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Attn: MSRA Shark Information
National Marine Fisheries Service
Office of International Affairs
1315 East-West Highway
Silver Spring, MD 20910

Re: Notice and Request for Information on Identification of Nations Whose Fishing Vessels are Engaged in Fishing in Waters Beyond any National Jurisdiction that Target or Incidentally Catch Sharks [0648-BA89]

The Shark Conservation Act of 2010 amended the High Seas Driftnet Fishing Moratorium Protection Act (Moratorium Protection Act) to require the United States to identify nations whose vessels are engaged in fishing activities in waters beyond any national jurisdiction targeting or incidentally catching sharks. The United States now has a powerful tool to sanction countries that have not adopted a regulatory program for the conservation of sharks that is comparable to that of the US.

Oceana thanks you for the opportunity to submit information and asks the US government to fully utilize this tool to identify and ban the import of shark products from countries with insufficient shark protections.

Methodology

Oceana has carried out extensive research to aid NMFS in the identification of nations whose fishing vessels are engaged in shark fishing in waters beyond any national jurisdiction and that have not adopted a regulatory program for the conservation of sharks that is comparable to that of the United States.

We started our query with the set of countries from which the US has imported sharks or shark parts during calendar year 2011 and determined which of those countries catch sharks on the high seas. For countries that met both criteria, we then conducted a review of their shark regulatory program to determine if it is comparable to that of the US.

In many cases, shipments arrive at a US port of entry and immediately are re-exported to their final destination. These cases were not included in our analysis and only those shark product imports that stayed in the US (as demonstrated by having a US-based consignee, or receiving entity)¹ were taken into consideration. In addition to the countries identified below whose shark

¹ Products must go to the consignee address, and cannot stay in the US if the consignee address is not within the US. Personal communication with Import Genius staff. June 6, 2011.

products remain in the US, shark imports also come from the following countries, but products do not remain in the US: Bahamas, Taiwan, Jamaica, Sri Lanka, Ecuador, India, Vietnam, Chile and the Dominican Republic.

There are a number of countries from which the US has imported sharks or shark parts in 2011 and which do not have regulatory programs comparable to that of the US, but for which we did not find information on shark fishing activities on the high seas. These countries are: Malaysia, Oman, Singapore, Trinidad and Tobago and Vietnam. We expect NMFS to use all available avenues to determine if these countries are fishing in international waters, and can provide additional information on imports into the US from these nations and their domestic shark regulatory programs, should NMFS consider the information useful.

Finally, there are countries whose vessels *do* target or incidentally catch sharks in waters on the high seas, but from who the US has not imported shark products in 2011. For practical purposes, these countries have been excluded from our analysis. Future imports could be banned from these countries as well.

Thus, the profiles below, for those countries which send shark products to the US, catch sharks on the high seas and lack shark regulatory programs comparable to that of the US, are divided into three parts: import data, evidence of shark catches in waters beyond any national jurisdiction and information on shark conservation regulatory programs.

1. Shark imports: Data to verify shark product imports was gathered from the NOAA Fisheries US Foreign Trade website² and from ImportGenius, an online provider of business intelligence on companies in the import-export industry.³ Trade data is available on the NOAA Fisheries website through May 2011 and on ImportGenius through the current date. Positive queries were made on ImportGenius for imports of dogfish, shark fins, shark cartilage, blue shark and thresher shark. Queries of shark meat, mako shark and porbeagle did not yield positive results.

2. Catch data: Shark catch data was acquired from a number a sources, including Food and Agriculture Organization of the United Nations (FAO) Fishstat Plus, Regional Fishery Management Organization (RFMO) databases and fishery or compliance reports from the various countries. NMFS has requested fishing activities during the preceding calendar year. However, due to varying reporting protocols, published fisheries data (i.e. in RFMOs and FAO) is publicly available with a one or two year delay from the end of a fishing year. In addition to any evidence of shark fishing activities beyond national jurisdictions in 2011, overall shark catches from recent years have also been included to demonstrate engagement of a nation's fishing vessels in targeting or incidentally catching sharks.

3. Regulatory program: Regulatory programs which provide for the conservation of sharks that are comparable to that of the US can include measures to prohibit the removal of any of the fins of a shark and discarding the carcass at sea. As such, this "fins attached" policy was used as a first screening level in evaluating the regulatory programs of each country, as well as the

² National Marine Fisheries Service Fisheries Statistics and Economics Division
<http://www.st.nmfs.noaa.gov/st1/trade/index.html>

³ ImportGenius. www.importgenius.com

implementation of a National Plan of Action (NPOA) for the conservation of sharks that includes. If this minimum level was determined not to be established, we did not continue further investigations into shark management measures. However, for countries that did meet this initial level of screening and seemed to be on par with US shark management, further investigation into other measures such catch limits/quotas for commercialized and bycatch species was conducted. In addition, in some limited cases where evidence of illegal fishing was available, that information has also been included.

Country profiles

Australia

1. Shark imports

The US imports dried shark fins from Australia. From January – May 2011, 3.73 metric tons (mt) of this product were brought into the US.⁴

2. Catch data

Australia catches sharks in international longline fisheries in the Indian Ocean Tuna Commission (IOTC) convention area between 20°S and 35°S. In recent years, 17.1% of the longline fleet has fished in waters outside of the country’s Exclusive Economic Zone (EEZ) in the Indian Ocean. Vessels fishing in the high seas undertake voyages of up to 28 days.⁵

Australia has reported longline shark catches to IOTC, including for blue, silky, oceanic whitetip, shortfin mako and scalloped hammerhead sharks.⁶ In 2009, approximately 11 mt of shark were landed by the Australian longline fleet operating in the IOTC Convention Area, totaling 446 individual sharks, while 13,894 individuals were discarded or released.⁷

Australia has reported total shark catches to FAO as follows:

Catches of sharks, rays and chimaeras (mt) ⁸	2008	2009
Indian Ocean	6,039	5,580
Pacific Ocean	2,717	2,956
Southern Ocean	23	26

⁴ NMFS Statistics and Economics Division. <http://www.st.nmfs.noaa.gov/st1/trade/index.html>

⁵ Hobsbawn PI and Wilson DT. 2010. Australian National Report to the Scientific Committee of the Indian Ocean Tuna Commission for 2009. Report to the Indian Ocean Tuna Commission. Australian Bureau of Agricultural and Resource Economics – Bureau of Rural Sciences, Canberra.

⁶ IOTC. 2011. Report of the Thirteenth Session of the Scientific Committee. Victoria, Seychelles, 6 - 10 December, 2010. IOTC-2010-SC-R[E]. 224 pp.; Hobsbawn PI and Wilson DT. 2010. Australian National Report to the Scientific Committee of the Indian Ocean Tuna Commission for 2009. Report to the Indian Ocean Tuna Commission. Australian Bureau of Agricultural and Resource Economics – Bureau of Rural Sciences, Canberra.

⁷ Hobsbawn and Wilson. 2010.

⁸ FAO Fisheries Department, Fisheries Information, Data and Statistics Unit. FISHSTAT Plus. Version 2.3. 2000. Available at: <http://www.fao.org/fishery/statistics/software/fishstat/en>

3. Regulatory program

Australia adopted an NPOA in 2004 and is in the process of revising it. The second NPOA should be released in 2011.

Australia does not have a “fins attached” policy comparable to the US. Finning is prohibited in federal waters from three to 200 miles offshore and sharks must be landed with fins attached but they do not have to be attached naturally in certain fisheries. Fins can be attached with cable ties or a bag system. Additional regulations apply in some territorial waters (out to three miles).⁹ In Northern Territory waters (out to three nautical miles) a ratio is applied for shark fins and bodies. In territorial waters of Queensland, Tasmania and Western Australia, fins can be completely separated and landed with corresponding bodies.¹⁰

In addition to having a finning policy weaker than that of the US, various cases of illegal shark finning have been reported in Australia recently, for example in Queensland in April 2011¹¹ and Tasmania in June 2010.¹²

Brazil

1. Shark imports

The United States imports fresh dogfish from Brazil. From January-May 2011, 10.41 mt of this product was brought into the US.¹³

2. Catch data

Brazil is in the top 20 shark catching nations around the globe, responsible for approximately 2.4% of total reported global catch.¹⁴ The Brazilian longline fleet targets sharks in the South Atlantic, especially blue and mako sharks, and catches many other species as bycatch, including longfin mako, oceanic whitetip, pelagic stingray, crocodile shark, thresher and silky shark. Frédou et al. (2011) detail the distribution of longline Catch per Unit Effort (CPUE) effort by the Brazilian longline fleet for seven elasmobranch species, including maps which show that fishing sets and distribution of effort extend well beyond waters of national jurisdiction.¹⁵

⁹ Camhi, M.D., Valenti, S.V., Fordham, S.V., Fowler, S.L. and Gibson, C. 2009. The Conservation Status of Pelagic Sharks and Rays: Report of the IUCN Shark Specialist Group Pelagic Shark Red List Workshop. IUCN Species Survival Commission Shark Specialist Group. Newbury, UK. x + 78p.

¹⁰ Fowler, S. and Séret, B. 2010. Shark fins in Europe: Implications for reforming the EU finning ban. European Elasmobranch Association and IUCN Shark Specialist Group.

¹¹ Sharks found with fins removed. Sunshine Coast Daily. 28th April 2011.

<http://www.sunshinecoastdaily.com.au/story/2011/04/28/sharks-found-with-fins-removed-moffat-beach/>

¹² Police snap up illegal shark fishers. ABC News. June 01, 2010. <http://www.abc.net.au/news/2010-06-01/police-snap-up-illegal-shark-fishers/848850>

¹³ NMFS Statistics and Economics Division. <http://www.st.nmfs.noaa.gov/st1/trade/index.html>

¹⁴ M. Lack and Sant G. 2011. The Future of Sharks: A Review of Action and Inaction. TRAFFIC International and the Pew Environment Group.

¹⁵ Frédou, F.L. et al. 2011. Sharks caught by the Brazilian tuna longline fleet: a review. SCRS-11-103. ICCAT.

Brazil has reported the following sharks catches to FAO:

Catches of sharks, rays and chimaeras (mt) ¹⁶	2008	2009
Atlantic Ocean and adjacent	19,657	21,009

3. Regulatory program

The website of the Brazilian Society for the Study of Elasmobranchs¹⁷ includes a link to an NPOA, although access is restricted. Shark finning is illegal in Brazil, and the country implements a 5% fin-to-carcass (whole weight) ratio.¹⁸ Fins and carcasses may be landed separately and are weighed.¹⁹ A “fins attached” policy is not mandated.

Canada

1. Shark imports

The US imports shark products from Canada. On April 13, 2011, a shipment containing frozen dogfish was imported from Canada²⁰, although the address of the consignee could not be confirmed. Canadian imports of shark products into the US are common however, and in 2010, the US imported 43.23 mt of fresh shark meat from this country.²¹

2. Catch data

Canada has directed fisheries for four shark species considered to be of economic value: porbeagle, blue, shortfin mako, and spiny dogfish.²² Shark fishing is permitted for Canadian vessels throughout the North Atlantic Fisheries Organization (NAFO) convention area, portions of which lay outside national jurisdiction.²³ At least porbeagle is known to be caught on the high seas.²⁴

Canada catches sharks in the Atlantic and Pacific Oceans are reported to FAO as follows:

¹⁶ FAO Fisheries Department, Fisheries Information, Data and Statistics Unit. FISHSTAT Plus. Version 2.3. 2000.

¹⁷ <http://www.sbeel.org.br/>

¹⁸ Camhi et al. 2009.

¹⁹ Fowler and Séret. 2010.

²⁰ ImportGenius. www.importgenius.com

²¹ NMFS Statistics and Economics Division. <http://www.st.nmfs.noaa.gov/st1/trade/index.html>

²² Environment Canada. 2011. Canadian response to CITES notification 2010/027: Information to be submitted for the 19th meeting of the Plants Committee and the 25th meeting of the Animals Committee. AC25 Doc. 17 Annex 2. <http://www.cites.org/common/com/AC/25/E25-17A2-CA.pdf>

²³ Canada Fisheries and Oceans. No date. Canadian Atlantic shark integrated fisheries management plan. 2002-2007.

²⁴ NMFS. 2011. Species of Concern. Porbeagle. http://www.nmfs.noaa.gov/pr/pdfs/species/porbeagleshark_detailed.pdf

Catches of sharks, rays and chimaeras (mt) ²⁵	2008	2009
Atlantic Ocean and adjacent	2,816	1,403
Pacific Ocean	3,085	5,216

3. Regulatory program

Canada produced an NPOA in 2007. Shark finning is prohibited in Canadian waters and for Canadian vessels fishing outside the EEZ. Fins sold or traded must not exceed 5% of dressed carcass weight.²⁶ A “fins attached” policy is not mandated.

China

1. Shark imports

The US imports frozen shark meat and dried shark fins from China. NMFS Statistics and Economics Division report 5.41 mt of these products being imported from China from January – May 2011²⁷. Shark cartilage capsules are also imported into the US from China on May 11, 2011 at Long Beach, CA.²⁸

2. Catch data

China has the biggest fishing fleet in the world, with approximately 1,000 overseas fishing vessels operating internationally.²⁹ The Chinese distant longline fleet catches sharks around the world, including in waters beyond any national jurisdiction. For example, China catches sharks on the high seas of the eastern Pacific Ocean in the Inter-American Tropical Tuna Commission (IATTC) convention area. 1,193 mt of bigeye tuna longline catches were reported by China to IATTC in 2011.³⁰ It has been shown that the vast majority IATTC longline catches of bigeye occur in international waters³¹ and that sharks like silky sharks are taken in IATTC longline fisheries.³²

The following overall shark catches have been reported to FAO by China:

²⁵ FAO Fisheries Department, Fisheries Information, Data and Statistics Unit. FISHSTAT Plus. Version 2.3. 2000.

²⁶ Canada Fisheries and Oceans. No date.

²⁷ NMFS Statistics and Economics Division. <http://www.st.nmfs.noaa.gov/st1/trade/index.html>

²⁸ ImportGenius. www.importgenius.com

²⁹ INFOYU. 1999. Investigation on shark utilization in China. *in* Vannuccini, S. Shark utilization, marketing and trade. *FAO Fisheries Technical Paper*. No. 389. Rome, FAO.. 470p

³⁰ IATTC. 2011. Estimated Longline Catches of Bigeye Tuna in the Eastern Pacific Ocean, 2011. <http://www.iattc.org/IATTCLonglineCatches2011.htm>. Accessed on July 12, 2011.

³¹ IATTC. 2010. Fishery Status Report No. 8. Tunas and billfishes in the Eastern Pacific Ocean in 2009. La Jolla. (see page 18).

³² IATTC. 2010.

Catches of sharks, rays and chimaeras (mt) ³³	2008	2009
Indian Ocean	406	372
Pacific Ocean	1,912	2,366
Atlantic Ocean and adjacent	170	240

3. Regulatory program

According to the Fisheries Law of the People’s Republic of China, permits from fishery management authorities have to be obtained in order to exploit shark resources.³⁴ However no record of an NPOA has been found in our research and China does not mandate a “fins attached” policy.

China, Hong Kong Special Administrative Region (Hong Kong)

1. Shark imports

The US imports dried shark fins and frozen shark meat from Hong Kong. 7.39 mt of these products were imported from Hong Kong from January – May 2011.³⁵ Specifically, dried blue shark fins were imported on April 28, 2011 into Newark, NJ; dried shark fins were also imported into Oakland, CA from Hong Kong on January 31, 2011.³⁶ Hong Kong dominates the global trade in shark fins, although its importance has declined somewhat in recent years.³⁷

2. Catch data

About 34% of Hong Kong’s 4,000 vessels fleet is over 15 meters in length and engaged in fishing mainly outside of Hong Kong waters, along the northern continental shelf of the South China Sea. They are mainly trawlers, longliners and gillnetters. While Hong Kong does not have a targeted shark fishery, small quantities are caught as bycatch in long-liners and trawlers.³⁸

Hong Kong has reported global shark catches to FAO as follows:

Catches of sharks, rays and chimaeras (mt) ³⁹	2008	2009
Pacific Ocean	320	325

The majority of sharks landed are small, which are usually sold whole. Larger individuals’ parts are sold separately. Sharks are reported fully utilized in Hong Kong fisheries.⁴⁰

³³ FAO Fisheries Department, Fisheries Information, Data and Statistics Unit. FISHSTAT Plus. Version 2.3. 2000.

³⁴ INFOYU. 1999.

³⁵ NMFS Statistics and Economics Division. <http://www.st.nmfs.noaa.gov/st1/trade/index.html>

³⁶ ImportGenius. www.importgenius.com

³⁷ Clarke, S., Milner-Gulland, E.J. and T. Bjorndal. 2007. Social, economic, and regulatory drivers of the shark fin trade. *Marine Resource Economics*. 22: 305–327.

³⁸ FAO. 2009. Report of the Technical Workshop on the Status, Limitations and Opportunities for Improving the Monitoring of Shark Fisheries and Trade. Rome, 3–6 November 2008. FAO Fisheries and Aquaculture Report. No. 897. Rome, FAO. 2009. 152p.

³⁹ FAO Fisheries Department, Fisheries Information, Data and Statistics Unit. FISHSTAT Plus. Version 2.3. 2000.

⁴⁰ FAO. 2009..

3. Regulatory program

No information on, or reference to, any shark conservation regulatory program in Hong Kong was found after an extensive online search.

Chinese Taipei

1. Shark imports

The US imports shark products from Chinese Taipei (Taiwan). “Frozen dogfish and other sharks” were imported into Long Beach, CA, which then went to Guam on May 12, 2011. On June 27 and July 18, 2011, “dogfish and other shark fillets” and “frozen blue shark steak and loins” were imported into Los Angeles, CA.⁴¹

2. Catch data

Taiwan is one of the top five shark fishing nations, accounting for 5.8% of the global shark catch.⁴² Taiwan catches sharks in waters beyond any national jurisdiction. The Taiwanese Fisheries Agency notes that 85% of Taiwan's shark landings are from far sea fisheries, and are mainly bycaught by tuna longliners and trawlers, although some longliners directly target sharks.⁴³ Blue (70-80%) silky, scalloped hammerhead, shortfin mako and thresher shark are the main species caught.⁴⁴ Most of these shark catches are landed and sold at foreign ports.⁴⁵

Taiwan reported 2010 shark catches (preliminary estimates) from its large scale tuna longline fleet in the Western and Central Pacific Fisheries Commission (WCPFC) convention area as follows.⁴⁶ All of the vessels that operate in this fishery operate *outside* the country's EEZ.⁴⁷

Blue	Silky	Shortfin mako	Oceanic whitetail	Pelagic thresher	Bigeye thresher	Smooth hammerhead	Scalloped hammerhead	Other sharks
912	417	206	80	9	25	5	6	43

Taiwan reports global shark catches to FAO as follows:

⁴¹ ImportGenius. www.importgenius.com

⁴² Lack and Sant. 2011.

⁴³ Taiwan Fisheries Agency. No date. Taiwan's National Plan of Action for the Conservation and Management of Sharks. Accessed on July 25, 2011. <http://www.fa.gov.tw/pages/detail.aspx?Node=269&Page=10269&Index=3>

⁴⁴ Taiwan Fisheries Agency. No date(b). Shark fishery in Taiwan. Accessed on July 25, 2011. <http://www.fa.gov.tw/pages/detail.aspx?Node=269&Page=10279&Index=3>

⁴⁵ Taiwan Fisheries Agency. No date.

⁴⁶ WCPFC. 2011. Annual Report to the Commission. Part 1: Information on Fisheries, Research, and Statistics. WCPFC-SC7-AR/CCM-22. Scientific Committee Seventh Regular Session. 9-17 August 2011. Pohnpei.

⁴⁷ WCPFC. 2011.

Catches of sharks, rays and chimaeras (mt) ⁴⁸	2008	2009
Pacific Ocean	33,884	22,985
Atlantic Ocean	2,211	1,626
Indian Ocean	4,681	4,699

In January, 2010, the US Coast Guard was reported to have seized a Taiwanese fishing vessel in waters of the Commonwealth of the Northern Mariana Islands, which is part of the US EEZ; the crew of the Taiwanese vessel were accused of illegally fishing for sharks and tuna.⁴⁹

3. Regulatory program

Taiwan adopted an NPOA in 2004, which is due for review.⁵⁰

The nation follows a 5% fin to whole-body weight ratio; however cases of shark finning by Taiwanese vessels have been reported. In March, 2009, a Taiwanese fishing vessel was seized in South Africa for Illegal, Unreported and Unregulated (IUU) shark fishing and providing false catch information. The vessel's permit indicated that 0.1 mt of shark fin were on board, but in reality nearly two tons of dried fins were stored. The Marine and Coastal Management of South Africa said it was clear the vessel, which had been fishing on the high seas, had been finning.⁵¹ Taiwan was also reportedly involved in the IUU shark fishing case inside the US EEZ mentioned above.⁵²

The Taiwanese national fisheries agency has recently announced plans to implant a “fins naturally attached” policy beginning in 2012.⁵³ Once enacted, Taiwan will be the first Asian country to employ a full ban on shark finning and we call on the US Government to encourage its rapid implementation.

Costa Rica

1. Shark imports

The US imports shark products from Costa Rica. For example, from January – April 2011, 3.17 mt of fresh shark meat was imported from this country. In addition, frozen thresher shark steaks were imported into Los Angeles, CA on February 14, 2011.

⁴⁸ FAO Fisheries Department, Fisheries Information, Data and Statistics Unit. FISHSTAT Plus. Version 2.3. 2000.

⁴⁹ Taiwanese fishing vessel seized near CNMI for illegal fishing. Radio NZ international, 3rd January 2010. <http://www.rnzi.com/pages/news.php?op=read&id=51198>

⁵⁰ Lack and Sant. 2011.

⁵¹ Two tons of shark fins on Taiwanese boat . Originally published in the Cape Argus, March 15, 2009 http://www.iol.co.za/index.php?set_id=1&click_id=14&art_id=vn20090315062359249C428822.

⁵² Taiwanese fishing vessel seized near CNMI for illegal fishing. Radio NZ international, 3rd January 2010. <http://www.rnzi.com/pages/news.php?op=read&id=51198>

⁵³ Humane Society International. 2011. Taiwan to Implement Fins-Attached Policy for Shark Fishing. http://www.hsi.org/news/press_releases/2011/07/taiwan_fins_attached_071211.html Accessed on July 25, 2011.

2. Catch data

Costa Rica participates in a high seas longline fishery in the Pacific Ocean, which takes place outside of the EEZ and is known to catch sharks.⁵⁴

The country has reported overall shark catches to FAO as follows:

Catches of sharks, rays and chimaeras (mt) ⁵⁵	2008	2009
Pacific Ocean	4,920	1,920
Atlantic Ocean and adjacent	38	38

3. Regulatory program

While on paper Costa Rica has an exemplary policy requiring Costa Rican and foreign vessels to land shark fins naturally attached to the body, there are numerous enforcement problems. For example in August 2010 a Costa Rican vessel was captured in the Galapagos Island Marine Reserve, Ecuador, carrying 75 sharks on board with their fins cut off.⁵⁶ Within Costa Rica, conflicts are ongoing to ensure foreign fleets land in public docks and not in private quays.⁵⁷

Costa Rica presented an NPOA in 2009 but the country has no actual shark specific regulations in place such as catch or size limits.⁵⁸

Indonesia

1. Shark imports

Shark products are not recorded as being imported into the US directly from Indonesia, but products imported from Singapore are often shipped by Indonesian companies. Singapore, which has a very small fishing fleet, is known to be a large shark processing country, and Indonesia is the top shark catching nation in the world. Thus, we have assumed that many shark products that are shipped from Singapore by an Indonesian shipping company were actually caught by Indonesian vessels.

For example, on March 28 and April 5, 2011, shark cartilage was imported into New York from Singapore via an Indonesian shipping company called PT OEC Freight Indonesia.

⁵⁴ FAO. 2004. Republic of Costa Rica. General Economic Data.

<http://www.fao.org/fi/oldsite/FCP/en/CRI/profile.htm>

⁵⁵ FAO Fisheries Department, Fisheries Information, Data and Statistics Unit. FISHSTAT Plus. Version 2.3. 2000.

⁵⁶ Un pesquero costarricense fue capturado en reserva marina de Ecuador. La Hora. 16 de Agosto de 2010.

<http://www.lahora.com.ec/index.php/noticias/show/1101004070/->

[1/Un_pesquero_costarricense_fue_capturado_en_reserva_marina_de_Ecuador.html](http://www.lahora.com.ec/index.php/noticias/show/1101004070/-/Un_pesquero_costarricense_fue_capturado_en_reserva_marina_de_Ecuador.html)

⁵⁷ McDonald, M. 2010. New Costa Rican rule cracks down on illegal shark finning. News briefs.

http://www.ticotimes.net/Current-Edition/News-Briefs/New-Costa-Rican-rule-cracks-down-on-illegal-shark-finning_Tuesday-November-30-2010

⁵⁸ Personal communication with Randall Arauz via email. 16 July 2011.

2. Catch data

Indonesia is the top shark fishing nation in the world, and its fleet accounts for 13% of the global reported catch.⁵⁹ This country has reported total shark catches to FAO as follows:

Catches of sharks, rays and chimaeras (mt) ⁶⁰	2008	2009
Indian Ocean	27,726	26,830
Pacific Ocean	63,521	61,960

The main species taken by Indonesian vessels are white spotted whiptail, cowtail stingray, whitespotted guitarfish, silky shark, spottail shark, blue shark, scalloped hammerhead, pelagic thresher and shortfin mako. Sharks are caught as target species and as bycatch.⁶¹

An Indonesian fishing vessel which was reported to have 0.03 mt of shark fins and 0.01 mt of shark fillet on board was intercepted in Australian waters in January, 2009 for illegal shark fishing.⁶²

3. Regulatory program

It has been noted that the growth in the shark and ray fishery in Indonesia has outstripped effective management, and there are few management strategies aimed at protecting elasmobranch resources in the country.⁶³

An NPOA was finalized in 2008, but no further information on it could be found. Indonesia does not require sharks to be landed with their fins attached.

Japan

1. Shark imports

The US imports shark products from Japan. For example, on March 3 and July 9, 2011, shark fins were imported into Newark, NJ from this country.⁶⁴

2. Catch data

Japan's long distance tuna longline fishing fleet operates nearly all over the world, in the Pacific, Indian and the Atlantic Oceans. Yokawa and Ando (2011) document Japanese shark catches in waters of the Atlantic Ocean outside of any national jurisdiction from 1997 to 2011. Species

⁵⁹ Lack and Sant. 2011.

⁶⁰ FAO Fisheries Department, Fisheries Information, Data and Statistics Unit. FISHSTAT Plus. Version 2.3. 2000.

⁶¹ Lack and Sant. 2011.

⁶² Shark fins allegedly found on foreign vessel. The Western Australian. August 1, 2009. http://www.illegal-fishing.info/item_single.php?item=news&item_id=3657&approach_id=

⁶³ FAO. 2009.

⁶⁴ ImportGenius. www.importgenius.com

caught included mako sharks, pelagic stingray, crocodile sharks, porbeagle, bigeye thresher, thresher sharks, and blue sharks.⁶⁵

In the North Atlantic, Japan has a quota to fish for 400 mt of redfish in an area of NAFO that is situated entirely in international waters: area 3M.⁶⁶ Trawl gear is used to fish for redfish, and this gear is known to catch sharks.

Further, NMFS has noted that Japanese porbeagle catches outside of the Canadian EEZ in the Northwest Atlantic might be substantial and might comprise a significant portion of total catches from the Northwest Atlantic population.⁶⁷

Japan also catches sharks on the high seas of the Pacific Ocean, in the IATTC convention area. Japan has reported 1,996 mt of bigeye tuna longline catches to IATTC in 2011.⁶⁸ Most Japanese longline catches of bigeye in this ocean occur in international waters⁶⁹ and sharks like silky sharks are known to be taken in IATTC longline fisheries.⁷⁰

Japanese fishing vessels account for 3% of the reported global shark catch.⁷¹ Overall catch data has been reported to FAO as follows:

Catches of sharks, rays and chimaeras (mt) ⁷²	2008	2009
Indian Ocean	1,332	1,489
Pacific Ocean	11,473	11,458
Atlantic Ocean and adjacent	5,017	3,518
Southern Ocean	0	2

3. Regulatory program

Japan has adopted an NPOA. Finning is prohibited for Japanese vessels *except* for far seas and coastal vessels operating and landing outside Japanese waters. For vessels landing inside Japanese waters, all parts of the shark must be landed, although heading, gutting and skinning are permitted.⁷³

Blue shark is the most commonly caught species in Japanese tuna longline fisheries, and its commercial value as food has increased in recent years, especially in overseas markets. Landings of blue sharks in overseas ports have increased as a result.⁷⁴ Pursuant to the regulations

⁶⁵ Yokawa and Tsubasa. 2011. Review of information of other sharks caught by Japanese longliners in the Atlantic. SCRS/2011/09. ICCAT.

⁶⁶ NAFO. 2011. Annual Quota Table (Annex I.A) and Effort Allocation Scheme (Annex I.B). <http://www.nafo.int/fisheries/frames/fishery.html>. Accessed on July 12, 2011.

⁶⁷ NMFS. 2011.

⁶⁸ IATTC. 2011.

⁶⁹ IATTC. 2010. See page 18.

⁷⁰ IATTC. 2010.

⁷¹ Lack and Sant. 2011.

⁷² FAO Fisheries Department, Fisheries Information, Data and Statistics Unit. FISHSTAT Plus. Version 2.3. 2000.

⁷³ Camhi et al. 2009.

⁷⁴ FAO. 2009.

mentioned above, the Japanese vessels operating in the Atlantic Ocean and landing in the Canary Islands, Spain, are permitted to practice shark finning. Oceana has photographic evidence of a Japanese longliner landing in Las Palmas, Canary Islands. Frozen trunks and frozen fins, along with dried fins, were seen landed. After visually estimating that the quantities of frozen fins correspond to the frozen trunks unloaded, our experts concluded that the accompanying dried fins came from finned sharks.



Japanese longliner landing frozen shark trunks and dried shark fins in Port of Las Palmas, Gran Canaria, Spain, at night. January 2008. ©Oceana/LX.

South Korea (Republic of Korea)

1. Shark imports

The US imports dried shark fins from the South Korea, as occurred on March 25, 2011 into Newark and on April 10, 2011 into Long Beach, CA.⁷⁵

2. Catch data

South Korea operates two types of fisheries in the Western Central Pacific Ocean: a distant water purse seine fishery and a longline fishery. These fisheries operate throughout the ocean, outside waters of any national jurisdiction. The purse seine fisheries have generally operated in the tropical area of the Western and Central Pacific between 140° E-180° E, and rarely extending east over 160° W. The longline fisheries have fished throughout the tropical area of the entire Pacific between 20° N and 20° S. In 2009, shark catches from the purse seine and longline fisheries in the WCPFC convention area were reported for blue, silky, bigeye thresher, longfin mako, oceanic whitetip and whale sharks.⁷⁶

South Korea also catches sharks on the high seas of the eastern Pacific Ocean in the IATTC convention area. This country reported 2,075 mt of bigeye tuna longline catches to IATTC in

⁷⁵ ImportGenius. www.importgenius.com

⁷⁶ WCPFC. 2010. Annual report to the Commission: Korea. WCPFC-SC6-AR/CCM-15. Scientific Committee sixth regular session. Nuku'alofa, Tonga 10-19 August 2010.

2011.⁷⁷ It has been shown that most South Korean longline catches of bigeye occur in international waters⁷⁸ and sharks like silky sharks are known to be taken in IATTC longline fisheries.⁷⁹

In the North Atlantic, South Korea has a quota to fish for 69 mt of redfish in area 3M of NAFO, which is located entirely in international waters.⁸⁰ Trawl gear is used to fish for redfish, and is known to catch sharks.

South Korea is also a member of SEAFO (South East Atlantic Fisheries Organization), which covers a large portion of the high seas of the South East Atlantic Ocean. While catch data is not available online, South Korea is reported to use longline gear to fish for toothfish in Division D of the convention area.⁸¹ This division is entirely in international waters, and longline gear is known to catch pelagic sharks.

The South Korean fleet accounts for 1.4% of the reported global shark catch.⁸² Shark catches have been reported to FAO as follows:

Catches of sharks, rays and chimaeras (mt) ⁸³	2008	2009
Indian Ocean	113	325
Pacific Ocean	6,495	7,925
Atlantic Ocean and adjacent	2,362	4,511
Southern Ocean	0	3

3. Regulatory program

South Korea has developed an NPOA for sharks and the nation applies the 5% fin-to-carcass ratio as required by IOTC and WCPFC.⁸⁴ A fins attached policy is not mandated.

Mexico

1. Shark imports

The US imports shark products from Mexico. Fresh shark meat is commonly imported, and from January – May 2011 the US imported 15.23 mt of this product from Mexico.⁸⁵ On July 3, 2011, the US imported “dogfish and other sharks” and frozen stingray into Los Angeles, CA from Mexico.⁸⁶

⁷⁷ IATTC. 2011.

⁷⁸ IATTC. 2010. See page 18.

⁷⁹ IATTC. 2010..

⁸⁰ NAFO. 2011.

⁸¹ SEAFO. 2010. Report of SEAFO Scientific Committee. Walvis Bay.

⁸² Lack and Sant. 2011.

⁸³ FAO Fisheries Department, Fisheries Information, Data and Statistics Unit. FISHSTAT Plus. Version 2.3. 2000.

⁸⁴ CCSBT. 2010. Report of the Fifth Meeting of the Compliance Committee. Taipei, Taiwan. 9-10 October 2010.

⁸⁵ NMFS Statistics and Economics Division. <http://www.st.nmfs.noaa.gov/st1/trade/index.html>

⁸⁶ ImportGenius. www.importgenius.com

2. Catch data

Mexico is a top shark fishing nation, and accounts for 4.1% of the global shark catch.⁸⁷ Total shark catches have been reported to FAO as follows:

Catches of sharks, rays and chimaeras (mt) ⁸⁸	2008	2009
Pacific Ocean	23,183	23,599
Atlantic Ocean and adjacent	6,320	6,706

In 2010, Mexico retained 9,245 of the 9,276 sharks caught on observed purse seine sets in the IATTC convention area. This may present a violation of IATTC Resolution C-04-05, which requires the release, to the extent practicable, of all sharks taken as bycatch.⁸⁹

Mexican fishermen are routinely caught illegally fishing for sharks in US waters. Since the mid-1990s, the United States Coast Guard has been aware of Mexican fishing vessels fishing for sharks and other species in the US EEZ off the coast of Texas. As presented by the US Coast Guard on April 5, 2011 to the NMFS Highly Migratory Advisory Panel, there were 18 cases of illegal shark fishing by Mexican fishing vessels in US waters in January and February of 2011.⁹⁰

The boats come from Matamoros, Mexico, and fish in the area surrounding South Padre Island, Texas, from zero to 20 miles offshore. These vessels are believed to participate in illegal fishing during the day and drug and migrant smuggling at night. The sharks found on intercepted Mexican boats are mostly blacktips and hammerheads. Biologists estimate that Mexican fishermen annually catch well over 50,000 sharks illegally in the US.⁹¹ In a Washington Post article earlier this year, one Mexican shark fisherman was quoted as saying: "It's the same game every day. They chase us, sometimes seizing our boats. And the next day we do it again." According to another Mexican fisherman, shark catches are better in US waters because "American regulations have left its shark population mostly intact while the lack of Mexican enforcement has caused years of overfishing."⁹²

We urge NMFS to identify Mexico as a nation engaged in IUU fishing activities and to proceed with the appropriate sanctions.

⁸⁷ Lack and Sant. 2011.

⁸⁸ FAO Fisheries Department, Fisheries Information, Data and Statistics Unit. FISHSTAT Plus. Version 2.3. 2000.

⁸⁹ IATTC. 2011b. Compliance with IATTC measures in 2010. Document COR-02-07 (REVISED). Committee for the review of implementation of measures adopted by the Commission. 2nd Meeting. La Jolla, California. 29-30 June 2011.

⁹⁰ United States Coast Guard. 2011. Atlantic Highly Migratory Species Enforcement Overview. Presented at April 2011

http://www.nmfs.noaa.gov/sfa/hms/Advisory%20Panels/AP2011/HMS_FY11april_Enforcement_Final_Public.pdf

⁹¹ Brewster-Geisz, K. and Eytcheson, M. 2005. Illegal Shark Fishing off the coast of Texas by Mexican Lanchas. Presented to the Southeast Fisheries Science Center. LCS05/06-DW-07-V2.

http://www.sefsc.noaa.gov/sedar/download/LCS_DW_07_V2.pdf?id=DOCUMENT

⁹² Sieff, K. 2011. Quest for shark fins brings Mexican fishermen to American waters. Monday, March 21, 2011. <http://www.washingtonpost.com/wp-dyn/content/article/2011/03/16/AR2011031602589.html>

3. Regulatory program

Mexico approved an NPOA in 2004. Finning is prohibited in Mexican waters and wherever Mexican vessels operate, catching sharks directly or incidentally. Fins must be landed with corresponding carcasses,⁹³ but a ratio has never been put in place domestically. In 2010, 23 sharks were finned on Mexican purse seine vessels in IATTC waters, as recorded by observers.⁹⁴

New Zealand

1. Shark imports

The US imports dried shark fins, fresh shark meat and dried shark cartilage powder from New Zealand. From January - May 2011, 3.77 mt of dried shark fins and fresh shark meat were imported from this country,⁹⁵ and on January 28, April 1, May 27 and July 22, 2011, dried shark cartilage powder was imported into Long Beach, CA.⁹⁶

2. Catch data

New Zealand accounts for 2.2% of the reported global shark catch and is in the top 20 countries catching sharks.⁹⁷ New Zealand flagged purse seine vessels fish in high seas areas of the equatorial western and central Pacific Ocean. New Zealand longline vessels fish on the high seas south of 30°S.⁹⁸

In New Zealand's annual report to the WCPFC, it was noted that manta rays were the most caught elasmobranch in four observed purse seine trips within New Zealand fisheries waters in 2009, followed by mako and blue sharks and other rays. Blue shark is the most common non-tuna bycatch species in the longline fishery, but other sharks are taken as well.⁹⁹

New Zealand reported total shark catches to FAO as follows:

Catches of sharks, rays and chimaeras (mt) ¹⁰⁰	2008	2009
Southern Ocean	11	9
Pacific Ocean	15,954	16,736

3. Regulatory program

A NPOA was adopted in 2008 with 11 target and bycatch species managed under a Quota Management System. The NPOA references shark species taken by New Zealand-flagged

⁹³ Camhi et al. 2009.

⁹⁴ IATTC. 2011b.

⁹⁵ NMFS Statistics and Economics Division. <http://www.st.nmfs.noaa.gov/st1/trade/index.html>

⁹⁶ ImportGenius. www.importgenius.com

⁹⁷ Lack and Sant. 2011.

⁹⁸ WCPFC. 2010b. Annual report to the Commission: New Zealand. WCPFC-SC6-AR/CCM-15. Scientific Committee sixth regular session. Nuku'alofa, Tonga 10-19 August 2010.

⁹⁹ WCPFC. 2010b.

¹⁰⁰ FAO Fisheries Department, Fisheries Information, Data and Statistics Unit. FISHSTAT Plus. Version 2.3. 2000.

vessels fishing on the high seas. Total Allowable Catches (TACs) for blue shark, shortfin mako and porbeagle are set without regard to MSY.¹⁰¹ Live finning is illegal for all New Zealand vessels, but dead sharks can be *finned legally* in national waters. Of the total reported shark catch, approximately 7% is landed as fins only, with the large pelagics (mako, blue and porbeagle) comprising a significant portion of these.¹⁰² Provisions in high seas permit conditions regulate finning outside the EEZ.¹⁰³

Panama

1. Shark imports

The US imports shark products from Panama. For example, shark cartilage was imported on May 8, 2010 into Miami, FL. “Dogfish and other sharks” were imported into Los Angeles, CA on March 2 and 16, 2011, although it could not be confirmed whether this was for a US-based consignee and thus remained in the US.¹⁰⁴

2. Catch data

Panama reported 1,630 mt of shark catch to the International Commission for the Conservation of Atlantic Tunas (ICCAT) in 2009. In 2010, observers aboard Panamanian purse seiner recorded 3,435 sharks caught in the IATTC convention area,¹⁰⁵ although it is possible these are foreign vessels with Panamanian flags.¹⁰⁶ Panama-flagged vessels are known to fish in waters of the high seas and land in other countries.¹⁰⁷

Panama has reported total shark catches to FAO as follows:

Catches of sharks, rays and chimaeras (mt) ¹⁰⁸	2008	2009
Pacific Ocean	3,655	5,403
Atlantic Ocean and adjacent	1,189	1,630

3. Regulatory program

An NPOA was adopted in 2009¹⁰⁹ but we were unable to locate it online. Finning is prohibited in Panamanian waters, and commercial fisheries must land sharks with fins attached in a natural manner, with at least 25% of the fin attached to the body. However, artisanal boats with outboard motors of 60 hp or less may land fins separately, as long as they do not exceed 5% of the weight

¹⁰¹ Ministry of Fisheries of New Zealand. 2008. New Zealand National Plan of Action for the Conservation and Management of Sharks. New Zealand Government. Wellington.

¹⁰² Ministry of Fisheries of New Zealand. 2008.

¹⁰³ CCSBT. 2010.

¹⁰⁴ ImportGenius. www.importgenius.com

¹⁰⁵ IATTC. 2011b.

¹⁰⁶ FAO. 2009.

¹⁰⁷ FAO. 2009.

¹⁰⁸ FAO Fisheries Department, Fisheries Information, Data and Statistics Unit. FISHSTAT Plus. Version 2.3. 2000.

¹⁰⁹ Gaceta Oficial Digital. 2009..

of the meat landed.¹¹⁰ According to a draft of the NPOA, these artisanal boats can represent from 24% to 88% of the entire fleet.¹¹¹ 13 finned sharks on Panamanian purse seine vessels were recorded by IATTC observers in 2010.¹¹²

Peru

1. Shark imports

On May 8, 2011 the US imported shark cartilage from Peru into Port Everglades, FL.¹¹³

2. Catch data

Peru has 23 multipurpose vessels (with surface longline, bottom longline, purse seine, trawl and trap gear) that are licensed to harvest shark.¹¹⁴ This country has reported to SPRFMO (South Pacific Regional Fisheries Management Organization) fishing on the high seas, for example in 2009 for Jack mackerel in FAO area 87.¹¹⁵ Jack mackerel are predominantly caught by purse seine and midwater trawl,¹¹⁶ both of which regularly catch sharks as bycatch.

Total Peru catches sharks, and has reported to FAO, are as follows:

Catches of sharks, rays and chimaeras (mt) ¹¹⁷	2008	2009
Pacific Ocean	6,238	8,692

3. Regulatory program

Peru has reported some degree of NPOA progress but current status is unknown.¹¹⁸

¹¹⁰ Camhi et al. 2009.

¹¹¹ Draft Plan de Acción Nacional para la Conservación y Ordenación de los Tiburones. Panama. No date. <http://www.sica.int/busqueda/Centro%20de%20Documentaci%C3%B3n.aspx?IDItem=11565&IdCat=32&IdEnt=401&Idm=2&IdmStyle=2>

¹¹² IATTC. 2011b.

¹¹³ ImportGenius. www.importgenius.com

¹¹⁴ FAO. 2010. National Fisheries Sector Overview: Peru. ftp://ftp.fao.org/FI/DOCUMENT/fcp/en/FI_CP_PE.pdf

¹¹⁵ SPRFMO. 2001. Update of Data Submitted to the Interim Secretariat as at 21 January 2011. PrepCon-02-INF-03 Rev1. Preparatory Conference for the Commission of the South Pacific Regional Fisheries Management Organisation. Second Session, Cali, 24-28 January 2011.

¹¹⁶ Anon. 2009. Information describing Chilean jack mackerel (*Trachurus murphyi*) fisheries relating to the South Pacific Regional Fishery Management Organisation. SP-07-SWG-JM-02. WORKING DRAFT 30 April, 2009. <http://www.southpacificrfmo.org/assets/7th-Meeting-May-2009-Lima/JM-Subgroup-VII/SP-07-SWG-JM-02-jackmackerel-speciesprofile-20090430.doc>

¹¹⁷ FAO Fisheries Department, Fisheries Information, Data and Statistics Unit. FISHSTAT Plus. Version 2.3. 2000.

¹¹⁸ Camhi et al. 2009..

Spain

1. Shark imports

The US imports shark meat from Spain. From January – April, 2011, 0.27 mt were brought into the US from this country.¹¹⁹

2. Catch data

Spain is a major shark fishing nation, whose boats fish all over the world in international waters and those of third-countries. This country accounts for 7.3% of the global shark catch.¹²⁰ Spain is Europe's top shark catching nation. It has been noted that European shark fisheries operating in all of the world's oceans are very much larger than is generally understood.¹²¹

Spain catches sharks on the high seas in waters beyond any national jurisdiction. The European Council noted that the largest European shark fisheries, undertaken on the high seas by pelagic fleets from Spain, among other countries, in the Atlantic, Pacific and Indian Oceans, are not adequately documented. While these fisheries historically targeted tunas and swordfish, longline catches of oceanic sharks are as large as, or larger than, the catch of tuna and swordfish. Most longliners now also target sharks.¹²²

La Xunta de Galicia (2008) details the 133 vessel fleet from this region in Northwestern Spain that that operates in international waters. There are 47 trawlers, 3 purse seiners and 83 surface longliners.¹²³ Mako sharks are particularly pointed out as being caught in international waters of the Atlantic.¹²⁴ The fishing fleet from the Galicia region comprises approximately 50% of the entire Spanish fleet in number of vessels.¹²⁵

Spain has reported total shark catches to FAO as follows:

Catches of sharks, rays and chimaeras (mt) ¹²⁶	2008	2009
Indian Ocean	4,479	3,875
Pacific Ocean	2,347	2,792
Atlantic Ocean and adjacent	49,222	55,488
Southern Ocean	0	2

¹¹⁹ NMFS Statistics and Economics Division. <http://www.st.nmfs.noaa.gov/st1/trade/index.html>

¹²⁰ Lack and Sant. 2011.

¹²¹ EC. 2010. Public Consultation on the Amendment of Council Regulation (EC) 1185/2003 on the Removal of Fins of Sharks on Board Vessels.

¹²² EC. 2010.

¹²³ Xunta de Galicia. 2008. Rexistro de Buques Pesqueiros da Comunidade Autónoma de Galicia. Consellería de Pesca e Asuntos Marítimos Santiago de Compostela.

¹²⁴ Os caladoiros. Xunta de Galicia. <http://webpesca.xunta.es/web/pesca/os-caladoiros#atlantico>. Accessed on July 11, 2011.

¹²⁵ FAO. 2009.

¹²⁶ FAO Fisheries Department, Fisheries Information, Data and Statistics Unit. FISHSTAT Plus. Version 2.3. 2000.

3. Regulatory program

The EU adopted a Community Plan of Action for Sharks in 2009. Prior to that, shark finning was already prohibited for Spanish vessels operating in Spanish waters and wherever they fished based on Spanish law and superseded by Regulation EC n°1185/2003. The regulation includes a derogation allowing for a 5% fin to carcass (whole weight) ratio in place for those vessels that receive a “special fishing permit”. Spain issues the most permits within the EU, with an average of 185/year, which account for the majority of its longline fleet.¹²⁷ One complication arising from Spain’s special fishing permits is that the EU ratio is more lenient than that in other countries, applying to the whole weight of the shark instead of the dressed weight. As a result, RFMO measures are vague and allow countries to interpret the measure differently, thus complicating enforcement. For example, difficulties have arisen with Spain vessels landing shark catches in Cape Verde¹²⁸ and South Africa¹²⁹ due to differences in interpretation of the ratio.

In 2003, 2004 and 2005, Spanish vessels with special fishing permits caught an average of 87% of the total shark catch of the Spanish fleet.¹³⁰

The EU is currently considering an amendment to its shark finning regulation, including a requirement that sharks be landed with fins naturally attached.

Conclusion

Taking strong action domestically that has international repercussions, such as prohibiting imports of shark products from nations whose regulatory program is not comparable to that of the United States’, not only elevates the US’s commitment to shark conservation but also encourages other nations to improve and advance their shark fisheries management regimes. Sharks, as highly traded and highly migratory animals, need cooperation from nations all around the world involved in their trade and fisheries.

We encourage NMFS to consider sanctions for the countries we have identified above, in particular banning shark imports, as their fishing activity and/or weak fisheries regulations are continuing to threaten sharks globally.

Thank you for your consideration. Please feel free to contact me if you have any questions or would like more information.

¹²⁷ EC. 2010.; Fowler, S. and Séret, B. 2010. Shark fins in Europe: Implications for reforming the EU finning ban. European Elasmobranch Association and IUCN Shark Specialist Group.

¹²⁸ ICCAT Circular #2484/10. Subject: Correspondence related to shark fins/body ratio. June 17, 2010. Madrid.

¹²⁹ Letter from Constantin Alexandrau, European Commission DG MARE to Craig Smith, Department of Environmental Affairs and Tourism. Subject: Sharks- implementation of the 5% fin/body ratio conversion factors. May 8, 2009.

¹³⁰ EC. 2010.

Very truly yours,

A handwritten signature in black ink, appearing to read "Rebecca Greenberg". The signature is fluid and cursive, with a long, sweeping tail that extends to the right.

Rebecca Greenberg
Marine Scientist
Oceana