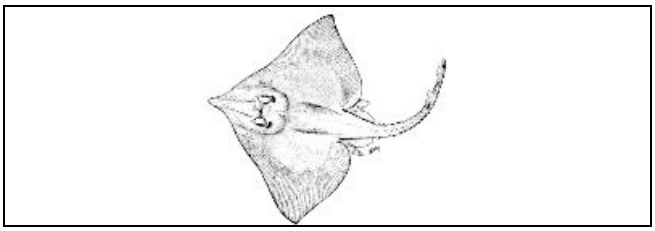
Nomination

Rostroraja alba, White skate

White skate *Rostroraja alba* (Lacepède 1803)



Geographical extent

- OSPAR Regions: II, III, IV
- Biogeographic zones: 12,13,14,15,16
- Region & Biogeographic zones specified for decline and/or threat: as above

Rostroraja alba is (or was) distributed in the Eastern Atlantic from the British Isles southward around the Cape of Good Hope (South Africa) to central Mozambique, including most of the Mediterranean (to Tunisia and Turkey). (Dulvy *et al*. 2006; Froese & Pauly 2006; Fricke *et al*. in press.) It occurs on the seabed from coastal waters and across the shelf to the upper slope, from 40-400m and exceptionally down to 500m (Capape 1976; Stehmann and Burkel 1984; Serena 2005). It is found on sandy and detrital bottoms, often close to rocks, but Du Buit (1974) reports it to be more prevalent in rocky habitats (Dulvy *et al*. 2006).

Application of the Texel-Faial criteria

Global importance

The historic distribution of this species includes OSPAR areas II, III and IV, southwards from the British Isles. Since its range is more extensive along the coast of Africa, it is not of global importance in the OSPAR Area. Nevertheless, as available information suggests that the populations of this and other large-bodied species of elasmobranch are likely to be declining throughout all or most of their range, OSPAR members play a globally important role in the conservation of this large skate species.

Regional importance

Rostroraja alba may possibly have been of regional importance in the past, when it was reportedly abundant in a few localities (Irish Sea, English Channel, off Brittany) where target fisheries occurred, but these have been fished out and this species is no longer of regional importance.

Rarity

Although formerly abundant around the British Isles and southwards, *R. alba* is now absent from research vessel surveys (ICES WGFE 2006) and very rarely recorded in commercial catches (ICES WGEF 2006).

Sensitivity

Rostroraja alba inhabits shelf and slope waters. It is found on sand bottom, often close to rocks. This species has one of the largest body sizes of Northeast Atlantic skates, surpassed only by the common skate *Dipturus batis*. There is a strong correlation between large body size and extinction risk in skates; all those skate species that have disappeared from substantial parts of their ranges have large body sizes compared with other skates with a similar distribution (Dulvy and Reynolds 2002). This is attributed to large-bodied animals having life history parameters, such as large size at birth, slow growth and late age at maturity, that make them particularly vulnerable to over-exploitation (Dulvy *et al*. 2000 & 2003; Dulvy and Reynolds 2002). Large-bodied animals are likely to be captured and utilised in fisheries for many years before they reach maturity; they are thus subject to higher mortality rates at all age classes than are smaller species, and they also have a lower reproductive rate. *R. alba* is therefore biologically highly sensitive to capture in benthic fisheries, especially trawling, and has been extirpated from large areas of its former range through bycatch in demersal fisheries targeting other more abundant species.

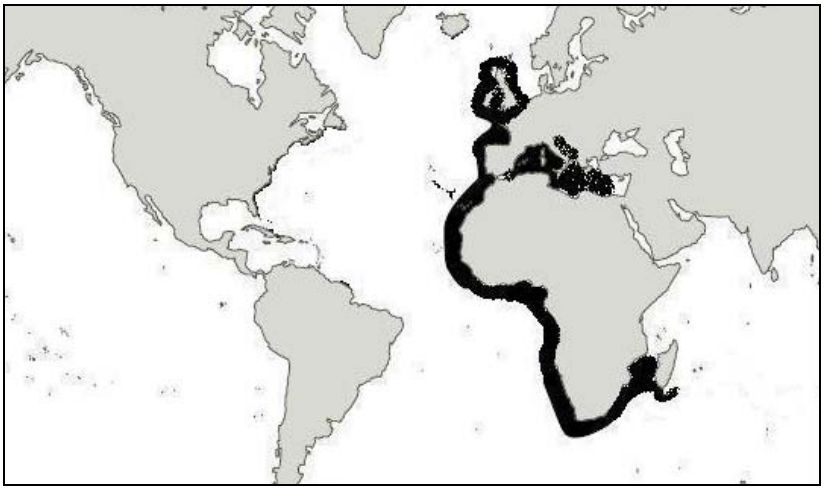
Keystone species

No.

Decline

Rostroraja alba was reportedly once sufficiently abundant (at least in localised populations) to support target fisheries in parts of its range off the British Isles, northern France. A few references in historic literature, recent observations and anecdotal information suggests that this species, including formerly abundant localized populations, has declined severely during the past 50 to 100 years. It was apparently taken relatively commonly in fisheries in the 19th century (ICES 2005; Dulvy *et al*. 2000, 2006), but records largely ceased during the 20th Century. It is now very infrequent, if not locally extinct in most of its former range.

Figure 1: Global distribution of *Rostroraja alba* (adapted from van der Elst 1998)



Day (1880-84) described the white skate as occurring all around the UK and 'not uncommon', although most recent literature states that its northern limits of distribution were in the Irish Sea and English Channel (areas from which it has now also been extirpated). The species was sufficiently common in the Irish Sea for a longline fishery to target white skate off the Isle of Man during the 1880s (Dulvy *et al*. 2000). The species was still being recorded during the early 1900s (Bruce *et al*. 1963, Stehmann and Bürkel 1984, Rogers and Ellis 2000), but has been absent from recent research vessel surveys and commercial landings from the waters of the British Isles (Rogers and Ellis 2000). A directed long-line fishery in the Baie de Douarnanez (Brittany) in the 1960s collapsed and white skate is no longer listed on French fishery statistics (Quéro and Cendrero 1996). The status of *R. alba* further south is uncertain; they may still be landed around the Iberian Peninsula (if these records are not misidentifications of shagreen ray *Leucoraja fullonica* and sandy ray *L. circularis*) (ICES 2006).

Outside the OSPAR Area, *R. alba* has also undergone marked declines in abundance and geographic range in the Mediterranean, where it was formerly captured frequently in the northwestern Mediterranean during the 1960s and off Tunisia and Morocco in the early to mid 1970s, but is now considered rare (Dulvy *et al*. 2006). Its status on the continental shelf off West and South Africa is unknown, but this species' vulnerability to capture in trawl gears combined with increased levels of industrial fishing effort off the coast of Africa, including hake fisheries off southern Africa, suggests that *R. alba* has no few or no refuges from fisheries (hence the global IUCN assessment of Endangered (Dulvy *et al*. 2006).

Threat

Following the collapse of target fisheries, the greatest threat to *R. alba* is now bycatch in demersal fisheries targeting other species. Such fisheries have the potential to drive this large-bodied biologically- and morphologically-vulnerable species to extinction.

Where it still exists, *R. alba* is highly likely to be caught as bycatch in the intensive multi-species trawl fisheries that operate over much of the continental shelf and slope habitat of this species. As described above, this species has undergone dramatic declines in abundance and substantial reductions in its geographic range within the Mediterranean and the Northeast Atlantic; it is therefore listed in the Barcelona and Bern Conventions. The IUCN Shark Specialist Group has assessed the species as Endangered globally and in the Mediterranean, and Critically Endangered in

the Northeast Atlantic (OSPAR Maritime Area) (Dulvy *et al*. 2006).

Relevant additional considerations

Sufficiency of data

Data on *Rostroraja alba* are very limited in OSPAR Maritime Area, though the species was known to be more common in the past. There is little information on remaining populations, stock dynamics, reproductive rate and ecology of this species in the NE Atlantic.

Changes in relation to natural variability

No data about the natural variability of the populations of *Rostroraja alba* are available. The species is now so rarely recorded that it is unlikely to be feasible to study genetic variation within the OSPAR Maritime Area. It would, however, be useful to study genetic variation in this species from different areas of its range (e.g. the OSPAR Area, Mediterranean, western and southern Africa) in order to inform conservation strategies across its global range.

Expert judgement

The shortage of scientific data on the current population size and distribution of this species in the OSPAR Maritime Area, and reliance upon fairly limited historic and anecdotal information, means that expert judgement has played a significant part in this nomination. The case rests on recognition that the threats to the white skate are known, that such threats occur in the OSPAR Maritime Area and that they have led to significant declines in the number of this and other large-bodied skate species in the Area and elsewhere.

ICES Evaluation

In 2002, the ICES Study Group on Elasmobranch Fishes was asked to comment on the status of white skate and "considered that there was a high probability of population decline, both in the Bay of Biscay and Iberian coast, and in the Celtic Seas. For example, there was a directed long-line fishery in the Baie de Douarnanez (Brittany) in the 1960s that collapsed (white skate are no longer listed on French fishery statistics), and a similar decline is thought to have occurred in the Irish Sea" (ICES 2002).

In its review of an earlier version of this nomination, ICES WGEF (in prep.) noted that "There are insufficient data to quantify declines in *Rostroraja alba* over its entire range, though there is consistent anecdotal evidence of widespread declines in OSPAR regions III and IV." The WGEF concluded: "Although heavily dependent on anecdotal information and expert judgement, WGEF considered that there was a justifiable rationale in the nomination for listing white skate as a Threatened and Declining species in OSPAR regions II-IV."

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 as target and non-target species by fisheries.

The collapse of target fisheries for the white skate, followed by a decline and cessation of records in scientific surveys and commercial bycatch in the OSPAR Maritime Area is believed to indicate a decline in the population caused by fishing activity. This threat is directly linked to human activity.

Although no catch per unit effort data are available, the declining catches in the Northeast Atlantic are believed to represent falling yields from declining stocks rather than declining fishing effort.

This pattern of steeply declining catches is familiar in other fisheries for large skates where there are better records, including catch per unit effort.

Management considerations

Management actions essential for the conservation of this species are the identification and protection of any relict white skate populations, control of the fisheries that capture large-bodied skate species (particularly reduction of fishing effort), and the monitoring of fisheries and trade in large species of skate. Fisheries and trade in this species should not be permitted in the OSPAR Maritime Area, and fishing techniques should be designed to reduce white skate bycatch and maximise the opportunities for returning any incidental catch alive to the sea.

This species is classified on the IUCN Red List as Endangered globally, and Critically Endangered in the Northeast Atlantic, in the IUCN Red List (Dulvy *et al*., 2006).

R. clavata is also listed on Appendix III (protected fauna) of the Bern Convention on the Conservation of European Wildlife and natural habitats and listed on Annex III (species whose exploitation is regulated) of the Barcelona Convention for the Protection of the Mediterranean Sea.

Further information

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