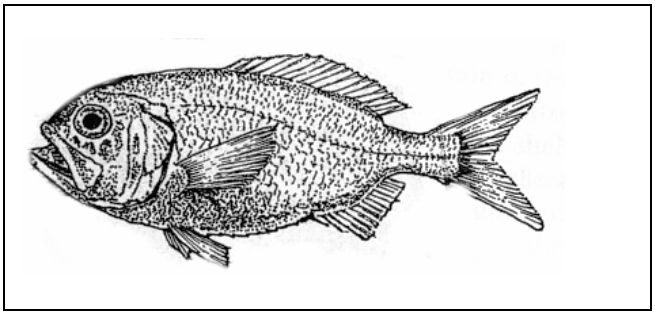
Nomination
Hoplostethus atlanticus, Orange Roughy



Geographical extent

OSPAR Region: I,V
Biogeographic zones: 1,2,7,8,10
Regions specified for decline and/or threat: I, V

The orange roughy, *H.atlanticus* is a benthopelagic species, found in deep, cold waters, over steep continental slopes, ocean ridges and seamounts. The main known populations are in the South West Pacific. It also occurs in the North East Atlantic but at much lower levels of abundance than in the Pacific.

Application of the Texel-Faial criteria

There were two nominations for orange roughy to be placed on the OSPAR list. The criteria common to both were decline and sensitivity, with information also provided on threat.

Decline

Rapid declines in abundance have been documented in all areas where the orange roughy is fished and several populations have been overexploited (e.g. Branch, 2001; Clark, 2001; Koslow *et al*., 1997; Lorance & Dupouy, 2001). Most orange roughy fisheries have been fished down within 5-10 years to less than 20% of their original stock size (Koslow, 2001).

In the OSPAR Maritime Area and particularly the North Eastern Atlantic some aggregations have been severely depleted. The stocks in ICES sub-area VI (North eastern part of OSPAR Region V) are outside safe biological limits. In deep water areas northwest of the UK (ICES Area VI), the CPUE for this species declined quite quickly after the fishery commenced in 1991, and by 1994 it was 25% of initial catch rates. In recent years CPUE has increased slightly and has stabilised. The apparent stabilisation may simply reflect the discovery and subsequent fishing of previously unexploited aggregations of fish. (ICES, 2002a).

The situation in ICES sub-area VII (off the south west) appears to be less serious as catch levels increased in 2001, however this is due to fishing newly discovered aggregations. There is therefore a high probably of a severe depletion of the species in the future. The state of stocks in other areas is not known (ICES, 2002a).

Sensitivity

The orange roughy is a sedentary species, which grows very slowly, and is one of the longest lived fish species known, living for more than 130 years (Allain & Lorance, 2000). Due to the distribution of the species in discrete and dense aggregations from which high catch rates can be obtained, fisheries can rapidly deplete the stocks. The slow growth and high longevity of orange roughy means that recovery of depleted population can only be very slow.

Threat

The main threat to the orange roughy is from fishing of the dense spawning and non-spawning aggregations which form sporadically. Newly discovered aggregations are being exploited and as the fishery remains unregulated, this continues to pose a threat. Well-established fisheries in the OSPAR Maritime Area are on the mid-Atlantic ridge off Iceland. It is also caught on the Hatton Bank.

Relevant additional considerations

Sufficiency of data

There is sporadic exploitation of populations along the Mid-Atlantic ridge but the data on landings and fishing effort are often limited or relatively poor. Landing statistics may not reflect the true scale of fishing activity outside national EEZs. The degree to which the abundance of the species depends on the exploited aggregations is also unknown (ICES, 2002a).

Changes in relation to natural variability

Little is known about natural variability in populations of orange roughy or the biology of the larvae and juveniles.

Expert judgement

The Working Group on the Biology and Assessment of Deep Sea Fisheries in ICES notes that the smallest units on which data are reported are ICES Areas and Subdivisions. Fishing for species like the orange roughy, that have relatively isolated concentrations and catch rates, can therefore only be maintained by sequential depletion of these

concentrations. Data on effort and catches need to be recorded on a much finer temporal and geographical scale to improve assessments. The opinion of ICES is that most of the exploited deepwater species are being harvested outside safe biological limits and that there should be an immediate reduction in these fisheries unless they can be shown to be sustainable (ICES, 2002a).

ICES evaluation

The ICES evaluation of this nomination confirmed that fishing is the main threat to orange roughy and that the stock in ICES Sub-area VI is outside safe biological limits. The status of stocks in other areas is unquantified, but the available evidence suggests that many have been depleted (ICES 2002b).

Threat and link to human activities

Cross-reference to checklist of human activities in OSPAR MPA Guidelines

Relevant human activity: Fishing, hunting, harvesting; *Category of effect of human activity:* Biological – removal of target and non-target species.

The principle threat to orange roughy in the OSPAR Maritime Area is fishing. The entire depth range is accessible to trawling and the major populations of this species are probably already known and most are exploited.

ICES report that there has been a pattern in some parts of the OSPAR area and other parts of the world for aggregations to be discovered, exploited intensively, and depleted faster than the information needed for managing the fisheries be collected and effective management implemented. The threat to this species is clearly linked to human activity.

Management considerations

Useful management measures for the orange roughy include controls on the directed fishery and by-catch, and closed areas. These measures fall outside the remit of OSPAR although OSPAR can communicate an opinion on its concern about this species to the relevant bodies. OSPAR could also introduce any relevant supporting measures that fall within its own remit if such measures exist. Marine Protected Areas are one possibility.

Further information

Nominated by:

UK and Joint Submission from Iceland, Portugal & UK

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Useful References:

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