EFFICIENCY IN MULTILEVEL DECISION MAKING SYSTEMS: A COMPARATIVE ANALYSIS OF BUY BACK PROGRAMS

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ABSTRACT

The paper argues that efficiency in regulating fishery resources is inversely proportional to number of management levels involved, distance of each level from the industry intended to be regulated, while gear and species play an important role. Among possible examples buy back programs are proposed, but other examples can be easily found all round. Buy back programs for fishing vessel and licenses represent one of the key alternatives to generally reduce overcapacity, to increase economic rents, or to reduce fishing pressure on some specific species. Among others, three different buyback programs have been experienced in Italy: “the clam program”, “the swordfish driftnets plan” and the generalised program of capacity reduction, implemented within the EU Multi Annual Guidance Policy. Each program has different targets and achievements depend on a number of variables. The paper offers a comparative analysis of the three programs in terms of efficiency, strengths and weaknesses, impact on fishing capacity. The analysis shows why some programs have been successful and others have failed to meet their objectives.

Keywords: multilevel fishery management, buy back, fishing capacity

INTRODUCTION

The Italian fishing sector and its management

The Italian fishing fleet is one of the most important in Europe and it represents an important share of the whole Mediterranean industry. In 2002, the active fishing fleet operating in Italy was composed of 15,939 boats whose gross total tonnage amounted to 189,236 tons. Total landings were estimated in 314,383 tons, corresponding to around 1,403 billion EURO. Total employment in the fishery fleet amounts to more than 38,000 units.

The basic characteristic of the Italian fishing industry, in particular those which make the Italian fleet different from other non Mediterranean European countries, are:
- fishing gears are scattered all over the 8000 Km of coast and production is landed in a large number of sites. In particular, there are more than 800 landing sites, and no region can be considered as dependent on fisheries
- 84% of the fleet (around 13,000 fishing vessels) falls in the 0-10 GRT class and only 5% of the fleet is over 50 GRT
- 80% of the landings is caught within 6 miles from the coast
- vessel’s owners income is generated almost exclusively by their work on board. This is the target of their activity more than profit maximisation
- the fishery is multi-species and multi-gear. A part from dredge, which is used for the catch of clams, each gear compete with all remaining for the catch of the 140 and more existing commercial species
- apart from small pelagic species and some specific fishery (sardines, shrimps, swordfish, tuna, clams) fishers cannot target species they intend to catch, given the multi-specificity of the fisheries. This point, together with the previous one, makes difficult the design and the implementation of an ITQ system in Mediterranean fisheries
- recruitment age is very low and, for most species, varies in the range between 1 and 2 years.

The previous characteristics brought to the introduction of the actual conservationist policy based on a generalised licensing scheme. In addition to the licensing scheme, single management measures and specific plans are introduced. Particular attention has been attached in recent years to fishing effort
reduction through the limitation of fishing time and this measure is believed to play a relevant role in the recovering of some stocks. The EU rules can be considered as rather complementary to the national ones. In particular, control of the fleet’s fishing capacity came under the jurisdiction of the EC regulations and was governed by the Multi-Annual Guidance Plans (MAGPs).

A BRIEF DESCRIPTION OF ITALIAN BUYBACKS PROGRAMMES

Three different buyback programs have been experienced in Italy over the last ten years: the swordfish driftnets plan (“piano spadare”), the generalized EU program of capacity reduction and the “clam program”.

The Drifnet buy back plan

The driftnet plan was enforced to attempt to reduce the social and economic impact borne by the fishermen who were compelled to forgo driftnets fishery. The ban on spadare was a consequence of a long process, which lasted almost over 15 years. Since the beginning of ‘90s, the repeated anti-driftnets campaigns conducted by international environmentalist associations raised huge concern in the public opinion world-wide. According to the environmentalists, the nets used in this fishing technique, whose length exceeded 20 km, are poorly selective. Consequently, the driftnets cause an excessive mortality rate among sea mammals, turtles and birds which are by chance trapped into the nets together with the target species i.e. swordfish in the Mediterranean area. In 1989, due to the environmentalist campaign magnified by the press and by international television networks, the United Nations passed a resolution which established a moratorium on large driftnet fishing (b) in high seas.

It is a fact that the resolution applied in all international waters, independently if an EEZ was in place or not. In other words, large vessels using driftnets within the 200 miles zone were allowed to fish, while the small artisanal vessels fishing after 12 miles, as it is the case in the Mediterranean, were imposed to leave their activity. Owing to the politic pressure which initiated after the approval of the UN Resolution of 1989, the European Union approved EEC Regulation no. 345/92 of 28th October 1991, which established the maximum length of nets should not exceed 2,500 meters. This rule was adopted as an attempt to reduce the hazards related to the use of driftnets and to preserve swordfish and tuna stocks. Nevertheless, this solution proved to be temporary and useless. In fact, the enforcement of the regulation, which provided for the use of the above-mentioned type of nets, would have made this fishing activity no longer profitable.

The industry did not comply with this regulation and its enforcement was inadequately monitored. The social unrest in those years, the geographical location in poor areas of the Country of those communities involved, the ambiguity of the EU rule allowing for an unprofitable activity, made it clear how difficult it was to take such a responsibility. As matter of fact, both EU and italian decisonal levels tried to avoid as far as possible the implementation of the UN Resolution. It was the increasing pressure of the international public opinion and, in particular the US political pressure, which induced the EU to meet their demands. Therefore, a new Regulation that provided for the complete ban on driftnets within a given number of years was introduced in 1994. Despite Italy, France, Ireland and other Member States opposed this hypothesis, the regulation was approved.

The environmentalists’ campaign against spadare continued and reached its climax in 1996, when the fourth and external decisional level came into the mechanism: the USA started exerting a strong political pressure on EU and the Italian government, threatening to impose an embargo on Italian ichthyic products, including coral jewelery.
Finally, the European Union adopted Regulation no. 894 of 29th April 1997, imposing the complete ban on spadare as from 1st January 2002, “in order to ensure the preservation of marine biological resources and the exploitation of stocks in accordance with both fishermen and consumers’ interests”.

Further to the EU decision, in 1997 the Italian administration approved two plans for the withdrawal and re-conversion of spadare. The plans also provided for financial aids to be granted both to ship owners and crews. Particularly, the Italian government adopted the so-called “Spadare Plan”, including a buy-back program that attempted to reduce the social and economic impact borne by the fishermen who were compelled to forgo driftnets fishery. The plan was due to be implemented in the period 1997-2000.

To promote the withdrawal of driftnets dealing with swordfish fishing, the industry might have chosen between two options: the re-conversion or the permanent withdrawal from any fishing activities. Shipowners and crewmembers would have benefitted from the related bonuses.

Ship-owners were entitled to receive:
- a retirement allowance, in case of permanent withdrawal from any fishing activities; or
- a re-conversion allowance, if they were willing to continue their activity by using fishing gears other than driftnets.

The allowances provided for by the “Spadare Plan” and addressed to ship-owners were related to the vessel tonnage (GRT) and to the year of participation in the plan (the premium decreased in case of late participation). Obviously, the withdrawal allowances were higher than the re-conversion ones. Those who decided in favour of a permanent withdrawal and applied for a definitive withdrawal from the activity were required to return their fishing licences along with the nets. Those who accepted the re-conversion option were required to return their nets and their driftnet authorisation. In case they had no other authorisation they were entitled to apply for a purse-seiner or a new authorisation for small-scale fishing gears. In this latter group it was also allowed a small fishing gear which, despite some technical differences from driftnets, was quite similar to them. (Other countries in the EU followed a similar approach).

The crewmembers involved in the plan were entitled to receive:
- a retirement allowance, if they agreed to forgo any economic activities; or
- a re-conversion allowance, if they moved to other fishing activities performed by using gears other than driftnets or to other economic sectors.

At the end of 2001, the “Spadare Plan” provided for the allocation of 120 million euro, 50% of which was granted by the European Commission and 50% by the Italian administration. It is worth to note that resources were taken from already existing programs within the fishing industry, therefore reducing planned investments in other part of the industry.

Of 645 driftnets operating at the beginning of the plans, 558 were dismissed within the terms established by law, but 87 did not forgo the activity. For this reason, a second “Spadare Plan”, provided for the allocation of additional 5 million euro to be broken down equally among crews and ship-owners.

The decommissioning scheme under the EU Multiannual Guidance Programmes

The European Union generalised buy back scheme falls within the Multiannual Guidance Policy implemented since the early ‘80s. There have been four different schemes since then, each of them calling for a programmed and progressive capacity reduction.

While the EU Rule is responsible for the procedures setting and goals to be achieved, Member States are responsible for the actual implementation of the program.

The first two MAGP programs (1983-86 e 1987-91) determined the stabilisation of fleet capacities for each Member State, simply expressed in power (kW) and tonnage (GRT). Different issues determined the failure of these two MAGPs, in particular the Community register of fishing vessels had not been established yet and disparate units of fishing capacity, in terms of tonnage and engine power, hindered monitoring.
The third MAGP (1992-1996) set different targets for reducing fishing effort according to the type of stock being exploited (i.e. demersal, benthic or pelagic). The translation of these targets into real terms prompted each MS to split its fleet. Identified on the basis of the areas harvested, each member state fleet was divided into segments according to the species exploited and the fishing gear used. So an homogeneous rule was due to be applied all over the European Union, despite the differences existing between northern seas and the Mediterranean. As matter of fact, the need for splitting up the fleet on the basis of target species caused confusion the Mediterranean, where a multi-specific and polyvalent type of fishing exists and the combination gear/species does not apply. Consequently, the aims established by the 3rd MAGP were not attained.

The fourth generation of MAGPs, adopted in December 1997, fixed the objectives for the period 1997-2001. This was extended to the end of 2002 (a). The plan was implemented independently of the state of resources and at the end of the 4th MAGP, the Italian fleet was reduced by 34,851 GRT and by 202,364 kW. As regards the expected objectives, by the 31st December 2002, the performance of the Italian fleet was 6% higher in terms of tonnage and 3% higher in terms of engine power. The quantitative reduction of the fleet was therefore achieved, but is difficult to assess what the impact on resources has been, also considering that other national management measures were in place at the same time.

In the whole, as for the 1994-‘99 FIFG, 1355 requests of permanent withdrawal were settled, with an overall allocation of 137 million euro, of which 50% were granted by Community funds and 50% by Italian funds. Moreover, a total of 41,35 million euro was assigned to joint enterprises securing the vessels would have been cancelled from the fleet register.

The 2000-2006 FIFG, currently in force, has to date subsidised 972 requests for permanent withdrawal, 2 joint enterprises and 1 for export/other destination. The relevant fund allocation amounted to 117 million euro, again equally subdivided between EU and national resources.

As in most European countries, the withdrawal program concerned rather aged vessels, which were characterised by high maintenance and repair costs, by inadequate levels of safety for workers and whose productive technologies were no longer advanced. In fact, 77% of the withdrawn boats were over thirty years of age. The decommissioning scheme boosted the process through which the no longer competitive and obsolete fisheries forwent their activities and, in many cases, it was considered as a premium for early retirement.

**The clam plans**

While there is only one decisional level involved, the clam management experience in Italy can be broken down into three phases.

The first period, which went from the late ‘70s to the beginning of the ‘90s, was characterised by a massive increase in the fishing capacity due to the growth of the number of dredgers which went from 384 in 1974 to over 800 in 1994. Landings, profits and stock exploitation also increased. Consequently, in a few years, the resource became overexploited. Owing to the high pressure exerted on the stock, landings reached 38,000 tons in 1993, while in 1984 they exceeded 100,000 tons. At the end of the ‘80s, prices started to be less profitable, as quality suffered and clam size failed to meet the required dimension (25mm). Compared with the usual price, which previously ranged between € 0,5 and € 0,8, the average price then reached was € 0,25. New measures were immediately established at central level: input and output measures were introduced and a specific licensing scheme was started. The industry did not comply with the central management authority since its credibility was low among fishermen and the situation rapidly worsened. The situation did not change until, towards the middle of the ‘90s, the failure of the strategy was recognized and a new approach was initiated.

It was deemed necessary to immediately reduce fishing mortality to enable the stock to recover. Over the period under discussion, a co-management approach was started and in 1996 the central authority launched a “Clam Program” whose elements were:
- introduction of a voluntarily buy back scheme, with a minimum number of vessels to be withdrawn in each fishing area;
- institution of “Clam Fishery Consortia” in each area, where all vessel owners operating within the fishing area had to register. The powers and activities of the Consortia were defined by law. In particular, they were entitled to decide, among themselves, about control and surveillance procedures, rotation of fishing areas, restocking areas, temporary closures and any other restrictions on the limitations which were still decided by the central authority; and
- introduction of subsidies for clam restocking and other related activities.

The shift of power from the Ministry to the Consortia was rather substantial, even if the basic management measures were still centrally determined, with the exception of those cases in which the Consortia had established more restrictive limits.

In its first round, the program required the permanent withdrawal of 36 dredges which were chosen by granting priority to those areas where the pressure on the resource was higher. Each withdrawn vessel was granted € 130,000 as a lump sum payment, while each crewmember quitting the dredge activity, received € 6,500. The withdrawal amount was calculated on the basis of the market value of the licence. Where the vessel owner wished to continue fishing using a different passive gear, he was granted the permission to maintain the vessel with a 40% reduction on the premium.

It could be of some interest to note that, in the first period, the financial resources were mostly spent on measures aimed at restoring the level of credibility of the central authority through the introduction of measures not imposing an immediate reduction of capacity, which would have not been accepted by the industry. It was considered more important having the Consortia working as well as involve the industry in the implementation of restocking and related activities. Out of 27 million euro, only 5 million were used for the permanent withdrawal of dredges.

The second “Clam Program” was introduced two years later, in 1998, and, finally, a more substantial reduction in capacity was accepted by the members of the Consortia. As matter of fact, within the second program, 109 dredges were withdrawn, but not all areas were affected by the measure. They were implemented on the basis of stock assessment results. It is important to underline that, within the second plan, funds allocation showed a reversal in the trend. In fact, only 5 million euro was granted to restocking and related activities, while 21 million euro was allocated to the withdrawing of dredges.

With the second plan, the co-management experience was finally replaced by a complete self-management approach.

IMPACT OF BUY-BACK SCHEMES

The “Spadare plan”

The driftnet plan imposed the complete ban on spadare as from 1st January 2002. Despite previous attempt to reduce the driftnet fleet, the overall fishing capacity remained substantially stable until 1997. In this period, the fleet consisted of approximately 650 units, employed over 3,000 fishermen. Since 1997, with the start of the withdrawal plan, the fleet began to decrease. The major reshaping was recorded between 1998 and 1999, when the driftnets fell from 594 to 229 units.

The driftnets segment was one of the most profitable in the context of Italian fishery (Di Natale et al., 1993). The highest productive levels were attained in 1997 (approximately 12 thousand tons, the value of the sales exceeding 100 million euro). The quantities and the value of the landings respectively accounted for 2.7% and 6.5% of the national overall amount.

On average, a single driftnet succeeded in making profits roughly exceeding by 25% the gross added value attained in one year by a vessel of the national fleet. The high market value of the target species, the operative effectiveness of the vessels, which were characterized by a low incidence of running costs on the value of landings and, finally, the shorter time spent performing their activity during the year, enabled this group of vessels to shift to other gear increasing their profits (Tab.I).
The decommissioning scheme under the EU Multiannual Guidance Programmes

Over the last seven years, the fleet has been affected by a continuous decrease in all technical parameters. Gross tonnage shows the largest reduction among all parameters involved in the process. Total tonnage decreased by 20% from 1996 to 2002. Engine power also shows a reduction, but at lower rates (14%). These measures ignore technological progress, and it is therefore conceivable that the reduction of capacity of the fleet was not as high as the figures could imply.

As it is well known, capacity alone is not a sufficient parameter to be used for management policy, since it should also be associated with a measurement of its real utilisation (FAO 1998, Kirkley and Squires 1998). Therefore, in Italy, the reduction in capacity was also supplemented by a national temporary withdrawal measure (30 or 45 days depending on the year), taking place during the period of time subsequent to reproduction of main species. Total fishing effort in the period decreased by 18% (Tab.II).

Tab. II: Impact of MAGP IV programme

<table>
<thead>
<tr>
<th>Period</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capacity</td>
<td>-20% GRT, -14% kW</td>
</tr>
<tr>
<td>Employment</td>
<td>-13%</td>
</tr>
<tr>
<td>Effort</td>
<td>-18%</td>
</tr>
<tr>
<td>DAS per vessel</td>
<td>+4%</td>
</tr>
<tr>
<td>landings per vessel</td>
<td>+9%</td>
</tr>
<tr>
<td>value of landings per vessel</td>
<td>+13%</td>
</tr>
<tr>
<td>gross cash flow per vessel</td>
<td>+29%</td>
</tr>
</tbody>
</table>

Source: Irepa

Landings per vessel and prices registered an increasing trend (+9% and +13% respectively, between 1996 and 2002). The latter aspect becomes relevant since the trend of prices, which was mainly caused by the overall decline in supply and by the steady increase in the demand for fresh ichthyic products, resulted in a growth of sales. This outcome eventually induced the industry to increase their fishing activity, an in fact average days at sea per vessel increased by 4%. Profitability parameter (measured here by gross cash flow per vessel) registered a huge increase (+29%).

The clam plans

The clam plans resulted in a decrease of capacity of 22% in terms of tonnage and of 19% in terms of kW. The reduction in employment was also relevant (-18%).

Over the period 1996-2002 the following events were recorded:
- considerable growth of saleable gross production;
- constant decrease in productive levels; and
- reduction of exploitation costs due to a more rational management of resources.

The approval of the II Clam Plan strengthened the role of CoGeVo (the Clam Management Consortium). Indeed, their recently attained independence has established an innovative self-management regime. A further crucial aspect of this new policy was the creation of a co-ordination scheme among the Consortia which ensures the control of quantity and prices of the whole landings.

From the year 2000 till the end of 2001, these mechanisms determined a considerable recovery of profits. The measures adopted by the Consortia were directed at restricting the daily catch per boat, while leaving the fishing days unchanged. The steps through which the industry tried to adjust supply to national and foreign demand, allowed the producers to increase the prices and profitability of the entire segment.

Besides, the withdrawal from the segment of the less efficient, and consequently less competitive units, along with the introduction of new market strategies, has led to widespread cost containment. Operating costs were particularly affected. As a consequence, the percentage of profits increased more than the income itself.

Tab.III: Impact of Clams Plans

<table>
<thead>
<tr>
<th></th>
<th>Period</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capacity</td>
<td>1996-2002</td>
<td>-22% GRT, -19% Kw</td>
</tr>
<tr>
<td>DAS per vessel</td>
<td>1996-2002</td>
<td>+6%</td>
</tr>
<tr>
<td>Employment</td>
<td>1996-2002</td>
<td>-18%</td>
</tr>
<tr>
<td>landings per vessel</td>
<td>1996-2002</td>
<td>-44%</td>
</tr>
<tr>
<td>value of landings per vessel</td>
<td>1996-2002</td>
<td>+129%</td>
</tr>
<tr>
<td>gross cash flow per vessel</td>
<td>1996-2002</td>
<td>+174%</td>
</tr>
</tbody>
</table>

Source: Irepa

STRENGTHS AND WEAKNESSES OF EACH PROGRAM

Unlike the drifnet case, which showed to be a complete institutional failure without any possible strenght, the other examples have both strenghts and weaknesses aspect which are syntetised in Tab.IV. It could be of some interest to note that the higher the number of decisional levels involved the greater is the list of weaknesses. Opposite to this, the lower the level of decion levels the greater is the list of strenghts.

The driftnet ban is an example of inefficient multilevel decision making process where decisions are taken far away from the real fishery affected by the rule.

In particular, it has been shown that not necessarily the initial objectives are shared by all levels and possibly they undergo progressive changes, as far as the decision level come to be closer to the affected fishery. Reason for this to happen, can be found in:

- Insufficient transparency and reliability of the information used to make the decision,
- Insufficient reliability of eventual models adopted,
- Lack of communications between the different decision making levels at the source and industry,
- Insufficient sharing of information

The pursuit of diverging objectives, depending on the different evaluation made by each of the decisional levels involved, can only be produced by the mentioned restrictions thus reducing the efficiency, the effectiveness and the equity of the identified solutions. As matter of fact, each decisional level, because of the uncertainties and of the possible interpretations of the information just reported would tend to choose “de facto” political and economic solutions favouring the interests represented rather than the rigorous protection of resources (IREPA,2003).
As matter of fact, most of the above general items can be considered as contributing to the failure of the objectives set by the UN Resolution. It must be taken into account that the resolution was intended to be homogeneously implemented in very different circumstances, in particular in the Mediterranean where restrictions to entry into the industry in several countries are nonexistent. In fact, the increase in fishing effort introduced by Mediterranean countries outside the EU, which have intensified the use of driftnets, is one of the undesired effect of this plan. Moreover, the re-conversion was allowed for shifting the driftnet fishing to other coastal biological resources already heavily overfished. In this way, measures devised to preserve the stocks of species accidentally harvested by driftnets have come to worsen the state of several coastal resources already overexploited and the incomes of both, those already fishing in the area and those who participated in the reconversion plan.

Tab.IV: Strenghts and weakness of buy back programs

<table>
<thead>
<tr>
<th>Strengths</th>
<th>Weakness</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>The spadare plan</strong></td>
<td>Multilevel decision making system brought different administrations to take positions not necessarily coherent with the initial priorities</td>
</tr>
<tr>
<td></td>
<td>A political process characterised by heavy lack of information and which neglected the role of industry or even opposed it</td>
</tr>
<tr>
<td></td>
<td>No previous evaluation of the biological, economic and social effects</td>
</tr>
<tr>
<td></td>
<td>Lack of an evaluation subsequent to the enforcement of the measure</td>
</tr>
<tr>
<td><strong>Italian decommissioning scheme under the Multiannual Guidance Programmes</strong></td>
<td>Reduction of the overcapacity</td>
</tr>
<tr>
<td></td>
<td>Lack of appropriate criteria for selection of the vessels to withdraw in the first step</td>
</tr>
<tr>
<td></td>
<td>Inadequate EU management measures on time spent at sea</td>
</tr>
<tr>
<td></td>
<td>Common approach of the MAGP IV programme not appropriate for the Mediterranean case</td>
</tr>
<tr>
<td><strong>The clam plans</strong></td>
<td>The number and quality of measures applied</td>
</tr>
<tr>
<td></td>
<td>Environmental crises</td>
</tr>
<tr>
<td></td>
<td>The progressiveness of the action</td>
</tr>
<tr>
<td></td>
<td>High investment costs for newcomers</td>
</tr>
<tr>
<td></td>
<td>The weight that each single measure holds within the plan</td>
</tr>
<tr>
<td></td>
<td>The degree of responsiveness of vessel owners, who were requested to play an active role in the whole process</td>
</tr>
</tbody>
</table>

The permanent withdrawal measure imposed on the Italian fishery within the MAGP, together with other measures, had a positive outcome in terms of decreasing the fishing capacity, improving profits and recovery of some stocks (Sabatella & Piccinetti 2003). Despite this, some weaknesses still persist and are related to the procedures for the implementation of the measure from the national administration. Due to the twofold level of the decision making process, the management authority was not able to associate gear/stock as required by the rule and did not initially establish any priority and the withdrawal
program had a general impact on all species landed. Only subsequently, the selection was performed by taking into account some priorities (in particular the type of fishing gear, by choosing the gear having a major impact on environment).

A second relevant aspect concerns the possibility of adopting a withdrawal plan only based on the restriction of whatsoever capacity. From one side, the "retirement effect" play an important role in the whole process, but on the other side, it is also well known that, whenever fishing capacity is not fully employed, the overall effort might be boosted by increasing fishing time. Therefore, an increase in fishing time is likely to occur particularly when the withdrawal of the existing vessels is associated with a rise in the profits of the fisheries still in activity. Consequently, if the time variable is not monitored simultaneously, there is a considerable risk of wasting financial resources.

The clam experience was more successful from a management perspective. The clam plans were the result of a consensus bargaining process among the various participant in the industry (administrators, fishermen organisation and unions, research representatives). Therefore, the simultaneous utilisation of these elements within the process secured a greater flexibility to the drawing of the plan and to the allocation of public financial resources. The combination of the measures adopted, their timely introduction, together with the amount of money invested, proved to have an important role in allowing a segment of the fleet to leave the central administration support and to accept its own responsibility. Among the weaknesses of the entire management system, it must be recognized that environment plays a crucial role. In this respect, the sector is exposed to the risks of large productive falls caused by cyclical environmental crises (such as anoxia, parasites, toxic micro alga) which could force the industry back to increase again the rate of exploitation before such a case could appear.

CONCLUSIONS

In conclusion, as far as a multi-level management system is in place, it is possible that significant inefficiencies can take place and produce distortion in the decisional mechanism. The cases here analysed prove that the drawing of measures by agencies and management bodies little or not at all involved with the real structure and operational activity of fisheries intended to regulate, produce results whose effectiveness is largely questionable. Credibility of management bodies is therefore questioned and compliance results to be low. In particular, the perception of the appropriateness of measures may in fact vary according to variables which may not be accepted by all the players in the system bringing to determine difference between the need for meeting the obligations on the one hand and the support from industry on the other. In many cases, the complexity of the mechanism neither facilitates the efficiency of such multi-level decisional system, nor imply a strong commitment to resolve the faults inherent the functioning of the mechanism.

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**ENDNOTES**

(a) Council Decision 2002/652/E
(b) UN Resolution 44/225, Dec 1989
(c) Decree of 23rd May 1997