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## **Governance in Small-Scale Fisheries of Galicia (NW Spain): Moving toward Co-Management?**

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### **Abstract**

The historical lack of fishers' participation in decision making had led to weak fishing management and explains the meagre results achieved so far in conserving marine resources. The EU recommends greater participation by fishers in the decision-making process so that adopted measures will better reflect local circumstances. It should be easier to introduce co-management measures in fisheries that have a tradition of cooperative behaviour among groups of fishers, as is generally the case in the small-scale fishing sector. This paper studies how small-scale Galician fishers view greater participation in the decision-making process. The results show that fishermen are clearly in favour of increased participation—through their guilds and, to a lesser extent, alongside trade unions, producer organizations, and scientists. The results show that fishers also favour moving toward co-management on such issues as participating in the establishment of regulating mechanisms, monitoring compliance with fishing rules, and demarcating areas for sport fishing.

**Keywords:** Governance; co-management; fisheries; small-scale fishing.



## **1. Introduction**

Rules, governance, and organizations together constitute a structural framework that is essential for managing natural resources. The success of any management measure depends in large part on the situation's degree of complexity (Ostrom, 1990; Schlager and Ostrom, 1992). In the case of fishery management, this complexity is increasing in (among other factors) fishery size, the extent of interaction between environmental and social systems, the number of agents involved, and mobility—of marine resources and also of the fishers themselves (Arnason, 1991, 1994; Bigagli, 2015; Coglán and Pascoe, 2015; Foxon et al., 2009; Garza and Varela, 2015; Hannesson, 1994; Townsend, 1990; Vivero et al., 2008; Wilen, 1989). That being said, management success depends also on existing institutions and the structure of governance (North, 1990). Fishery administrations have therefore been advised to build enough credibility with fishers so as to maximize the legitimacy of regulations and thereby compliance with them. Thus, the degree of compliance with the regulations will be greater and therefore, monitoring and penalties will be reduced, which implies a reduction of transaction costs associated with compliance mechanisms (Coffey, 2005; Garza et al., 2015, 2017; Gelcich et al., 2009; Grafton, 2005; Herrera-Racionero et al., 2015; Jentoft and McCay, 1995; Jentoft et al., 2009; Levine, 2016; Marshall, 2007; O'Hagan and Ballinger, 2009; Ulfsdatter, 2006; Vivero et al., 2008).

A fishery management system is designed to ensure the rational and responsible use of living marine resources, through activities like governance arrangements, management procedures, scientific advice, compliance and monitoring. Management options are basically two: Government command and control, and partnerships co-management (FAO, 2006). Currently, fishermen's associations of the small-scale fisheries of Galicia plays a role in the governance system, it is basically a complementary function involving consultation and representation, although at operational level they adopt management decisions and coordination between their members which can be significant. An increased participation of small-scale fishermen's associations would imply a higher responsibility in the formal management of the resource, which could be achieved through the greater involvement of fishermen in the decision-making of public organizations or in becoming binding the decisions of fishermen's associations (García-Lorenzo et al., 2019).

One way of boosting the legitimacy of institutions is to incentivize increased fisher participation by promoting co-management, a partnership arrangement in which the

community of local resource users, government, other stakeholders and external agents share the responsibility and authority for the management of the fishery (Pomeroy and Rivera-Guieb, 2006). In small-scale fisheries, conducted in near-shore coastal areas with traditions of user-designed management, co-management is particularly suitable (Hanna, 1998). Stakeholder participation in the decision-making process is a key factor in good governance (Coffey, 2005). Fisheries governance is the sum of the social, legal, political and economic arrangements used to manage fisheries. In the case of small-scale fisheries, frequently undefined and unconsidered in national policy, governance is often very complex, and there is a tendency to involve stakeholder in the decentralized management (FAO, 2001). It is widely believed that low levels of fishers' participation helps explain ineffective fishery management and the poor results achieved to date in marine resource management (Cochrane, 1999; Coglán and Pascoe, 2015; Delaney et al., 2007; Hatchard and Gray, 2014; Jentoft 1989; Mikalsen and Jentoft, 2008; Nielsen and Christensen, 2006; Pita et al., 2010). Few question that governance is a useful tool for identifying social problems and opportunities. In today's world, either updated or novel mechanisms are needed to manage conflict, handle problems, and create opportunities within an increasingly diverse and interactive social system—where social and political spheres have become less and less distinct. Under these dynamic circumstances, the notion of governance not only entails a more integrated vision of policy making (so as to address problems more effectively) but also is a useful focus in analysing the institutional requirements for the effective organization and management of decision-making processes when both public problems and societal complexity are on the rise. Co-management in small-scale fisheries implies a shared governance at a local level between the government, the resource users and other stakeholders. Regarding participation, user groups can organize themselves voluntarily to manage collective resources producing efficient and equitable results (Ostrom 1990).

Governance emerges in response to mistakes made by top-down management. The concept of governance enables all social agents involved to participate in determining the rules and principles that guide our societies. In its latest proposals to reform the Common Fisheries Policy (CFP), the European Commission (EC) cited the lack of participation by marine resource users in the decision-making process as a main weakness of community policy, noting that such exclusion detracts from the legitimacy of fishery management measures. The Commission has thus highlighted the importance of including a greater involvement of fishers in the process and of adapting to local or

regional conditions (EC 2001, 2009). Extensive research in the field of economics has studied the views and attitudes of fishers—and other marine resource users—with regard to the possible implementation of fishery co-management measures (Berghofer et al., 2008; Dimech et al., 2009; Gelcich et al., 2005, 2008, 2009; Parés et al., 2015; Pita et al., 2010; Soma, 2003; Castilla and Fernández, 1998; Pomeroy and Rivera-Guieb, 2006; Hanna, 1994).

The objectives in this paper are (a) to explain how the system of governance in Galicia's small-scale fisheries sector evolved and (b) to describe how the fishers themselves view measures aimed at increasing their participation in the decision-making process. The paper proceeds as follows. Section 2 shows the socioeconomic dimensions of Galicia's small-scale fishing industry; Section 3 describes the system of governance; in Section 4, the responses of fishers on the topic of greater participation are shown; Section 5 concludes.

## **2. Small-scale fisheries in Galicia**

Located in Northwest of Spain, the autonomous community of Galicia has a long tradition of fishing (García-Lorenzo et al., 2019). With a 1,200-km coastline, the Galician shores boast 278 sandy areas and 70 million square meters of intertidal area. Also of note are the favourable characteristics of its rias (coastal inlets), which are relatively shallow and calm with an estuarine circulation and a great upwelling (Molares et al., 2008). The latter means that the deep water (i.e., colder and nutrient-dense water) rises during the summer; thereby reducing water temperature and significantly increasing marine species' productive capacity. The Iberian upwelling system leads to a fertilizing process in the rias (Revilla et al., 2008). The production of phytoplankton is up to three times higher than that in ocean waters at similar latitudes (360 grams of carbon/m<sup>2</sup>), due to the abundance of nutrients, mainly nitrates. These natural characteristics create optimal conditions for producing a wide variety of marine species and for cultivating high-quality shellfish, making this Spain's top fishing region in terms of production, employment, and size of the Spanish fishing fleet (MAGRAMA, 2018).

**Table 1.** Evolution of small-scale fishing fleet, 2010–2017

	2010	2011	2012	2013	2014	2015	2016	2017
Small-scale Galician fleet	4,290	4,204	4,105	4,001	3,962	3,897	3,881	3,827
Total Galician fleet	5,106	4,989	4,843	4,739	4,664	4,562	4,534	4,466
Small-scale Spanish fleet	7,855	7,636	7,373	7,160	7,037	6,888	6,804	6,696
Total Spanish fleet	10,847	10,505	10,116	9,871	9,635	9,409	9,299	9,146
Small-scale/Galician fleet	84.02%	84.27%	84.76%	84.43%	84.95%	85.42%	85.60%	85.69%
Galician /Spanish (small-scale)	54.62%	55.06%	55.68%	55.88%	56.30%	56.58%	57.04%	57.15%

*Note:* Reported values are number of vessels (or percentages).

*Source:* Authors' compilation from MAGRAMA (2018).

Small-scale coastal fleets have always been a major source of income and socioeconomic support in Galician zones highly dependent on fishing (Freire and García Allut, 2000). The small-scale Galician fleet consists of boats up to 12 meters in length that operate year-round, every weekday, inside the rias or along the Galician coast. There are typically fewer than four crewmembers per boat, although boats measuring 10–12 meters can have as many as six (including the boat's owner). This fleet uses several types of passive equipment—mainly traps, small gills, trammel nets, and small hooks—that are rotated in accordance with bans on particular target species. Octopus, sardines, squid, common prawn, sole, sea bass, crab, scallops, clams, cockles, hake, angler fish, turbot, and horse mackerel are the target species for this fleet in the Galician grounds; most of these species are not subject to total allowable catch (TAC) limitations, but vetoes for each species, temporary prohibitions of capture imposed by the autonomous government of Galicia, since each vessel can capture its species only in those months that this veto is not declared. In 2017, the small-scale Galician fleet accounted for more than 85% of the total Galician fleet and for nearly 57% of the small-scale Spanish fleet (see Table 1). The size of this particular fleet declined by 11% between 2010 and 2017 (15% for small-scale Spanish fleet), yet that decrease was less than the 13% drop observed during that period for the entire Galician fleet (resp., 16%). The decline of the Galician fleet is due to economic and social causes, such as the decrease in profitability due to the fall of catches or the lack of generational change, which makes the number of active crew members fall. In this case, the regional government has not ruled restrictive policies towards the number of boats and workers in the sector.

**Table 2.** Main economic aggregates of fishing sector, 2015

	Galician small-scale fleet	Total Galician fleet	Total Spanish fleet
Production value at basic prices (EUR million)	92.2	801.6	1,964
Structure (percentage of production value):			
Production	100.00	100.00	100.00
Intermediate consumption	26.53	38.31	51.27
Gross value added	73.47	61.69	48.73
Gross operating surplus/mixed income	50.36	28.15	16.91
Employee remunerations	24.77	33.54	31.82
Employment on-board (full-time equivalent)	5,732	10,635	30,015

*Source:* Authors' compilation from IGE (2018), MAGRAMA (2018) and Xunta de Galicia (2017).

As for economic data, we only have information on the year 2015. Table 2 decomposes the production structure for this sector (first data column) and for the total fleets of both Galicia and Spain (last two columns, respectively). The small-scale segment contributes about 10% of the total production value for fresh fish in Galicia, and it generates more than half of direct employment in this region's fishing sector. These fleet-based figures do not include any shellfish gathered on foot, an activity undertaken by some 3,800 shellfish farmers (most of whom are women). In recent years, cultivation techniques have been introduced to Galician sands for the primary target species (cockles and clams) in order to limit ecological problems and control the species cycle. Those techniques have made it possible to cultivate shellfish—rather than depleting their stocks via fishing—by rendering these species more amenable to aquaculture. Intermediate consumption in the small-scale fisheries sector amounts to little more than essential fuel and bait, although those expenses amount to over a quarter of the production value. That share increases when the entire Galician fleet is considered, since it includes many larger vessels. More than 73% of the small-scale fleet's production corresponds to value added; of this, half is used to pay the boat's owner and the other half must be paid to the crew.

### 3. Current institutions and governance system

Since the start of the 21st century, Spanish fishery management has been highly decentralized across various public administrations (per Act 3/2001 of the Spanish government). Fisheries in non-EC Spanish waters include fishing grounds that stretch across various Spanish maritime regions, and management measures are decided jointly between the Spanish government and the regional governments involved in the



particular fishery. These decisions include, for example, distributing the European TAC available to Spain among each region's fleets (for those species subject to TAC), monitoring of compliance with legislated rules, establishing penalties for noncompliance, and creating protected marine areas in non-EC waters that involve more than one region. Thus the Spanish government is essentially limited to coordinating CFP activities that affect Spanish fleets and other activities that affect more than one maritime region.

In contrast, regional governments have exclusive management responsibility over regional waters and over planning for the regional fisheries sector. This implies that it is the regional government, and not the national government, that has the right to grant fishing extraction permits. Hence they are empowered to set capture limits or fishing days in those waters or for fleets whose home port is located in that region. Fishers can express their views on any proposed or implemented management measure to regional regulators and/or to the Spanish government. Such feedback is given by a standardized process in which fishermen's associations and guilds are consulted (guilds are traditional Spanish associations that focus on small-scale inshore fishing and nonindustrial fishing and shellfishing). It is not binding for the fishing decision.

One of the most important regulations for the region we study was the Galician Fishing Act of 1993 (Xunta de Galicia, 1993), which enacted a legal norm for the regional government that aimed to curtail the overexploitation of marine resources that became evident in the 1990s. It was then that the regional government recognized the severe imbalance between the limited nature of marine resources and the tremendous social pressure exerted over those resources—circumstances that were undermining the sector's economic rationale. The Fishing Act declares that any regulatory measure implemented by the regional government must not compromise economic self-sufficiency, the fleet's competitiveness, or the fishing industry's long-term financial health.

The regional government's intention was to develop a legal framework that would promote the overall development of Galician fisheries and their adaptation to an increasingly competitive international context while minimizing social effects on the sector's agents by introducing measures to encourage more efficient exploitation of resources—measures that would reflect the socioeconomic characteristics of the coastal communities affected. The resulting Galician Fishing Act (1993) had two principal objectives: (i) to integrate all regulation of fishing, shellfish farming, and aquaculture-

related activities into a single piece of legislation; and (ii) to provide legal instruments for synchronizing the requirements of conserving and profitably exploiting marine resources, thereby ensuring the sustainability of any exploitation. Under this law and with the National Act 3/2001 already entered into force, the regional government implemented individual daily catch limits per boat for small pelagic species and some shellfish species in the early 2000s.

The Galician Fishing Act 6/1993 was superseded by a new legal standard, Act 11/2008 (Xunta de Galicia, 2008). This standard was drafted toward the end of adapting to the new framework that emerged in the early 2000s, in which Spain's autonomous communities were granted greater powers with regard to matters not governed by National Act 3/2001 such as the regulation of nautical sports and leisure activities, fisherman training, maritime rescue, and safety aboard fishing vessels. Another goal of the 2008 Act was adapting to the European Union's new regulatory framework for public assistance and the conservation and exploitation of marine resources (EC Regulations 2371/2002 and 1198/2006, among others; see European Communities, 2002, 2006). This legislation was subsequently modified (Act 6/2009; Xunta de Galicia, 2009) to provide specifically for the creation of marine reserves and to regulate the gear and species allowed for sport fishing.

Under these Galician laws, the fishers themselves can express their opinions on the regulatory measures implemented by regional and national governments only through fishermen's guilds and associations, and governments may or may not take those opinions into account. Yet the management of sedentary species (e.g., oysters, clams, cockles) requires special attention, and these species—since they are caught in intertidal areas—are regulated exclusively by the regional government. In recent years, the Galician government has allowed the guilds themselves to design and implement specific exploitation plans for these species. The regional government, under scientific advice, determines how much can be extracted, how many permits to grant and to whom. Thus the guilds can determine the number of individuals who can exploit these stocks, the total and individual catch quantities, and the fishery's opening and closing in accordance not only with species' biological cycles but also with seasonal markets (summer, Christmas, etc.). These guild-designed plans must be approved by the Galician government, which may implement improvements (based on technical reports) to ensure that marine resources are exploited in a sustainable manner. In the past few years, various Galician guilds have taken the initiative in fishery management by

implementing, in collaboration with regional government, catch limits for the Christmas season and by establishing two protected marine areas of fisheries interest. These experiences have pushed the industry toward co-management. Surveyed participants view this as a positive development, mainly because it has enabled self-regulation in organizing their activity and a consequent increase in their income from fishing.

In tandem with the described legislative activity of the Galician government, a major change introduced by the 2002 CFP reform (EC, 2001) was the creation of Advisory Councils (ACs), which were designed to foster participation by the fisheries sector in the decision-making process. The aim of this reform was to improve the system of governance for European fisheries management by adapting it to a regional context (creation of an AC requires that there be at least two member states involved with jurisdiction over the focal regional waters). Fishers can use these ACs to develop recommendations and suggestions not only for the EC but also for regional and national governments with jurisdiction over the geographical areas covered by the Advisory Council. Seven ACs were established in 2004, of which six cover specific areas (North Sea, Baltic Sea, Mediterranean Sea, North-western Waters, Southwestern Waters, and High Seas). The seventh AC is devoted to pelagic stocks. The Advisory Councils are bodies in which small-scale fisheries participate. Its consultative nature, which gives it the power to make recommendations, as it is not binding, does not conflict with the approved legislation both at regional and European level.

The Galician fleet is represented by fishermen's guilds or associations in five of the ACs just listed (viz., excepting only the Mediterranean and Baltic seas). Fisheries Local Action Groups (FLAGs) have also been formed to encourage the active participation of organizations that represent various local sectors (the fisheries sector and also social, economic, and public sectors), although the main emphasis is on representatives of the fisheries sector (who constitute no less than half of those who can vote in the FLAG). In particular, FLAG goals include (i) aiding the socioeconomic development of communities that depend on fishing (by defining strategies tailored to a given area) and (ii) diversifying the fishing industry so as to foster respectful and sustainable harvesting activity. The FLAGs receive EU funds to help them achieve these goals. Seven FLAGs have been established to cover all of Galicia's coastal fishing zones, so small-scale fishers are represented by guilds that implement local development initiatives in

fishing-dependent communities. It is relevant to note that the FLAGs have neither the power to review nor to propose new legislation that affects them in their activity.

In short, there is a high degree of regulatory decentralization in Spain, but it's a transfer of powers and jurisdiction from the national government to the regional ones. The common fisheries policy, following the last reform, tends towards greater decentralization and regionalization of fisheries governance with the creation of Regional Advisory Committees. In this way, the high competences of the regional government of Galicia respond to this European trend. The role of fishermen in fisheries governance is their involvement through the advisory bodies, which take into account their opinions, their observations and their claims, although only in a consultative manner and not binding. In general, fishermen do not actively participate in the decision-making process. Although fishers express their opinions on fishery policy measures—through a guild, fishing association or AC—, it may be easily ignored by government. In order to ensure real power to fishermen's associations, it would be advisable to include them in regional government bodies. However, it would also be convenient if the government could recover full decision-making capacity due to negative management results. The Galician sector of small-scale fishing is represented by 63 guilds located in most of the Galician ports. In 2017, these guilds comprised 8,379 workers and 3,951 shipowners (figures that include shellfish harvesting on foot, longline and small trawlers, and small-scale operators).

#### **4. Fishers' views of greater participation in decision making**

Data on respondents' views were collected through both qualitative and quantitative approaches. The qualitative approach consisted of focus group discussions with fishers' representatives and regional and local policymakers. Quantitative data were collected using face-to-face interviews with fishermen. The survey was conducted in order to determine what fishers in the small-scale sector think about greater participation in the decision-making process. The survey asked fishers to indicate, on a 3-point Likert scale, the extent to which they support greater participation on their part in the process of deciding about fishery management measures. Thus participants could respond to each survey statement as follows: 1 (disagree), 2 (neither agree nor disagree), or 3 (agree). As described previously, fishers in Spain can already at least respond to proposed measures through guilds and/or Advisory Councils. Therefore, it was explained to survey participants that “increasing participation” implies being included

in the decision-making process, playing an active role in fishery management, and having the option to take the lead and submit proposals directly to policy makers. It was generally understood that local management objectives could not conflict with Spanish or European ones.

Information on fishers' opinions about the participation levels of governments and other stakeholders (e.g., non-fisher AC and FLAG participants) in order to determine the degree of legitimacy that these entities have among small-scale fishers. Hence the survey was designed to account for attitudes toward various particular institutions. More specifically, we included the following organizations (which, along with fishermen's guilds, participate in ACs and/or FLAGs): producer organizations, unions, marketers, seafood product processors, scientists and technical experts, and ecology associations. With regard to public authorities, we distinguished between the EU, Spanish, and Galician governments. And because we sought to describe views on co-management, the survey included several resource management areas concerning which fishers' participation could be increased. As a result of the interviews with the target groups, it has been concluded that the main areas where fishermen can increase their decision power would be the following: who can enter the fishery (number of fishers), regulatory instruments (territorial use rights in fishing—TURFs—, individual transferable quotas—ITQs—, fishing effort and inputs), supervision of compliance with fishery rules, identification of areas for sport fishing (as suggested by results from our pilot survey), and the size and location of marine reserves. It is relevant to explain to whom the fishing permit is granted. In Galician small-scale fisheries, the fishing permit is granted under the possession of historical fishing rights. In the event that there is a vacancy, it is the association who, under a rigorous waiting list, grants permission to the first member of the list.

Before conducting the pilot survey, we contacted various fishermen's guilds to present the project and request their collaboration. Following adoption of the final survey, individual interviews were conducted (by telephone) between May and September 2018. In total, 1,093 surveys (average length: 15 minutes) were completed. The survey response rate was 61 per cent and was considered quite satisfactory by the authors. The chosen method of telephone calls is due to the fact that it is a more flexible and economical method than personal surveys, since one does not have to travel to conduct interviews and there is greater time flexibility. On the other hand, the possibility that

the interlocutor ends the interview abruptly is greater than in those carried out personally.

**Table 3.** Fishers' views on the increased participation of different entities in the decision-making process

	% Response			Mean (± SD)
	Disagree	Neutral	Agree	
<i>Organizations</i>				
Guilds	0.1	2.6	97.3	2.96 (0.31)
Producer Organizations	1.1	19.1	79.8	2.73 (0.25)
Trade Unions	8.3	5.4	86.3	2.89 (0.34)
Traders	33.7	54.7	11.6	1.79 (0.62)
Seafood industry	48.5	42.4	9.1	1.52 (0.87)
Scientists/Technicians	8.1	27.6	64.3	2.47 (0.72)
Ecologists	81.9	16.2	1.9	1.03 (0.73)
<i>Public Administrations</i>				
European Union	8.8	43.3	47.9	2.13 (0.57)
National government	44.8	46.9	8.3	1.65 (0.66)
Galician government	0.5	6.4	93.1	2.91 (0.35)

*Notes:* Respondents evaluated survey statements on a 3-point Likert scale: disagree (1); neutral, neither agree nor disagree (2); agree (3). SD = standard deviation.

Table 3 summarizes the results from survey of small-scale fishers on the proposed increased participation of organizations and public administrations. This fisheries sector was clearly in favour of increased fisher participation (through the guilds) and also favoured—albeit to a lesser extent—the increased participation of unions, producer organizations, and scientists. The approval of union participation reflects their long tradition in the Galician small-scale and coastal fishing sectors, where unions have staunchly defended fishers’ interests before the regional government (in such matters as weekly rest, on-board safety, affiliation to a specific social security system, compensation for polluting, etc.). However, the fishers did not favour increasing the participation of the food industry or of ecology associations. These views were evidently based on the belief that those groups already participate sufficiently through the ACs and FLAGs.

With respect to public administration, most fishers were in favour of the Galician government participating even more in fishery management (often citing the regulation of fishing gear). Survey respondents stated that they viewed local government as being closer to their problems and as being better able (and more motivated) to support their interests than is the Spanish government; others noted their greater capacity to influence regional than national (much less supranational) government administrations. Fishers were somewhat in favour of increased EU participation, although many were neutral in that regard. Respondents were generally neutral regarding greater participation by the national government in the decision-making process.

**Table 4.** Fishers’ views on their increased participation in the decision-making process: Topics

	% Response			Mean (± SD)
	Disagree	Neutral	Agree	
Number of fishers	37.9	46.8	15.3	1.87 (0.45)
Regulation mechanisms	0.1	3.7	96.2	2.77 (0.87)
Monitoring of compliance with rules	18.7	6.4	74.9	2.59 (0.55)
Delimiting sport fishing zones	21.8	20.8	57.4	2.14 (0.63)
Establishing marine reserve areas	49.3	4.6	46.1	1.98 (0.89)

*Notes:* Respondents evaluated survey statements on a 3-point Likert scale: disagree (1); neutral, neither agree nor disagree (2); agree (3). SD = standard deviation.

Table 4 summarizes fishers’ responses to questions concerning the topics on which their increased participation—in the decision-making process—might be desirable. The results show fishers are clearly in favour of collaborating on the design of regulatory mechanisms and of participating in the supervision and control of fishery regulations; they are also interested (though somewhat less so) in setting the boundaries for

recreational fishing areas. With regard to particular regulatory mechanisms, those surveyed were interested in devising criteria for allocation of catch quotas and fishing effort, in regulating fishing gear, and—for some fisheries (the octopus fishery was cited)—drawing up multiyear rather than annual management plans in collaboration with scientists and governments. Respondents indicated that they are the ones most familiar with the sector's socioeconomic situation and with the possible effects of a new measure on fishing communities. As for monitoring fishery regulations, the surveyed fishers favoured participating in the control of fishery landings, effort, and inputs. Their interest in helping to mark off areas for sport fishing extended to catch quota decisions, since that type of fishing activity affects their own economic yield. Respondents were neutral about helping to decide how many fishers can exploit a fishery, and many stated that this should be a government decision. Finally, the results indicate that preferences among the responding fishers are well balanced in terms of helping to define marine reserves: those located closer to where a marine reserve already exists were in favour of such participation; those disinclined to address the topic stated that they had not enough information to participate in such decisions and/or that they expected to be negatively affected by the permanent closing of any current fishing areas.

## **5. Conclusion**

Despite the past decade's increased decentralization of Spanish fishery management, there remains much to be done in developing relevant governance mechanisms and moving toward co-management. The EC (2009) recommended limiting top-down co-management strategies and increasing fishers' participation in the decision-making process—toward the end of enhancing both institutional legitimacy and the likelihood that regulatory measures will be successfully implemented. At the European level, the last few years have seen increased levels of research on decentralization, delegation of responsibilities, and greater participation of fishers in fishery management (Coglan and Pascoe, 2015). It has been argued that introducing co-management measures is easier in fisheries that already have a tradition of participation and cooperation among groups of fishers, a description that fits the Galician small-scale fisheries sector.

For this study, information on how that sector's fishermen view increased participation in the decision-making process was collected. In general, they favour moving toward fishery co-management in designing appropriate regulatory measures for fishery



management, monitoring the compliance of fishery regulations, and demarcating areas for sport fishing. Respondents view the initiatives taken by some Galician guilds to manage certain sedentary species in a positive light. Extending this type of management to other marine resources might be feasible at a more local level—especially for the small-scale sector we study—in such matters as: collectively deciding when to extract the catch quota assigned (for species subject to a TAC); deciding, in conjunction with the regional government and scientists, on catch quotas for unregulated species and on the distribution of those quotas among fishers so as to avoid market saturation and thereby maintain or even raise prices (often these species are highly valued in local markets); and establishing, again in collaboration with government and scientists, marine reserve areas to promote the reproduction of fish stocks that are of commercial interest.

The fishers in this sector would clearly like to increase their participation in the decision-making process. In the event they do proceed toward co-management, governments must decide to what extent—and on what issues—fishers could more actively collaborate. Although co-management is not a panacea for resolving all fishery management problems, increasing fishers' participation in the decision-making process can only improve the chances that management measures will be successfully implemented. It follows that the regional government could launch pilot initiatives to test the viability of measures intended to increase the income derived from fishing, to foster socioeconomic development in coastal communities, and to increase the sustainability of marine resources.

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