CONVENTION ON INTERNATIONAL TRADE IN ENDANGERED SPECIES
OF WILD FAUNA AND FLORA
Amendments to Appendices I and II of CITES

Eleventh Meeting of the Conference of the Parties
Nairobi (Kenya), April 10-20, 2000

A. Proposal

Inclusion of *Rhincodon typus* in Appendix II in accordance with Article II.2.(a)

B. Proponent

The United States of America

C. Supporting Statement

1. Taxonomy:

1.1 Class: Elasmobranchii
1.2 Order: Orectolobiformes
1.3 Family: Rhincodontidae
1.4 Species: *Rhincodon typus* (Smith 1828)
1.5 Scientific synonyms: none
1.6 Common names:
English: Whale shark
Spanish: Tiburón ballena, pez dama
French: Requin-baleine
Philippines (several dialects): Butanding, balilan, tuki-tuki
Japanese: Ebisuzame
Chinese: [tofu shark]

1.7 Code numbers:

2. Biological Parameters:

2.1 Distribution: The whale shark is a pantropical species, occurring in tropical and warm-temperate waters of the Atlantic, Pacific and Indian Oceans. Most often encountered in a band around the equator extending to roughly 30°N and 35°S (FAO 1999). It is basically pelagic and can be encountered in very deep water far from land.

It is not known to what degree the world population is fragmented. However, the whale shark is highly migratory. Movements of 1000s of km over periods of weeks or months have been recorded through satellite tracking in the eastern Pacific and Southeast Asia. One shark satellite-tagged in the Mindanao Sea in the inner Philippines traveled over 3,000 km to the EEZ of Vietnam in two months (pers. comm. from S. Eckert, Hubbs-Sea World Research Institute, San Diego, California 1998). Another tagged on the coast of Sabah in Malaysia traveled offshore and then returned to coastal Malaysian waters over a 2152-km route (pers. comm. From S. Eckert 1998). Several sharks satellite-tagged in the Gulf of California, Mexico moved over 12,000 km southwest into international waters and the waters of offshore South Pacific nations (pers. comm. from S. Eckert 1998). Migrations have a seasonal component; aggregations of whale sharks appear in certain coastal waters and may remain for several months. It is not known whether all components of the population(s) (adults, juveniles, males, females)

undergo these migrations, but it is clear that the migratory sharks are shared by two or more nations.

The known and potential range states include all nations and territories having tropical or warm-temperate marine coasts: Kiribat, Tuvalu, Marshall Islands, Vanuatu, Western Samoa, Northern Marianas Islands, Federated States of Micronesia, Belau, France (New Caledonia, Reunion, French Polynesia, and other South Pacific possessions; Clipperton Island; Guadaloupe, Martinique and other Caribbean possessions), Fiji, Tonga, Nauru, Australia, New Zealand (including South Pacific possessions), Papua New Guinea, Solomon Islands, Indonesia, East Timor, Malaysia, Singapore, Philippines, Japan, Korea, China, Vietnam, Cambodia, Myanmar, Bangladesh, India, Sri Lanka, Pakistan, Iran, Iraq, Kuwait, United Arab Emirates, Bahrain, Qatar, Djibouti, Oman, Saudi Arabia, Egypt, Yemen, Sudan, Somalia, Kenya, Tanzania, Mozambique, U.K. (St. Helena, Ascension, Bermuda, Virgin Islands, Anguilla, Turks and Caicos, Monserrat and other Caribbean and South Pacific possessions), Netherlands (Netherlands Antilles, Curacaçao and other Caribbean possessions), Spain (Canary Islands), Portugal (Madeira, Azores, Macau), Morocco, Mauretania, Senegal, The Gambia, Guinea, Guinea Bissau, Sierra Leone, Liberia, Ivory Coast, Ghana, Togo, Benin, Nigeria, Cameroon, S. Tome and Principe, Cape Verd Republic, Gabon, Congo, Democratic Republic of the Congo, Angola, Namibia, South Africa, Madagascar, Mauritius, Seychelles, Maldives, U.S., Cuba, Bahamas, Haiti, Dominican Republic, Jamaica, Antigua, St. Kitts-Nevis, Barbuda, Dominica, St. Lucia, St. Vincent and the Grenadines, Barbados, Grenada, Trinidad and Tobago, Belize, Honduras, Guatemala, Nicaragua, Costa Rica, Panama, Venezuela, Colombia, Guyana, Surinam, French Guiana, Brazil, Uruguay, Argentina, Chile, Peru, Ecuador, El Salvador, Mexico.

2.2 Habitat availability: Whale sharks seasonally frequent shallow-water areas near estuaries and river mouths in at least two regions in Southeast Asia: northern Borneo and the Philippines (Alava et al. 1998; unpublished data, W. F. Perrin, Southwest Fisheries Science Center, La Jolla, California). These waters are highly vulnerable to contamination with sewage and industrial effluent and alteration due to development, removal of mangroves and other human activities. The seasonal whale shark habitats have not been surveyed to assess extent, status and threats to their existence.

Shallow waters near the mouths of some rivers and estuaries could constitute feeding or breeding/birthing grounds; whale sharks gather there seasonally. Virtually nothing is known about what may make these areas important to the whale sharks, i.e., nature of utilization, water quality, concentrations of plankton, temperature range, current patterns, weather, or sea state.

2.3 Population status: Population size is unknown, but the species is rare and considered under threat (World Conservation Monitoring Centre 1999).

2.4 Population trends: Local seasonal populations have apparently declined drastically in some places, while fishing effort and price have greatly increased. In the Philippines, great declines in catch-per-unit-of-effort (CPUE) have occurred between 1993 and 1997 in two traditional whale shark fishing regions (in Bohol and Misamis Occidental), from 4.4 to 1.7 sharks per boat at one site and from 10 to 3.8 at the other (Alava et al. 1998). These declines have led to attempts to develop new fishing areas (e.g., in Sorsogon and Davao) (Alava et al. 1998; W. F. Perrin, Southwest Fisheries Science Center, La Jolla, California, unpublished data). Similar declines possibly caused by over-exploitation have been noted in Taiwan (30-100 per year in earlier years to less than 10 per year by the late 1980s (Joung et al. 1996), and in the Maldives, from more than 30 per year in the early 1980s to less than 30 per year by the early 1990s when it was protected because of the decline (Anderson and Ahmed 1993). There are indications that sightings may have declined in Thailand; annual sightings for one diveboat operation declined from 45-60 in previous years to two in 1999 (Shark Research Institute 1999). It is not known to what degree fishing in one area affects population(s) in other areas, although the fact that at least some of the sharks migrate long distances within ocean basins suggests that the effects may not be purely local.

2.5 Geographic trends: No information.

2.6 Role of the species in its ecosystem: As the world's largest fish and a planktivore, the whale shark can be assumed to play a significant role in the structure and dynamics of the nearshore and estuarine

ecosystems that it frequents. Predators include the killer whale, *Orcinus orca* (video footage, pers. comm. from S. Eckert, Hubbs Sea World Research Institute, San Diego, California).

2.7 Threats: Sharks in general are more vulnerable to exploitation than most other fishes, because of their longevity, delayed maturation and relatively low fecundity (Rose 1996; pers. comm. from J. I. Castro, Southwest Fisheries Science Center, Miami, Florida 1999). The whale shark is ovoviviparous (live-bearing), but the basic reproductive parameters of its age at maturation and life span are unknown. It may be extremely fast growing (Joung et al. 1996). It is possibly the most prolific shark; a female captured off Taiwan contained 300 embryos (580-640mm) in various stages of development, the largest apparently ready for birth (Joung et al. 1996). Reproduction may be biennial, as in most other large sharks (Castro 1996; pers. comm. from J. I. Castro, Southeast Fisheries Science Center, Miami, Florida 1999).

3. Utilization and Trade:

3.1 National utilization: The whale shark is fished or has been fished for its fins and meat in several places in Asia and elsewhere (India, Pakistan, China, Indonesia, Philippines, Taiwan, Japan, Maldives, Senegal, MalaysiaB Wolfson and Notarbartolo 1981, Rose 1996, FAO 1999, Joung et al. 1996, Silas 1986, Shark Research Institute 1999), in some cases despite legal protection (e.g., in the Philippines; see below). In the last year, about 1000 whale sharks were captured by fishermen from three villages alone in India, who received from $465 to $3,020 per carcass depending on size (Shark Research Institute 1999). In very recent years, a market for fresh whale shark meat has developed rapidly in Taiwan (Perrin 1998, Chen et al. 1998), supplied by the Philippines. Data on volume and trends of the trade are not available; this information would be collected if the species were placed on Appendix II.

This has happened just when interest in utilizing the sharks as a tourist attraction has arisen. Whale shark watching is now a significant economic asset in at least one locality on the main island of the Philippines, Luzon (pers. comm. from A. A. Yaptinchay, WWF-Philippines, Manila 1999). Similar developments have occurred in other countries. Tourist industries based on seasonal occurrences of migratory whale sharks now exist in Thailand, Australia, South Africa, Seychelles, Mozambique, Honduras and the Maldives and are likely to appear in yet other areas.

3.2 Legal international trade: The pattern of development of the whale shark as a resource is typified by what has happened in the Philippines (Alava et al. 1998). The shark has been harvested there in several localities for perhaps a century or more in small numbers for subsistence and local commerce. The meat was sun-dried and either consumed in the fishing villages or sold to "middlemen" who marketed it locally. Then in the 1980s a market for shark fins developed rapidly in countries with large Chinese populations. Suddenly the whale shark became more valuable to the fishermen, bringing them up to hundreds of dollars each, and the catches increased, from a few sharks taken annually to catches of a hundred or more in intensive sustained hunts.. The fins entered international trade, mainly with Hong Kong. Most recently, whale shark meat has become popular and expensive in Taiwan (selling at about US$15/kg - pers. comm. from A. A. Yaptinchay, WWF Philippines), and buyers now buy the meat in the fishing villages and ship it on ice by air directly from the Philippines to Taiwan. In December 1998, Philippine authorities intercepted and confiscated an air shipment of approximately 800 kg of whale shark meat manifested to Taiwan as "dogfish" (pers. comm. from Bureau of Fisheries and Aquatic Resources, Manila). Catch-per-unit-effort has dropped precipitously, possibly because of over-exploitation (Alava et al. 1998), and the fishermen have begun to seek out new shark grounds, with capital support from the international buyers.

The harvest of whale sharks has recently increased greatly in India (Shark Research Institute 1999), with exports going to Taiwan, Malaysia and other Asian localities. Fishermen have landed about 1,000 sharks in the last year on the Sauashtra coast from Veraval, Okha and Jakhau, with landings and prices increasing in 1999. The meat is frozen and exported within 24 hours.

Although international trade in whale shark products has not been well-documented (Rose 1996, Chen et al.1998), international interest in their study and in the need for multilateral assessment and

management has been increasing. While population size and status and the impacts of past and existing fisheries on the populations are unknown, the precautionary principle would dictate monitoring of international traffic in products from this rare animal.

3.3 Illegal trade: No information is available, other than that at least one illegal shipment has been intercepted in the Philippines (see above).

3.4 Actual or potential trade impacts: A growing market, recent expansion of fishing areas and evidence of local depletion suggest that continuation and growth of international trade pose a threat to at least some populations of the species.

3.5 Captive breeding or artificial propagation for commercial purposes (outside country of origin): The species is not currently bred for commercial purposes.

4. Conservation and Management:

4.1 Legal status:

4.1.1 National: The whale shark is protected in only a few of the 100 or more range states. It is fully protected in the Philippines (as of 15 April 1998) under a "ban on the taking or catching, selling, purchasing and possession, transporting and exporting of whale sharks and manta rays", but exploitation and export has continued (see 3.2 above); enforcement is difficult because of the extremely long coastline and the high commercial value of the sharks. In the United States, it is fully protected by the federal government only in non-state waters in the Gulf of Mexico; it is also protected in Florida State waters. The species is protected in the state of Western Australia in Australia by an "indefinite closed season" under the Fish Resources Management Act and the Wildlife Conservation Act. It is also protected in the Maldives. Most recently, the Minister of Agriculture of Honduras issued a decree on 28 October 1999 conferring full protection on the whale shark.

At Ningaloo Reef in Western Australia, where a significant eco-tourism industry based on the shark has arisen, regulations control the number of vessels within the area of sighted whale sharks, the number of snorklers in the water and contact time and minimum approach distances in order to minimize disturbance to the animals (World Conservation Monitoring Centre 1999). The local government in Sorsogon, Philippines, has instituted similar regulations, where an eco-tourism operation has been established (pers. comm. from A. A. Yaptinchai, WWF Philippines). Permits are required for interactions with whale sharks in South African waters (pers. comm. from M. Levine, Shark Research Institute to W.F. Perrin, U.S. National Marine Fisheries Service, October 1999).

Recommendations for conservation of aggregations of whale sharks observed in Kenya are currently under consideration in that country (World Conservation Monitoring Centre 1999). A whale shark sanctuary is under consideration for Bahía de los Angeles in the Gulf of California (Sea of Cortez), Mexico (pers. comm. from S. Eckert, Hubbs-Sea World Research Institute, San Diego, California to W. F. Perrin, U.S. National Marine Fisheries Service, October 1999).

4.1.2 International: Despite rapidly increasing harvest and international traffic, there are no international instruments in place to regulate or even monitor the international trade in whale shark products, nor are there any agreements or cooperative programs to carry out research to determine population size, status or stock identity. IUCN Red List listing: Data Deficient; listed as a "species under threat".

4.2 Species management:

4.2.1 Population monitoring: The Shark Research Institute (SRI), a non-governmental organization based in Princeton, New Jersey, USA, is engaged in a world-wide study to locate, tag and document the behavior of whale sharks (Shark Research Institute 1999, Gifford 1994, 1997, 1998). Visual tags have been placed on 240 whale sharks in the Indian Ocean and traced the movements of sharks between the Seychelles, the Maldives and the east African coast. Three sharks tagged with satellite tags off South Africa moved northwards along the East African coast. One shark satellite-tagged off Honduras travelled along the east coast of Mexico and into the Gulf of Mexico off Louisiana, USA. These results with those noted in 2.1 above indicate substantial migration and the likelihood of existence of populations occupying at least regional oceans. In South Africa, SRI has conducted aerial surveys since 1993. In 1993-1998, an average of 30 and as many as 95 sharks were sighted per flight, but in 1999 initial surveys showed a drop in numbers; SRI believes these results to possibly indicate a population decline.

Tagging programs to establish movements and home range are also underway in Western Australia, South Africa and the Gulf of California in Mexico under the sponsorship of the Mexican governmental fisheries research agency PESCA and the Hubbs-SeaWorld Research Institute (World Conservation Monitoring Centre 1999, pers. comm. from S. Eckert, Hubbs-Sea World Research Institute, San Diego, California). Recommendations for research on aggregations of whale sharks are currently under consideration in Kenya (World Conservation Monitoring Centre 1999).

4.2.2 Habitat conservation: There are no programs in place to protect the habitat of the whale shark.

4.2.3 Management measures: Other than the complete protection in some countries described above, there are no management measures in place.

4.3 Control measures:

4.3.1 International trade: There are no international control measures in place.

4.3.2 Domestic measures: Other than the protection in some states described above, there are no domestic control measures in place.

5. Information on Similar Species:

Whale shark fins can be identified by their very large size. The meat is also distinctive, as it has a unique soft spongy texture and the myomeres are of exceedingly large size. Meat and fins from very small whale sharks could possibly be confused with those of other sharks of a number of species.

6. Other Comments

The United States is endeavoring to consult with range states of the whale shark through activities pursuant to the Convention on Migratory Species, and other bilateral and multilateral contacts. Responses thus far have been favorable. The United States will submit more detailed discussion of the results of these consultations after the upcoming meeting of the Conference of the Parties to the Convention on Migratory Species.

7. Additional Remarks

Rhincodon typus meets the biological criteria for inclusion in Appendix II, as listed in Conf. 9.24, Annex 2a:

A. It is known, inferred or projected that unless trade in the species is subject to strict regulation, it will meet at least one of the criteria listed in Annex 1 (criterion C) and;
B. (ii) It is known, inferred or projected that the harvesting of specimens from the wild for international trade has, or may have, a detrimental impact on the species by exceeding, over an extended period, the level that can be continued in perpetuity.

8. References

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