

**INSTITUTIONS AND MANAGEMENT OF FISHING RESOURCES: THE  
GOVERNANCE OF THE GALICIAN MODEL.**

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**1- Introduction**

Over recent decades, natural resource economics has, to a notable extent, taken on board the importance of institutions in the analysis of several sectors such as fisheries, forestry, water or oil. Thus new institutional economics has engaged in fruitful dialogue with natural resource economics in a way that goes beyond orthodox limits for economic analysis to include other matters of a biological, technical, legal, political and social nature. Such a multidisciplinary analysis is also helpful in the study of fishery resource economics.

This paper is the result of a research programme that has studied the institutional framework and governance in the Galician fishing sector from a new institutional economics viewpoint. Galicia is a Spanish region with a strong fishing sector, which carries out several fishery activities: inland fishery, deep-sea fisheries, freezer fishing fleet, and aquaculture. By studying such a diverse and wide-ranging sector one is able to perform an in-depth analysis of the various institutional concerns in fishing resource economics. These include effects on fisheries resources that result from changes in

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international rules and fisheries regulations. At the same time, each fishery resource falls within its own institutional framework, and, moreover, regulatory powers are in the hands of several bodies and depend upon resource type.

The fishing sector has experienced significant changes over the past fifty years within the world economy (Varela and Iglesias, 2000): A) Quantities fished have increased considerably and fishery resource sustainability is therefore becoming an issue of growing importance. B) There has been a shift in the importance of certain countries in the fishing sector worldwide, explained by an increasing participation from developing countries. C) There have been sizeable developments in fishing techniques, vessel characteristics and detection systems. D) Since the 1970s, changes in international law have affected international fishing activity. E) Fish consumption and international trade in fishery products have experienced major changes.

In this shifting scenario, institutional analysis can be of great use in the study of changes in rules, governance structures and establishment of fisheries policies, amongst other issues. This paper looks at these questions with Galicia as its centre of study. In particular, it presents the example of governance developed by Garza and Varela (2007), particularly in the relationship between institutions and management in the Celtic Sea Spanish fishery (in which approximately 70% of vessels are linked to Galician Associations).

In this case of analysis, the national Government, together with the supranational authorities (European Union), define the TACs and allocate quotas to the fleet. Besides, the Spanish law applicable to this fleet activity establishes that every producers association may have a quota on the total fishery input and output. Then, these associations are granted a maximum number of fishing days and of tons per regulated species, and both numbers are proportional to the historic rights of all the member

vessels together. In their turn, these associations may allocate these rights among their members in individual access quotas and catch quotas.

The active role the associations have shown within the deep-sea fishing sector in the last decades, their experience in management tasks, together with the existence of common cultural and social values among the fishery members, have favoured a greater involvement of users in management tasks. As a result, we are in the face of a present regulatory scheme where the users and their associations, with regard to the annual rights allocation, are those who take the management decisions and the Government is reported about them.

The resource users play an active role, both individually and through their associations, in the definition of the management policy. Every association enjoys the rights of access and the right of withdrawal. The associations are the holders of the collective choice rights and decide about the availability of the rights of access and of the withdrawal for their members. In this process, the associations also delegate the operational right to the individual users. The latter, after receiving their right allocation, may reallocate them together with other members of the same association according to their real needs during the fishing season and as a result of their best operation strategies.

Section 2 studies the configuration and relevance of the Galician fishing sector. Section 3 presents a theoretical basis for an institutional approach to study fisheries economics. Section 4 analyses the institutional array where regulation policies affecting fishery resources exploited by the Galician fleet are drawn up. Section 5 presents a case study of Celtic Sea Spanish fishery governance.

## 2- The fishing sector in Galicia

Galicia is a region located in the NW of the Iberian Peninsula, just above Portugal. It is flanked in the north by the Bay of Biscay and in the west by the Atlantic Ocean, and jointly account for more than a thousand kilometres of coastline. Galician economy is steeped in a longstanding fishing tradition which began with the exploitation of nearby coastal waters but spread to fishing grounds further afield throughout the 20<sup>th</sup> century. This resulted in Galicia developing a fishing sector, which is now comprised of a traditional fleet (coastal or inshore fishing), a deep-sea fleet (operating mainly in EU waters) and a freezer fleet (a deep-sea fleet operating in the NE Atlantic and both sides of the South Atlantic Ocean) (Varela, Surís, Garza and Iglesias, 2000). Table 1 shows fish catch evolution for Galicia in the second half of the 20<sup>th</sup> century.

Year	Coastal & Inshore	Deep-sea	Total
1962	208850	43448	252298
1971	263398	155722	419121
1981	273150	161390	434541
1991	203589	190759	394349

Source: Varela et al. (2000).

The historical evolution shown in Table 1 has led to the current situation, in which Galicia's fishing sector accounts for 8.72% of the 25-state European Union's fishing workforce. The Galician sector represents 22.7% of EU fish landings and aquaculture statistics. It engages 5382 vessels, of which 5110 fish in the NW of the Bay of Biscay, 143 are deep-sea vessels and 129 are ocean going. Table 2 shows the main indicators for the Galician fishing sector and its share in the total figures for Spain and the EU.

<b>Table 2. Galician fishing sector in relation to Spain and the European Union (2005).</b>					
	<b>EU 25</b>	<b>Spain</b>	<b>Galicia</b>	<b>% Galicia/ Spain</b>	<b>% Galicia/ EU</b>
<b>FLEET</b>					
Number of vessels	90242	13821	5382	38.94	5.96
Capacity (1000 GT)	2043	486	184	37.86	9.01
Power (1000 kw)	7347	1134	344	30.34	4.68
<b>EMPLOYMENT</b>					
Total (thousands of people)	464.4	99.9	40.5	40.54	8.72
Fishing	271.9	68.3	19.6	28.7	7.21
Aquaculture	68.4	14.8	10.1	68.24	14.77
Processing	124.1	16.8	10.8	64.29	8.7
<b>PRODUCTION</b>					
Fish Landings (1000t)	4462	963	465	48.29	10.42
Value (millions of euros)	6219	1813	967	53.34	15.55
Farmed production (1000t)	1374	313	137	43.77	9.97
Value (millions of euros)	3173	444	227	51.13	7.15
<b>FISHERIES STRUCTURAL FUNDS</b>					
2000-2006 Funds (millions of euros)	3701	1712	770	46.26	20.8
<b>CONSUMPTION</b>					
Kilos per person per year	21.7	44.4	57.6		
<b>INCOME</b>					
Added value from fishing and aquaculture/GDP (%)	0.1	0.2	2.2		

Source: Varela and Garza (2007), from Fundación Caixa Galicia (data for 2005).

The relevance of the Galician fishing sector can also be seen in figures for frozen and fresh fish landings at Galician ports. The port of Vigo has experienced a remarkable growth in frozen fish landings from reefers coming from various places, which have turned it into a worldwide reference point (fish landings in 2000 at Vigo were 123,563 tonnes and the figure reached 538,886 tonnes in 2005). Moreover, revenue figures for fresh fish sold at Galician ports has increased, despite amounts fished not increasing considerably in recent years (this is due to an increase in the average fresh fish price at Galician ports). The sum total of frozen fish landings and fresh fish sold in Galicia amounts to over a million tons in 2005.

In like manner, the aquaculture sector, which was traditionally poorly developed, has experienced a recent boost in production, and in 2004 this amounted to 85% of Spanish aquaculture production. Table 3 shows the evolution of Galician aquaculture production, still in its infancy but growing. (Varela and Garza, 2007)

**TABLE 3: Evolution of Aquaculture production in Galicia and Spain** (thousands of tonnes)

	2000	2001	2002	2003	2004
Spain	305	310	328	312	364
Galicia	261.9	260.3	276.7	262.5	310.3

Source: Varela and Garza (2007).

### 3- An institutional approach

Section 2 above showed the relevance of the Galician fishing sector. This section presents some of the theoretical grounds that may be helpful in an institutional approach to the study of fishery resource exploitation and the study of fisheries policy. These grounds are based on the general theoretical basis of the new institutional economics, and especially, on a set of studies carried out on institutional issues, in areas such as Natural Resource Economics and Fisheries Economics, that together comprise an outstanding research programme<sup>1</sup>.

The construction of an institutional approach to study fishery resource economics can begin with an analysis of property rights. Traditionally, in a primitive economy, fishing resources were characterised by a free fishery access system with unlimited users, where each fisherman owned the amount of fish they were able to catch. Thus, in this type of system, resource ownership was gained through catches.

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<sup>1</sup> A wide range of studies are representative of this programme. Among other examples we can point out Burg (2000), Eggertsson (1996), Gardner and Ostrom (1991), Garza and Varela (2005), Hannesson (1999), Higgs (1996), Holland and Ginter (2001), Jentoff (2004), Libecap (2005), Pomeroy and Berkes (1997), Schlager and Ostrom (1992), Surís et. al. (1995).

Such a system was used where fishing resources were further away from coastal areas, and where there were no property rights assigned to the resources, meaning that any fisherman with technology capable of catching the resource could have it. The biggest problem with this system is that, the non-existence of ex-ante property rights, an increasing demand on the fishery resources and a great fleet capacity, result in a trend towards greater resource use and therefore generates an overexploitation problem.

An analysis of property rights for fishery resources has concluded that a single owner solution conserves more fishery resources than common ownership, which in turn conserves more resources than free access. Defining and establishing property rights is a costly process, however because fish prices are increasing, countries now feel that the establishment of a sovereign policy over coastal waters and the application of property rights systems is now becoming cost effective. On the other hand, together with this “efficiency view” there also exist other distributive issues to do with fishery resources appropriation that make it possible to understand establishment of property rights under some circumstances. Thus conflict approaches are also useful when constructing our institutional approach. The importance of the role of the State and international bodies as rulers becomes quite evident at this point.

It is quite clear that an institutional approach to studying fishery resources can clearly not be limited to issues of property rights. New institutional economics (Coase, 1960; North, 1990; Williamson, 2000) has drawn up a broader theoretical framework that includes references among others to informal norms, social capital, path dependence, public policies, beliefs and transaction costs (Caballero, 2001, 2002; Caballero and Arias, 2003; Álvarez and Caballero, 2007). Thus the theoretical basis for new institutional economics has enabled progress to be made on issues put forward by

Jentoft (2004): “Institutions in fisheries: What they are, what they do, how they change”.

We can therefore conclude from this new institutional economics approach that institutional diversity exists, which implies that there should not be any valid universal recommendations for economic or for political issues. Likewise, history, politics and culture are three key variables towards understanding institutions and therefore also for the functioning of an economy.

The study of fisheries also requires an institutional approach that assumes the general grounds of new institutional economics. In fishery resource economics, we find that the definition of property rights is imperfect, the transaction costs are high and markets lack the fundamentals that enable efficiency and resource sustainability.

Thus, the world of fishery resource economics requires a solid study of institutional framework, for both positive analysis and for proposing norms.

Likewise, an approach to fishing institutions can assume an “equilibrium view”, which attempts to study player incentives and understand the dynamics of institutional solutions. Greif and Laitin (2004) studied the persistence capacity of self-enforcing institutions when certain quasi-parameters change, amongst which we could include fish stocks. If resource sustainability does not coherently meet the agent’s expectations (quasi-parameter), then we will not experience a self-reinforcing institutional equilibrium. In this sense, this theory of endogenous institutional change explains that self-enforcing institutions can generate a process of change that affects the initial institutional equilibrium: the institutional rules affect the sustainability of fishing and the passage of time matters.

#### **4- The State and institutional structure of fisheries policies in the Galician case.**

Changes in the institutional framework have implied new game rules for the Galician fishing sector. The implementation of the Exclusive Economic Zones since 1977, Spain's entry into the EEC in 1986, and the Spanish political decentralisation model towards a State of Autonomous Regions, are changes in formal rules that affect fisheries policy making and fisheries resource management. The institutional influence of these three factors is presented below:

Firstly, the contrast of an increasing demand for fishing resources with limited resources resulted in better fish prices, which in turn enabled the introduction of legal norms and rules to determine the rights to fish. Although some precedents do exist, this new institutional framework reached a critical point with the 1977 implementation of the 200-mile Exclusive Economic Zone (EEZ). This norm states that each country has sovereignty for exploration, conservation, administration and exploitation for all resources within its corresponding EEZ. In this manner, countries gained the possibility of establishing some kind of property right on their fishery resources. This increasing process of natural resource appropriation and property rights establishment has continued through several processes, such as the 1995 United Nations Convention Agreement on straddling and migratory resources. In short, a set of international regulating rules have been created which now affect the many States, fishing activities and fishermen.

Secondly, Spain's 1986 adhesion into the EEC meant implications for the country's public policy making, which was then incorporated into supranational European institutional rules, and this especially affected the fishing fleet operating in

Community waters. The said adhesion also had implications in the case of fisheries policies. The European Union established a common fisheries policy and applied two basic management instruments: the Total Allowable Catch (TAC) system and the Multiannual Guidance Plans (MAGP), which seek to achieve fishery resource sustainability. The TAC system distributes quotas that determine catch possibilities for member states and tries to control output from the fishing process. Each MAGP lasted five years and sought fleet reduction in order to limit overexploitation of fishery resources (i.e., the plans attempted to control fishing effort, or the input to the fishing process). Four consecutive plans ran for the periods 1982-1986, 1987-1991, 1992-1996 and 1997-2001. The last plan was extended to 2002, when a new structural planning and policy scenario began.

Thirdly, Spain's 1978 Constitution paved the way for a state model based on 17 autonomous regions, called Autonomous Communities, each with its own regional government and parliament. The distribution of powers between national and regional governments is the fruit of a complex process of decentralisation that has gone on since the Constitution was passed. This process meant the evolution of a centralised State into one that constitutes a non orthodox "de facto" federal formula (Caballero, 2005, 2006). Furthermore, in Spain's decentralisation model, one group of historical regions reached higher levels of autonomy faster than others. This group includes the Autonomous Region of Galicia, which has the Xunta de Galicia as its autonomous government and administration. Among the governmental powers in autonomous authority hands are agriculture, forestry, livestock and inshore fishing. In particular, successive Xunta governments have dealt with their fisheries powers by naming a Regional Fisheries Minister or *Conselleiro*. However, during the 1980s –characterised by the autonomous government establishment process and the Xunta's political weakness– the fisheries

situation in Galicia took on an inherited model, with low professionalisation levels, socially accepted free access, norms based on scant biological data, inefficient and ineffective control systems, inadequate sanction systems and a fishing sector with underdeveloped business organisation. However, the 1990s produced an impulse in relevance and rationality in Galicia's fisheries policy and regulation (table 4). To this end, two norms reflect the surge in efficiency: the "*Plan de Ordenación de los Recursos Pesqueros y Marisqueros de Galicia*" to regulate Fisheries and Shellfish resources (1992) and the 1993 Galician Fisheries Act (Losada, 2000).

<b>TABLE 4: Comparative analysis of Galician fisheries policies</b>		
	<b>Policies prior to 1990</b>	<b>Policies post 1990</b>
Decision criteria	Political and opportunity criteria	More rational decisions: Technical criteria
Style	Reactive: minimum action	Anticipate: use of authority
Strategy	Non intervention	Intervention: use of authority
Regulation	Incremental	Systematic
Planning	Symbolic	Strong commitment
Policy contents	Status quo maintenance. Traditional regulation of uses. Free access to activity.	Sustainable resource exploitation. Market development. Professionalisation. Social labour legislation.

Source: Losada (1999).

These three institutional evolution factors imply an increasing international maritime regulation, relevance of European institutions and the existence of fisheries powers at both regional and national levels of government in Galicia and Spain, respectively. The resultant institutional framework made up of the interaction of these three factors implies that there is a body with regulatory powers for each fishery resource according to international maritime law. The Galician fishing sector has fisheries interests in several types of fishery resources: those in third country waters, those in international waters (including migratory resources), those in EU waters, those

in Spanish waters, and those in inshore waters. The influence capacity of Galician agents and policy-makers over the various resources varies greatly (Varela and Iglesias, 2000).

Table 5 shows bodies responsible for regulating each resource type according to their location. A) The influence of Galician agents is practically nil for fishery resources in third country waters. B) The Galician fishing sector also operates in international waters or in border areas in which other countries have interests: bodies such as the NAFO or ICCAT usually set catch quotas (TAC) for the different countries. C) In European Union waters, the European Commission has regulatory powers and sets annual TACs for species and countries and some norms for EU vessels fishing in EU intra-community waters (TACs are first awarded to EU States which means that the Spanish state then decides how they are distributed). D) Coastal fleet activity is regulated by the Spanish state, although in some cases Autonomous Communities intervene through regional government. E) Such regional governments have full powers over inshore waters and therefore the Xunta has regulatory powers over resources such as shellfish harvesting or raft mariculture in Galicia (Valela et al. 2000).

<b>TABLE 5. Fisheries resources and regulatory bodies in Galicia</b>		
<b>Fishery resource location</b>	<b>Body with regulatory powers</b>	<b>Specific problems</b>
A) Third countries waters	Coastal country	Contract uncertainty
B) International waters	International bodies	Migratory resources Flags of convenience
C) EU community waters	European Union	Fleet/resource imbalance Quota rigidity High transaction costs
D) Spanish waters	Spanish state with autonomous region participation	Overfishing Overdimensioning Irregular markets Weak profitability
E) Inshore waters	Autonomous Region	Scarce innovation Commercialisation Business organisation

Source: Varela et. al. (2000).

Recently, the Green Paper on common fisheries policy (European Commission, 2001) has proposed changes in fisheries policy making. Firstly, the report states that members from the fishing sector should participate more in the design of a “Blue Europe”. To this end, one of the proposals that was included, was to set up regional consultation committees based on specific marine species or specific territorial areas, which would allow more relevant participation from agents involved in the fishing grounds. Secondly, the report recommended that member states should have powers to respond urgently in situations at a local level, which points towards a more decentralised system policy through the concession of increased powers of governance to member states of the Union (Varela and Garza, 2007).

The tendency towards more participatory and decentralised forms of governance can be seen in the following section by means of a case analysis.

#### **5- A case study: The governance in the Celtic Sea Spanish fishery**

In this section we present a case study on the self-governance in the Celtic Sea Spanish fishery that is analyzed by Garza and Varela (2007). This paper details the governance structure which there is in the Spanish Celtic Sea fishery. In this study case, the resource users play an active role, both individually and through their associations, in the definition of the management policy. Every association enjoys the rights of access and the right of withdrawal. The associations are the holders of the collective choice rights and decide about the availability of the rights of access and of the withdrawal for their members. In this process, the associations also delegate the operational right to the individual users.

A. The Celtic Sea Spanish fishery. The Spanish fleet which operates in the Celtic Sea fishing grounds, also known as the “300 fleet”, as when Spain joined the EEC it was made up of this number of vessels, presently has 199 vessels (whose average characteristics are: 203 GRT, 419 Kw and 14 crew). The vessels which make up the fleet are divided up into seven associations (each of them belonging to one of the main base ports of the fleet located along the northern and north-western coast of Spain), of which approximately 70% are linked to Galician associations. The Spanish fleet mainly catches hake (*merluccius merluccius*), anglerfish (*Lophius piscatorius* and *Lophius budegassa*), horse mackerel (*trachurus trachurus*), megrim (*Lepidorhombus whiffiagonis*) and nephrops en las zonas ICES Vb, VI, VII y VIIIabd<sup>2</sup>. Although it is currently possible to associate specific target species with particular fleets, various quantities of hake, anglerfish, megrim and nephrops are taken together, depending on the gear type.

Due to quota restrictions in this fishery for many years, the Spanish fleet stopped fishing for up to two months in 2001, 2002 and 2003, and one month in 2004 and 2005. However, this temporary cessation of the fishery is not mirrored in the overall trend in fishing effort (ICES 2006). Spain accounts for the main part of the landings with 58% of the total in 2005. France is now taking 29% of the total, UK 6%, Denmark 3%, Ireland 2% and other countries (Norway, Belgium, Netherlands, Germany, and Sweden) contribute small amounts (ICES 2006).

The vessels which make up the Spanish fishery are middle-distance vessels. Their spells at sea last on average fourteen days, with one day to travel from the base port to the fishing grounds and one day for the return trip. The majority of the vessels use trawl gear, the remainder using bottom longlines. It is a mixed fishery, hake being the target

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<sup>2</sup> Fleets from other countries participate also in the Celtic Sea; in particular France, UK, Denmark, Ireland, Norway, Belgium, Netherlands, Germany, and Sweden operate in these grounds depending on the fishing zone.

species, making up around 45% of the income obtained by the fleet in the period 2000-04, although with a downward trend due to reductions in TACs over said period. Adaptation to the changes carried out in the regulatory framework has led to a reduction and renovation of the fleet, which has made it possible to increase catches per vessels (even with reductions in TACs) and also the average yield of the fleet. In particular, in 2004 an average of 230 tonnes was caught and the average income per vessel was 1111 thousand US dollars as opposed to 103 tonnes and 239 thousand US dollars at the beginning of the 1990s, making it one of the most profitable fleets in the last decade (Surís et al. 2002).

B. The change in the rules of the fishery. Up until the 1960s, 500 Spanish vessels fished in the fishing grounds of the Celtic Sea with no restriction from six miles off the coast and out in the deep waters. When the Convention of London was signed in 1964, countries with coastlines began to establish different regulations with the aim of restricting access to the fishing resources of their waters, although they recognised the fishing rights of the Spanish fleet in a 6 to 12-mile zone.

The European Community implemented a licenses system in 1978 and as a consequence the Spanish vessels had to obtain licenses which assigned the fishing rights. In 1981, a Ministerial Order (Ministerial Order of the Ministry of Agriculture and Fisheries, June/12/1981) recognised fishing rights were individual and assigned to vessels to fish in those areas for which the access mechanisms were introduced and the resource mechanisms were estimated.

When Spain joined the EEC in 1986, the number of vessels authorised to fish in the fishing grounds of the Celtic Sea (with the exclusion of the Irish Box until December 1995) was cut to 300. But, of this number, only 150 vessels could fish simultaneously until the end of 2002, forming the so-called “periodical lists”.

A new Ministerial Order (June/12/1992) established the possibility that the companies could accumulate the access rights of the scrapped vessels in other vessels. This system indeed allowed the number of vessels that are included in the census to have a number of fishing days that are closer, on the whole, to the needs of this fleet.

The Law 23/1997 (July/15/1997) allows firms to transfer the whole or a part of the access right or coefficient their vessels have to other units in the same census. Under this law the transferability is authorised either total or partial but now the firms are admitted having an access coefficient or rights with a timeless criterion, that is for a non defined time (the temporality as not stated in the Ministerial Order of 1981). The Spanish government is still in charge of the exercise of access and fishing rights, without compensations for fishermen, referred to both management and business or economic compensations.

The Royal Decree 1838/97 (November/5/1997) regulates the beginning of fishing activity and the establishments and base changes of vessels. In particular, at the beginning of every year each vessel is assigned a modality with its right, fishing ground and base port.

The Spanish Law is completed with the Royal Decree 1915/97 (December/19/1997), with reference to the controls over fishing. The only established limit to the free transfer of the access rights is a maximum of 315 fishing days and a minimum of 210 days per year and vessel included in the census. That is, the minimum figure affects the owner of the transferring vessel and it aims to guarantee the profitability of the sector, and the maximum figure affects the vessel that receives those rights and it is established with the aim that a single vessel cannot accumulate more fishing rights than it can use per year.

Finally, the Law 3/2001 of Maritime Fish of the State establishes a new regulatory framework of transferability of fishing quotas. The allocation of fishing possibilities can be transferred by both the PO and the ownership, but it requires an authorisation of both the Ministry and the Autonomous Community (region) of the port base of the vessel, so as to regulate the consequences of displacements and the effects of a concentration. For the purpose of favouring the free competence, this law establishes that the volumes of fishing possibilities which can be accumulated by the same fishing firm will not be over the 30%. This law has been implemented at the beginning of 2007 in this fishery.

C. *The governance structure.* As a result of the regulatory scheme in this fishery, the users and their associations, with respect to the fishing rights and annual quotas allocations, are those who take the management decisions and the Spanish government is reported about them. The resource users play an active role, both individually and through their associations, in the definition of the management policy.

Every association enjoys the rights of access and the right of withdrawal. The associations are the first holders of the operational rights related to the resource. Starting to the initial rights allocation, the associations transfer their own rights to each other, and then allocate the total amount among their members. In this process, the associations are the holders of the collective choice rights and decide about the availability of the rights of access and of withdrawal for their members.

The associations also delegate the operational rights to the individual users. The latter, after receiving their rights allocation, may reallocate them together with other members of the same association according to their real needs during the fishing season and as result of their best operation strategies.

As regards the factors that enhance the efficiency of decentralised resource management policies, in this fishery:

- Both associations and users are entitled strong property rights.
- Only those vessels that belong to the associations are entitled to enter the fishery, since there is a closed census to carry out this activity.
- As for the groups' homogeneity, the associations are composed of a few members, who are known to each other, and who usually belong to the same geographic area and so to the same cultural and socioeconomic environment.
- The Spanish government plays an active role when creating incentives for the efficiency because it establishes the basic rules of the associations' internal structure, their functions and responsibilities and the key to allocate rights among them.
- The associations are responsible for the supervision and control of the rights and so they are those which must account to the Spanish government in case that the rights are exceeded.

On the other hand, although the number of vessels which each association groups together is very disparate, the organisational structure of these POs is very similar, the difference lying in the number of people who make up the organisation and the services provided to their associates, among which we would mention that they all offer the service of fishing rights management and judicial advice.

Of the POs involved in the fishery, ANASOL stands out, with more than 50% of the fishery's vessels (Table 6). This PO was created in 2001 with the aim of consolidating the Galician fleet which fishes in the Celtic Sea and manage the greatest number of fishing rights possible. When it was constituted it grouped together all the vessels of the POs ARPOSOL and PESAGALICIA, an ARPESCO vessel, thirty from OOPP-LUGO, two from PASAJES, one from NORPESC and three from OPPAO<sup>3</sup>.

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<sup>3</sup> The second PO with regard to number of vessels is OPPAO. It was created in 1998 from the transformation of another already-existing one (ONDARROA). It groups together around 22% of the fleet in the Celtic Sea, all of them from the Basque Country.

D. The economic performance in the management of the fishery.

The mentioned regulatory framework, the active role the associations have shown within this fishery in the last decades, their experience in management tasks, and the existence of common cultural and social values among the fishery members, have favoured a greater involvement of users in the management tasks.

The normal working practices of the fishing activity allows for the associations to establish fishing plans with the aim to regulate management and promote a more efficient commercialisation plan. Since the implementation of the license system in EC waters, the Spanish administration has been drawing up Fishing Plans in collaboration with the fishing associations.

**TABLE 6. Data on the Vessels Spanish Associations in Celtic Sea**

Vessels Spanish Associations in Celtic Sea	Number of vessels in 2004	Fishing rights per PO (%), 2003	Fishing rights per PO and vessel, 2003
PASAJES (Basque Country)	10	7.17	1.04
NORPESC (Basque Country)	8	5.08	0.921
ONDARROA/OPPAO (Basque Country)	44	27.43	0.904
GOLDAKETA (Basque Country)	-	-	-
ARPOSOL (Galicia)	-	-	-
ARPESCO (Galicia)	16	7.21	0.654
PESCAGALICIA (Galicia)	-	-	-
OOPP-LUGO (Galicia)	8	3.7	0.67
OPECA	8	4.43	0.804
ANASOL	105	44.98	0.621
TOTAL	199	100.0	

Source: Garza and Varela (2007).

The remaining POs (PASAJES, NORPESC, ARPESCO, OPECA and OOPP-LUGO) group together between 8 and 16 vessels each. These POs have certain unique individual characteristics. On the one hand, the OOPP-LUGO shares associates with ANASOL as around 10 vessels from the former use ANASOL to manage their fishing rights (even if they continue to belong to OOPP-LUGO and, therefore, use the rest of their services). And on the other, the POs PASAJES and NORPESC, both from the Basque Country, collaborate closely with each other in respect of tasks regarding representation before the Spanish administration.

In that sense, the associations could form a group so as to enforce fishing rights and to take part in the allocation of access and fishing rights. They could authorise the temporary transfer of the coefficient of fishing licenses among companies and organisations, with the aim to avoid inactivity and idleness of these coefficients. The geographical mobility of the vessels of different ports is admitted with prior consent, which allows them to vary the proportionality of the fishing rights.

This process have created the existence of a fishing rights market which altered the geographical allocation of vessels, either protected by some local financing institutions, by regional institutional bodies or by some shipowners that turned into investment agents (González 2006). The aforementioned regulation allowed a different evolution of this fleet in accordance with geographical criteria and associations. In the Table 6 we can see this trend. There is some concentration of fishing rights in the associations ANASOL (45%) and ONDARROA/OPPAO (27%).

The Table 6 shows too the transcendence that the transferability of the fishing rights has had. The traditional concept of vessel=licence=right disappears and at the end of the period 1996-2003 we can see different intensities regarding the capture options. So the results showed an evident geographical movement of vessels and a high volatility of the fishing rights, because of the options to transfer the rights between firms of the same or different associations. This dynamic, on other hand, has benefited from an important scrapping of vessels, which accelerated the accumulation of rights and its transference.

In other order of things, other type of collaboration exists among the POs. In this way and as example of self-governance, a measure of limiting the megrim catches per trip and vessel was imposing on some POs themselves since 2004. The extension of this

measure to the fleet as a whole has already been successfully applied in previous campaigns since that date.

And all it favoured greater economic results. The economic data related to this fleet show its high profitability. Compared with those referred to the mid-1990s, the economic results show a positive trend: less fishing effort, the landings per vessel increase by 13% annual and better profit margins (the GCF grows by 6% annual for 1994-2004) (Garza and Varela, 2007).

## **6- Conclusion**

By studying the Galician fishing sector, this article has analysed a group of key institutional factors in fishery resource economics. Thus, the article has enabled a better comprehension of the institutional array that affects Galician fisheries, and is a reference for comparative institutional analysis of the fishery resource economics.

Firstly, the paper has presented our study objective namely, the fishing sector in Galicia, which is one of the most important fishing regions in Europe. Secondly, we have presented an institutional approach that is useful in studying our objective. Thirdly, we have presented a set of changes in institutional rules that affect the Galician fishing sector (the establishment of EEZ, Spain's entry into the EU's fisheries policy, decentralisation of the Spanish state into Autonomous Regions) and that allow us to understand which international or state body has powers over which fishery resource type. Fourthly, the paper has made a detailed analysis of the governance structure for a specific fishing ground, the Celtic Sea Spanish fishery (Garza and Varela, 2007).

Regarding to the governance structure in the Celtic Sea Spanish Fishery, two significant trends can be appreciated in the Spanish fishing companies in recent years.

On the one hand, the associationism trend has been reinforced, and with it the aspiration to play a more important role in fishery regulation. On the other hand, there is a greater knowledge of market instruments, especially the transferability of fishing rights, thus the use of these possibilities by the business associations has increased.

It can be considered that the associationism trend has been favoured by European policy, by recognising and promoting the POs as a basic part of the Common Market Organisation. However, the existing dispersion and the diversity of situations of the different countries have not made interlocation easy. The creation of Regional Advisory Committees (RACs) is the instrument chosen after the reform of the CFP. These committees, and in particular the one relating to the Celtic Sea fishing grounds, are currently being constituted and foreseeably will begin to function within a matter of months.

This said, the EC system is still highly centralised, which means that the use of market instruments is limited to the framework of the decisions of the member states or the associations themselves to the extent their competences allow. In that framework, the case of the Celtic Sea Spanish fishery is a good example of how the existence of a governance structure with full incentives may have a positive effect on the economic efficiency of the fishery.

However, taking into account the existing design of the management system, the decentralisation process of the management can still go further. In our opinion, a incentive lack in the existing system for this fishery: the users do not take part in the management decision-making of the superordinate level. Every year, the TACs are decided according to political and biological criteria that have nothing to do with the users' expectations and estimates, which do not help them to have the will to comply with the quotas. The users could participate in the management decision taking and

bring the relevant information on fishing mortality, state of stocks and their evolution. It could contribute to improve the fishing management and efficiency in the fishery.

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