

## Inclusion of Basking Shark *Cetorhinus maximus* in Appendix II. Proponent: United Kingdom (on behalf of the Member States of the European Community).

**Summary:** The Basking Shark *Cetorhinus maximus* is a large (13.7 m) plankton-eating fish. It is widely distributed in coastal and continental shelf waters of temperate zones in the northern and southern hemispheres. It is long-lived (c 50 years), with a low reproductive rate bearing up to six live young every four years. The Basking Shark migrates seasonally to coastal areas in response to plankton blooms. Its habit of basking at the surface makes it vulnerable to harpoon fisheries. Directed fisheries have targeted the species for centuries, but these fisheries rarely last longer than 20 years (taking an average of 200 fish per year) before stocks collapse and take up to 100 years to rebuild. Currently the only directed fishery in operation appears to be the Norwegian fishery, which is in decline and took only an estimated 36 Basking Sharks in 2001, compared with over 600 a year in the early 1990s. However, the high value of fins generally is thought to encourage the harvesting of Basking Sharks taken as bycatch. Products in trade have included meat, fins and oil. Fins have increased in price from GBP 3/kg (USD 4.60) in the 1970s to GBP 20/kg (USD 30.70) in 1994 and 2000. Due to levels of past and projected future over-exploitation by fisheries, the species is classified by IUCN as Vulnerable. The species was included in Appendix III by the United Kingdom in 2000 (Japan and Norway took reservations on this listing) and is partially protected by legislation in Malta, New Zealand, United Kingdom and U.S. waters. The FAO Committee on Fisheries recognised the need to improve management of shark fisheries with the adoption in 1999 of the International Plan of Action for the Conservation and Management of Sharks (IPOA – Sharks), endorsed by the FAO Council in 2000. However, there has been little tangible progress with implementation of the IPOA in the two years since its adoption. The proponent has developed a guide to aid identification of fins and is developing a DNA test to identify parts and derivatives in trade; chemical tests to identify liver oil are available. The majority of landings of this species are likely to be from coastal fisheries and so will not be subject to the CITES provisions for introduction from the sea. The species is proposed for inclusion in Appendix II under Resolution Conf 9.24 Annex 2a criteria Bi) on the basis that it is known, inferred or projected that harvesting has, or may have, a detrimental impact on the species by exceeding, over an extended period, the level that can be continued in perpetuity. Although not proposed for inclusion in Appendix I, the proponent maintains that the species meets criteria C for inclusion in Appendix I on the basis of a population decline.

**Analysis:** Following Resolution Conf. 9.24, the species appears to meet the criteria for inclusion in Appendix II (Bi), on the basis that fisheries, where they do occur, generally decline rapidly and collapse without recovery for many decades. From this it appears that harvesting specimens from the wild may have a detrimental impact on the species by exceeding over an extended period the level that can be continued in perpetuity. Basking Shark products have been reported in international trade and fisheries have apparently resulted in long term localised declines in numbers. The identification guide should aid implementation.

Supporting Statement (SS)	Additional information
<b><u>Taxonomy</u></b>	
Synonyms are presented in Annex I of the SS.	<p><i>Reviewers provide a number of additional synonyms (Barrull and Mate, 2002; Duffy, 2002; Serena and Vacchi, 2002) but there is no doubt about species delimitation.</i></p> <p><i>Hoelzel (2002) was unable to demonstrate subspecific differentiation between New Zealand and North Atlantic specimens.</i></p>
<b><u>Range</u></b>	
Fifty range States are listed in Annex 2 to the SS.	<i>Also occurs in Israel (Barrull and Mate, 2002).</i>
<b><u>IUCN Global Category</u></b>	
VU A1ad+2d	

Supporting Statement (SS)	Additional information
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## Biological and trade criteria for inclusion in Appendix II

### A) Trade regulation needed to prevent future inclusion in Appendix I

According to the SS, Basking Shark meets both the observed and inferred decline criteria for inclusion in Appendix I. A fishery off Ireland is estimated to have declined by over 80% in ten years. In another fishery in the Northeast Atlantic, landings remained fairly stable from 1904 to 1976, but then declined from a mean catch level of over 2000 animals per year in 1976 to less than 500 in 1998. A fishery in Japanese waters declined from 150 sharks annually in 1975 to just six in 1978 and closed during the 1980's.

Sims and Reid (2002) recently found a positive, but qualitative, relationship between declines in Basking Shark catches in the Achill (Ireland) fisheries and declines in plankton abundance up to 1975. However the subsequent recovery of plankton populations has not been matched by increased sightings of Basking Sharks in this area.

*One reviewer notes that there are difficulties with inferring population decline from fisheries decline, but accepts that no other data are available (Hoelzul, 2002).*

*Noting that the Achill fishery peaked in 1950-1956 and that after 1958 Basking Shark catches in the Norwegian Sea increased to levels greater than those off Achill Island, it has been suggested that the fall and rise of the two fisheries may have been due to a change in Basking Shark distribution in response to changes in plankton abundance (Simms and Reid, 2002). However, no data on plankton abundance in the Norwegian Sea are presented to support this hypothesis.*

*The population in the Mediterranean is thought to be stable, but historical information is lacking (Barrull and Mate, 2002).*

### B) Harvesting for international trade has, or may have, detrimental impact on population

#### **(i) exceeds sustainable yield; (ii) reduces population to potentially threatened level**

The Basking Shark matures late (c18 years) is long-lived (50 years) and produces few young every four years or so. Calculations from Fishbase provide an estimate of the intrinsic rate of increase where  $r_m = 0.016$ , whilst more recent calculations estimate that population productivity (intrinsic rate of population increase when producing maximum sustainable yield (MSY))  $r_{msy}$  is very low (0.013- 0.023). These figures suggest that the species cannot withstand targeted exploitation for long. Basking Sharks migrate seasonally, but are site faithful and vulnerable to depletion by fisheries. Natural short-term variation in Basking Shark abundance may be in response to changing water temperatures and plankton abundance.

Detrimental harvest is indicated by fisheries collapses in Scottish and Irish waters during the 19<sup>th</sup> century and in Japanese, Irish, Norwegian, Scottish and U.S. waters in the 20<sup>th</sup> century. An eradication programme in Canadian waters was successful. Currently the only known directed fishery for this species is the Norwegian fishery – although catches have been declining.

The high value of fins means that Basking Sharks caught as bycatch are harvested for trade. Customs data do not record international trade in shark products to species level, but there is evidence that Basking Shark fins have been in international trade. Official Norwegian fin exports to Japan rose from 0.096 t in 1992 to 7.218 t in 1993 to 26.859 t in 1994. In 1995 a single trader reported importing 3 t in 1995 and 16 t in 1996. Prices have also apparently risen. In the 1970s fishermen in Ireland received GBP 3/kg for fins (USD 4.6), and by 1994 were getting GBP 20/kg (USD 3.1). In

*Duffy (2002) concludes that generally, these large fish are unlikely to survive release from commercial fishing bycatch and believes that a high mortality of incidentally caught Basking Sharks should be assumed.*

*No CITES data are yet available from the Appendix III listing and the major directed fishing nation has a reservation on the listing.*

*Correcting prices for inflation, 1970s prices (GBP 3/kg) would be equivalent to GBP 18.87/kg in 2002 and the 1994 price (GBP 20/kg) would be equivalent to GBP 24.44/kg (USD 35) in 2002.*

*Clarke (2002) notes that the Chinese name "Tian Jiu" applies to both Basking and Whale shark fins.*

*There is no directed fishery for the species in the north-western Mediterranean; any bycatch is discarded or possibly used for fish meal (Barrull and Mate, 2002; Serena, 2002).*

Supporting Statement (SS)	Additional information
2000, fins from a single shark were worth GBP 1 500 (USD 2 300) whilst auction prices for Basking Shark fin in Hong Kong SAR recorded in 1999 and 2000 varied between USD 51 to USD 114/kg.	

## Other information

### Threats

Directed take and bycatch pose the main threats but collisions and harassment by tourists also take a toll.

*Other threats include chemical pollution, flotsam and jetsam (Barrull and Mate, 2002).*

### Conservation, management and legislation

The species is protected or partly protected within the territorial waters of United Kingdom, USA (including Florida state waters), Malta, and New Zealand. It is included in the Barcelona and Bern Conventions. There is no management by any regional fisheries organisation but in 2001 the European Community instituted a zero catch quota in its waters. Norway and New Zealand monitor catches of Basking Shark, but data are insufficient to support sustainable fisheries management.

*Basking Sharks are outside the New Zealand Quota Management System (QMS) (Duffy, 2002). They occur in a Marine Mammal Sanctuary in New Zealand and are protected from gill netting in this area during their period of peak abundance (Duffy, 2002).*

*Under the SPA protocol of the Barcelona Convention for the Protection of the Mediterranean Sea, the species is de facto protected in Italian waters (Serena, 2002).*

The United Kingdom included the species in CITES Appendix III in 2000, but Norway and Japan have reservations on this listing.

### Similar species

A CITES Identification Manual Sheet is available for this species. Fins are fairly distinctive. Parts other than fins are likely to be rare in trade, but a diagnostic test is available for Basking Shark oil and a DNA test being developed for other derivatives.

*An additional method for genetic identification of Basking Shark tissue is being developed in the USA using a one-step PCR method (Hoelzel, 2002; see Shivaji et al., 2002).*

*Neonates can be difficult to identify (Duffy, 2002).*

### Other comments

*According to a review for FAO, certain species that are vulnerable due to their biology, high value and lack of management may benefit from CITES listing and should be treated in a precautionary manner (FAO, 2000).*

*Soldo (2002) notes that the proposal is clear; Hoelzul (2002) supports the listing on basis of vulnerable life history; Barrull and Mate (2002) note that intensive unregulated fisheries could threatened the shark. TRAFFIC Oceania (2002) notes the proposal is comprehensive.*

*It is worth noting that the current Appendix III listing is of little value to the conservation of the species due to the lack of a requirement for a non-detriment finding under Article V when issuing Appendix III documentation (TRAFFIC Oceania, 2002).*

**Reviewers:** J. Barrull, S. Clarke, C. Duffy, R. Hoelzel, I. Mate, P. Pueschel, F. Serena, A. Soldo, TRAFFIC Oceania, M. Vacchi.

### **References:**

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