Fund (EFF) provides within "collective actions" (art. 37, m), the possibility for a collective managed body, accounting for at least 70% of the enterprises registered in the area, to design a local management plan. Financial contributions are provided for the formulation of the plan, to be drawn in cooperation with a research institute, and the ensuing monitoring activity.

These were the steps that lead to the definition of local TURFs:

1. The local authority responsible for implementing the EFF launches a tender to draft a local management plan. Fishermen associations as promoters of a management consortium pull together and make sure that at least 70% of the local enterprises, as requested by the regulation, become members of a "collective management body" (CO.GE.PA.). The establishment of the Consortium coincides with the definition of the area and the selection of its members.
2. In cooperation with one or more research institute, the Consortium confers with its members to define objectives and regulations of the management plan to reduce fishing effort and rebuild biological resources of local interest. This is the most sensitive phase in the procedure, when the unity and motivation of the members is tested.
3. The local management plan, based on guidelines issued at central level, includes an analysis of critical issues in terms of biological, economic and social viability and proposes possible solutions as projects based on the implementation of measures provided in EFF Regulation. This plan takes priority in the allocation of funding requests in EFF tenders. This phase coincides with the definition of incentives targeted to members of the consortium.
4. A commission nominated by the public authority evaluates the local management plan and, if approved, submits it to the Ministry to be adopted.

5. The Ministry adopts the plan and its management regulations by issuing a Ministerial Decree. In this way, rules have the force of law and become valid “erga omnes”, therefore being monitored and enforced by police authorities.
6. Research institutes monitor the plan for three years, producing a yearly report on the advancement of activities and, where necessary, propose necessary adjustments jointly with the management.

The mere existence of a regulation does not guarantee its implementation. The various obstacles outlined before may represent a powerful limit to its successful execution. Protection and rebuilding of stocks, for instance, require the introduction of new and more restrictive measures like larger mesh size, depending on species and fishing period; denial of access in nursery areas; deeper depth limits and distance from the coast – all of which have a direct impact on fishermen income. This in particular represents yet another deterrent on the introduction of a new management plan which, as is the case of TURFs, is adopted on a voluntary basis.

This is why incentives are important, and should support the effective implementation of new measures and to compensate fishermen for lower incomes in the short period. In fact, the support strategy represents an important and inescapable part of a Management Plan.

After this initial phase, there are now ten consortia in Sicily representing 1,413 vessels equivalent to: 78.6% of those registered in the relevant areas (n.=1,820), 46.2% of the whole Sicilian fleet (n.=3,098), 56.2% of the Sicilian fleet excluding trawlers (n.=2,545), (Bertolino 2012).

Each consortium designed a local management plan defining the concerned areas and approved regulations providing more efficient management of resources in the area. Participation of the fishermen themselves in this process was crucial, as they significantly contributed their traditional knowledge with researchers, in order to define the most efficient regulations to reduce fishing effort and rebuild fish stocks.

This scheme, like other territorial rights created in other areas of the world, has some strong points providing opportunities and weak points representing threats. Threats include distorted use of incentives, lack of proper coordination between actions whose procedures depend on the EFF timing and procedures, the introduction of fishing limitations which, on the contrary, become valid once adopted by the national authority.

This system of TURF management has only recently been introduced in Italy and it is still too early to draw conclusions; however some lessons can already be learnt:

- If the management proposal is convincing and the promoting grouphas its own established credibility, fishermen do get involved in the process; and once they are engaged, they constructively contribute their knowledge and traditions to reach the best solutions;
- It is imperative to involve environmental, biology and economic research institutes at an early stage, especially where there is a tradition of respect and cooperation between researchers and fishermen;
- A decisive element in implementing this strategy is a strong coordination amongst all levels of institutions, national and regional administrations, monitoring authorities. This mechanism is fairly complex and requires meticulous understanding of the problems, readiness and flexibility in finding solutions, strict adherence to time schedules - or this scheme can grind to a halt, compromising all previous actions.

2.4. Compatibility of TURF with the current situation

In spite of all efforts by the European Commission, fisheries are still characterized by general overexploitation, excessive fishing capacity and unsustainable economic returns. With the publication of the Green Book in 2009, the EU Commission has begun a thorough rethinking of the reasons that led previous fishery policies to fail.

The following objectives are the most significant, and by and large shared, results of consultations that lasted several years over the necessity to:

- eliminate micromanagement at EU level,
- improving fishermen's responsibility through a result approach,
- establish a differentiated fishing regime to protect small scale coastal fleets
- making the most out of fisheries: move from stock to fisheries management plans.

The use of TURFs in management strategies is totally coherent with these four objectives. Clearly, one of the most important results is the delegation of management of small coastal areas to a local level, lifting the European institutions of the task of regulating small, but deeply different areas some of which have traditions going back thousands of years. As we have seen, TURFs are best implemented on a local scale, meaning small coastal areas where socially and culturally homogeneous communities of artisanal coastal fishermen operate.

On the other hand, the adoption of a "result approach" strategy may be considered integral and coherent with TURF-based management.

As we have seen, in assigning territorial use rights it is important to involve stakeholders since a very early stage, when operators are collectively engaged in defining and sharing the most appropriate management regulations for a selected area. This represents one of the main issues of a strategy based on the introduction of TURFs. It may sound a foregone conclusion, but even this last objective constitutes a remarkable innovation in the conceptual framework of management strategies adopted by the EU so far. Switching from a single-stock management plan approach, inadequate on multi-specific and multi-gear fisheries, to an approach based on fisheries management plans is not only more realistic, but also more appropriate especially in the Mediterranean. It must be stressed, however, that TURFs and management plans are not mutually exclusive. On the contrary, a fishing area managed by TURFs is without doubt more effective in association with a local management plan.

2.5. Conclusions

Resource management with territorial use rights is not new in the Mediterranean. "Historical" examples coexist with more recent management models. Besides, several activities performed traditionally and spontaneously, now or in the past, in fishermen communities (in particular, traditional fishing methods no longer allowed after the Mediterranean regulation was approved) were "de facto" territorial use rights systems.

The examples we have seen allow us to draw some conclusions:

- existing TURFs have different features and operating modes, but represent possible alternative management schemes;

- management powers associated with TURFs are highly variable: they are more rigorous in the exploitation of a single sedentary species, less so in the management of multi-species and multi gear fisheries. In the latter, competences on regulations, surveillance and controls are still shared between the local management body and public authorities;
- the operational ways in which territorial use rights are introduced are of paramount importance and depend on conditions both within and outside of the area, therefore cannot be generalized; these conditions not necessarily justify the implementation of a TURF-based management scheme
- the introduction ex-novo of territorial use right is associated with the concurrent adoption of a local management plan
- there is presently no rule or regulation specifically addressing the introduction of territorial use rights. The case of CO.GE.PA., recently implemented in Italy is the result of a measure within art.37 of EFF "Collective actions" which allows the creation of local management plans. It actually represents an original interpretation of the EFF. It is advisable that specific norms and procedures are drawn in order to aid the development of this management system based on territorial use rights.

3. MANAGEMENT TOOLS FOR THE MEDITERRANEAN

KEY FINDINGS

- Management plans and other tools introduced by the current Mediterranean Regulation are still in the experimental stage. Credibility of new proposals will be enhanced if continuity between existing and new tools is guaranteed.
- When properly introduced, existing tools are effective in the stock rebuilding process. Nevertheless, further effort is needed to avoid wasting achieved results.
- The efficiency of a TURF approach depends on extension of the delimited area and on uniformity of the interested segment of the fleet. The larger the area and less homogeneous the segment, the less efficient this tool will be.
- Unless territorial use right holders are entitled to define and enforce management rules, a TURF plays the same role as a special fishing permit.
- Individual effort quota and individual catch quota may be the more efficient measures to manage Mediterranean stocks. The former is more appropriate in case of multispecific stocks, while the latter, or a combination of the two, is more appropriate in case of monospecific fisheries.
- Introduction of individual effort quota is usually associated with "the race to fish and to invest" in order to get the maximum yield per unit of time spent at sea.
- In all cases, coordination of management measures is required throughout the drawing of national or Community management plan.

3.1. Introduction

In previous chapters we addressed the features and operations of territorial use rights as applied in the Mediterranean. In all these cases, the public authority allocated use rights to artisanal fishermen and/or coastal fleets. Thus the TURF approach so far represents a management scheme involving only one part – although the most substantial in numbers – of the Mediterranean fleet.

We must now examine other possible management measures applicable to larger vessels tapping Mediterranean resources, and to verify whether it is possible to apply TURFs and other measures drafted in the Parliament amendment in other circumstances as well.
But before, we must address what measures are currently available according to existing laws. This is important in order to ensure the necessary consistency between existing regulations and innovations that may be introduced following the approval of the new Common Fishery Policy. A strategy introducing radically innovative management schemes, while the previous ones are still in a testing phase, would be hardly credible.

Significant management tools already exist in the Mediterranean following the approval of the Reg. (CE) 1967/06 i.e. Mediterranean Regulation. Art. 19 of this Regulation requires Member States to adopt National Management Fisheries Plans (NMFPs) for each fishing gear, while art. 18 provides the adoption of Community-Level Management Plans (CLMPs) addressing specific fishing activities taking place in areas totally or partially beyond the territorial waters of Member States.

In this respect, the Mediterranean Regulation introduced an important methodological innovation, as NMFPs are management tools more appropriate to the biological and productive structure of the Mediterranean Sea. The management objective of a NFMP consists in setting effort or catch levels compatible with safe biological limits of main stocks in a given area. Use of individual effort quota will be more appropriate in highly multi-specific stocks, while in mono-specific stocks individual catch quotas or a combination of the two may be applied.

A preliminary issue which is interesting to address, also due to its close relationship with the introduction of territorial use rights, is the extension and boundaries of the management area.

In both the Mediterranean Regulation and the amendment proposed by the European Parliament, management plans and measures apply within territorial waters, with the exception of areas where stocks are shared by different national fleets. This is a rather marginal issue when the management strategy adopts NFMPs based on fishing effort. In this case, interventions are primarily focussed on limiting fleet size and fishing times, and in both cases, the impact on biological resources is irrespective on national borders.
It is therefore important to clarify territorial limits within the framework of specific instruments to be introduced in a fishing area.

It is obvious that TURF management is only applicable within territorial waters. However if the objective of a TURF does not concurrently include granting interested fishing communities the right to define and implement the rules of exploitation, then this management scheme comes down to the delimitation of an area. Since the management plan introduced by the Mediterranean Regulation already provides that a specific fishing permit is granted to enterprises and individuals fishing within the management plan area, then the fishing permit holds the same power of exclusion of a TURF.

This is further proof of the need to provide a more articulated management strategy to meet various demands arising in the Mediterranean. Each intervention scheme must find its place within the most appropriate territorial setting.

3.2. The effort regime

The most important component of fishery management in the Mediterranean is effort. A brief summary of the main relevant issues linked to effort may be needed. Generally speaking, the possible options the public authority has to intervene depend on the specific characteristics of the fishing area. The Mediterranean Sea is thus characterized by:

- the continental shelf is within few miles from the coast, save for very few exceptions like the northern Adriatic Sea; only a marginal share of larger vessels moves far from its home port to other fishing grounds. Usually, this segment targets mono-specific stocks like shrimps, sardine, anchovy, swordfish, tuna. In general, the combination effort/species/fishing ground is rather stable;
- multispecificity (only eight main monospecific stocks over 228 species usually landed) and multigear (different fishing gears competing against each other for the same species);
- demersal stocks are mixed and dispersed, resulting in small quantities being caught per haul; this feature implies low catch per unit of effort;

- about 70-80% of the whole Mediterranean fleet, depending on Member State, belong to the small scale artisanal segment – vessels less than 12 meters using passive gears. This implies that the economic target of vessel owners, which are usually on board, is income and not profit on capital invested;
- strong demand for fresh fish and high production cost of exploitation command high market prices.

Given these characteristics, it is not surprising that for a long time an effort-regulating regime was considered - in line with the advice of most international fisheries agencies, particularly the General Fishery Commission for the Mediterranean (GFCM) - as the most appropriate management strategy (Catanzano *et al*. 2000, Pearce, 1980). This is quite clear when considering the large multispecificity of Mediterranean stocks and competition of different gears for the same stocks. For many years, effort control tools have been implemented by introducing permanent and temporary withdrawal schemes; the management toolbox included also licensing schemes, closed areas and technical measures.

It is interesting to notice that since 1983, permanent withdrawal subsidies at European Union level have been paid to scrap vessels exploiting declining stocks. It is not surprising that capacity reduction goals were achieved, supported by what were called “good” subsidies available through EU funding. Temporary withdrawal schemes have been imposed in the last 20 years and still are today, for example in the Italian management strategy.

It is well known that this fishing effort regime has some drawbacks and the following reasons limit its impact:

- capacity reduction: given the strong stock multispecificity and multi-gear characteristic of Mediterranean fisheries, there is very weak link between a given fleet segment and a specific stocks that might be thus protected. For this reason, generalized permanent withdrawal schemes have been in place for many years;
- temporary withdrawal: when vessels continuously remain in port for 30/45 days each year, effort reduction is substantial and estimated, in the Italian experience, to be at least 15% of the annual time spent at sea. The limit here is that it is difficult to protect juveniles after the temporary withdrawal period.
- finally, and perhaps more importantly, technological progress is considered to increase effort by at least 3% on an annual basis, therefore leaving the “true” effort almost unchanged, if not increased;

Unfortunately “good” subsidies did not eventually prove to be so good, since fishing effort in the Mediterranean, either in terms of fleet capacity and activity has been heavily reduced and yet stocks continue to decline, even if important exceptions are recorded.

Based on this experience, it is quite clear that a strategy aimed at reducing fishing effort has intrinsic limitations that thus far hindered achieving the planned results. This applies to both national and European strategies and this is why the Mediterranean Regulation introduced, amongst other measures, NMFPs and CLMPs which represent an important evolution of the Mediterranean management system.

3.3. The management plan approach in the Mediterranean

Reg. (CE) 1967/06 represents the legal basis for most regulations currently in force in the Mediterranean area. Its most relevant features are the definition of technical measures specific for the Mediterranean and the introduction of national and Community management plans.

On national plans, the Regulation requires planning and implementation by the management authority within territorial waters addressing specific fishing activities: towed gears, beach seines, seiners and dredges. Each Member State may define one or more management plan per fishing system, whose level of complexity is left to the responsibility of each State. These plans are then sent to the Commission, and forwarded to the Scientific, Technical and Economic Committee for Fisheries of the Commission (STECF) for scientific appraisal. Should the management plan be "insufficient to ensure a high level of protection of the resources and the environment" (Art. 19, 9), the Commission may require some modifications. The whole process is quite flexible and leaves with STECF the responsibility of the evaluation.

The Regulation provides the possibility the Council may adopt Community management plans for specific Mediterranean fisheries in areas totally or partially beyond the territorial waters of Member States. So far, the Council has yet to implement any Community plan.

In the following paragraphs we will first examine national management plans and then, based on the experience gained, we will draw some conclusions which would be useful in implementing the innovative features provided in the Parliamentary amendment and in the Commission regulation proposal. Then a possible Community management plan will be examined, in order to evaluate any critical issues that might limit its effectiveness.

3.3.1. National fishery management plans

National fishery management plans involve the fleet of a given country, whose activities are limited to territorial waters. As previously mentioned, this territorial limit introduce some inefficiencies to its implementation, given that part of the Mediterranean fleet fish outside territorial waters and, for geographic reasons, does not compete with fleets of other countries.

In this case, effectiveness of management measures limited by territorial waters may vary, depending on the area. As an example, due to the limited continental platform, trawling in the Tyrrhenian Sea is mainly, but not exclusively, performed within territorial waters; in other areas like the Adriatic, where the platform extends to the whole area, trawling is carried out mostly in international waters.

What is important within this context is that management by effort, or by regulating capacity and fishing time, directly affects fishing activities regardless of whether it is performed within or outside national waters. A management plan is much more credible if its regulations reflect real fishing conditions.

The experience gained thus far on national management plans allows only a prudent estimate for at least two reasons:

- only some countries have prepared and implemented NFMPs while others have yet to meet these requirements;

- where NFMPs have been adopted and implemented, although an adequate ex-post analysis of the management plans results is not yet available, that results are not always excellent.

Among countries meeting these requirements, Italy has gained some of the most extensive experience on the matter. The first NMFPs were implemented in 2008 and results so far provide interesting considerations for this discussion.

The strategy implemented by the Italian government included:

- eight national management plans for towed gears and other gears targeting the same demersal and benthic species, including one specific plan for the offshore fleet in the Sicilian Channel;
- six national plans managing seiners
- one national plan for beach seines and one for hydraulic dredges.

One of the main issues is the geographical scale. For what we have seen so far, towed gears and seiners operate in all fishing areas and NMFPs have been drawn for each of the seven Geographical Sub Areas (GSA) within the GFCM division. A specific plan was drawn for the largest fleet, targeting resources in the Strait of Sicily, i.e. in international waters. The same applies to seiners, which operates in 6 out of 7 GSAs; again, seiners fishing in the Adriatic Sea usually fish in international waters. Using GSAs division in national plans is purely conventional and used as a tool to identify the territorial and international waters where Italian fishing enterprises operate.

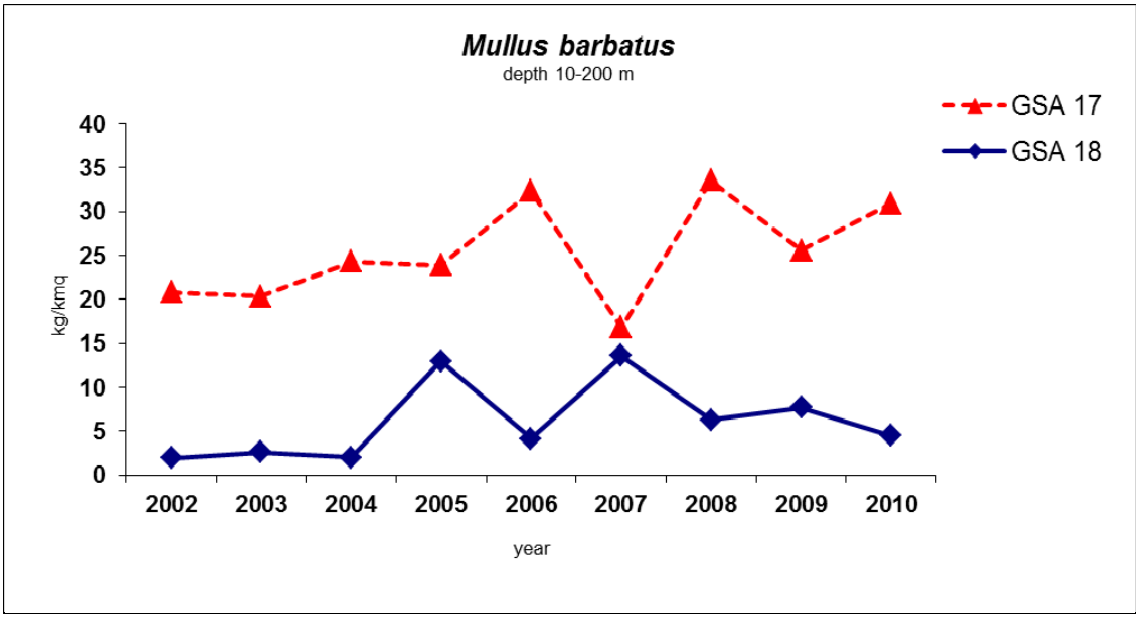
The last two plans, involving small vessels fishing in coastal areas, were drawn on a national scale and were further narrowed within individual fishing areas. It must be reminded that hydraulic dredges are managed with TURFs while beach seines, following implementation of the Mediterranean Regulation, are now illegal, with the exception of the transparent goby fished within GSA9 due to a derogation to the minimum distance from the coast and mesh size following the adoption of a specific management plan.

The reason for drawing NFMP's by GSA is the different trend of the same stocks in different areas, so that different effort variations are required (Spagnolo 2011). As the examples in figures 6 and 7 indicate, abundance indexes show opposite values in different GSA's.

At the same time the principle of exclusive territoriality was introduced, given that the regulation provides that a specific fishing permit is granted to fishermen registered within the area delimitated by the plan, thus favouring those who are authorized to fish within the areas of each plan. Where boundaries of the area are wide, and vessels rarely move from one GSA to the other, the power of exclusion is next to theoretical.

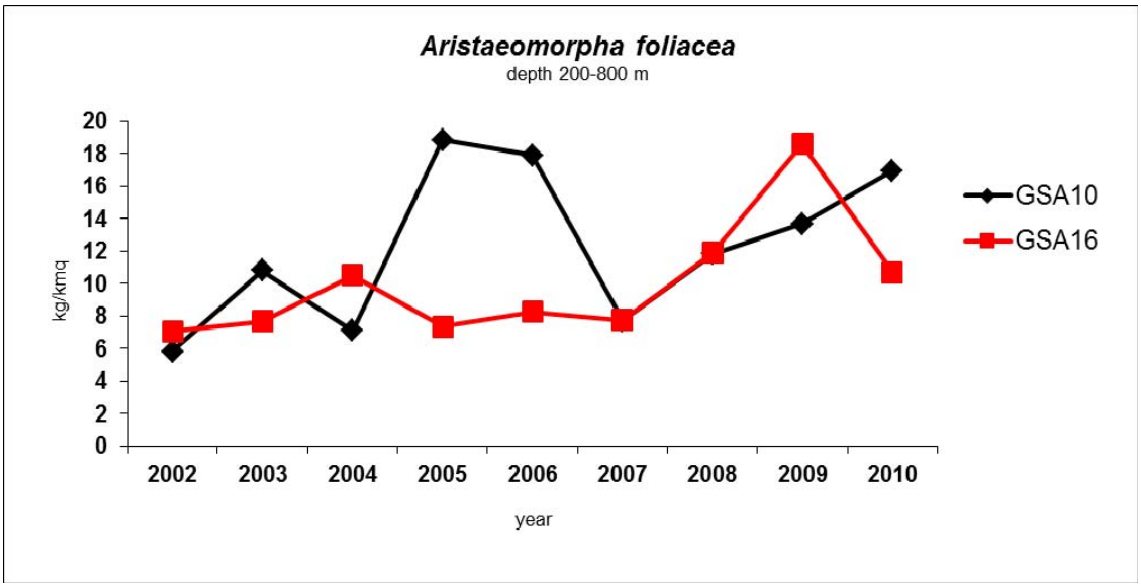
It is important to notice that objectives like the reduction in capacity and activity are generated by a specific bio-economic model, designed to manage fishing areas characterized by strong multispecificity and exploited by different gears competing against each other for the same resources. This methodology allowed to define for the first time capacity and activity levels for different gears and pooled together, in order to rebuild stocks within each area.

Figure 6: Abundance index of striped mullet in GSA 17 and 18



Source: Medits (2012)

Figure 7: Abundance index of red shrimp in GSA 17 and 18



Source: Medits (2012)

To conclude, the management strategy approach adopted by the Italian Government in NMFPs limits fishing effort in compliance with the objective of biological sustainability of resources. It can be thus summarized:

- the geographical scale adopted to define individual areas of each management plan were GSAs, as defined within GFCM, in order to reflect results of stock assessment provided by SAC. This also allowed to introduce territorial partitioning of the effort process, and the power of exclusion in the areas.
- this kind of approach, as opposed to a single national plan, resulted in a stronger effectiveness of measures based on financial resources available in each area. This approach was due also to the wealth of detailed scientific and economic information, most of which are presently recorded through the data collection Regulation;

- each management plan defines effort levels compatible with appropriate biological reference points of the main target species;
- the most important measures are traditional: permanent cessation, temporary withdrawal, restrictions to nursery and reproductive zones, selectivity of nets; measures are imposed directly by the State;
- each management plan comes with an ex-ante assessment of the impact of each measure on main stocks and fishermen income, and a monitoring scheme.

Amongst the most notable results, the capacity reduction in many GSAs associated with biological reference points - on average 25% of the segment in towed gears - was not fully met due to the lack of funding, while measures like temporary withdrawal, mesh size, closure of reproductive and growth areas were implemented according to plan.

It is still too early for an ex-post assessment of the impact of these management plans, also due to delays in the implementation of national decommissioning scheme. However, some interesting results can already be seen in areas where these plans were effectively implemented.

As an example, capacity reduction was met within the Sicilian fleet operating with trawlers in the Strait of Sicily (GSA 12, 13, 14, 15 and 16); as planned, it caused a noticeable increase in some stocks. Fishing enterprises reacted to different biomass distribution and composition by reducing fishing effort on multispecific resources in coastal areas, that became less convenient; the larger vessels within the <24m LOA segment started to target deepwater rose shrimps, while vessels larger than 24m LOA fished deepwater red shrimps further offshore.

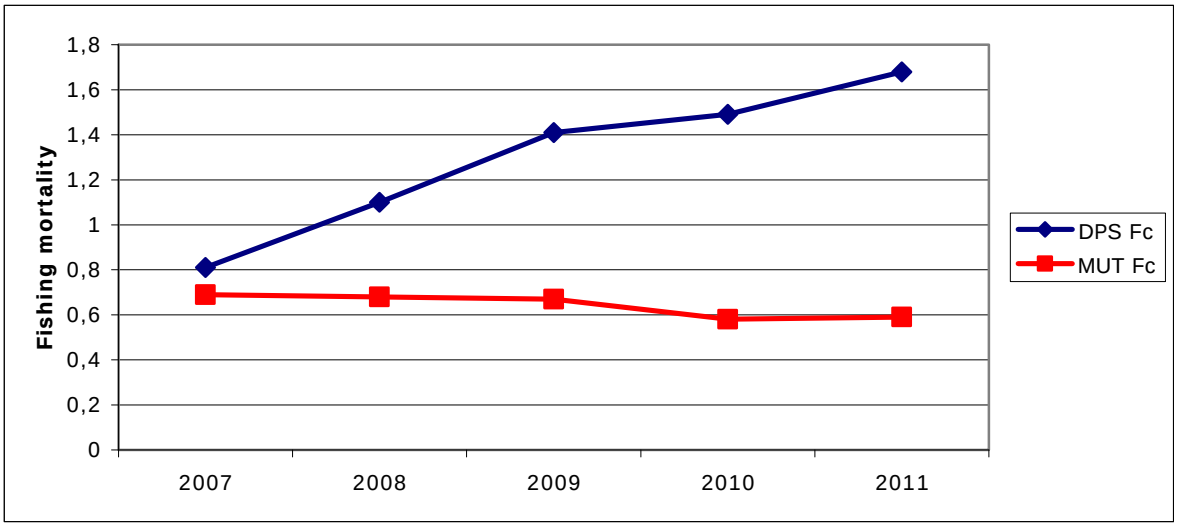
The reduction in fish captures and a shift towards crustaceans is reflected in levels of fishing mortality, which decreased in red mullet and increase in shrimps. The shift in fishing mortality between coastal and deep species can be seen in Figure 8, which shows how the gradual decline of fishing mortality of striped mullet, MUT, in GSA 15 and 16, correspond to a gradual increase in the deepwater rose shrimp, DPS, in GSA 12, 13, 14, 15 and 16. Fishing mortality (Fc) on striped mullet was gained at the recent MEDSUDMED workshop held in Sliema (Malta) last September, while source of data on deepwater rose shrimps (DPS) is the report of the STECF_SGMED workshop held in Séte (France) last July.

The trend in mullet fishing mortality, fished almost exclusively within GSA 15 and 16 by the Sicilian fleet, demonstrates the effectiveness of implemented measures, but at the same time emphasizes the need to define more articulated strategies to avoid losing the achieved results.

The increase in deepwater rose shrimp biomass determined increased catch of larger portions of the stock by the Tunisian and Sicilian fleet, attracted by higher fishing yields. This entails the necessity to draw detailed plans which take into consideration the connection between fishing in territorial and international waters and defines effective management measures in terms of conservation and management, shared internationally with countries fishing the same stock.

In any case, results show the effectiveness of permanent withdrawal schemes, but also the need to redefine its implementation to reach the objectives of reduction and reorganization of the fleet set by the management authority.

Figure 8: Evolution of fishing mortality of striped mullet and pink shrimp in the Strait of Sicily



Source: MedSudMed (2012)

These last considerations lead to the conclusion that even a strategy based on NMFPs, if grounded on traditional measures may be only partially successful; but may not necessarily be as effective in a multi-specific and multigear context.

It is thus necessary to update the available toolbox and to check whether the new approach proposed by the Commission and EU Parliament might be more efficient in terms of rebuilding fish stocks, recovering profitability of vessels and operators' income.

3.3.2 Community-level Management Plans

Art.18 of the Mediterranean Regulation states that the Council may adopt management plans for specific Mediterranean fisheries in areas totally or partially beyond the territorial waters of Member States. As in NMFPs, these plans provide for the issuing of special fishing permits. In other words, Community management plans refer to situations characterized by shared resources and exploited by fleets of several Member States.

Community management plans most relevant to the Mediterranean involve fishing operations carried out by fleets operating in the Adriatic Sea; when Croatia becomes a full member of the European Union, intervention strategies will be possible especially in areas shared by countries bordering GSA 17. In this specific case, possible Community management plans may involve both seiners and pair trawl fleets targeting pelagic species, and trawlers targeting demersal and benthic resources.

There is presently no previous experience with Community management plans, therefore any intervention would be designed based on possible innovations within the Regulation.

Drawing a Community management plan to manage pelagic stocks in GSA 17 represents the best-case scenario for the implementation of a CLMP. Italian, Slovenian and Croatian fleets operate in this area with pelagic trawl nets and seiners. Stocks are distributed both vertically and horizontally between the east and west coast, with asymmetric variations of the biomass. This periodically creates problems and induces fleets to search for fish shoals far from homeports. This fishery would require a spatial planning that, due to stock and

fleet mobility, encompasses the whole area. Under this respect, this area may be considered as a micro-region and should be thus regarded when drawing specific management strategies.

Again, to evaluate the efficiency of this strategy one must examine the associated specific operational conditions.

Firstly, the criteria to assign individual territorial use rights and individual quota. In this case, there is an additional difficulty determined by the need for a framework shared by participating countries and fleets to match an even wider variety of production, economic and social needs compared to a national management plan. The disparate composition of fishing fleets, the variety of gears used to catch the same species, the different commercial strategies adopted by fishing companies and those adopted by Member States would be the main complications in possible negotiations.

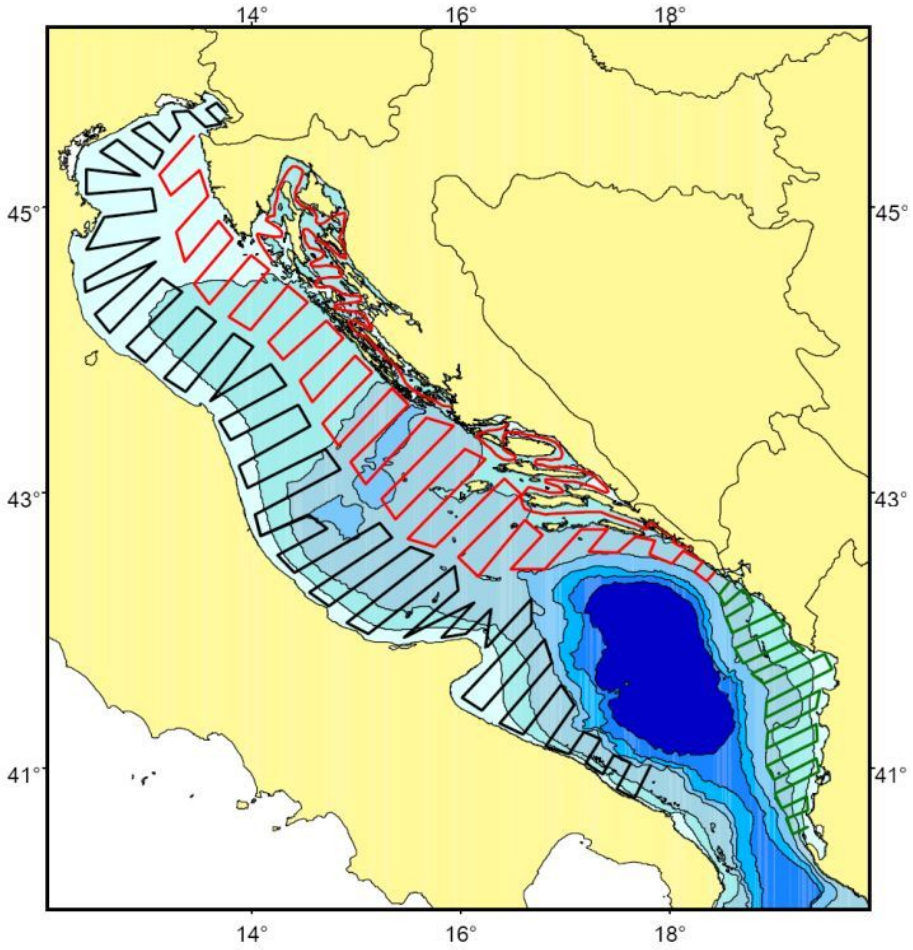
Secondly, an assessment of effectiveness of management tools, within the innovations introduced by the Parliamentary amendment and the regulation proposal presented by the Commission.

In mono-specific stocks, management through catch quota is more reliable given that it represents a fraction of the total catch, decided for each year depending on the growth of the stock. In other words, each vessel holds a property right on part of stock. This management scheme has clear advantages since it removes common property, eradicates rivalry among fishing enterprises and with it the "race to fish and to invest". With the allocation of individual catch quotas, enterprises can organize their own production factors in a more effective way, at least in principle. From this point of view, the extension of the area and presence of a variety of commercial and social habits and markets introduce some elements of uncertainty. Individual catch quotas do not guarantee "per se" economically satisfactory results unless the strategy avoids a concentration in production. Since profits, which determine decisions taken by fishing enterprises (Arnason 2002) vary upon gear, vessel size or fishing area, it may be possible that productive strategies induce production concentrations that may contract an otherwise lucrative market. This is the case of small pelagics in the Adriatic. A possible way to induce entrepreneurial decisions that increase the value of production may be to allocate daily catch quotas associated with a maximum number of fishing days, in order as to avoid production peaks and make sure that markets are fed to meet demand.

This is neither the place nor time to address more in detail the operational mechanisms, but it may be interesting to note that a combination between effort and catch quota represents the best solution to ensure the biological, economic and social viability of this particular fishery.

An issue not to be forgotten while defining a strategy for the Adriatic area, is scientific cooperation among research institutes in the area. Like in other parts of the Mediterranean where FAO regional projects are implemented, the support and dissemination of research induced by ADRIAMED in coastal states ensured that the area is characterized by a high and homogeneous standard of scientific knowledge and information (Figure 9). Following research activities and stock assessments performed jointly, all countries in the area share the same biological information and this obviously provides an excellent baseline to define specific management intervention in the area. As the overall catch quota for each stock is already known across all countries, this would not be one of the elements of a possible negotiation.

Figure 9: Example of cooperation in the Adriatic Sea: Acoustic surveys completed in 2010 covering the entire Adriatic Sea



Source: Leonori *et al.* (2011)

3.3.3 The amendment of the European Parliament

Both the Commission's and the Parliament's proposals introduce further innovations to the Mediterranean Regulation and anticipate a management system based on individual effort quota and possibly catch quota. The Commission suggests the introduction of transferable concessions, which is another way of defining quota[3], to be quantified by Member States and defined within national management plans introduced in art. 19 of the Regulation. This tool allows integrating in the same document input control measures (effort quota), output control measures (catch quota) and technical measures like net selectivity and closure of specific fishing areas.

The Commission also proposes transferability of quota and the onset of an exchange system that determine its concentration and ensuing reduction of fishing effort.

The amendment of the European Parliament proposes the introduction, when Member States resolve not to adopt a transferable concession system, of territorial use rights associated with individual, non transferable catch quotas.

[3] For the sake of simplicity, from here onwards reference will be made indifferently to quota, even in the case of concession.

Though apparently similar, the two proposals are profoundly different. The strategy proposed by the Commission pursues restocking of biological resources with market mechanisms. Here transferability of individual quota triggers an irreversible process and limits the management role of public authority to the definition of the global effort quota, which will then be translated into individual quotas based on procedures to be decided by each Member State. Markets will determine the fishing effort compatible with biological sustainability of the resource through a concentration of quotas. The elimination of incentives for temporary and permanent withdrawal is a corollary to this strategy.

On the other hand, the amendment proposed by the Parliament explicitly refuses the idea of transferability of the quota and proposes the adoption of territorial use rights left to the competency of Member States.

It is important to remember that without transferability and permanent cessation measures, this approach does not involve any variation of fishing capacity. The reduction of fishing pressure is left to variations of individual effort and/or catch quota set by the authorities depending on fishing mortality and linked to safe biological limits.

It is interesting to notice that both proposals define individual quota as the tool to balance fishing effort and available resource. But the success of this strategy depends on the capacity of the Member State to find and implement adequate measures to translate regulating tools into a concrete management system, which can be implemented in different fishing situations regardless whether the management tools adopted is effectively the best to achieve the objectives.

On the introduction of a system of territorial rights, three critical issues need to be addressed. Firstly, problems associated with the extension of the area; secondly, the operational modes of the TURF and finally, the impact of management through individual effort quota.

The responsibility of the definition of the area does not involve any particular problem. If the area is subject to a management plan, it will be the competent authority to define boundaries of the area based on its management objectives. A problem that cannot be underestimated, though, is the degree of uniformity within segments of the fleet involved in the plan. In large areas, the fleet will belong to different economic, productive and social settings. Fishing enterprises will therefore answer to different profit functions (Arnason 2002) and will not necessarily behave in line with management objectives.

In NMFPs there would still be the issue of limiting the area to territorial waters, especially where resources are exploited by the fleet of a single country. Wherever conditions allow, vessels fish within and outside of territorial waters and it does not make much sense to assign effort quota within only one part of the area where fishermen usually operate. This is particularly true in EU fleets that exploit resources not shared within and beyond territorial waters, which is the usual case along the European Mediterranean, with the exception of Adriatic Sea. Territorial waters do not represent a limit to fishing activities.

An altogether different case is when fleets of different countries share stocks over areas including both territorial and international waters. This would necessarily be a very large area where specific micro-areas might be created.

The definition of a micro-area needs some clarifications. In the first two chapters we outlined features defining management systems over micro-areas where artisanal coastal fishing is managed through TURFs.

The concept of micro-area has a different meaning when applied to management of localized stocks living further offshore, and it might coincide with an entire GSA, thus defining a "regional micro-area". Based on the targeted biological resources, borders of this area defined by the management authority will be much larger than TURFs we have seen so far.

However, in a regional micro-area or a CLMP that overlaps with an entire GSA, it would be difficult to administer and manage regulations given that each Community within the area has different needs tied to different fishing tradition and uneven local productive and commercial organizations[4].

In principle, in areas with homogeneous and cohesive fishing enterprises it is possible to develop an effective co-management system that allows transfer of competences towards organized communities. But, save for some rare exceptions including few producers organizations of small pelagic species, this is not the case in Mediterranean fisheries.

As for technical implementation, as we have seen in previous paragraphs, the main characteristic of a TURF lies in the power to define and implement management regulations within a limited area. The way individual quotas are assigned may clarify this concept. If right holders formed an organized group characterized by a homogeneous productive structure, the allocation criteria of individual quota would be facilitated by the fact that all enterprises would face similar production conditions and have similar profits.

In reality, this is clearly unrealistic given the differences amongst fishery segments in gear, vessels size and productivity of fishing areas. In these situations, it would be difficult to reach an agreement and, even so, it would not last as it would permanently be under pressure by the same right holders.

To summarize, the most effective solution would likely be to assign national management authorities not only the task to define the area, but also the management regulations of the TURF. Should this be the case, though, the most important feature associated with a TURF - the definition and sharing of regulations by members of a Community and holders of a territorial use right - would be lost.

If this is the result of a management strategy, then again a TURF would simply represent an access tool to the exploitation of a limited area, similar to a special fishing permit introduced by other existing regulations.
Another critical issue associated with the amendment of the Parliament, and the Commission proposal, involves the efficiency of a management plan based on individual effort quotas.

Indeed, it is well known that limitations on time spent at sea can easily be offset by increasing the efficiency of fishing operations through the technological progress embedded in electronic and technical equipment on board. In fact, industry reaction to limits on time at sea still implies race to fish and race to invest, nullifying possible benefits on resources.

[4] GSA 17 covers central and norther Adriatic Sea and countries have an overall coastal front of 2,576 km (Italy: 752 km, Slovenia: 46.6 km, Croatia : 1,777 km (excluding the islands).

Based on rational decision making, fishermen will combine their production factors in order to get the maximum profit from each unit of time spent at sea. An increase in technological progress investments causes an increase in effort and, unless a mechanism limiting rivalry and effort is accounted for, the final outcome is likely to be opposite to what the management authority intended. In other words, since rivalry is not removed by simply attributing a given number of days at sea for each vessel, fishermen have no incentive to adopt a "virtuous" behaviour"[5].

On top of this, it is also true that this result does not consistently change even if full transferability of effort quota was allowed. In theory, through market exchange the interest of those remaining in the fishery would be to efficiently combine production factors, and therefore reduce effort and costs of production to reach the Maximum Economic Yield (MEY). This is not necessarily true here. In fact, as shown earlier, as long as the limit is set on time at sea and not on catch, fishermen will still maintain the race to fish and invest behaviour. A possible outcome is that price of a quota unit will increase in the short period, and it will decrease in the longer period due to the further depletion of stocks.

To summarize, all these considerations cast some shadows on the efficiency of a management system based on territorial use rights associated with rights on resources, because of limits connected to their effective implementation. In particular, the removal of the tendency to increase fishing effort may be reached through the allocation of territorial use rights that may lead to a co-management scheme. But this hypothesis, though theoretically possible, is not always easy to achieve due to the diversity of participants, the difference functions of profit of the individual right holders, the extension of the area and the overlap of different segments of the fleet within the same fishing area.

Should the State define regulations and operational strategies, though, the tendency to increase fishing effort may be balanced by the allocation of individual annual effort quota, conditional upon the achievement of previously defined levels of biological safety.
In any case, whether management is achieved through the introduction of territorial use rights or through more traditional measures, it is advisable to introduce of a national or Community management plan that would coordinate the technical and input and output control intervention measures.

[5] Incidentally, it must be noted that fishing activities are more productive in foul weather. It is easy to foresee that, unlike management through individual catch quota, fishery management involving individual time quotas provide an incentive to fish in foul weather and inevitably would lead to an increase of accidents at sea.

4. RECOMMENDATIONS FOR FUTURE MANAGEMENT OF MEDITERRANEAN FISHERIES

KEY FINDINGS

- Management of Mediterranean fisheries requires a whole set of tools, whose combination depends on the type of fisheries.
- The introduction of TURFs may be a solution in small-scale fisheries. This tool allows a co-management approach delegating to local communities the responsibility of their activities.
- Where possible, a management plan introducing a TURF approach should be associated with a quota system for a more effective, customized fisheries management.
- In managing offshore fishing areas, both in territorial or non territorial waters, management plans should be updated by introducing an individual quota approach - as indicated by both by the amendment of the European Parliament and the rule proposed by the European Commission.
- The choice of a specific management plan is based on the distinction between shared and non-shared resources among fleets of different countries.
- Where resources are exploited by the fleet of a single country, either in territorial or non territorial waters, the solution could be a national fishery management plan based on individual effort or catch quota or a combination of the two, depending on the type of stocks.
- Where resources are shared by EU Member States, a Community level management plan based on individual catch quota may be applied.

In previous chapters we analysed the characteristics of the main fishery management systems currently introduced in the Mediterranean, and suggested possible management solutions. All these cases indicate the importance of adopting strategies that include:

- a thorough analysis of the situation before delimiting the fishing area
- the adoption of flexible strategies, and the appropriate set of intervention tools, to meet various needs arising from the specific fishing area
- the choice of an appropriate management plan depending on whether resources are shared or non shared among fleets of various countries.

We also examined possible management tools connected with the use of different gears: territorial use rights, variations of fishing effort by area and gear, individual effort quota, individual catch quota. In all cases, we suggested one of the several management plans available with the current European legislation, depending to the kind of exploitation: local management plans for coastal areas, national management plans for resources not shared with other countries, Community management plans for fishing systems targeting resources shared with other countries.

They can be thus summed up:

1. small-size coastal fisheries, including vessels below 12 meters of length using a variety of non-trawled gears to catch a large number of species, fishing mostly within 6 miles of the coast
2. fisheries exploiting unshared stocks in territorial and non-territorial waters,
3. fisheries exploiting stocks shared with other EU fleets in territorial and non territorial waters
4. specific fisheries in areas extending beyond territorial waters of Member States.

For **small-scale coastal fisheries**, we examined some examples characterized by the presence of territorial use rights. Spanish Cofradias, clam consortia in the Adriatic and Sicilian coastal fisheries all introduced co-management systems in limited coastal micro-areas, where right holders are empowered to define and introduce specific rules of exploitation. In some cases, the local management body is also responsible for drawing up a local management plan and may thus introduce the most appropriate mix of tools based on the specific needs of the area.

Although not easy to implement, this approach is without doubt the one that best follows the Commission's indication to transfer competences of micro-management to local enterprises.

At the moment, the legal basis that formally allows the drawing up of local management plans is art. 37 m) of the European Fishery Fund (EFF) on collective actions. It must be noted that this legal basis does not constitute a sound and robust legal framework and, given the importance of local plans to fishery management, should be addressed accordingly.

We also examined a second kind of management, involving **fisheries conducted within territorial and non-territorial waters without competing with fleets of other countries**. The possibility to introduce territorial use rights, which grant the right holders the power to define and implement management regulations in the exploited area, was debated and critical issues were highlighted.

There are two possible alternatives for this management system.

The first involve areas where the situation allows the introduction of a co-management system to decentralize authority, empowering holders of territorial use rights. The cultural and productive homogeneity of enterprises involved is the issue that, more than others, influences the extension of the area and contributes to the definition and implementation of rules of exploitation. This means that there is no general rule that may be introduced "top-down" in an area subject to TURF. If those conditions outlined in the first two chapters are met, the State may delegate a local management body to define and implement some measures, according to predetermined rules. In any case, it is advisable that the local management body draws up a management plan indicating the rules to adopt, particularly those involving the allocation of individual effort quota targeting multi-specific stocks, and individual catch quota or a combination of both in the case of pelagic mono-specific stocks.

The alternative regards those cases in which conditions to grant territorial use rights are not met. In this case, according to the Mediterranean Regulation, the State will define and implement regulations to exploit resources in the area, through a specific national plan

addressing each fishery. The management system will apply effort quota in multi-species stocks, and catch quotas or a combination of both in mono-specific stocks.

It may be useful to underline that if the aim of territorial use rights is limited to the right to access of the area, it would be equivalent to a fishing permit.

In **fisheries exploiting stocks shared with other EU fleets in territorial and non-territorial waters**, any management system must be implemented jointly with other members of the European Union. Territorial use rights cannot be applied to these fisheries, since the definition and implementation of management regulation falls necessarily within the power and competences of each State that will enter negotiations. The Adriatic case falls into this category, particularly in GSA 17 where demersal, benthic and pelagic species are shared. Other marginal cases in the Eastern Mediterranean may be interested as well.

It must be noted that as of today, short of anchovy TAC agreements in the Bay of Biscay, there is no experience in agreements amongst neighbouring countries on fishing quota, especially associated with a Community management plan. The latter represents the best tool to manage shared resources within an area.

Of course agreements on the exploitation of demersal and benthic resource must include individual effort quotas, while for pelagic stocks the best instrument may be a combination of individual effort quota, possibly associated with individual catch quota.

The extensions of an area subject to a management plan and associated with a system of regional micro-areas is part of the intervention strategy. Analysis of small pelagic fisheries indicates that it would be inappropriate to define areas on a geographical scale smaller than GSA divisions. In trawling fisheries, which usually target less mobile species and produce more stable yields, areas may be smaller thus possibly more homogeneous on several factors. This may be a desirable solution, given the tendency to increase effort while introducing individual effort quota: a smaller area is more easily controlled and violations may be more readily determined. However, competition amongst fleets of different countries over the same resources represents a limit that can hardly be overcome. As anticipated, a possible solution may be defining shared rules to allocate individual effort quota on a yearly basis, conditional to reaching predetermined safe biological limits.

The fourth group, **specific fisheries in areas extending beyond territorial waters**, falls outside of our analysis given that these refer to fisheries outside of Community waters. What must be noted is that this system includes oceanic vessels registered in third countries exploiting demersal and benthic resources mostly in the Sicilian Channel. A significant part of the effort is concentrated on mono-specific stock of deep-sea red and pink shrimps, while others target finfish, particularly hake and mullet.

In the hypothesis that it might be possible to develop a specific management plan jointly with the countries in the area, a possible solution - given the significant social, economic and productive differences in the area - may be an approach based on individual catch quota supported by technical measures. It would certainly be easier to reach an agreement on a strategy based on technical measures and output controls, rather than one attempting to change capacity of fishing activity. The latter is actually hardly applicable because of the different strategic objectives of fishery management of the various countries.

Similarly to the Adriatic, in this area there is an intense scientific cooperation amongst research institutes, thanks to the FAO regional project MedSudMed. Here too there is a

wealth of scientific information and shared baseline which with no doubt would facilitate drawing up possible joint management plan.

In summary, all these considerations suggest the need to build a flexible management framework adapting to the various needs arising from every area and each fishing system. Specific management plans in limited area making use of the array of available tools represent an important innovation in the management of the Mediterranean. This hypothesis is not alternative to the one presented by the Parliament, but where consistent with an effective management framework certainly incorporate its content.

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ANNEX I

Amendment 177
Proposal for a regulation
Part 4 – Article 33 a (new)

Specific transitional rules for the Mediterranean Sea; Introduction of a TURF-system

1. A scientific body shall be established or designated to provide scientific advice for Mediterranean fisheries analogous to that of ICES by 31 December 2014, in order to provide scientific advice to support compliance by the Union and Member State authorities with the objectives of this Regulation.

2. By ...[two years after the entry into force of this Regulation], Member States shall identify, further designate and map all fishing protected areas as defined in Article 2(2) of Council Regulation (EC) No 1967/2006, including but not limited to: protected habitats under Article 4 of that Regulation, Community fishing protected areas under article 6 and national fishing protected areas under article 7 of that Regulation, as well as all fish stock recovery areas established pursuant to Article 7a of this Regulation. Member States shall also identify, within their territorial waters, essential fish habitats and sensitive areas containing seagrass beds, corillagenous habitat and maerl beds.

3. By ... [three years of the entry into force of this Regulation] all protected areas identified under paragraph 2 shall be closed to all fishing activity for a minimum period of five years to allow fish stocks to recover, unless the scientific body referred to in paragraph 1 determines through fisheries specific assessments that stocks are not overfished and that fishing activities can be undertaken without compromising the achievement of the objectives in Article 2 and without endangering protected habitats and species within a particular fishing protected area. Fishing activities can only recommence after the establishment of another area or areas of the same dimensions where all fishing activities are banned.

4. Member States with coastal waters in the Mediterranean Sea shall establish a system of territorially based user rights for fishing (TURFs) where the Member State does not implement a system of fishing concessions. In such cases, Member States shall delineate the areas within their territorial waters within which their fishing vessels operate, and determine which vessels shall be authorised to operate within each such area. When delineating their fisheries Member States shall delineate both the spatial extent of the fishery as a whole, and the placement of all fishing protected areas and aim to maintain the benefits of the spillover from fishing protected areas for eligible holders.

5. A non transferable share of the TURF, expressed as spatially delineated user entitlements, individual limits on catch, or individual limits on effort or any combination thereof, shall be assigned to each eligible holder in the TURF, in accordance with eligibility requirements and other criteria established in accordance with Articles 27, 28 and 28a;

6. Fishing mortality shall be limited to levels that meet the objectives of Article 2, and the Union shall seek cooperation with third countries when setting limits on harvesting for stocks shared with such third countries in accordance with the following principles:

(a) Scientific advice on appropriate fishing mortality levels in the Mediterranean shall be obtained from the best available sources.

(b) In fisheries where data are limited, levels of fishing mortality shall be established using assessment methods and harvest control rules suitable for managing data poor fisheries based on the methodologies set out in paragraphs 3.1 and 3.2 of Part B of the Annex of Decision 2010/477/EU on criteria and methodological standards on good environmental status of marine waters, and a plan for improving data quality shall be established as a priority as part of the applicable multiannual plans, but at least by 31 July 2014.

(c) Member States shall take measures to expand data collection pursuant to Article 17(4) of Regulation (EC) No 1967/2006 to cover catches of all species resulting from all fishing vessels, including recreational fisheries, by no later than 31 December 2014.

(d) Member States may establish and enforce additional protection measures (including the exclusion of recreational fishing or restrictions on the quantity, gear types, spatial area or timing of fishing) that will enhance the abundance, or profitability of their fisheries.

7. Accountability measures shall be established and implemented to ensure that eligible holders of TURFs stay within their assigned catch, area, and/or effort limits. Member States' authorities shall establish mechanisms to ensure that all catches are recorded on a daily basis, and that fishery-level data are made available to ensure compliance and for management and scientific assessment purposes.

8. The establishment and implementation of TURFs shall be financially supported by the Union. The Union shall also take measures to reduce possible negative social and economic consequences of TURFs which might arise.

9. The Commission shall be empowered to adopt delegated acts in accordance with Article 55, comprising default measures with regards to paragraph 2,3,4,5, 6 and 7 if a Member State fails to fulfil its obligations under these paragraphs.

Justification
An explanation for this proposal can be found in the explanatory statement.

EUROPEAN PARLIAMENT

CATALOGUE BA-32-12-491-EN-C

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