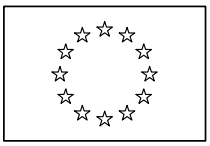

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REPORT FROM THE COMMISSION TO THE EUROPEAN PARLIAMENT, THE COUNCIL, THE EUROPEAN ECONOMIC AND SOCIAL COMMITTEE AND THE COMMITTEE OF THE REGIONS

Application of the southern hake and Norway lobster recovery plan

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ABSTRACT

Council Regulation (EC) No 2166/2005 establishes measures for the recovery of the southern hake and Norway lobster stocks in the Cantabrian Sea and western Iberian Peninsula. This recovery plan has the objective of bringing the spawning stock biomass of hake above 35000 tonnes within 10 years and to reduce fishing mortality to F = 0.27. As regards Norway lobster, the objective is to rebuild the stock to within safe biological limits within a period of 10 years. The main elements of the plan are a 10% annual reduction in F and a 15% constraint on TAC changes between years. In recent years there has been an increase in the hake spawning stock biomass mostly due to exceptional environmental and biological factors. Scientists estimate that the fishing mortality remains too high and the TACs (Total Allowable Catches) have been overshot suggesting that the plan has not been effectively implemented.

1. INTRODUCTION

Southern hake (*Merluccius* merluccius) is one of the most important target species for the fleets operating in the Atlantic coast of the Iberian Peninsula. Its distribution area encompasses the Atlantic coast of the Iberian Peninsula corresponding to ICES (the International Council for the Exploration of the Sea) Divisions VIIIc and IXa. Historical yields declined from 30000 tonnes at the beginning of the 1970s to a minimum of 6700 tonnes in 2002, increasing thereafter to 16000 tonnes in 2008. In 2003 ICES classified the stock as being outside biological limits and advised on a biomass rebuilding plan. Accordingly, a stock recovery plan was introduced by the European Union (EU) in 2006. Council Regulation (EC) No 2166/2005 establishing measures for the recovery of the southern hake and Norway lobster (*Nephrops norvegicus*) stocks in the Cantabrian Sea and western Iberian Peninsula and amending certain provisions of Council Regulation (EC) No 850/98 on the conservation of fisheries resources through technical measures for the protection of juveniles of marine organisms entered into force in January 2006.

The aforementioned recovery plan has the objective of bringing the spawning stock biomass of hake above 35000 tonnes within 10 years and to reduce fishing mortality to F[1] = 0.27. As regards Norway lobster, the objective is to rebuild the stock to within safe biological limits within a period of 10 years. The main elements of the plan are a 10% annual reduction in F and a 15% constraint on TAC changes between years, following the relevant scientific advice from the STECF (the Scientific, Technical and Economic Committee for Fisheries) and ICES.

The activity of the vessels participating in the southern hake and Norway lobster fisheries is subject to fishing effort limits[2] laid down in annex IIB of the annual Council regulations

[1] Fishing mortality (F) is the rate at which the animals are removed from the stock by fishing. It is approximately the percent annual removal.

[2] In ICES Divisions VIIIc and IXa excluding the Gulf of Cadiz.

establishing annual fishing opportunities for certain fish stocks. Under these effort provisions, EU vessels of 10 metres' length overall or more carrying on board any of the regulated gears (trawls, Danish seines and similar gears of mesh size equal to or larger than 32 mm and gill-nets of mesh size equal to or larger than 60 mm and bottom long-lines) with records where the total landings of hake represent 5 tonnes or more and/or 2.5 tonnes or more of Norway lobster have their activity restricted to a maximum number of days at sea. This maximum number of days is adjusted every year in the same proportion as the annual adjustment in fishing mortality estimated by ICES and the STECF as being consistent with the application of the plan. Since 2005, the effort regime imposed a 10% reduction on the maximum number of fishing days from one year to the other.

1.1. Basis for the present report

The present report follows the requirements prescribed by Article 16 of Council Regulation (EC) No 2166/2005, where it is mentioned that by 17 January 2010 the Commission should submit a report to the European Parliament and the Council setting out the conclusions relating to the application of the recovery plan for the stocks and the fishing sector concerned, including available socio-economic data linked to the plan.

This report is mainly based on the evaluation study undertaken in October 2010 by the STECF sub-group on management objectives and strategies (SGMOS 10-06) and endorsed by the STECF 35th plenary meeting held in November 2010. Other elements, such as recent relevant scientific/technical information by both ICES and the STECF, and the conclusions of a study on the management of the effort regime in EU Member States were also taken into account.

The STECF evaluation of the southern hake and Norway lobster plan carried out in October 2010 follows the conclusions of a number of related scientific meetings, namely (i) ICES benchmark assessment of February 2010 validating a new methodology to determine the biological status of the southern hake stock, (ii) the STECF scoping meeting of June 2010 specifying a series of work activities in preparation to the evaluation of the plan, (iii) the STECF review of the effort regime (in September 2010) and (iv) ICES work on the evaluation of harvest control rules during 2010.

Spain, Portugal and to a much lesser extent France are the three Member States[3] involved in the southern hake and Norway lobster fisheries in the Cantabrian Sea and Western Iberia Peninsula. In this context, data provided by Spain and Portugal were indispensable to enable the STECF and ICES scientists to draw conclusions and make recommendations in relation to the various assessments undertaken. Both in 2009 and 2010 the Commission requested the Member States concerned detailed information on catches, fishing effort and socio-economic data to be used for scientific purposes. However, data of sufficient quality was only communicated to both the Commission and the STECF in the second half of 2010.

2. BIOLOGICAL CONSIDERATIONS

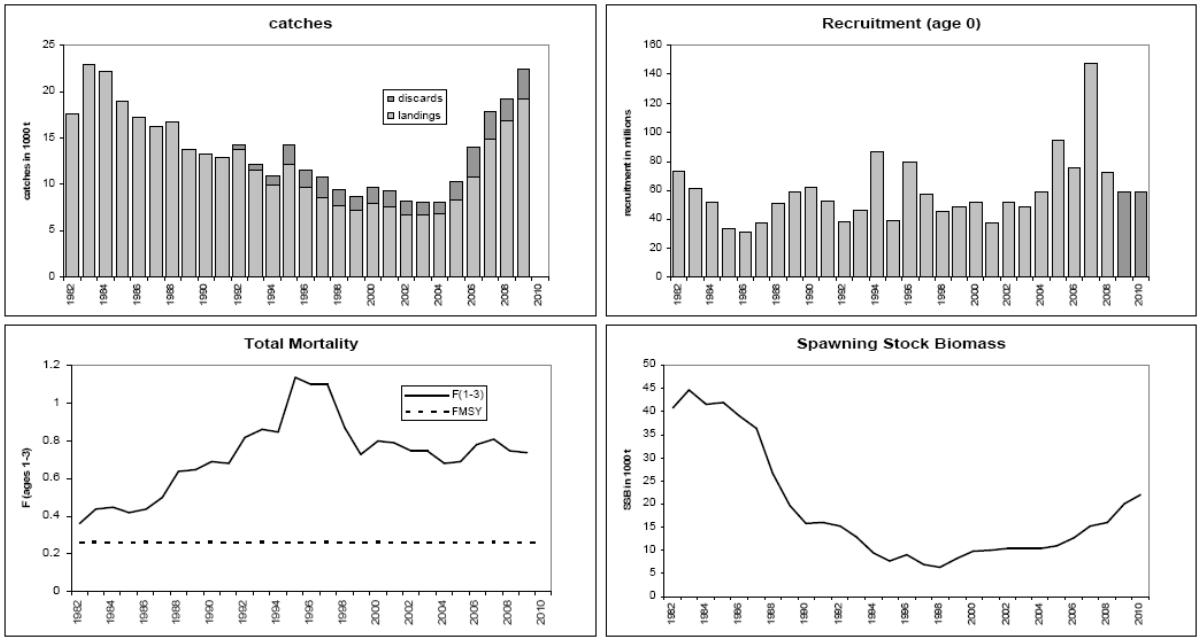
2.1. Southern hake

[3] Spain has 64% and 41% of the hake and Norway lobster TACs respectively. Portugal has 30% and 58% of the hake and Norway lobster TACs respectively. France has 6% and 1% of the hake and Norway lobster TACs respectively.

European hake is a top predator in the demersal community in the north-east Atlantic area mainly preying on blue whiting (*Micromesistius poutassou*), horse mackerel (*Trachurus* spp.) and various cupleids. The southern hake stock comprises the Atlantic coast of the Iberian Peninsula corresponding to ICES Divisions VIIIc and IXa. Although the Atlantic and the Mediterranean European hake are usually considered different stocks due to differences in biology, in the North East Atlantic there is no clear evidence of the existence of multiple hake populations. It is likely that there is a degree of transfer between the southern and northern hake stocks.

Southern hake stock assessments by ICES in 2010 show that the expected fishing mortality (F) reduction, according to the plan, has not been achieved and remains too high, currently estimated by ICES at around 0.74 (Figure 1). The spawning stock biomass (SSB) increased from 12.7 thousand tonnes in 2006 to 21.5 thousand tonnes in 2010, mostly derived from a strong year class (around 61% above the recruitment average 1982-2010) entering in the stock in 2007 (Figure 1).

Figure 1 – Changes in catches, landings, recruitment, fishing mortality and SSB for southern hake from 1982 to 2010.



Source: ICES Advice 2010, Book 7, point 7.4.1.

Hake recruitment[4] indices are related to both environmental and biological factors. High recruitments occur during intermediate oceanographic scenarios and decreasing recruitment is observed in extreme situations. In biological terms, a change in stock structure entails a compensatory response of age/size-at-maturity because the depletion of large fish can be compensated by increased recruitment. In this context, the fact that recruitment has been good despite a very low spawning biomass is in itself a compensatory effect resulting from an extensive period of overfishing. This is seen by scientists an unusual and unexpected event.

[4] Recruitment is the number of new fish which are added to the exploitable portion of the stock resulting from growth or migration of smaller fish.

The targets of the plan are to reach a spawning stock biomass of 35000 tonnes by 2015, equivalent to the precautionary biomass, and a fishing mortality of F = 0.27 as assessed by the scientists in 2004. However, biological simulations show that the F target of 0.27 will not be achieved until 2018, even if the plan is fully implemented from 2011 onwards. A steeper F reduction and a higher TAC constraint are needed to reach the F target by 2015. The EU aim is to reach Maximum Sustainable Yield (MSY) for each stock by 2015, as agreed at the 2002 World Summit on Sustainable Development in Johannesburg.

According to the STECF, if the implementation of the plan continues to fail, the F target may not be reached even if a revised plan and/or a new effort regime are put in place.

Concerning the biomass target, current perceptions of stock and recruitment data suggest that safe biological limits may be at a much lower biomass level than previously estimated. However, due to uncertainties in the bio-mathematical model used, biomass levels have to be treated with caution.

2.2. Norway lobster

Norway lobster is a burrowing species that inhabits muddy sea beds on the continental shelf and upper slope. The distribution of Norway lobster is more determined by ground type and sea temperature than depth. This species is distributed in a patchwork configuration, defined by scientists as FUs (Functional Units), where the substrate is suitable. Norway lobster stocks in these independent FUs are often at different biological status requiring different management measures.

Norway lobster stocks in FUs 25 and 31 in the Cantabrian Sea and FUs 26-27 in the Western Iberian Peninsula were already depleted at the inception of the plan and have not subsequently improved. ICES recommendation for these four FUs was zero catch before and throughout the management plan period. The catches have therefore negatively affected the status of these stocks.

The effort in FUs 28-29 and in FU 30 in the South-western Iberian Peninsula and Gulf of Cadiz has been reduced mainly due to the change of objectives by the fleets targeting this species (the Portuguese crustacean fleet and the Cadiz mixed demersal fleet), as a result of the increase in rose shrimp (*Parapenaeus longirostris*) abundance, rather than the effort reduction imposed by the plan. The biomass in FUs 28-29 is estimated to have increased although in FU 30 is still at a low level. For FUs 28-29, reported catches over 400 tonnes at the beginning of the plan declined to around 120 tonnes in 2009 due to the shift in the target species for this fleet.

3. DESCRIPTION OF THE FISHERIES

3.1. Southern hake

Hake in the Cantabrian Sea and Western Iberia Peninsula is caught in a mixed fishery mainly by the Spanish and Portuguese vessels (trawls, gillnetters, longliners and artisanal fleets).

The Spanish trawl fleet is quite homogeneous and uses mainly two gears, pair trawl and bottom trawl. The percentage of hake present in the landings of this fleet is quite small as there are other important target species (i.e. anglerfish (*Lophiidae*), megrims (*Lepidorhombus* spp.), Norway lobster, blue whiting, horse mackerel and mackerel (*Scomber scombrus*)). In contrast, the artisanal fleet is very heterogeneous using a wide variety of gears such as traps,

large and small gillnets, longlines, etc. The artisanal fleet target different components of the stock depending on the gears used. Hake is an important component of the catch for these fleets mainly due to the relatively high prices it can reach in the Iberian markets.

Hake is caught by the Portuguese fleet in the trawl and artisanal mixed fisheries together with other fish species and crustaceans. These include horse mackerel, anglerfish, megrim, mackerel, Spanish mackerel (*Scomber japonicus*), blue whiting, red shrimp (*Aristeus antennatus*), rose shrimp and Norway lobster. The trawl fleet comprises two distinct components – the trawl fleet catching demersal fish (with 70 mm mesh size) and the trawl fleet targeting crustaceans (with 55 mm mesh size).

3.2. Norway lobster

In the Bay of Biscay and Western Iberian seas, Norway lobster is caught in the mixed bottom trawl fishery. The fishery takes place throughout the year, with the highest landings in spring and summer. Norway lobster is taken together with hake, anglerfish, megrim, horse mackerel, mackerel and blue whiting. Due to the mixed nature of the demersal fisheries in this area, management measures for finfish species influence the exploitation of Norway lobster.

In the South-West and South of Portugal (FUs, Functional Units 28-29), the *Nephrops* fishery represents a small but valuable by-catch in fisheries targeting mainly demersal fish species. In FUs 28-29 there is a crustacean trawl fishery targeting mainly deepwater crustaceans. These vessels are licensed to take Norway lobster with 70-mm mesh and shrimps with 55-mm mesh codends. These two species have different market values. Depending on their abundance, effort is directed at one species or the other. Rose shrimp is the main target species while Norway lobster is an alternative.

The effort exerted on Norway lobster stocks in FUs 28-29, estimated by ICES, has been reduced mainly due to effort transfer to rose shrimp, the other target species of the crustacean fleet. According to ICES, this shift has caused a reduction in F for these Norway lobster stocks. Although marginal, the share of Norway lobsters on total landings decreased by 44% (from 0.23% to 0.10%) from 2006 to 2009.

4. THE FISHING EFFORT REGIME

The activity of the vessels participating in the southern hake and Norway lobster fisheries is subject to fishing effort limits expressed in days at sea laid down in annex IIB of the annual Council regulations establishing annual fishing opportunities for certain fish stocks, as described above under point 1.

The fishing effort baseline was established per gear type on the basis of the activity of the fleet in 2003 measured in kW.days at sea. These nominal[5] effort figures have been used to calculate effort adaptations over the years.

4.1. The evolution of fishing effort and fishing mortality rates

As hake is caught in a mixed fishery and for certain fleet segments (e.g. trawlers) it may represent a small percentage of its total catches, restricting the activity of these vessels may

[5] Nominal fishing effort is the potential fishing effort of a fishing unit defined by vessel and type of gear employed. It is a function of the registered vessel's characteristics (in kW) and time spent at sea.

not enable the maximisation of the fleet's fishing potential. Nonetheless, the share of hake on total landings increased by 46% (from 7.5% to 11%) from 2006 to 2009 probably due to more abundance of hake over the last few years.

As a result of the effort restrictions imposed by the plan, the total nominal effort shows a slight decline over the years. Despite the annual nominal fishing effort reductions in equal steps of 10%, the F (fishing mortality rate) of hake has not been effectively reduced and remains too high, currently estimated by ICES at around 0.74 or 2.7 times above the target (Figure 1).

On the other hand, based on scientific information there are indications that TACs may have been overshot several years of the plan and discard rates are high. In 2009, ICES estimated landings of 19200 tonnes and catches of 22400 tonnes respectively 2.4 and 2.8 times above the TAC of 8104 tonnes. These findings require further investigation by the European Commission as well as by the Member States involved.

The aforementioned unexpected high fishing mortality of hake can be explained as follows:

(1) There are indications that the recovery plan has not been effectively implemented. Scientific data suggest a significant overshot of the TACs. This may be partially due to weaknesses of the national control systems. Since 2006 the Commission carried out a number of inspections on both the Spanish and Portuguese control systems. The Commission is currently investigating and auditing the Spanish control system.

(2) Ineffective and/or incorrect management of effort at national level. For example, in accordance with Article 26(6) of the control Regulation (EC) No 1224/2009, *"A day present within an area shall be any continuous period of 24 hours or part thereof during which a fishing vessel is present within the geographical area and absent from port…"* This means that any fraction of a day is to be counted as a full day. It was on this basis that the effort baselines in kW.days were established in 2003. As the new control regulation entered into force only recently in January 2010, the rules for dealing with fractions of days before 2010 are assumed to be discretionary.

(3) Fishing effort has been transferred to vessels with higher catch rates. A transfer of effort from active to passive gears has been observed. Effort in kW.days has been transferred on a 1:1 basis; however this is not a suitable unit to measure the effort of passive gears. For a range of static gears, such as the gillnet segment, despite their relative low contribution to the total effort in kW.days, these gears catch more hake per unit effort compared for example with the demersal fleet from which the effort has been transferred. Large extensions of nets permanently deployed in the water result in a significant continuous fishing pressure. When effort is transferred within the same gear type, for example from trawls to trawls on the basis of permanent cessations of fishing activities, more efficient vessels that remain on the fleet recover the effort of less efficient vessels that are scrapped.

(4) In cases where effort (in kW.days) has been transferred from netters to trawlers in exchange for quota (in tonnes of hake), trawlers with high fishing capacity targeting mainly species other than hake received more effort to

continue catching other species, discarding hake, while netters received more quota to continue fishing hake at low effort levels expressed in kW.days.

(5) High level of discards either due to (i) biological causes (i.e. more abundance of hake), (ii) legislative restrictions (i.e. quota limits), (iii) market demands (i.e. hake prices) or (iv) fishing gear used and vessels' characteristics.

(6) Effort has been reduced and adapted in nominal terms (kW.days) not taking into account the effective[6] effort depending on vessels' characteristics, gears, technology improvements and fishing tactics. This includes possible changes in fishing behaviour, with vessels preferably targeting areas of hake abundance when the available quantities of hake increase, or more use of fishing gear that catches more hake.

(7) Not all vessels are subject to effort restrictions. Vessels subject to effort restrictions (i.e. vessels of 10 meters' length overall or more carrying on board the regulated gears and catching 5 tonnes or more of hake) are responsible for 71% of the total catches of hake. The remaining vessels that catch 29% of the hake TAC may increase their effort without any limitation. On the other hand, the exclusion of vessels of less than 10 meters' length overall from the effort regime may have contributed to the attractiveness for investment on these vessels increasing its number and fishing capacity. However, there is no estimate on the size of this shift of effort to smaller vessels. The Commission's initial proposal to limit the activity of vessels with less than 10 meters length overall did not find the Council's support.

(8) Possible mismatch between the officially registered engine power of vessels and its real and probably upgraded power. Registration of engine power is based on declarations of the manufacturers and checked (not necessarily measured) by organisations responsible for maritime safety and certification.

(9) The initial effort baseline (in kW.days) established in 2003 was calculated on the basis of the vessels' previous activity. As the data improved over time, the initial baseline may have been fixed at an unrealistic high level. In this context, effort limitations in the first years of the application of the plan may have not been effective.

5. IMPACT IN THE ECOSYSTEM AND SOCIO-ECONOMIC EFFECTS OF THE PLAN

Due to the lack of implementation as described above, scientists estimate that the plan has not had any effect on the ecosystem.

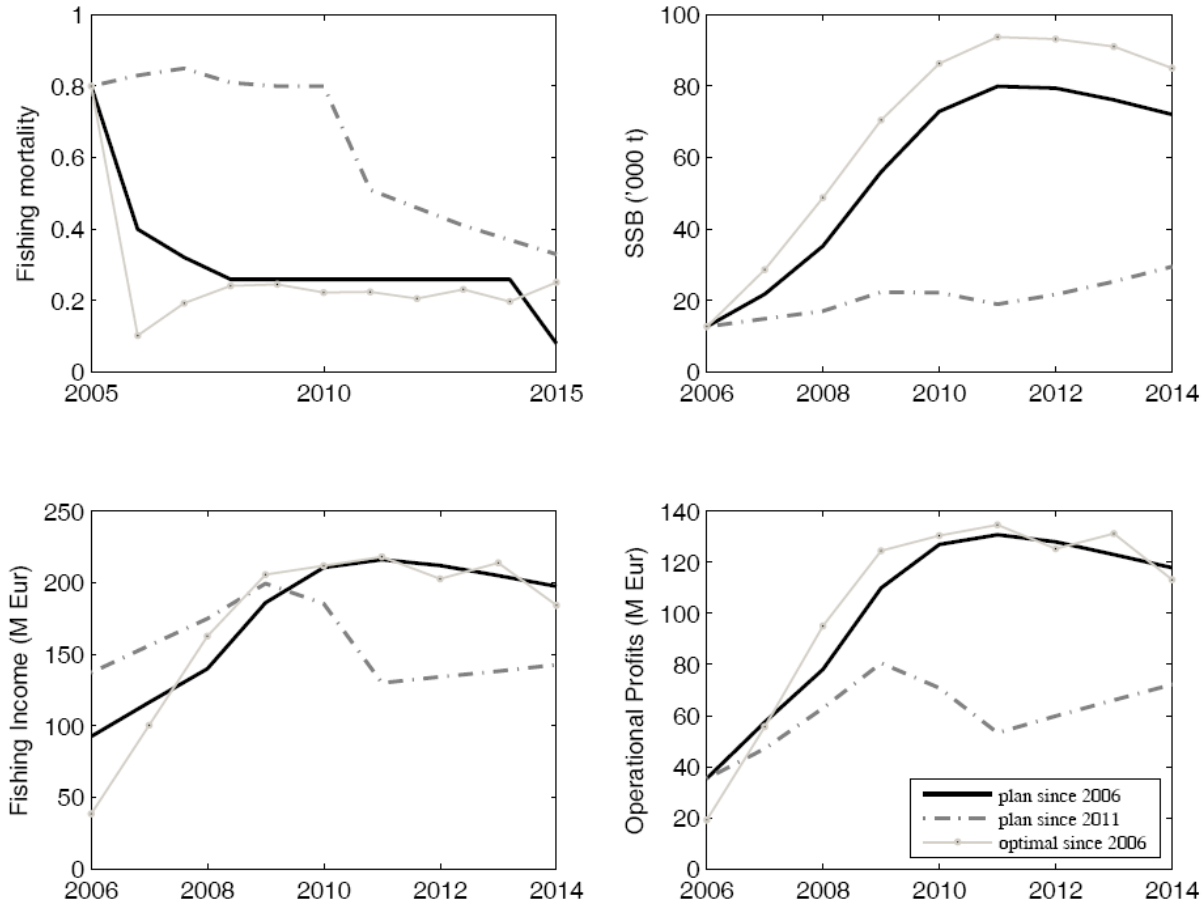
5.1. Socio-economic effects of the plan

[6] Effective fishing effort is function of parameters characterising the fishing vessel and its technology including not only engine power measured in kW but also hull attributes, deck equipment, electronics, vessel control, catch handling, vessel's and engine age, the gear and fishing activity (including fishing tactics), which is considered to have the most significant effect on fishing mortalities.

STECF scientists used official available data collected through the fisheries data collection framework to compute each fleet's hake dependency as well as crew, fuel and variable costs as a fraction of the total value and yearly share on total hake landings.

Assuming that the recovery plan had been perfectly implemented since 2006, compared with the current situation, in 2010 the fishing mortality would have been below the target (F = 0.27), the spawning stock biomass would be more than 3 times higher and the fishing income and operational profits would also be higher (Figure 2). This means that fully implementing the recovery plan since 2006 would have increased the net present profits for the whole period. Moreover, after 2011 aggregate net profits for all segments would always be higher if the plan had been implemented since 2006.

Figure 2 – Comparative projections between fishing mortality, spawning stock biomass (SSB), yield in value and operational profits. The dark continuous line represents the perfect implementation of the plan from 2006; the dotted line represents the plan's implementation after 2011 and; the continuous line with points represents the trajectories associated with the F's that maximizes net present profits since 2006 (optimal-drastic implementation).



Source: STECF SGMOS 10-06 report on the "Evaluation of the Multiannual plan for Hake and Nephrops in Areas VIIIc and IXa", October 2010.

After four years since the plan's entry into force, no significant changes in fleet capacity[7] have been observed. Although large fluctuations in hake and fuel prices affected fleet profits, no significant fleet[8] exit has been observed.

6. CONCLUSIONS

There are indications that the southern hake and Norway lobster plan has not been effective mainly due to implementation failures. According to ICES in 2010, after four years following the implementation of the plan in 2006, the fishing mortality rate (F) for hake is nearly three times the target (F_{max} = 0.27). In this context, the TACs for hake have not been fully enforced. Landings in 2010 are estimated by ICES scientists to exceed the TAC by 2.2 times. As the recruitment seen in 2007 was unusually high, this represents a missed opportunity to rebuild the hake stock to a sustainable level within the foreseen timeframe. In case recruitment declines again to previously observed levels, a longer transitional period or steeper reduction in catches to achieve F_{msy} by 2015 will be necessary.

The effort regime has not been effective in reducing fishing pressure on both stocks. Whilst nominal fishing effort for the regulated gears under the plan has declined, effective effort increased mainly due to both effort transfers to gears that catch more hake per unit effort and to a significant number of vessels not being subject to effort restrictions. The effort exerted on Norway lobster stocks has been partially reduced due to a shift of effort to the shrimps' fishery rather than as a result of effort reductions imposed by the plan itself.

The lack of implementation of the plan during the period 2006-2010 reduced the net present profits by 20% relative to a scenario where the plan would be fully implemented since 2006. In order to have a better understanding of the economic consequences of the plan, it would be necessary to analyse it more in context, notably taking into account the other species caught by the relevant fleets in the same or different fisheries.

In the context of a possible revision of the plan foreseen[9] for 2011, the current failure to achieve the target reduction of fishing mortality needs to be addressed. Besides implementation issues that need to be urgently resolved, the effort regime must also be improved. It is appropriate to introduce an effort regime that takes account of the fleet segments engaged in the fishery, whether with active or passive gears, and possibly enlarge the application of the effort regime to the Gulf of Cadiz and to smaller vessels. Discard practices need to be thoroughly assessed to quantify its impact on fishing mortality. The introduction of seasonal and real-time closures would also be an effective means to control fishing pressure, in particular on spawning grounds. The management of the Norway lobster stocks by FU (Functional Unit) would better respond to the conservation measures required for each stock unit. The inclusion of other species such as anglerfish in the plan would be appropriate to minimise the impact of this mixed fishery on certain other stocks. The objective of the plan may be revised in light of the most recent scientific advice.

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7 Fishing "capacity" is the maximum available capital stock (or fishing power) in a fishery that is fully utilised at the maximum technical efficiency in a given time period, given resource and market conditions.

8 As a fraction of the total fleet in number of vessels.

9 http://ec.europa.eu/governance/impact/planned_ia/docs/123_mare_southern_hake_en.pdf