
Community-based management of the Mediterranean coastal fisheries: Historical reminiscence or the root for new fisheries governance?

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Abstract :

Historical management experiences of Mediterranean community-based fisheries were particularly effective in fostering both social cohesion and sustainable utilisation of coastal resources. This figure contrasts with the current status of Mediterranean fisheries, where about 90% of stocks are overexploited. The key question then is: can past experiences guide our current approach to reshaping governance in the Mediterranean fisheries? In our effort to answer this question, we analyzed the main attributes of selected fishing governance systems in the Early and Mid-Modern period and their evolution through time. We focussed on the Spanish *Cofradías*, the French *Prud'homies* and the Venetian *Fraglie* (Italy). They were characterized by the establishment of territorial user rights system of management and governed technical aspects of the fisheries, market access, and restrictions. Fishers and their communities, through their corporations/organizations, were directly involved in legislating and enforcing management policies and regulations/rules. This approach to fisheries management differs from the one introduced by the EU Common Fisheries Policy (CFP), established in the late 1970s, which was mainly top-down. Despite the systematic efforts to reduce fishing capacity and pressure on marine resources and to impose severe technical and restrictive measures, Mediterranean fisheries are still in bad conditions. To cope with this situation the EU recently reformed the CFP establishing, among other things, a new paradigm that seeks to foster the harmonization of the decision-making process in the context of the so-called "regionalisation" of fisheries management. However, this policy does not clearly establish a proper community-based approach and restricts participation to national fishers' associations in the context of the Advisory Council of the Mediterranean Sea. Without effectively linking local and regional fisheries management structures by engaging fishers and re-establishing a sense of community through providing community-based rights for fishing, this new effort will likely not succeed in achieving Mediterranean fisheries sustainability.

Highlights

► *Cofradías*, *Prud'homies*, *Fraglie* were historical forms of fishers' organizations. ► They regulated fishing activities and access to fishery resources in coastal areas. ► Their role is now less relevant in Mediterranean fisheries management. ► The Common Fisheries Policy is now shifting towards a regionalized approach. ► These entities might play a role in linking local to regional fisheries management.

Keywords : Co-management, Common Fisheries Policy, *Cofradías*, *Prud'homies*, *Fraglie*, Advisory council

52 1. Introduction

53 The Mediterranean Sea is a Large Marine Ecosystem characterized by a high biodiversity and a long
54 history of fishery exploitation, dating back to the Paleolithic period (approx. 20.000 years B.C.; Coll
55 et al., 2010). From historical times marine resources exploitation was characterized by the prevalence
56 of small-scale fisheries (SSF) mostly operating in coastal and inshore areas. Similarly, at present
57 about 80% of Mediterranean Sea fishing vessels belong to SSF (FAO, 2016). Fishery resources are
58 showing high signs of overexploitation, with about 90% of assessed stocks exploited above Maximum
59 Sustainable Yield (MSY) limits (Tsikliras et al., 2015).

60 This condition represents a clear failure of both the General Fisheries Commission for the
61 Mediterranean (GFCM) and the European Union (EU) fisheries policies, executed through the
62 implementation of Common Fisheries Policy (CFP). All EU Member States sharing national waters
63 in the Mediterranean Sea, i.e. Spain, France, Italy, Croatia, Slovenia, Malta, Greece, and Cyprus are
64 supposed to implement the policies and regulations of the CFP related to Mediterranean Fisheries
65 management. According to Cardinale and Scarcella (2017), the failure of EU fisheries management
66 in the Mediterranean Sea is a result of the limited effectiveness of the approach based on the
67 establishment of technical measures and fishing capacity/effort limitations. In particular, the adoption
68 of policies aimed at reducing fishing capacity (e.g. by decommissioning part of the fleet) and fishing
69 effort (e.g. limitation of days at sea) as well as some technical restriction on fishing gear, did not
70 result in a tangible reduction of fish mortality on targeted stocks. Evidently, the weakness of
71 Mediterranean fisheries management is the result of low level of compliance and non-enforcement of
72 rules, the continuous non-adherence to scientific advice and the ineffectiveness of national
73 management plans (Cardinale and Scarcella, 2017).

74 However, these technical explanations seem to represent only one part of the story. Indeed, until
75 recent years, the European Commission and Council of Ministers mainly based the governance
76 system adopted by the EU through CFP (revised in 2002 and 2013 since its inception in the 1970's)
77 on a top-down approach. Since the 2002 CFP reform, the decision-making process was changed
78 through the establishment of the Regional Advisory Councils (RAC), later renamed Mediterranean
79 Advisory Council (MEDAC). Advisory Councils re-established the relationship between all the
80 stakeholders in the Mediterranean fisheries (industry, fishers, non-governmental organizations,
81 consumers etc.). The main aim of the Advisory Councils is to advise the European Commission on
82 all new regulations, rules and sub-regional fisheries management plans. This fundamental change in
83 the decision-making processes was complemented by the co-decision power given to EU Parliament.
84 These two fundamental changes diminished the power of the Commission over resources
85 management but did not substantially improve local fisher communities' participation in the resource
86 management decision-making process. This is because fisheries management was mainly oriented to
87 satisfy the needs and aims of large-scale vessels targeting both demersal and small/large pelagic fish,
88 and not SSF that is more rooted in fisheries communities.

89 Such approach contrasts with historical experiences of local management in the area that were
90 characterized by diverse forms of locally-rooted fisheries co-management approaches, as in the case
91 of *Cofradías* (Spain), *Prud'homies* (France) and *Fraglie* (Italy). Territorial use rights for fisheries
92 (TURFs), access restrictions to resources (given only to male members of the community) and
93 technical restrictions characterized these organisations. Fishers and their communities/corporations
94 were directly involved in establishing and enforcing management rules. These characteristics of local
95 based management are similar to some of the key attributes of co-management, which is currently
96 regarded as a potential alternative or a complementary approach to top-down management, being
97 suggested as a means that could allow achieving sustainability goals (Gutierrez et al., 2011).

98 In a global study of the attributes of co-management systems in fisheries, Gutierrez et al. (2011)
99 identified several variables that should allow for the prediction of the potential success of co-
100 management. These included strong leadership; the presence of catch sharing by quota; the
101 establishment of TURFs; the presence of Marine Protected Areas (MPAs); social cohesion; and self-
102 enforcing of regulations.

103 Jentoft (2003) defined co-management or community-based management as the collaborative and
104 participatory process of regulatory decision-making between representatives of user groups,
105 governmental agencies, research institutions, and other stakeholders. According to Gutierrez (2013),
106 co-management refers to a set of arrangements with different degrees of power-sharing, allowing
107 joint decision-making by the decision state and user groups about a set of resources or an area.
108 Moreover, it entails institutionalized arrangements for users' participation in management and
109 decision-making. Accordingly, *ad hoc* public participation in management decisions or mere
110 consultation is often not regarded as co-management (Gutierrez, 2013).

111 Whilst this definition would include MEDAC establishment as a co-management tool acting at
112 regional (i.e. Mediterranean) scale, we point our attention to the engagement of local communities in
113 co-managing local fishing, and its relation to broader scale management. In particular, in this paper,
114 we reflect on the historical features that characterized local fisheries management systems and their
115 evolution in the Mediterranean Sea. The aim is to understand whether such experiences could
116 contribute to improving the current governance and achieve fisheries sustainability in the
117 Mediterranean Sea.

118 To achieve this research aim, we applied the following approach:

- 119 i) We described the historical evolution of *Cofradías*, *Prud'homies*, and *Fraglie* since their
120 establishment to the present and investigating the presence of the attributes of success
121 identified by Gutierrez et al. (2011);

122 ii) We described the last process of evolution of CFP in the Mediterranean Sea, reflecting
123 on its capability to foster more decentralized governance and the growth of the direct
124 involvement of local fisher communities in co-management.

125 This analysis led our discussion on how to improve fisheries management in the Mediterranean Sea,
126 with a special focus on SSF and local fishing communities.

127

128 **2. Historical evolution of local fishery management systems in the Mediterranean Sea**

129 **2.1 The Spanish *Cofradías***

130 Contrary to common belief, the present *Cofradías*, as evidenced in the last seven decades, are not the
131 same organization as for how they existed before in the Spanish Mediterranean fishing sector
132 (Alegret, 1996; Fig. 1). The *Cofradías* were created as public law corporations in 1943, naming them
133 with the same ancient designation of the religious medieval organizations *Cofradías*, literally
134 meaning ‘brotherhood’ (Alegret, 1999a).

135 Before this, the fishing sector had different organizational structures in each historical period. In
136 medieval times (from the XII to XVII centuries), *Cofradías* existed as religious associations dedicated
137 to the service of saints, but also to a certain extent, concerned with the welfare and rescue of captives.

138 From the XVIII century, the *Gremios*, which generally took the name of guilds of sailors or/and
139 fishers, were the only type of organization until their dissolution halfway through the XIX century
140 with the arrival of liberalism. They were characterized by complex decision-making and regulatory
141 systems, which defined access rights for fishing in delimited areas, usually on limited sectors of the
142 coastline, in relation to their spatial fishing area. They also had the power to impose fines against
143 infringements. From this time and until the beginning of the dictatorial period, various forms of
144 organizations appeared such as the *Mutualidades* (mutual benefit societies); *Montepíos* (charitable
145 funds for dependents, friendly societies); *Pósitos* (association for cooperation or mutual aid between

146 workers); *Cooperatives*, the *Ligas* (Leagues); *Hermandades* (Brotherhoods); the *Sociedades*
147 *Marítimas* (Maritime Societies); *Sindicatos* (Trade Unions), etc.

148 At present each *Cofradía* undertakes the role of regulator and controller of access to resources for
149 each of the different fleets operating within their territorial limits (base ports). Depending on the kind
150 of fleets operating - small scale, trawling, longliners, purse-seiners - each *Cofradía* establishes for
151 each of these fleets the schedules for port entry and exit and possible close season periods. Moreover,
152 it stipulates a complete set of specific local norms for the area under its jurisdiction, including the
153 specific zones of fishing activity for each type of fleet in accordance with the geographical,
154 ecological, historical and social peculiarities of each place. That means they participate with the state
155 in a co-management system centred on the Control of the Fishing Effort and not on the Total
156 Allowable Catches (TACs) as applied in northern Europe.

157 The most important factor concerning the function of the *Cofradías* as mediator bodies is that they
158 provide a social and legal arena wherein the majority of the conflicts arising within the sector can be
159 resolved without asking for assistance from other institutions. Law determines the internal structure
160 of the *Cofradías*. Given their corporate nature, all interests represented in the sector are given full
161 representation by the law, without distinction/discrimination. However, within the organs of
162 government and its representative bodies, the main distinction is between what is understood as the
163 “economic part” (ship-owners/owners of the means of production), and the “social part” (sailors/those
164 who sell their labour force). In this way, the interests of both groups are formally, equally and jointly
165 represented in each governing body within the *Cofradía*.

166 The *Junta General* (general meeting) and the *Cabildo* (executive group) are organs which have equal
167 representation from both the “economic” and the “social” parts through an election process which
168 occurs every four years. However, neither the *Junta* nor the *Cabildo* act as mediating organs, since
169 they limit themselves to the role of compliance with functions of representation and deliberation. In
170 this context, the mediating figure *par excellence* is the *Patrón Mayor* (Main Skipper), elected among

171 the members of the *Cabildo* and representing the president of the organization. The *Patrón Mayor*
172 acts as a “good and true man” in solving the majority of conflicts arising within the sector and thus
173 contributing to the continuity of the long Mediterranean tradition of the Catalan *Prohomens* or the
174 French *Prud’homies* (described in the next section).

175 Since 1987, the new democratic state tried to introduce in the fishing sector (however unsuccessfully
176 until recent times) a new type of fishers’ organization proposed by the European Economic
177 Community (EEC), i.e. the Fishers Producers Organisation (FPO). FPOs fundamental objective was
178 making possible that catches were adjusted to meet demand and that the producers benefitted from
179 their participation in the marketing process, something that the historical *Cofradías* did not do. The
180 reasons for this failure need to be found, amongst other things, in the socio-political cost that would
181 have resulted from displacing the *Cofradías* from their role. This change would have created a power
182 *vacuum* that would provoke an increase in social and political costs, in many aspects not comparable
183 to the reduction in transaction costs that theoretically they could have gained with the implementation
184 of the FPOs (Alegret, 1999b).

185 However, the problem of adjusting captures to demand and the participation of the fishers in the
186 process of marketing continues to be a real and very significant problem. Now, the *Cofradías* and
187 their Federations are incapable of responding to the changes imposed by the market, leading the
188 *Cofradías* to a situation of quasi non-operation in the representation of the global market interests of
189 the sector, and more specifically to lose bargaining power in front of the merchants that now dominate
190 the process of assigning prices. In addition, *Cofradías* are losing power in front to the administration,
191 that began not seeing them as the true co-management instruments (as they were historically), with
192 consequences that will be difficult to foresee.

193

194 **2.2 The French Mediterranean *Prud’homies* and Regional Fisheries communities**

195 Ninety percent of fisheries activity in French Mediterranean (Fig. 1) is practised by fishing vessels
196 less than 12 m long, using different types of gears, longlines, gillnets, pots, and others, targeting
197 different species according to seasons and changing gears according to the targeting species (SSF).
198 The species having the highest commercial value are flatfish, hake, sea bream, eels, molluscs, and
199 crustaceans (WWF, 2009).

200 Nowadays, in French Mediterranean there are two main organizations regrouping all active fishers.
201 The first and oldest is the *Prud'homie*, established in 1000 and regrouping mainly small-scale fishers;
202 the second is the Regional Committees of Fisheries (CRPM), established in 1945 and reformed
203 several times. Nowadays, there are 32 *Prud'homies* of variable size (Decugis, 2009) in the state of
204 membership and territory, and 3 CRPM covering larger territories (Province Côte D'Azur,
205 Languedoc-Roussillon and Corsica). Both organizations are elected by fishers and have the
206 responsibility of one territory in which they must manage the fisheries activity.

207 Some differences exist between the two organizations. Firstly, *Prud'homies* are local organizations
208 and represent somehow the communities, while CRPM act in larger territories. The second difference
209 is that *Prud'homies* members are mainly small-scale fishers, while those of CRPM belong to all
210 fishing fleets (SSF, purse seines, and trawlers). For many years, big boat owners dominated CRPM
211 decisional bodies. This situation temporarily changed in 2012, when the SSF won the elections, but
212 could change with the next elections.

213 The *Prud'homies* are a Mediterranean institution and, according to some researchers (Chaboud et al.,
214 2015), their birth can be explained by the presence of a big number of lagoons on this coastline and
215 the necessity to manage the activity of different gears within lagoon's territory. The first *Prud'homie*
216 was established in Marseille, and all persons practising fisheries should be members. *Prud'hommes*,
217 experienced fishers elected by local fishers, had the power to regulate fisheries activities of different
218 gears operating within their territory with the objective to prevent conflicts and clashes between
219 fishers. This type of organization stemmed from the brotherhoods and the corporations of the Older
220 Regime, since *Prud'homies* were not abolished during the Revolution like other corporations (Faget,

221 2013, Féral, 1990). Indeed, representatives of the *Prud'homies* of Marseille had pleaded their case in
222 front of the Constituent Assembly by bringing up the support that fishers brought to the revolution
223 and about the importance of their organizations to ensure the social peace within coastal communities.
224 Therefore, *Prud'homies* were confirmed in their attributions by the Assembly and were allowed to
225 spread to others fisheries communities where they did not exist.

226 Nowadays, almost each fishing community has a *Prud'homie*, which manages, regulates and
227 supervises its fishing territory (Décugis, 2009; Frangoudes, 1997, 2001, 2005). They are democratic
228 institutions and regroup only the boat owners. All members vote regulations concerning fisheries to
229 the majority at the end of each general assembly. *Prud'homies* action concerns only small gears,
230 lagoon fishing, and SSF. *Prud'homies* represent a strong identification between a community and its
231 fishing territory (Cazalet, 2013; Décugis, 2009; Féral, 1986a,b; Frangoudes, 1997; Tempier, 1985,
232 1986).

233 Thus, the *Prud'homies* manage fishing activities with few main objectives. The first is to guarantee
234 an equitable distribution of resources between fishers. The drawing lots of fishing posts or the strict
235 regulation of access conditions, which are mutual for fishing areas managed by neighbouring
236 *Prud'homies*, are also an illustration. The study of conflicts arbitration between fishers within a group
237 shows that this argument of equity, which is defined by “each one must live correctly of his trade”,
238 holds a central place. Then, they manage the resources exploitation by implementing different
239 limitations: exit time, the size of the net meshes or seasonal interdictions of fishing. Finally, the
240 *Prud'homie* controls the access to the profession avoiding a strong growth of the number of fishers,
241 which would question the right of each fisher to “live correctly of his trade”. However, a responsibility
242 feeling towards the local society counterbalances this restrictive vision. “The most important number
243 of families must live decently of fishing” or “fishing cannot be refused to person not having another
244 possibility of livelihood” are arguments found in *Prud'homies* archives. Of course, these principles
245 are far from the liberal argumentation, which characterizes some current speeches in favour of
246 resources privatization.

247 The *Prud'hommes* are elected by the Assembly and have jurisdictional functions. They can judge
248 conflicts between fishers or the infractions committed within the territory under their responsibility.
249 They are also the guarantor of the respect of non-written rules. Their juridical existence is limited to
250 the conciliation of conflicts affecting the social order of fishers' community operating on a given
251 territory.

252 *Prud'hommes* are enjoying important powers within the French constitutional context (right of
253 judgment and no contesting of the judgment), but their action field in the practice is reduced compared
254 to the Spanish *Cofradías*. The political and institutional evolution of France has done that the
255 *Prud'homies* have been more tolerated than encouraged. During a time, they have been viewed as a
256 model to generalize on the whole of maritime facades. After, they have been submitted to a constant
257 pressure, which aims to reduce their means and their action field for the benefit of a national
258 pyramidal and professional structure, the Local Fisheries Committees, and the National Committees.
259 These organizations, which at the beginning were not elected and did not have competency in
260 resources management, evolved with time. Different changes of the laws (1992, 1998, and 2010)
261 accorded to them the power to manage the resources within the 12 nautical miles (NM) area belonging
262 to the maritime territory of the regions. Boat owners, crew members and employees of fishing
263 enterprises elect decisional bodies of the committees. Producer's organizations participate also to the
264 committees. Nowadays, Regional and National Fisheries committees are responsible for resolving
265 conflicts between gears occurring within the 12 NM zone under their territory, produce management
266 rules (e.g. seasonal or areas closures) and deliver licenses based either on gear basis (nets, trawlers,
267 purse seines) either on species.

268 At the Mediterranean level, the different reforms of the committees divided the skills between the
269 two institutions: the *Prud'homies* have the conciliation power and resources management at local
270 level, while the fisheries committees have the power of resources management at regional and
271 national levels. The *Prud'homies* are independent from the fisheries committees and still conduct their
272 activity in the same manner as in the past. Fishers elect 4 to 7 *Prud'hommes* every three years, having

273 the responsibility to manage the activity within a defined territory, which is growing due to the
274 decreasing number of fishers. Nowadays, *Prud'homies* are involved in the conservation of marine
275 biodiversity. For example, the *Prud'homie* of Saint Raphael designated an area of 400 hectares
276 reaching up to 80 m of depth as fisheries reserve (Décugis, 2009).

277 Although the objective of the two organizations (*Prud'homies* and CRPM) remains the same, namely
278 resources management, the main element that differentiates them is an issue of power. Within the
279 committees, power is held by the larger fleet to the detriment of small-scale fleets, while in the midst
280 of *Prud'homies* power continues to be an affair of SSF.

281

282 **2.3 The Venetian *Fraglie* and their heirs**

283 From the XI to the beginning of the XIX centuries, during the *Repubblica Serenissima* domain, in the
284 Venetian lagoon (Northwestern Adriatic Sea, Fig. 1) fishers were organized in corporations called
285 *Fraglie*.

286 The *Fraglie* were directly involved in resource ownership and management, their own interests being
287 to exploit resources in a sustainable way. The *Fraglie* had an exclusive control over some fishing
288 grounds, where only fishers affiliated to the corporation were allowed to fish, introducing a sort of
289 “restricted access” in lagoon resource management (Fortibuoni et al., 2014). Moreover, these
290 corporations had the power to repress abuses, control and punish fishers who did not respect
291 regulations and denounce them to the *Repubblica Serenissima*. The punishment was severe, including
292 the cutting of ears, imprisonment, and the impoundment of boats and fishing gear (“*Senato Veneto*”
293 decree of 3 October 1760).

294 Every two years, the *Fraglie* elected two old and skilled fishers, who were responsible for controlling
295 fishing activities. The Venetian Authority had to consult the fishers’ representatives belonging to the
296 *Fraglie* when implementing laws regarding fishery management, in order to take advantage of their
297 experience and traditional knowledge (Scarpa, 1996). Regulations governed restrictions on fishing

298 gear, fishing seasons, the number of fishermen, the commercial size of fish, their conservation and
299 trade.

300 The direct involvement of fishers' corporations in fishery management in a sort of early co-
301 management scheme ensured the effectiveness of adopted legislation (Levi-Morenos, 1919) and
302 avoided the so-called "tragedy of the commons" (Hardin, 1968). Indeed, it was in the fishers' interest
303 to preserve lagoon resources in the long term.

304 The fall of the *Repubblica Serenissima* in 1797 was followed by a progressive deregulation of fishing
305 activities that was probably a consequence of the political instability of the area and of the widespread
306 poverty that afflicted local inhabitants (Levi-Morenos, 1919; Neil, 2002). Formally, during the
307 occupying French "Provisional Government of the Municipality of Venice" (1805–1814) and later
308 during the first decades of the Austrian government, many of the laws and regulations concerning
309 fishery were maintained. However, the real novelty introduced by the Austrian government was the
310 abolition of all of the corporations, including fishers' corporations. The abolition of the *Fraglie*
311 resulted in a shift from restricted (controlled) access to open access to the fishery. By abolishing the
312 *Fraglie*, an efficient tool for the management of lagoon resources was removed and, as a result,
313 towards the end of the Austrian domination the control of fishing activities was less rigorous while
314 private interests (e.g. illegal fry fishery) began to predominate (Levi-Morenos, 1919).

315 By the end of the XIX century, a dramatic decrease in yields was observed, and the widespread use
316 of prohibited gear and the general lack of controls by the authorities were considered the main causes
317 of the decline in the abundance of fish (Fortibuoni et al., 2014). Control and monitoring are two basic
318 requirements to ensure the sustainability of socio-ecological systems (Ostrom, 2009), and since the
319 end of the XVIII century, they were guaranteed by the *Fraglie*. Indeed, legislation of the *Repubblica*
320 *Serenissima* mainly based the repression of illegal fishing on *Fraglie* (Fortibuoni et al., 2014).

321 In the 20th century fishery in the lagoon became over time less important. Nowadays, fishers are
322 grouped into local cooperatives, whose role is mainly to support members for practical administrative

323 issues, as well as providing them information on management rules under development. Most often
324 local cooperatives belong to regional branches of national fishers' organizations that represent the
325 main actors in relation to the regional and national central administrations. Various fishing métiers
326 are represented within national and regional fishers' organizations. This results in the challenge of
327 finding the balance between the needs of individual members and the fishing métier (Buonfiglio et
328 al., 2011). In addition, fishers' organizations have a limited capability to influence and guide fishers'
329 activities toward more sustainable and economically efficient fishing practices. Only in some specific
330 sectors and areas, e.g. SSF in Sicily (Raicevich et al., in press, a), Local Management Plans were
331 established with the direct engagement of fishers in defining management rules.

332 In the case of Veneto Region, the administrative area where the Venice lagoon is located, recently
333 (2017) a consortium involving small-scale fishers was established. However, this group is still far
334 from presenting the same specificities and power of the *Fraglie*. Indeed, most of the representative
335 power is held by regional fishers' organizations (three main federations, which were established after
336 World War II, and two new federations). In this geographical context, some FPOs (e.g. small pelagics,
337 bivalves) are also present as well as consortiums. Overall, this condition leads fishers to the perception
338 of being out of the management decision-making process, with a general mistrust in relation to
339 fishers' representatives' capability to really represent fishers' interests (Raicevich and Giovanardi,
340 2013; Raicevich et al., in press, b).

341

342 **3. Common Fisheries Policy (CFP) in the Mediterranean Sea: from top-down to regionalized** 343 **approach**

344 Traditional local fisheries management systems of the Mediterranean Sea had to face, in the last sixty
345 years, the application of policies defined at European level in the context of the CFP. Within the
346 Treaty of Rome (EEC, 1957), fisheries management rules were embedded into the Common
347 Agricultural Policy. Indeed, Article 38 of the Treaty defines agricultural products as 'the products of

348 the soil, of stock-farming and of fisheries and products of first-stage processing directly related to
349 these products'. The first attempt to regulate fishing as a separate entity resulted in issuing in 1970
350 the Regulation 2141/70 (EEC, 1970a) laying down a "Common Structural Policy for the Fishing
351 Industry" and Regulation No. 2142/70 (EEC, 1970b), that dealt with the common organization of the
352 market in fishery products (Song, 1995; Churchill, 1977). The principle of equal access to fishing
353 zones (beyond national waters, at that time set at 3 NM from coastline) was partially revised in 1972
354 owing to a compromise (i.e. 10 years derogation) established with the new members accessing the
355 EEC, i.e. Denmark, Ireland and United Kingdom, who were willing to protect their national fishing
356 interests (Song, 1995). In 1976 the Commission, considering the spread of 200 NM Exclusive
357 Economic Zones (EEZs) in the North Atlantic States, established a series of proposals later on
358 adopted by the Council, that fostered the adoption by the North Sea and North Atlantic member states
359 of the extension of their fishing limits to 200 NM from the beginning of 1977 (Song, 1995).

360 In 1983, a set of Council Regulations defined the objectives and instruments of a coherent CFP. The
361 Regulation 170/1983 (EEC, 1983) established arrangement on the marketing policy, the adoption of
362 TACs, technical conservations measures and the structural policy. However, many shortcomings
363 arose over time, including the mismatch between quota set by member states in relation to scientific
364 advice, high discarding rates, lack of long-term perspective in scientific advice, overcapacity and so
365 on (Song, 1995).

366 This prompted to the revision of the CFP in 1992 (Regulation (EEC) No 3760/92; EEC, 1992) that
367 contained structural measures to reduce fishing capacity along with the establishment of effective
368 licensing systems. Given the little results on preventing overfishing, a further reform was set in 2002
369 (Framework Regulation (EC) No 2371/2002; EC, 2002) with the primary objective of ensuring a
370 sustainable future for the fisheries sector while preserving marine ecosystems.

371 The regulation established the RACs to increase the engagement of fishers, scientific experts,
372 representatives of other sectors related to fisheries and aquaculture, regional and national authorities,

373 environmental groups and consumers. These advisory bodies should provide suggestions in the “pre-
374 decision phase” of management measures. However, the effectiveness of such approach, due to the
375 lack of clear derogation of power (i.e. providing RAC with an effective management role and power),
376 was considered by some scholars rather insufficient (Gray and Hatchard, 2003).

377 At Mediterranean Sea scale the regulation Reg. EC 1967/2006 (EC, 2006) introduced technical
378 limitations, minimum landing size and a range of technical measures which resulted in the
379 interruption of several fishing derogations formerly granted to some local fishing activities (Raicevich
380 et al., in press, a). The CFP was later on revised (Reg. 1380/2013; EU, 2013), introducing the target
381 of reaching by 2015 or 2020, at the latest, stock size compatible with MSY, along with landing
382 obligation. In reference to the focus of this paper, the regionalization was also established. Such
383 process enhanced the role of Advisory Councils as consultative bodies in the definition of regional
384 policies and, in particular, for setting multiannual long-term management plans. However, as noted
385 by Salomon et al. (2014), the reformed role of Advisory Councils will gain traction only if member
386 states will be willing to cooperate and develop together a coherent regional strategy, which will
387 anyway need the Commission approval.

388 According to the EU Regulation on European Maritime and Fisheries Fund (EMFF; Reg. (EU) No
389 508/2014; EU, 2014), the “implementation of community-led local development strategies
390 strengthening the role of fisheries communities in local development and the governance of local
391 fisheries resources and maritime activities” (art 63, EU 2014) is also part of CFP objectives. This
392 responsibility is given to the Fisheries Local Action Groups (FLAGs, already established as Local
393 Action Groups within the former CFP). This role is partially overlapped to the role historically played
394 by *Cofradías*, *Prud'homies*, and *Fraglie*. However, the composition of FLAGs is broader (i.e. not
395 only fishers, but also representatives of the public, private and civil society sectors), and their
396 objectives are more focused on increasing employment and territorial cohesion rather than on local
397 based management of fishery resources.

398

399 **4. Discussion**

400 This essay deals with the rediscovery of historical attributes of local fisheries management systems
401 and their current expression, and relates them to the evolution of EU CFP as implemented in the
402 Mediterranean Sea. What we have described so far are two parallel processes. On the one hand, the
403 shift from a relevant role of local fishing communities where, in historical times, access to fishing
404 (including TURFs, definition of local rules) were mediated by local self-organized bodies recognized
405 by the central state (Tab. 1), towards an increasing role of national states and their administrative
406 bodies, along with the emergence of fishermen national associations. On the other hand, the shift
407 from an EU command and control top-down approach towards a gradual enhancement of the
408 consultative role of regional bodies (Advisory Councils), whose effectiveness is determined, among
409 others, by the willingness of national states to collaborate (Salomon et al., 2014).

410 In the past fishers' communities focused mainly on ensuring the persistence of fishing to provide
411 livelihoods to their members (via the establishment of access rules to prevent foreigners' fishers to
412 exploit local resources, but also imposing technical limitations to fishing) and a sort of welfare
413 support to fishers and their families. These roles, over time, were only partially maintained due to the
414 emergence of the national states and of national fishers' organizations (France, Italy), or also, as in
415 the case of *Fraglie*, because such historical organizations ceased to exist.

416 In the last sixty years, the emergence of international policies within EEC and EU reinforced the role
417 of national states and national fishers' organizations in the designation of policies. Fisher's
418 organization, since the introduction of Advisory Councils, had the opportunity to be involved in the
419 process of fisheries management. However, while some historical local fishing organizations still
420 maintained a role to date, their capability to influence structural changes in fishing and its resources
421 at regional level became more limited. At the same time, the spread of overcapacity (first after World
422 War II and, then, with European Community) and the effects of technological innovation (as drivers

423 towards unsustainability, when not associated with access limitations), and markets globalization,
424 further increased the challenges to be tackled, making not possible to local communities to cope with
425 them. In such dynamic context (that includes also social transformations, e.g. the arrival to the
426 mainland of French fishers from Morocco and Algeria), with the overlay of multiple métiers (and
427 thus contrasting interests) and the emergence of the industrial fishery, local fishing communities lost
428 their historical capability to have their say into the management discourse.

429 Moreover, fisheries management has become a far more technical and scientific issue, being guided
430 by concepts that fishers hardly manipulate (e.g. MSY). In this context, the role of science as a provider
431 of the knowledge base to fisheries management becomes essential (Wilson et al., 2006; Wilson,
432 2009), and replaced almost completely fishers' knowledge. The latter is most often formulated
433 according to metrics (and languages) that are not easily compatible with standard science (Raicevich
434 et al., 2011).

435 Experiences developed among and beyond Europe in relation to participatory science shows,
436 however, that fishers can fruitfully collaborate with scientist to co-construct such knowledge base
437 (Mackinson and Wilson, 2014; Frangoudes et al., 2015, Stephenson et al., 2016), although there is a
438 need to find the right endpoint where such knowledge may contribute effectively in setting
439 management rules.

440 In the Mediterranean Sea, some successful examples exist. For instance, in the case of Spain, the local
441 *Cofradía* of Palamós in the Costa Brava, exploiting red shrimp (*Aristeus antennatus*) as the main
442 target species, was able, thanks to the collaboration with research institutions (Universitat de Girona;
443 CSIC) and NGOs (WWF), to put forward a Local Management Plan that was later on endorsed by
444 Spanish law (MAPAMA, 2013). Furthermore, small-scale fishers working in the Spanish
445 Mediterranean and in Tuscany (Italy) were able to establish two long-term management plans
446 (endorsed by EU, according to EU Reg. 1967/2006) for fishing sand eels (*Gymnammodytes cicerelus*)
447 and small transparent goby (*Aphia minuta*). Different stakeholders and scientific institutions
448 contributed to this process (Leonart et al., 2014; Raicevich et al., in press, a). Moreover, in Sicily, a

449 series of Local Management Plans pointing to co-management practices were established at the local
450 level, thanks to the collaboration between fishers, their organizations and research institutes
451 (Raicevich et al., in press, a).

452 Another example is represented by the *Prud'homie* of Saint Raphael, which established in 2003 the
453 first fishing reserve in Cap Roux representing 500 hectares (Seytre and Francour, 2008). The
454 *Prud'homie* of Saint Raphael manages this reserve and scientists of the University of Nice are in
455 charge of the monitoring of the main species targeted by professional and not professional fishers.
456 One of the main objectives of scientists is to identify the “reserve effect” within the area, but also in
457 the periphery of the area where fishers are operating (spillover effect). With the implementation of
458 this reserve, the *Prud'homie* is now not managing only professional fisheries but also recreational
459 activity occurring in the area.

460 Such experiences, however, are not spread in the vast majority of the Mediterranean Sea. The
461 capability to be further adopted is possibly linked to several local and regional conditions, including
462 the presence of actors willing to play a sort of facilitator role in the process (e.g. NGOs or research
463 institutes), along with the political will to adhere to such a process of power derogation.

464 In this context, the role of fishers' organizations (at both the national level and their local branches)
465 emerges. Indeed, they are influential members of Advisory Councils, and they are able to influence
466 national decisions and foster regional collaboration of member states. At the same time, the MEDAC
467 showed to be able to support the formulation of common visions and advice to EU on issues of high
468 relevance for the Mediterranean member states, like the landing obligation, or in its subareas (e.g.
469 discard plan of striped venus clam *Chamelea gallina* and long-term management plan of small pelagic
470 species in the Adriatic Sea). Thus, with the increasing role of national fishers' organizations in the
471 decision making related to fisheries management towards national and EU authorities, the key issue
472 of how local fishers' interests are represented and mediated, emerges.

473 In particular, the effectiveness of fishers' organizations in addressing this role is partially criticized
474 by some fishers. For instance, in a survey carried out within the ArtFISHMed project (dealing with
475 artisanal fisheries in the Mediterranean), about half of interviewed fishers of the Veneto Region (Italy)
476 considered the fishers' organizations not being able to represent their interests (ArtFISHMed, 2017)
477 at the national level.

478 We argue that, in the current situation, the critical point is represented by the respective role of local
479 communities and national fishers' organizations, in relation to two specific items: the capability to
480 represent specific local issues at regional scale, and the nesting of management practices from local
481 to regional scale and vice-versa. Attributes like "strong leadership" and "cohesion" (Gutierrez et al.,
482 2011) are needed not only at local level. In this light, the capability of mediating different interests at
483 the local level is essential but needs a strong democratic framework and forward-looking vision. In
484 particular, only establishing a sense of community (like in historical times), and agreed frameworks
485 to merge different management scales, could represent a potential solution to let local fishers be
486 engaged in the management framework.

487 In this context, the adoption of co-management approaches, where every single fisherman have an
488 active role and have a say, and where collective choices prevail on individual needs, seems to be an
489 inevitable passage. With multiple potential benefits, including an increased capability to monitoring
490 control and surveillance of the application of rules co-defined with fishers (Gutierrez, 2013).
491 Moreover, as pointed out by Bavinck et al. (2015), premodern fishers' organization could contribute
492 to management with their local knowledge, create social order, solve conflicts and assist in regulating
493 fishing effort.

494 Whether and how the chain of power from fishers' organization to national states and EU will allow
495 emerging such local practices in a structured condition in the Mediterranean Sea, is still to be
496 demonstrated. This would imply an effective bridge between top-down and bottom-up approaches,
497 and the necessity to develop the capability to co-construct proposals from the bottom and implement
498 them.

499 As already stated, co-management schemes would be instrumental, since by definition they need
500 collaboration among different administrative scales and stakeholders to be bridged. The latter key
501 factor could be achieved only if fishers will change their vision and institutions will complete the
502 process of power derogation that is linked to co-management. For instance, pertaining fishers, they
503 would need to shift from short-term to long-term strategies, and from single fisher to community-
504 wide perspectives, as well as to acknowledge the environmental effects of fishing facing the
505 challenges (and opportunities) that sustainability entails, including the need to engage in the
506 management discourse and relate to the policy environment. In the institutional context,
507 administrations should not only accept the challenge of sharing power, but also promote effective
508 actions to support such process. Examples include rearticulating roles and functions, to support
509 bottom-up community based experiences and skills, to adopt evidence-based management, to
510 promote participatory science and the development of new skills by fishers to enter into the adaptive
511 management discourse.

512 All this would also entail establishing a process that reconciles the needs of different métiers (e.g.
513 SSF vs. large vessels), and bridge knowledge systems and administrative/spatial scales (Reid et al.,
514 2006). The examples given above of the enforcement of LMPs for red shrimp, sand eels and small
515 transparent goby, as well as those related to LMP in Sicily and the fishing reserve in France, show us
516 that this goal has been already achieved, although in a small number of cases as compared to the
517 whole Mediterranean fisheries.

518

519 **5. Conclusions**

520 Historical features of local fishing communities and management practices in the Mediterranean Sea
521 can teach us several elements to be considered to improve current management. The recent shift of
522 CFP towards a more decentralized management increased the role of national fishers' organization to
523 define management rules and their implementation approach at regional/sub-regional level. However,

524 this role must be counterbalanced with a strong capability to dialogue with local fishing communities
525 and include them in the management discourse, as in the past. Co-management could represent a
526 valuable approach to engage local fishers and their communities, allowing them to play a role in
527 defining rules and in monitoring, control, and surveillance. Basing such approach on the heirs of
528 historical local management systems, with necessary changes where needed, would ease this process
529 and prevent past experiences, social structures and knowledge, to be lost.

530

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535

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697

698 **Tables**

699 Table 1. Co-management attributes that characterized historical fish corporations in the
700 Mediterranean Sea. Attributes were defined according to Gutierrez et al. (2011) framework.

701

Co-management features	<i>Cofradías</i>	<i>Prud'homies</i>	<i>Fraglie</i>
Restricted access to fishing	Yes	Yes	Yes
Territorial use rights for fishing (TURFs)	Yes	Yes	Yes
Self-enforcement	Yes	Yes	No
Self-management	Yes	Yes	No
Welfare	Yes	Yes	Yes
Election of representatives	Yes	Yes	Yes
Judging of infringements by the corporation	Yes	No	No
Strong leadership of representatives	Yes	Yes	Yes

702

703

704

705 **Legend to figure**

706 Figure 1. Locations where *Cofradías* (Spain; red rectangle), *Prud'homies* (France; green rectangle)
707 and *Fraglie* (Italy-Venice Lagoon; blue rectangle) corporations were historically present in the
708 continental Mediterranean Sea.

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