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Questions and Answers on Maximum Sustainable Yield (MSY)

What is Maximum Sustainable Yield (MSY)? How will it differ from the current management approach?

The difference from the present system is that, in recent years, the focus of fisheries management has been to avoid fish stocks falling to dangerously low quantities. Now we want to change the focus away from avoiding something bad to, instead, seeking to achieve positive and useful improvements.

Fishing at MSY levels means catching the maximum proportion of a fish stock, that can safely be removed from the stock while, at the same time, maintaining its capacity to produce maximum sustainable returns, in the long term.

In the case of a small stock, the annual production potential is limited because there are too few adult fish producing too few young fish that can contribute to the renewal of the stock concerned. At the same time, when a fish stock is too large, the annual reproduction is low as growth slows down due to lack of food and the production of younger fish may decrease due to competition between them.

Between these extremes is a stock size at which the sustainable catch is at the highest practicable level. This is the stock size that can produce the maximum sustainable yield.

MSY will be based on the principle of long-term management which has already been applied by the EU in a number of recovery plans adopted or proposed for various stocks. However, the idea is now to speed up the move towards a longer-term management system which should help achieve the maximum productive potential of living marine resources in EU waters. In fact, instead of only trying to recover stocks in difficulty, MSY will help achieve successful and sustainable exploitation of stocks and maximise benefits to the fisheries sector.

What was the commitment which the EU took upon it at the Johannesburg Summit in 2002?

At the World Summit on Sustainable Development in Johannesburg, in September 2002, the EU Member States signed up limiting fishing to sustainable levels by maintaining or restoring stocks to levels that can produce the maximum sustainable yield. For depleted stocks, this should be achieved urgently, and where possible not later than 2015. The agreement reached at the Summit also committed Signatories to strong action against illegal, unreported and unregulated fishing (IUU) which is a priority for the Union and the subject of an EU Action Plan.

Why is it necessary to apply the MSY principle in EU waters?

Many fish stocks in EU waters are outside safe biological limits. The International Council for the Exploration of the Sea (ICES) has analysed the exploitation rate for a number of fish stocks in the North-East Atlantic and adjacent waters in relation to high long-term yields. The results (see table) show that 81% of the stocks assessed are overfished and that for some stocks fishing mortality is as much as five times higher than that needed to achieve MSY. This situation of overfishing seems to apply to a similar extent in all areas of EU waters.

Area	No. of stocks	No. of stocks where an evaluation was made	No. of stocks exploited consistently with MSY	No. of stocks overfished with respect to MSY	For overfished stocks, where estimates are available (<i>n.b.</i> data availability is different in the two columns, which are not therefore directly comparable)	
					Fishing mortality rate relative to $F_{0.1}$	Fishing mortality rate relative to F_{max}
North Sea, Eastern Channel, Skagerrak and Kattegat	23	12	4	8	480 % ¹	270 %
West of Scotland	10	3	1	2	490 %	310 %
Western waters	26	14	1	13	390 %	210 %
Iberian Atlantic	11	7	2	5	170 %	200 %
Baltic Sea	13	2	0	2	540 %	360 %
Widely distributed	5	5	0	5	220 %	110 %
Total	91	43	8	35	380 %	220 %

(¹ e.g. a 480% means an overfishing of 4.8 times relative to this reference rate)

How will the principle of MSY be implemented?

The main implementation tool will be long term plans as foreseen under the Common Fisheries Policy. These plans will define the rate of fishing which can be exerted for each stock within the fishery concerned and also determine the rate at which annual adjustments can be made to meet this target. This gradual approach is important to ensure that the shift to MSY will not create too much hardship for the sector over a short period of time before the benefits can be reaped.

In addition to methods for annual adjustments to TACs and adjustments to effort levels, the long-term plans may include a number of other instruments, including technical measures such as closed areas or rules concerning the structure of fishing gear. The plans will be based on specific fisheries and targeting groups of fish stocks that are caught together.

The plans will be firmly based on the best scientific advice available and will also be subject to impact assessments to make sure that all likely social and economic implications have been taken into consideration before implementing a measure. Another important principle is the consultation of stakeholders, in particular the RACs, so that those most directly affected by the management decisions will have a chance to have their say.

Plans will be reviewed regularly (every 5 years or so) so that, if necessary, they can be modified to take changed circumstances and conditions into consideration.

What will be the effects of implementing MSY?

Fish stocks, discards, by-catches and habitats

An MSY approach will help prevent the collapse of fish stocks and will contribute to the rebuilding, of depleted ones. As fish stocks grow, they will also be less likely to be affected by a possible lower number of young fish joining the stock (see answer 1).

Large quantities of fish are discarded (returned to the sea, dead) in EU waters each year, often because they are too small or of too low value or caught beyond the available quota. However, discards should be reduced as fishing mortality goes down. At a later stage, when fishing takes place at MSY levels, the proportion of larger and higher value fish in the catch will be greater and this should also result in much lower discards.

When fishing effort or pressure goes down, by-catch species such as dolphins and porpoises are also less likely to be caught during fishing in the fisheries concerned and the overall impact on habitats from fishing will also diminish.

Fishing industry

In the initial phase, it will be necessary to reduce catches as this will allow fish to grow more, and thus result in a higher value and yield from catches in the longer term. Fisheries management must seek to strike a balance between fishing and the productive capacity of the stocks. This can be done gradually by reducing fishing capacity and fishing effort.

The development of larger fish stocks will lead to greater fishing possibilities which can be exploited at a lower cost and with a higher unit value as the amount of effort (and associated costs, such as fuel) required per tonne of fish caught decreases. This will increase the profits of the fleets and, as a result, strengthen their economic base and generally make them more competitive.

The MSY approach should also make EU products more competitive compared to imported products. Today, over 60% of EU fish consumption is covered by imported products. However, this share could be reduced as EU fish stocks grow, supply becomes more stable and the quality of products produced in the EU increases.

Will financial aid be available from the EU structural funds to cushion the effect of the transition to MSY?

To mitigate the economic impact that the fisheries sector may experience during the initial phase of the transition to MSY, financial assistance to help structural change could be made available under the current Financial Instrument for Fisheries Guidance (FIFG) (covering the 2000-2006 period) and the future European Fisheries Fund (2007-2013) on which the Council of Ministers reached a political agreement on 19th June 2006.

Under these instruments, funds are made available for adapting or buying out fishing vessels, retraining fishermen for other jobs and stimulating economic activity both within the non-catching part of the fisheries sector and outside the fisheries sector. The EFF will also provide aid to help fishing areas to strengthen diversify their economies.

The new European Fisheries Fund has been designed as a real tool to help the implementation of the principles agreed during the 2002 review of the Common Fisheries Policy, especially with regard to the need to reduce fishing pressure and to strengthen the environmental, economic and social sustainability of our fisheries.

See [IP/06/931](#)