ANNEX 1 – TABLES AND FIGURES

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ANNEX 4 - EU CONSIDERATIONS ON CRITERIA FOR AMENDMENT OF APPENDICES I AND II REGARDING COMMERCIALLY EXPLOITED AQUATIC SPECIES

ANNEX 5 - REFERENCES

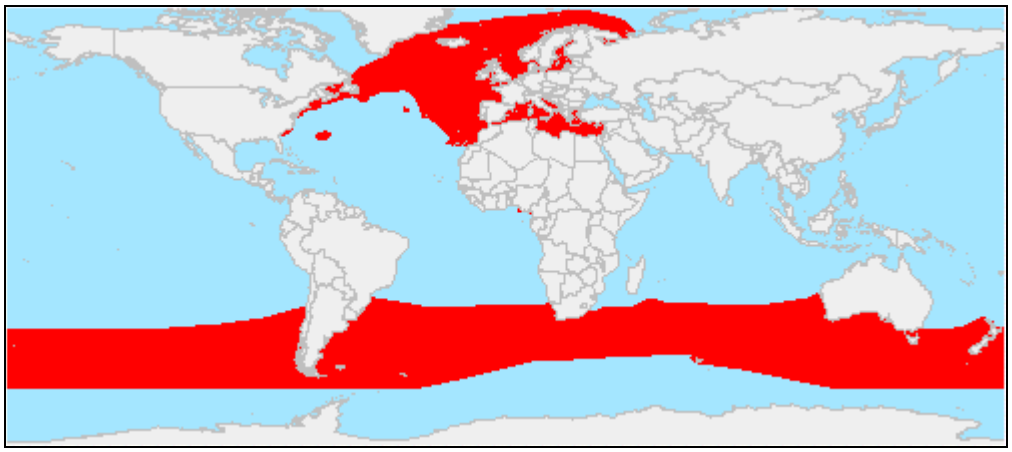

Figure 2. Global *Lamna nasus* distribution (*Source*: FAO FIGIS 2004).

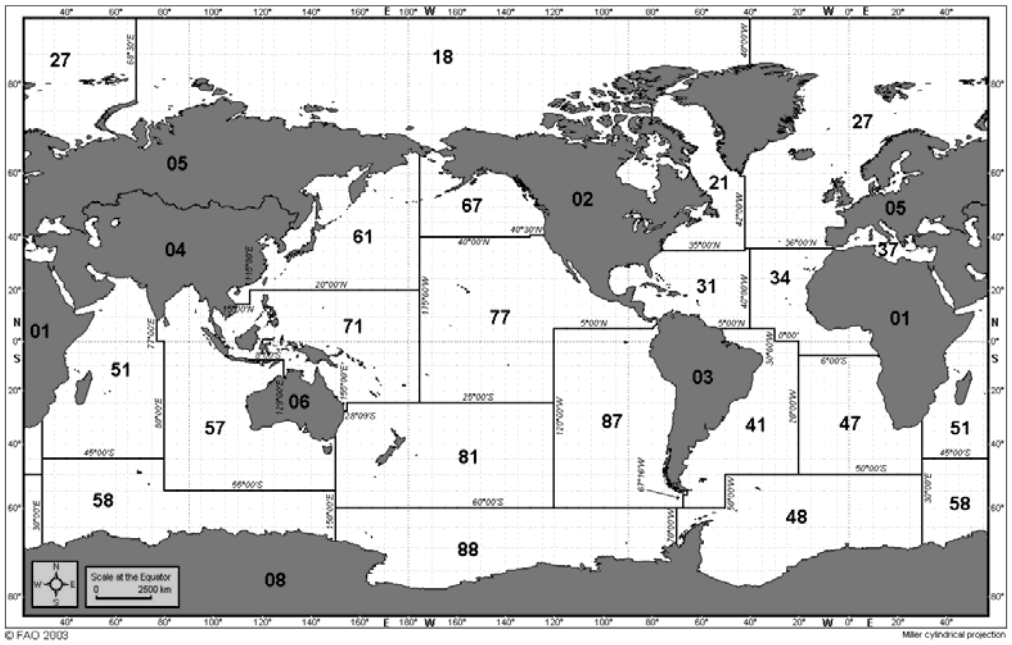

Figure 3. FAO fishing areas.

Key: *Lamna nasus* is reported from the fishing areas underlined below.

01 - Africa-Inland Water
02 - America-Inland Water
03 - America, South-Inland Water
04 - Asia-Inland Water
05 - Europe-Inland Water
06 - Oceania-Inland Water
21 - Atlantic, Northwest
27 - Atlantic, Northeast
31 - Atlantic, Western Central
34 - Atlantic, Eastern Central
37 - Mediterranean & Black seas
41 - Atlantic, Southwest
47 - Atlantic, Southeast
48 - Atlantic, Antarctic
51 - Indian Ocean, Western
57 - Indian Ocean, Eastern
58 - Indian Ocean, Antarctic
61 - Pacific, Northwest
67 - Pacific, Northeast
71 - Pacific, Western Central
77 - Pacific, Eastern Central
81 - Pacific, Southwest
87 - Pacific, Southeast
88 - Pacific, Antarctic

Table 2. *Lamna nasus* life history parameters.

Age at maturity (years)	female:	13 years (North Atlantic); 15–18 years (SW Pacific)	Campana *et al*. 2008; DFO 2005; Francis *et al*. 2007
	male:	8 years (North Atlantic); 8–11 years (SW Pacific)	Campana *et al*. 2008; DFO 2005; Francis *et al*. 2007
Size at maturity (total length cm)	female:	195 cm (SW Pacific), 230–260 cm (North Atlantic)	Campana *et al*. 2008; Dulvy *et al*. 2008; Francis *et al*. 2007; Francis & Duffy 2005
	male:	165 cm (SW Pacific), 180–215 cm (North Atlantic)	Campana *et al*. 2008; Dulvy *et al*. 2008; Francis *et al*. 2007
Maximum size (total length cm)	female:	302, 357 cm (N Atlantic); 240 cm (SW Pacific)	Francis *et al*. 2008; DFO 2005; Dulvy *et al*. 2008
	male:	253, 295 cm (N Atlantic; 240 cm (SW Pacific)	Francis *et al*. 2008; DFO 2005; Dulvy *et al*. 2008
Longevity (years)	>29–45 years (Northwest Atlantic); ~65 years (Southwest Pacific)		Campana *et al*. 2008; DFO 2005; Francis *et al*. 2007
Size at birth (cm)	58–77 (North Atlantic), 72–82 (Southwest Pacific)		Francis *et al*. 2008; Dulvy *et al*. 2008
Average reproductive age/ generation time	18 years (Northwest Atlantic); 26 years (Southwest Pacific)		Campana *et al*. 2008; DFO 2005; Francis *et al*. 2007
Gestation time	8–9 months		
Reproductive periodicity	Annual		
Average litter size	Four pups		
Annual rate of population increase	5–7% (unfished, North Atlantic); 2.6% (from MSY, southwestern Pacific		Campana *et al*. 2008; Smith *et al*. 2008
Natural mortality	0.10 (immatures), 0.15 (mature males), 0.20 (mature F) (Northwest Atlantic)		Campana *et al*. 2001

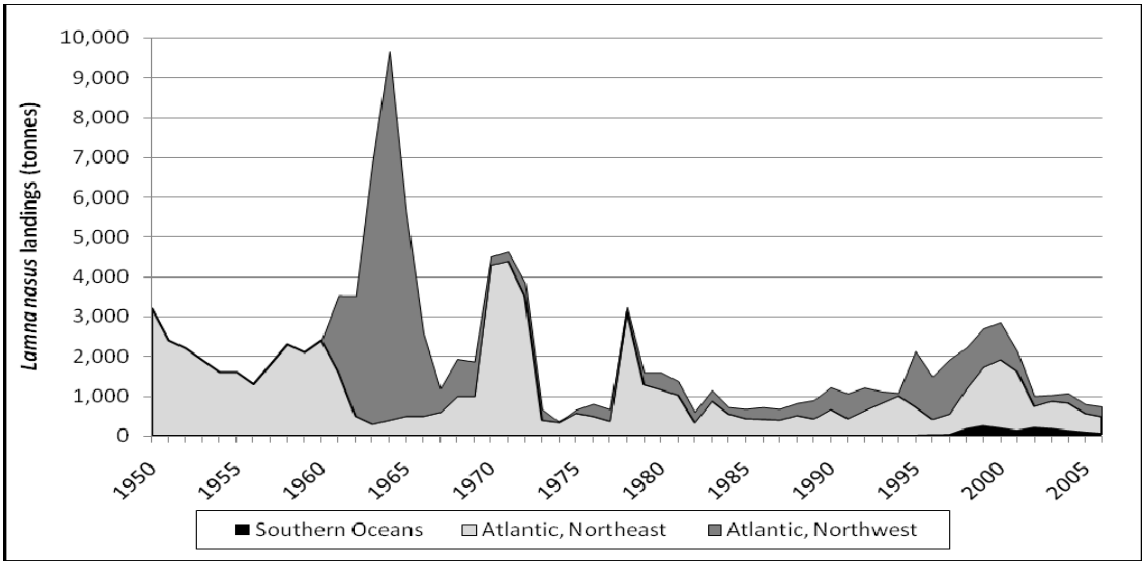

Figure 4. Global reported landings (tonnes) of *Lamna nasus* by FAO fishing area, 1950–2006. (*Source*: FAO FishStat)

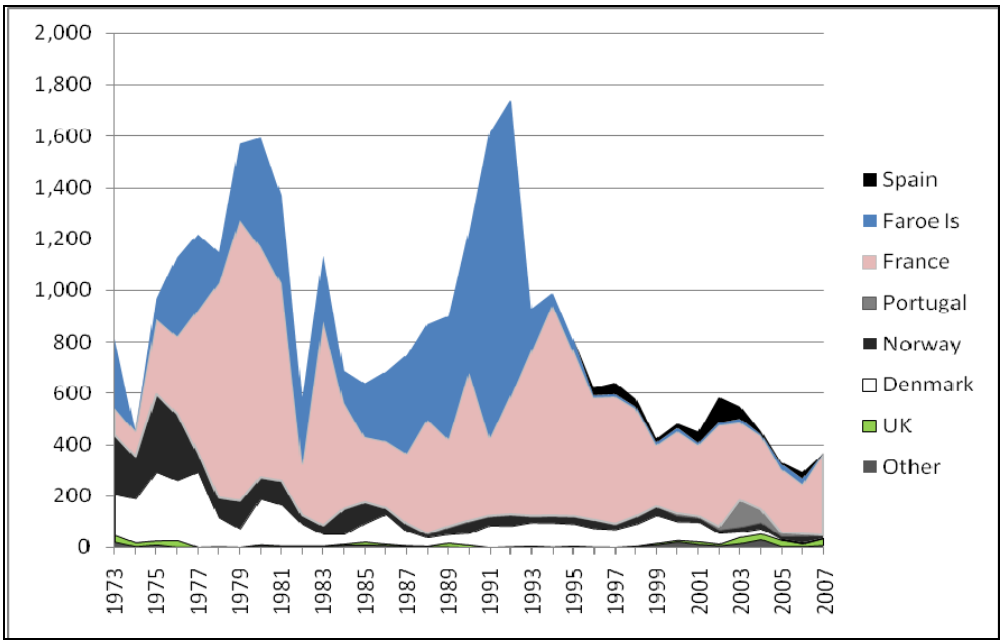

Figure 5. Northeast Atlantic landings (tonnes) of *Lamna nasus* by major fishing States, 1950–2006. (*Source*: ICES WGEF 2008.)

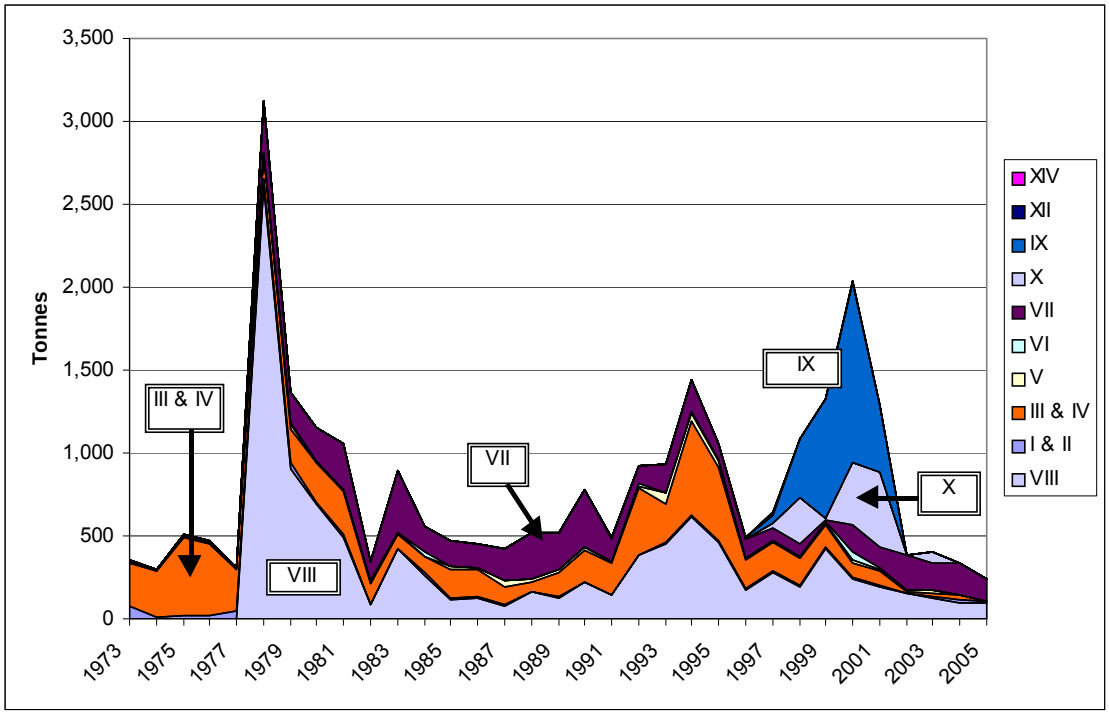

Figure 6. Landings (tonnes) of *Lamna nasus* from ICES Areas (Northeast Atlantic), 1973–2004. (*Source*: ICES Working Group on Elasmobranch Fishes 2006)

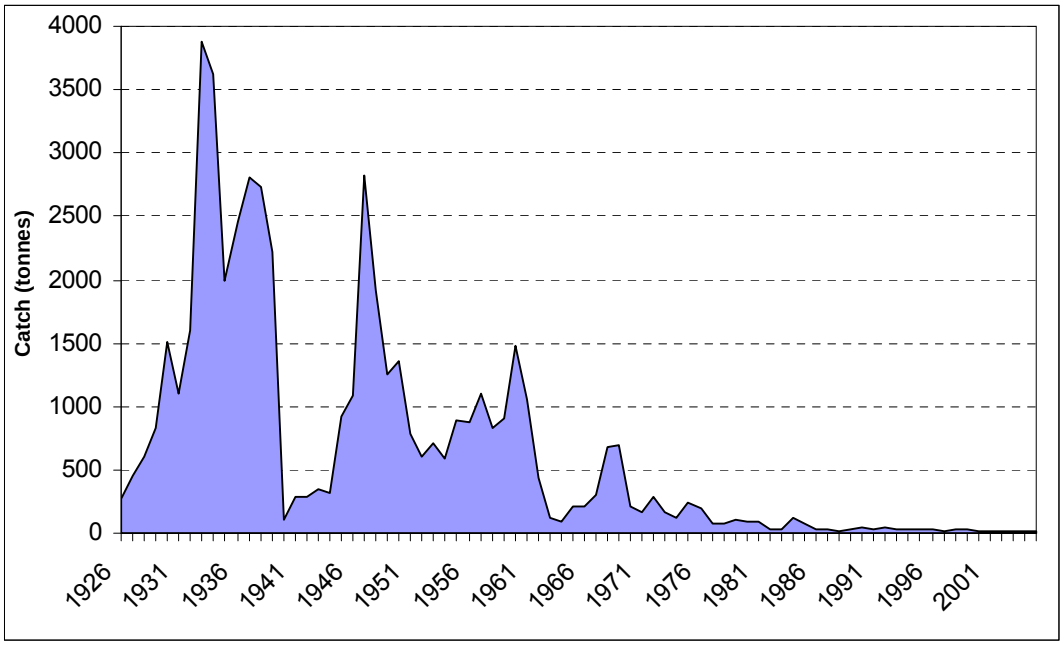

Figure 7. Landings (tonnes) of *Lamna nasus* by Norway in the Northeast Atlantic, 1926–2006. (*Source*: Norwegian fisheries data & ICES WGEF)

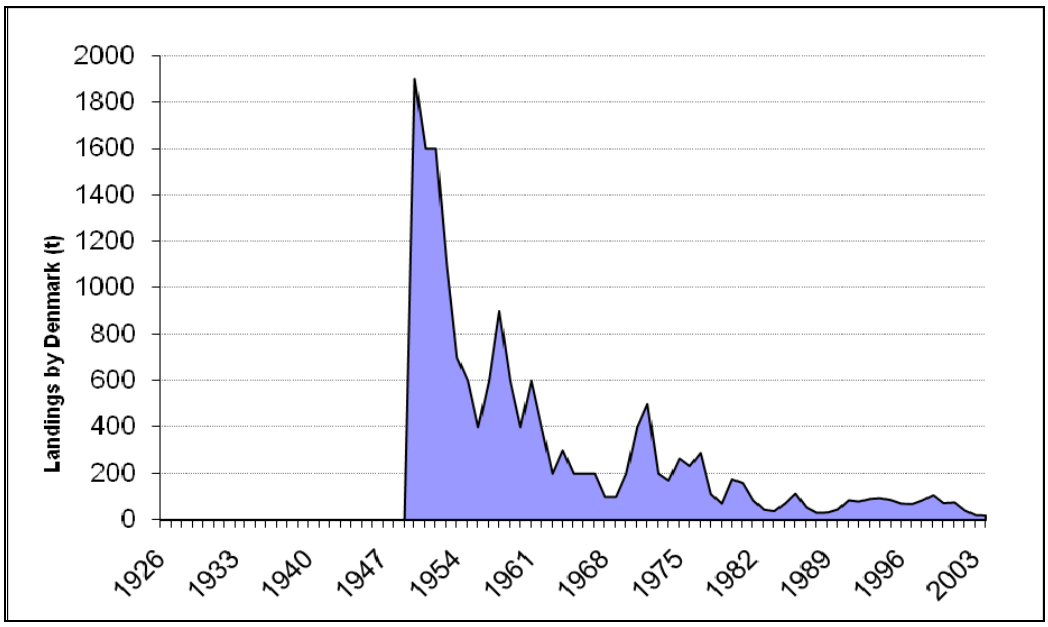

Figure 8. Landings (tonnes) of *Lamna nasus* by Denmark in the Northeast Atlantic, 1954–2004. (*Source*: ICES Working Group on Elasmobranch Fishes)

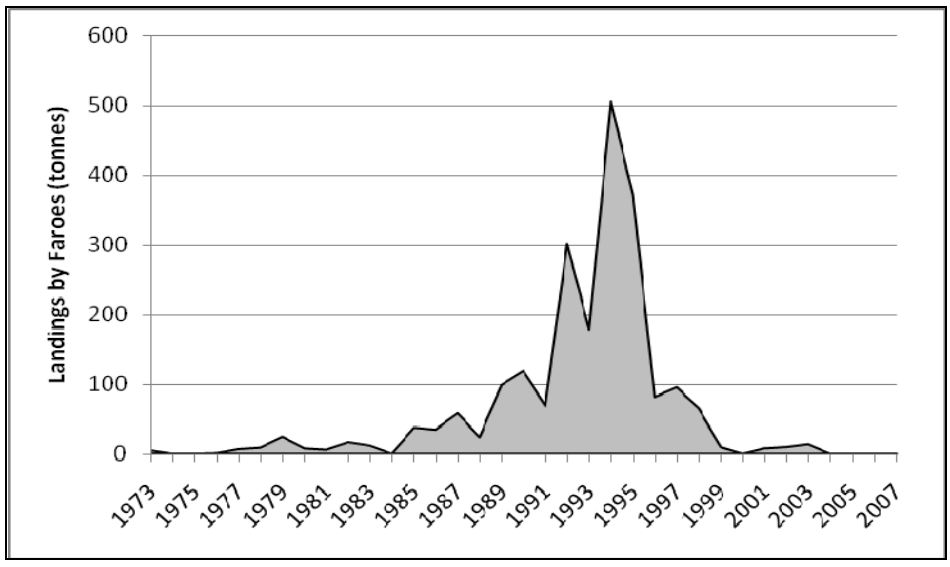

Figure 9. Landings (tonnes) of *Lamna nasus* by Faroe Islands in the Northeast Atlantic, 1973–2007. (*Source*: ICES WGEF and European Commission.)

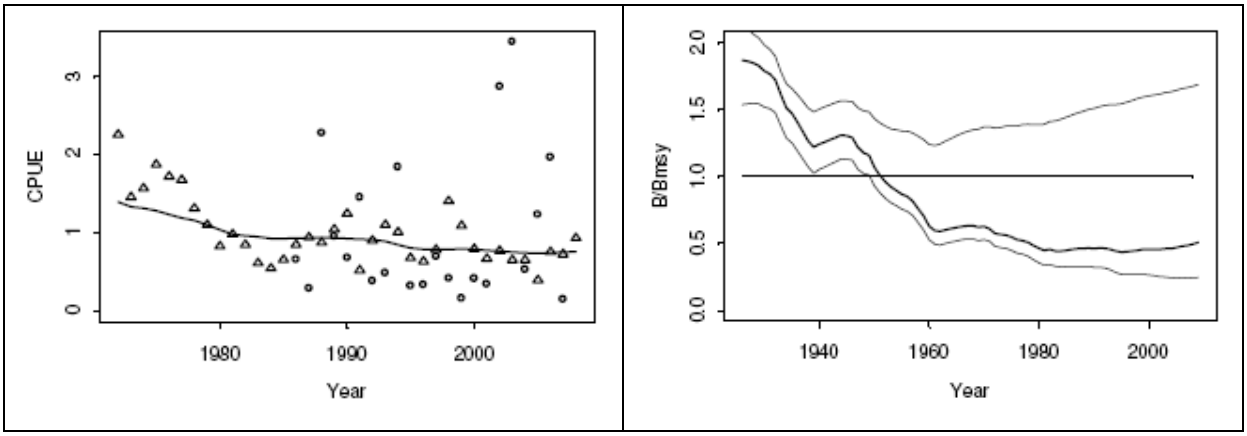

Figure 10. Results of a Bayesian Surplus Production model of the Northeast Atlantic porbeagle stock from 1929 (*Source:* ICCAT/ICES 2009). Left: French and Spanish catch per unit effort and fitted biomass trend. Right: biomass (B) relative to biomass at MSY (B_{msy}).

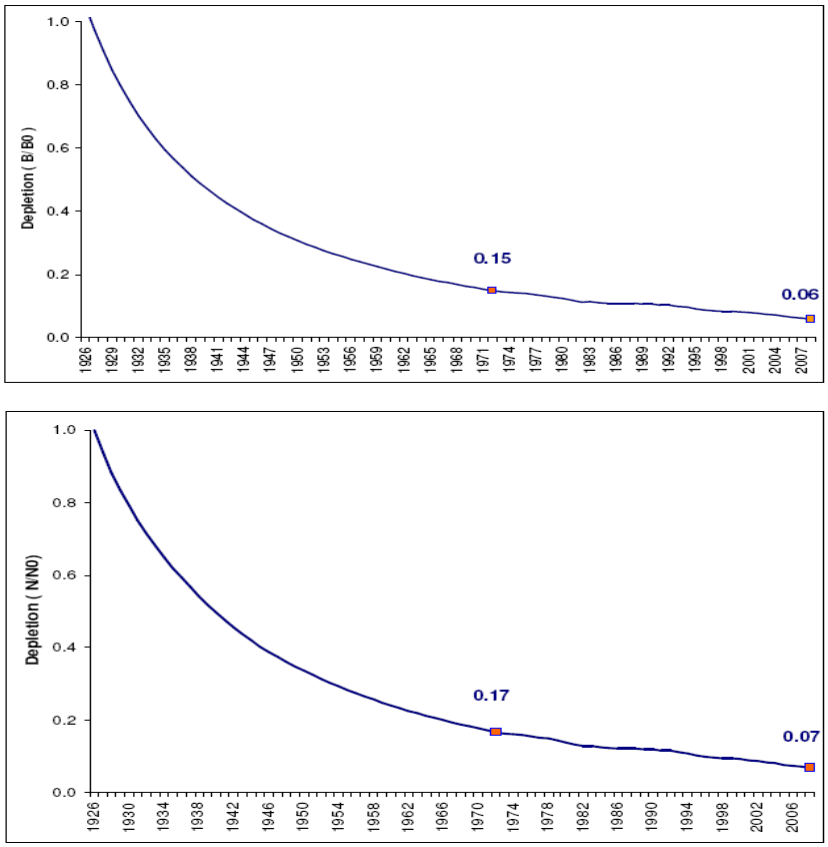

Figure 11. Depletion in total biomass (upper panel) and numbers (lower panel) for a surplus production age-structured model, assuming virgin conditions in 1926, for Northeast Atlantic porbeagle (Source: ICCAT/ICES 2009). The dots indicated on the line correspond to depletion at the beginning of the modern period (1972) and current depletion (2008).

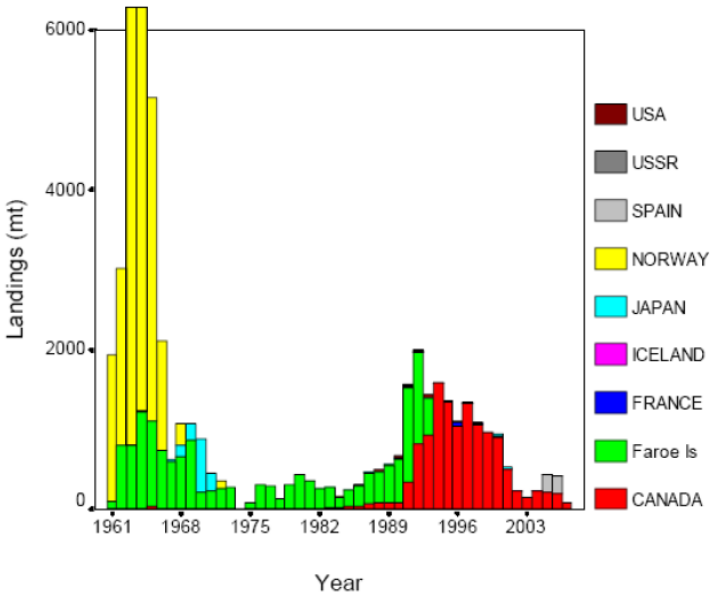

Figure 12. *Lamna nasus* landings in the Northwest Atlantic, 1961–2007 (excluding unreported high seas captures). (Stacked columns - Source: Campana and Gibson 2008)

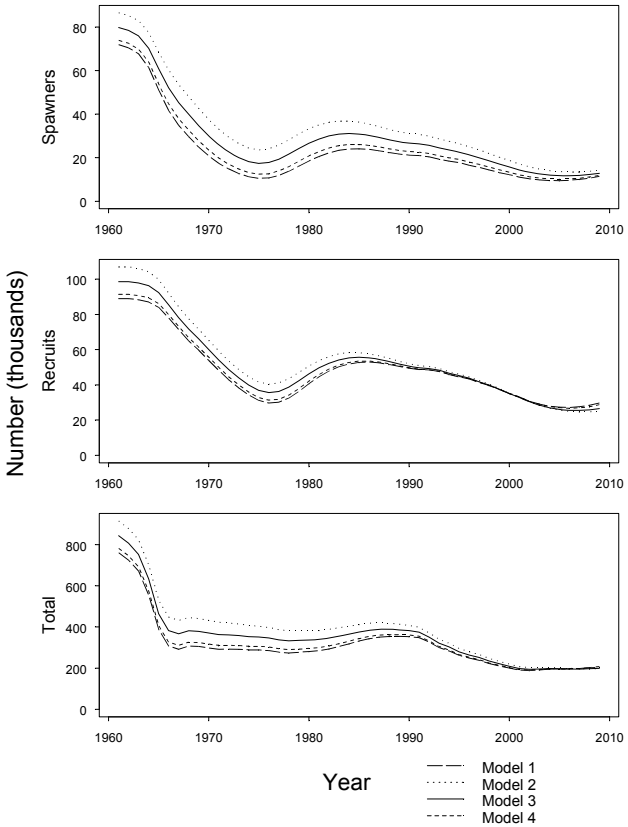

Figure 13. Comparison of the predicted time series for numbers of mature females (top), age-1 recruits (centre) and total number of *Lamna nasus* in Canadian waters, 1961–2008, from four porbeagle population models (all show similar trajectories). (Source: ICCAT/ICES 2009, updating Campana and Gibson 2008)

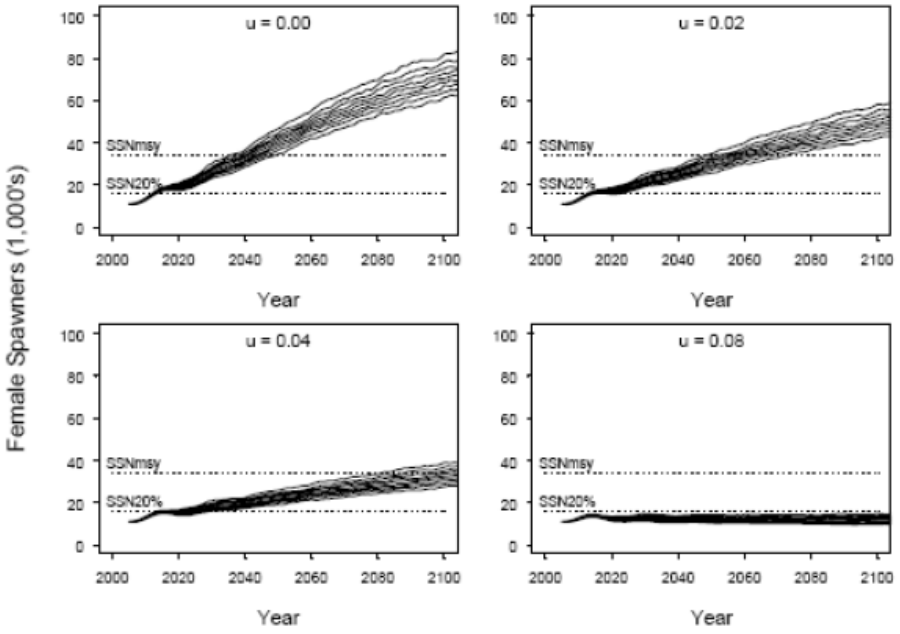

Figure 14. Predicted stochastic recovery trajectories from the population viability analysis under four different exploitation scenarios. Quantiles of population size in each year from low (bottom line = 0) to high (top line = 0.9). Time to recover at 4% exploitation rate was 30-100+yr. (Source: Campana and Gibson 2008.)

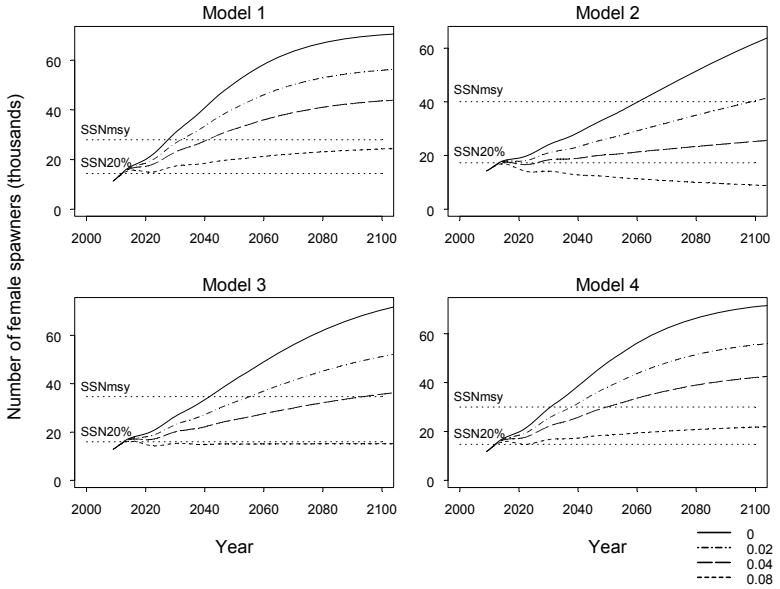

Figure 15. Predicted deterministic recovery trajectories from each of four porbeagle population models at each of four exploitation rates in the Northwest Atlantic. Quantiles of population size in each year from low (bottom line = 0) to high (top line = 0.9). All simulate populations recover at exploitation rates of less than about 4% (corresponding to a total catch of 185t). Time to recover at 4% exploitation rate was 30-100+yr. (Source: ICCAT/ICES 2009 updating Campana and Gibson 2008.)

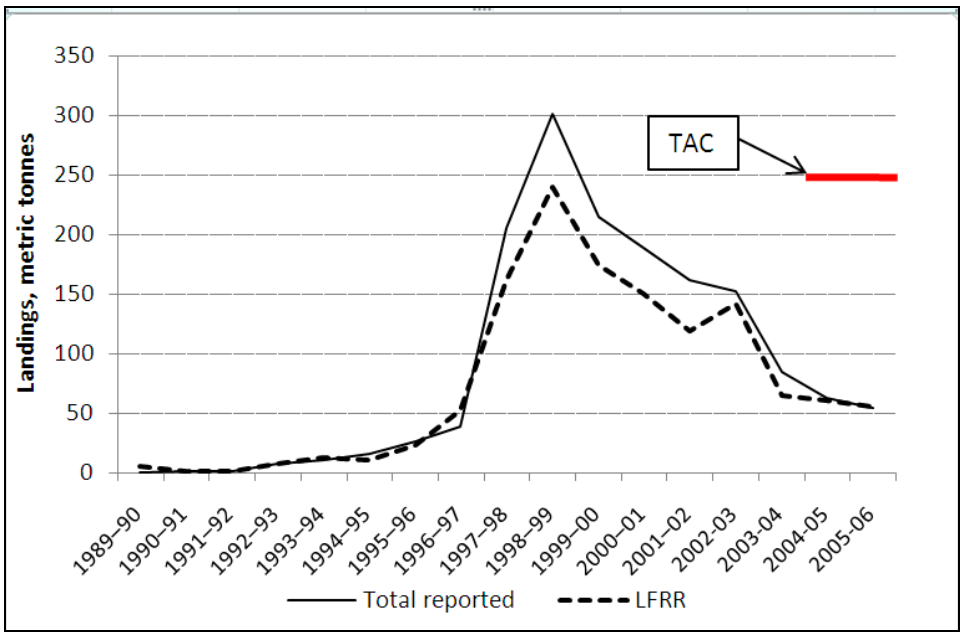

Figure 16. New Zealand commercial landings of porbeagle sharks reported by fishers and processors (LFRR), 1989/90 to 2004/05. (Source Ministry of Fisheries 2008.)

Substantial foreign landings up to about 1992–93 have not been quantified and are not included here. Domestic tuna longline fishing effort rose until 2002/03, but has fallen in recent years.

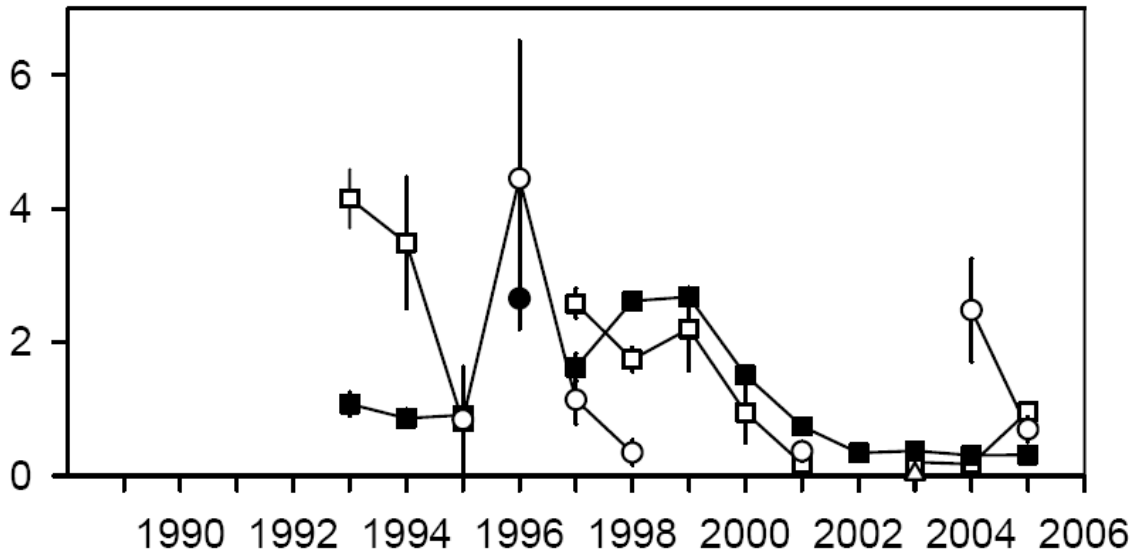

Figure 17. Unstandardised CPUE indices (number of *Lamna nasus* per 1000 hooks) for the New Zealand tuna longline fishery based on observer reports.

Years are fishing years (1993 = October 1992 to September 1993). Confidence intervals are from bootstrapped data. -■- foreign and charter fleet, southern New Zealand; -□- foreign and charter fleet, northern New Zealand; -●- domestic fleet, southern New Zealand; -○- domestic fleet, northern New Zealand. (Taken from Ministry of Fisheries (2008). Source: Griggs *et al*. 2007.)

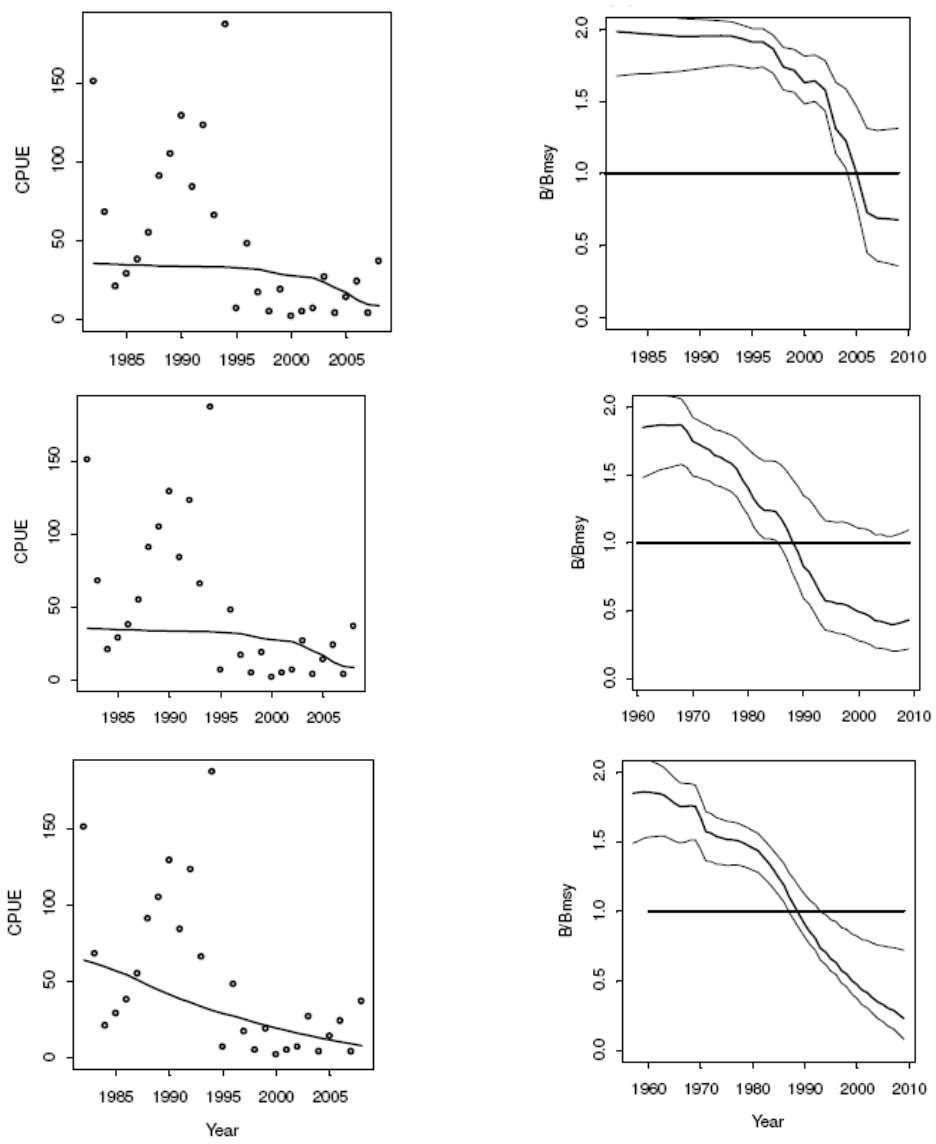

Figure 18. Results of three Bayesian Surplus Production models of Southwest Atlantic porbeagle stock (Source ICCAT/ICES 2009). Left: Uruguay catch per unit effort series and fitted biomass trend. Right: biomass (B) relative to biomass at MSY (B_{msy}).

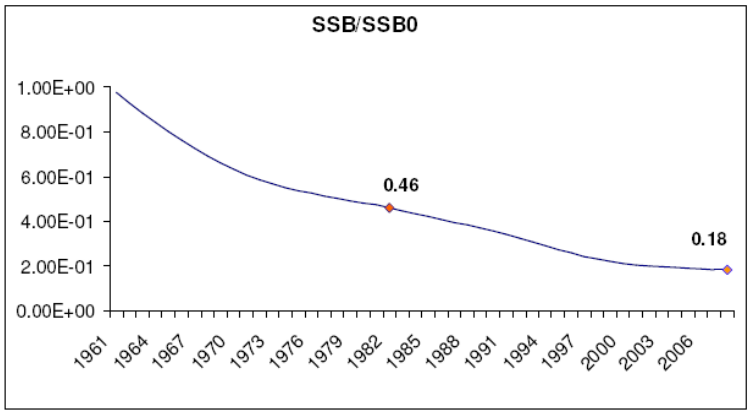

Figure 19. Depletion in spawning stock biomass for a surplus production age-structured model, assuming virgin conditions in 1961, for Southwest Atlantic porbeagle (Source: ICCAT/ICES 2009). Dots on the line correspond to levels of depletion in 1982 and 2008.

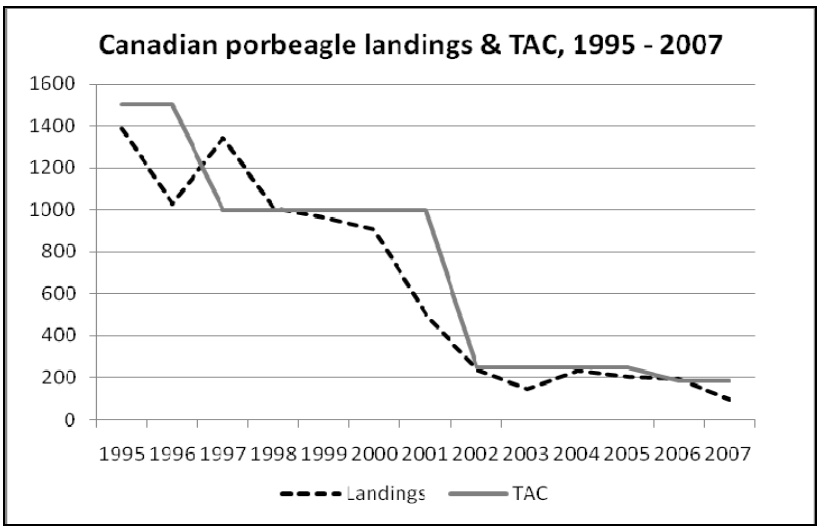

Figure 20. Canadian Atlantic landings and TAC for porbeagle shark, 1995–2007.

Annex 2.

Scientific synonyms of *Lamna nasus*

(*Source*: FAO Species Identification Sheet 2003)

- *Squalus glaucus* Gunnerus, 1768 (not S. glaucus Linnaeus, 1758 = Prionace glauca);
- *Squalus cornubicus* Gmelin, 1789;
- *Squalus pennanti* Walbaum, 1792 (alsoLamna pennanti, Desvaux, 1851);
- *Squalus monensis* Shaw, 1804;
- *Squalus cornubiensis* Pennant, 1812;
- *Squalus selanonus* Walker, in Leach, 1818;
- *Selanonius walkeri* Fleming, 1828;
- *Lamna punctata* Storer, 1839;
- *Oxyrhina daekayi* Gill, 1862;
- *Lamna philippi* Perez Canto, 1886;
- *Lamna whitleyi* Philipps, 1935.

Annex 3.

Range States and Areas where *Lamna nasus* has been recorded

(Source Compagno 2001)

Albania
Algeria
Antarctica
Argentina
Australia (New South Wales; Queensland; South Australia; Tasmania; Victoria; Western Australia)
Azores Is. (Portugal)
Belgium
Bermuda
Brazil
Canada (New Brunswick; Newfoundland; Nova Scotia; Prince Edward Island)
Canary Islands
Cape Verde
Channel Islands (UK)
Chile
Croatia
Cyprus
Denmark
Egypt
Faeroe Islands
*Falkland/Malvinas Islands
Finland
France
France (Corse)
French Polynesia
Germany
Gibraltar
Greece (East Aegean Is.; Kriti)
Greenland
Iceland
Ireland
Isle of Man
Israel
Italy (Sardinia; Sicilia)
Kerguelen Is.
Lebanon
Libya
Madeira Islands (Portugal)
Malta
*Malvinas/Falkland Islands
Monaco
Morocco
Netherlands
New Zealand
Norway
Portugal
Russian Federation
Slovenia
South Africa
South Georgia and the South Sandwich Islands
Spain
Sweden
Syria
Tunisia
Turkey
United Kingdom (England, Wales, Scotland, Northern Ireland)
United States of America (Maine; Massachusetts; New Jersey; New York; Rhode Island; South Carolinas?)
Uruguay
Yugoslavia

FAO Fisheries Areas:
21, 27, 31, 34, 37, 41, 47, 48, 51, 57, 58, 81 and 87 (see Figure 3).

Oceans:
Northwest Atlantic: Greenland, Canada, United States, and Bermuda.

Northeast Atlantic: Iceland and western Barents Sea to Baltic, North and Mediterranean Seas, including Russia, Norway, Sweden, Denmark, Germany, Holland, United Kingdom, Ireland, France, Portugal, Spain, and Gibraltar; Mediterranean (not Black Sea); Morocco, Madeira, and Azores.

Southern Atlantic: southern Brazil and Uruguay to southern Argentina; Namibia and South Africa.

Indo-West Pacific: South-central Indian Ocean from South Africa east to between Prince Edward and Crozet Islands, between Kerguelen and St. Paul Islands, and southern Australia, New Zealand. Sub Antarctic waters off South Georgia, Marion, Prince and Kerguelen Islands.

Eastern South Pacific: southern Chile to Cape Horn.

* A dispute exists between the Governments of Argentina and the United Kingdom of Great Britain and Northern Ireland concerning sovereignty over the Falkland Islands/Islas Malvinas

Annex 4

EU CONSIDERATIONS ON using the CRITERIA FOR AMENDMENT OF APPENDICES I AND II for COMMERCIALLY EXPLOITED AQUATIC SPECIES

with regard to *Lamna nasus*

CITES Standing Committee 58 [SC58 Sum. 7 (Rev. 1) point 43 (09/07/2009)] has asked Parties, as they prepare for CoP15, to clearly define in their listing proposals how they have interpreted and applied Resolution Conf. 9.24 (Rev. CoP14).

Interpreting the Text of Annex 2 a with regard to *Lamna nasus*

The proponents have carefully considered the FAO's views on how CITES Parties should interpret the criteria in Resolution Conf. 9.24 (SC 58 Inf. 6), and the interpretation suggested by the CITES Secretariat (SC 58 Doc. 43). In the view of the proponents, the definition of the term "decline" given in Annex 5 of Resolution Conf. 9.24 and the Footnote "Application of decline for commercially exploited aquatic species" is clearly relevant for Criterion A of Annex 2 a, and we have interpreted it according to the guidelines and the footnote.

Criterion A of Annex 2 a states that a species should be included in Appendix II “to avoid it becoming eligible for inclusion in Appendix I in the near future". According to Article II Paragraph 1 of the Convention, it shall be included in Appendix I if it is "threatened with extinction". According to Annex 1 of Res. Conf. 9.24 (Biological criteria for Appendix I), a species is threatened with extinction if it meets or is likely to meet at least one of the criteria A, B or C, with C specifying "a marked decline in the population size in the wild [...]". This term "decline" used in Criterion C for Appendix I is then further defined in Annex 5 (Definitions, explanations and guidelines) and specified for commercially exploited aquatic species in the abovementioned footnote.

By contrast, Criterion B of Annex 2 a does not refer to Appendix I. Criterion B states that a species should be included in Appendix II "to ensure that the harvest of specimens from the wild is not reducing the wild population to a level at which its survival might be threatened by continued harvesting or other influences." Whether the Appendix I definition of "decline" is relevant for Criterion B has been subject to different interpretations. The proponents do not wish to enter into this general discussion through the present document. However, the proponents would like to underline that Criterion B represents the outcome of a rewording of the previous version of Paragraph B of Annex 2a in Res. Conf. 9.24, which reads as follows:

> *"It is known, or can be inferred or projected, that harvesting of specimens from the wild for international trade has, or may have, a detrimental impact on the species by either*
>
> *i) exceeding, over an extended period, the level that can be continued in perpetuity; or*
>
> *ii) reducing it to a population level at which its survival would be threatened by other influences."*

In the criteria working group at Johannesburg (20th Animals Committee, 2004) it was recognized that Criterion B of Annex 2 a in its current version encompasses both meanings of the abovementioned original text, i.e. paragraph i) and ii). With respect to paragraph ii) of the original criterion, decline is relevant with respect to the special case of reducing a population to a level at which depensation might occur. Paragraph i) of the original criterion is a reference to long-term unsustainable harvesting that is known or might be inferred or projected and to the detrimental impact that such harvesting has, or may have, on the species.

This represented the understanding of European Community Parties when the revised criteria were adopted, and the proponents feel that this remains a valid interpretation of this criterion.

Resolution Conf. 9.24 (Rev. CoP 14) also recognizes the importance of the application of the precautionary approach in cases of uncertainty and indicates that the definitions, explanations and guidelines provided in Annex 5 should be interpreted in a flexible manner, taking account of the specific features of each species considered. This was highlighted by the Standing Committee at its 58th meeting, and the proponents have interpreted the Resolution accordingly in their listing proposal for *Lamna nasus*.

On this basis, with regard to the relevant stocks of *Lamna nasus* referred to in the proposal, Criterion B of Res. Conf. 9.24 Annex 2a is regarded to be met because:

- This species is of high biological vulnerability, falling within FAO's lowest productivity category, and takes decades to recover from depletion, even under fisheries management;
- Exploitation in target fisheries is driven primarily by international trade demand for this species' meat, while fins enter international trade from target and bycatch fisheries;
- Stock assessments identify serious impacts of exploitation in the North Atlantic and Southwest Atlantic (possibly extending into Southeast Pacific), where populations depleted by target and bycatch fisheries qualify for listing in the CITES Appendices;
- Data are lacking on most southern hemisphere stocks, but these populations are of lower biological productivity, even more vulnerable to depletion than northern stocks, and are also exploited by fisheries;
- *Lamna nasus* is taken in high seas IUU fisheries, which undermine conservation measures adopted by coastal fishing states;
- Management of all stocks is a high priority. Regulation of international trade through CITES listing can supplement traditional management measures, thus providing a significant contribution to the conservation of this species.

Annex 5

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