

<p>Recovery plans for fish stocks threatened with collapse Information Sheet No 2: Fishing Effort</p>
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1. Introduction

In Information Sheet No 1 the Commission puts forward its thoughts on a multi-annual process for selection of TAC's. Application of this process will require that fishing mortality rate on cod and hake be reduced, probably to levels below those which provide a high probability of sustainability for stocks which are within safe biological limits. To accompany this process it is highly desirable that fishing effort should also be restricted. If this is not done, there is a real risk that the selected TAC's for cod and/or hake will be exceeded and that the excess will be converted into discards and/or black fish.

This document puts forward the Commission's thinking on how fishing effort might be suitably adjusted throughout the recovery programmes.

2. Mid-term approach (2003 onwards)

2.1 Proportionality of restriction of fishing effort

The mid-term approach to modifying fishing effort is based on the intuitively-obvious fact that some methods of fishing are more efficient at catching cod and/or hake than others. In principle, therefore, those methods which are more efficient should be subject to proportionately greater restriction in fishing effort.

For example, bottom trawlers may account for 80% of the catches of cod whereas pelagic trawlers may account for less than 1% of the catches. Reducing the fishing effort of both categories by 50% would correspond to a reduction in fishing mortality of 50%, but the contribution of the pelagic trawlers to this reduction would be negligible even though the economic losses for the vessel owners would be very high.

2.2 Calculation of effort reductions in each of the categories of vessels.

One way of allocating the effort reductions according to fishing method would be to use the partial fishing mortality rates generated by each method. The following worked example illustrates how this might be done if there are 3 fleets exploiting the stock concerned:

	Fleet 1	Fleet 2	Fleet 3	Total
Partial Fishing mortality	0.6	0.2	0.1	0.9
Fishing effort (e.g. kW days)	8000	10000	20000	38000
Fishing mortality per unit effort (F/E)	0.000075	0.000020	0.000005	0.000100
Relative F/E	0.75	0.20	0.05	1.00

The total fishing mortality generated by the three fleets is 0.9. Suppose that this must be reduced to 0.4, which means a reduction in fishing mortality of $0.9 - 0.4 = 0.5$.

Using the relative values of fishing mortality per unit effort (the last row of the table), 75% of the total reduction in fishing mortality should be attributed to Fleet 1, 20% to Fleet 2 and 5% to Fleet 3. Thus:

	Fleet 1	Fleet 2	Fleet 3	Total
Reduction in fishing mortality	0.375	0.1	0.025	0.5
New fishing mortality	0.225	0.1	0.075	0.4

Assuming that the fishing mortality per unit effort is unchanged, dividing the new fishing mortality by the fishing mortality per unit effort will provide the appropriate level of fishing effort allowed for each fleet :

	Fleet 1	Fleet 2	Fleet 3	Total
New effort per fleet	3000	5000	15000	23000

2.3 Potential problems.

The drawback to such an approach is that data on partial fishing mortalities and the baseline levels of effort in the areas concerned may not be readily available. The Commission will discuss with the Member States how such data can be derived as soon as possible during 2002

3. Short-term approach (2002 only).

Despite the potential problems in arriving at a medium-term approach to the regulation of fishing effort, the Commission wishes to initiate such a process by the start of 2002. The Commission will propose TAC's for 2002 in accordance with the process described in Information Sheet No 1 and will also put forward proposals for restriction of fishing effort based on a simpler methodology than that which should be available for 2003 and onwards.

3.1 Possible methodology

(i) List of vessels which catch cod or hake

Each Member State will be requested to create a list of the vessels in its current fleet which has landed any quantity of cod and/or hake from Community waters in a recent reference period.

(ii) Quantities of cod and/or hake landed, fishing effort expended while taking these quantities.

For each vessel on this list the average annual landings of cod and/or hake landed during the reference period should be defined.

Ideally, the average annual fishing effort per vessel (days fishing or kilowatt-days fishing) should also be specified. However, the Commission recognises that Member States may not be able to provide such data, especially for smaller vessels. In that case, the Commission will assume an average of 250 days at sea for each vessel.

(iii) Reduction in fishing effort

Preliminary analyses conducted by Commission Services indicate that the probable required reduction in fishing mortality rate during 2002 for all of the endangered stocks is approximately 50%. Accordingly, the Commission wishes to reduce fishing effort by the same amount or close to that amount.

For each vessel which has annually on average during the reference period landed more than a given amount of cod and/or hake, representing a significant amount of overall fishing effort (say 50 tons of cod + hake), fishing effort will be set at 125 fishing days (250/2).

For each vessel which has annually on average during the reference period landed less than 50 tons of cod + hake, fishing effort will be reduced by a lesser amount, in proportion to the quantities landed i.e. fishing effort will be set at the value produced by the following equation:

$$\text{Days} = 250 - (L/50 \times 125)$$

Where L is the average landings of cod plus hake by that vessel.

For example, if the average landings by the vessel is 25 tons,

$$\begin{aligned} \text{Days} &= 250 - (25/50 \times 125) \\ &= 250 - 62.5 = 187.5 (= 188 \text{ to the nearest day}) \end{aligned}$$

Similar calculations can be carried out for each vessel on the list.

In order to give some flexibility to each Member State, the total number of kW/days for the vessels concerned may be redistributed among the vessels in its list in any way that it sees fit.

The Commission recognises that, without further modification, the system described above cannot bring about a full 50% reduction in effort. However, it should bring about a significant reduction.

(iv) Geographical area for the expenditure of the allocated fishing effort.

By the system outlined above, each vessel on the list of each Member State should have a number of fishing days allocated to it. The Commission suggests that, to discourage redistribution of effort to geographical areas not usually fished by a given vessel, it should be stipulated that these are the maximum number of days that the given vessel may fish in Community waters.

(v) Vessels not on the list

Vessels not on the list should be prohibited from landing or transshipping cod and/or hake which have been caught in Community waters.