

**Dead in the Water? A Comparative Analysis of the Battle Between
Consuming and Conserving Two of the World's Most Iconic Seafood
Species - Atlantic Bluefin Tuna and Sharks**

Master of Arts in Law and Diplomacy Thesis

Submitted by Sara Blankenship

22 April 2012

© 2012 Sara Blankenship

<http://fletcher.tufts.edu>



THE FLETCHER SCHOOL

TUFTS UNIVERSITY

Table of Contents

Introduction	3
I. Background - Atlantic Bluefin Tuna	3
A. Domestic Bluefin Fisheries Management in the United States	4
i. Fisheries Agencies	4
ii. Magnuson-Stevens Act	5
a. 1976 Magnuson-Stevens Act.....	5
b. 1996 Sustainable Fisheries Act and the 2006 Amendments	6
iii. Highly Migratory Species	6
iv. Atlantic Tunas Convention Act	7
B. International Bluefin Fisheries Management	7
i. History of International Fisheries Management	7
ii. Regional Fisheries Management Organizations (RFMOs)	8
iii. International Convention for the Conservation of Atlantic Tunas (ICCAT).....	8
II. Background - Sharks	9
A. The History of Shark Finning	10
i. The Practice of Shark Finning.....	10
B. Shark Consumption.....	11
i. Shark Meat	11
ii. Medicinal Shark Products.....	11
iii. Shark Fin Soup.....	11
C. Shark Management in the United States	12
i. 1993 Atlantic Shark Fishery Management Plan	12
ii. 1999 Atlantic Shark Fishery Management Plan	13
iii. 2000 Shark Finning Conservation Act	13
iv. The Shark Conservation Act of 2010.....	13
D. International Shark Management	13
i. RFMO Shark Provisions	14
ii. Technology Focused Agreements.....	14
a. U.N.G.A. 46/215.....	14
ii. Conservation Focused Agreements.....	15
a. IPOA-Sharks	15
III. Atlantic Bluefin Tuna Versus Sharks – Similarities and Differences	15
A. SIMILARITIES.....	16
i. Ecological.....	16
ii. Economic.....	16
B. DIFFERENCES	16
i. The Product.....	16
a. Part Versus Whole	16
b. Catch and Handling Method	17
c. Perceived Food Value	18
d. Product Substitutability	19
ii. Social.....	20
a. Charismatic Megafauna.....	21
iii. Institutional.....	22
a. Conservation Management Plans	22

b. Atlantic Bluefin Tuna Conservation Management Plans	22
c. Shark Conservation Management Plans.....	23
1. A Ban on Shark Finning.....	23
2. A Ban on Shark Frade.....	24
3. The Creation of Shark Sanctuaries	29
IV. International Fisheries and Wildlife Treaties and Regimes	30
A. The Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES).....	31
i. Background - COP15.....	32
ii. The History of the Atlantic Bluefin Tuna Proposal at COP15.....	32
a. Proposal 19	32
b. Decision on Proposal 19.....	33
ii. The History of Shark Proposals at COP15	33
a. Proposal 15	34
b. Proposal 16.....	34
c. COP15’s Decision on Proposals 15 and 16.....	34
iii. Fished to Death?.....	35
V. The Future of Bluefin Tuna and Shark Conservation	35
A. The Future of Domestic Legislation in the United States	35
i. Bluefin Tuna.....	35
a. Listing Bluefin in the Endangered Species Act.....	36
ii. Sharks	37
B. The Future of International Legislation.....	38
i. RFMOs.....	38
ii. CITES.....	38
a. Weaknesses of CITES.....	39
b. ICCAT Responds to CITES.....	40
c. Re-proposing Listing of Sharks	42
iii. A New, International Treaty for Sharks – International Shark Conservation Convention.....	43
a. Sharks and Whales - Species Specific Conservation Treaties	43
b. The History of the International Whaling Commission	44
c. Creating an International Shark Conservation Convention.....	45
Conclusion	46

Introduction

Atlantic bluefin tuna and sharks, in particular their fins, are two of the most sought after seafood delicacies in the world. Whether it is bluefin tuna sashimi or a bowl of shark fin soup that has taken days to prepare, people are willing to pay considerably for the chance to consume and to be seen consuming these marine species. Rising demand, whether through the explosion in global popularity for high-end sashimi and sushi for bluefin tuna or the rapidly expanding Chinese middle class who can now afford to dine in style on shark fin soup, is more than happily met by a fishing industry with the technology, global presence, and incentive to catch and cash in as quickly and efficiently as possible on two of the world's most lucrative seafood products.

The markets for these species have led to the full-scale decimation of the world's Atlantic bluefin tuna stocks and shark populations. An obsessive fixation on short-term economic gains, social standing, and a fleeting taste of the good-life, has resulted in some of the most inhumane, cruel, destructive, and corrupt fishing practices defining our relationship with these top predators of the sea. It only through re-defining and changing this relationship that these species can even begin to recover let alone survive in the long-term. The past few decades especially have seen an increase in the awareness of our effects of our actions on Atlantic bluefin tuna and shark populations. This has led to increased to an active pursuit of conservation efforts and fisheries management reform. Yet while the perils that both Atlantic bluefin tuna and sharks face are no secret, shark conservation efforts are currently growing in momentum and scope whereas efforts to save the last Atlantic bluefin tuna continue to stall out. This thesis attempts to discern why two animals which at face value have so similar in terms of their endangerment, public demand, and status as globally sourced luxury seafood appear to be on two increasingly divergent paths in terms of conservation efforts and future livelihood.

This thesis presents a comprehensive comparative analysis of the myriad factors that shape our consumption, management, and views of these two iconic seafood species and why efforts to conserve them are facing increasingly divergent realities. The thesis is divided into five parts. Part I provides background on the current state of Atlantic bluefin tuna and how the fishery is managed domestically in the United States and internationally. Part II provides background on the current state of the world's sharks, explores the history of shark fin consumption, and lastly examines how shark populations are managed domestically in the United States and internationally. Part III goes to the heart of the thesis as it explores the similarities and differences that exist between Atlantic bluefin tuna and sharks and how these factors are driving, or not, their respective conservation efforts. Part IV then returns to international conservation efforts by examining international fishery and wildlife treaties and regimes. Special attention is given to the Convention on International Trade in Endangered Species of Wild Flora and Fauna, or CITES, a multilateral environmental agreement (MEA) that has been, in recent years, ground zero for the debate on how best to address the trade and need to conserve Atlantic bluefin tuna and highly threatened and endangered shark species. Finally, Part V looks to the future of Atlantic bluefin tuna and shark conservation. Possible advances and setbacks in both domestic and international policy arenas are examined. Part V concludes with recommendations for advancing conservation efforts of these two iconic marine predators.

I. Background - Atlantic Bluefin Tuna

Thunnus thynnus, also known as the Atlantic bluefin tuna, is one of the most valuable marine species in the world (Block 2010). Atlantic bluefin tuna populations exist as two stocks - eastern and

western - based on separate spawning grounds, genetic differentiation, differing ages for reaching sexual maturity, and the apparent absence of spawning in the middle of the North Atlantic. However, the migratory ranges of both stocks overlap considerably (CITES Secretariat COP15 Proposal 19 2009 p.1). A number of scientific studies show that current Atlantic bluefin populations are one-fourth the size they were in the late 1950s (DOI 2010, CITES Secretariat COP15 Proposal 19 2009). Since population tracking began in the 1950s, Atlantic bluefin have experienced a 70 percent to 85 percent decline (Block 2010, DOI 2010, CITES Secretariat COP15 Proposal 19 2009). If current catch levels continue, both stocks of bluefin tuna will become commercially extinct within the next 8 to 15 years¹ (Block 2010).

This decline is directly attributable to overfishing and overconsumption. Japan leads the world in bluefin tuna consumption, accounting for 80 percent of the world's bluefin market (Klinger et al. 2010, MacFarquhar 2010, Sutton 2010). If current catch rates continue, it is estimated that all Atlantic bluefin will be commercially extinct by 2025 at the latest (Block 2010). This sobering prediction edges ever closer to becoming reality as scientifically assessed catch quotas continue to be disregarded in policy and practice. Historically overfished, in 2008, the amount of Atlantic bluefin traded globally exceeded the year's established catch amount by 31 percent (The Pew Charitable Trusts 2011). By 2010, the amount of bluefin traded on the global market exceeded the year's quota by 141 percent (The Pew Charitable Trusts 2011).

This gigantic, prehistoric-looking, and delicious fish has evolved from being the mythic leviathan of Hemingway's fishermen to become the marine conservationists' un-charismatic "poster-megafauna" for endangered marine species. The Atlantic bluefin tuna, a species whose sheer size, power, performance, and muscle garners deep emotional reactions from fishermen, sushi chefs, scientists, conservationists, and the seafood loving public is one of the most highly valued fish in the world. However, it is precisely this obsessive love coupled with the exorbitant monetary values assigned to the Atlantic bluefin that is driving it ever closer towards extinction. A species that was once relegated to the by-catch pile for pet food (Safina 1997), a 593-pound bluefin sold for \$736,000 at Tokyo's famous Tsukiji fish market in January 2012, shattering all previous records (Associated Press 2012). Moving ever closer to commercial extinction, conservationists, scientists, fishermen, and a handful of nations continue to struggle to implement an international effort to save the Atlantic bluefin tuna before it is too late.

A. Domestic Bluefin Fisheries Management in the United States

Atlantic bluefin tuna are primarily managed through a traditional fisheries management structure. However, as a highly migratory species with significant international economic importance, the assessment and management of bluefin tuna stocks contain a unique international element that dictates domestic fisheries management plans including those of the United States.

i. Fisheries Agencies

Fisheries are the last form of nationalized, industrialized hunting. As such, fish stocks are managed by government agencies. In the United States, fisheries management falls under the purview of state, tribal, and federal law. At the federal level, fisheries management lies primarily within the Department of Commerce (DoC). The DoC houses the National Oceanic and

¹ "Should high exploitation rates continue, western and eastern Atlantic bluefin tuna would become commercially extinct by as soon as 2025 and 2018, respectively." Dr. Barbara Block- Professor of Biology, Stanford University. (Block 2010)

Atmospheric Administration (NOAA) agency, which in turn houses the National Marine Fisheries Service (NMFS). Generally speaking, NMFS is the agency responsible for the management and oversight of fisheries and fishing activities within the United States' offshore waters (Eagle 2008). These waters include both the 3-mile (state waters) and 200-mile (federal waters or Exclusive Economic Zone [EEZ]) jurisdictional designations.

- ii. Magnuson-Stevens Act
 - a. 1976 Magnuson-Stevens Act

To ensure the effective and sustainable management of the nation's fisheries, in 1976, Congress passed the Magnuson-Stevens Act (MSA). Under the MSA, fisheries management authority was given to the Department of Commerce. The Secretary of Commerce delegated that authority to NMFS. The eight Regional Fishery Management Councils (RFMCs) specifically created by the MSA (NOAA 2011) provide NMFS with recommended fishery management actions. The eight RFMCs are: the New England, Mid-Atlantic, South Atlantic, Gulf of Mexico, Caribbean, Pacific, North Pacific, and West Pacific (NOAA 2012).

RFMCs recommend regulations for fisheries in their regional geographic area of the EEZ (NMFS 2011). As regional entities, RFMCs attempt to bridge the gap between state and federal fisheries management. Councils consist of mandatory and appointed members, as well as voting and non-voting members, who represent all levels of government as well as citizens (Eagle 2008). Mandatory members include the region's NOAA Regional Administrator and the head of each state's (within the RFMC) marine fisheries management agency (Eagle 2008). Appointed members are those nominated by the Governors of the RFMC's states and approved by the DoC's Secretary of Commerce (Eagle 2008). Appointed members often come from the fishing industry (Eagle 2008). Other members of RFMCs include representatives from federal agencies including the U.S. Fish and Wildlife Service and the U.S. Coast Guard among others (Eagle 2008).

According to the MSA, RFMCs are responsible for establishing advisory committees – scientific and statistical – that will then inform the creation of Fishery Management Plans (Eagle 2008). It is important to note that RFMCs have the discretion to determine whether or not a fishery needs a fishery management plan. Therefore, the advisory committees are designed first to inform the RFMCs whether an FMP is needed. If an FMP is needed, the advisory committees, as scientific and statistical bodies, will then inform the contents of the FMP which, under MSA, are also subject to meeting a number of mandatory components and ten National Standards (Eagle 2008). While the details of the FMP creation process and their regulatory requirements are outside the scope of this thesis, the important fact is that under the MSA, not all marine life nor fisheries require or have an FMP.

Per the MSA, NMFS has authority over some fisheries that cross jurisdictional lines whether it is at the state/tribal, RFMC, or international level (Crockett 2011, Eagle 2008). Lastly, NMFS in effect oversees the RFMCs and the FMPs they design and implement, as NMFS is responsible for coordinating inter-jurisdictional fisheries management as well as evaluating stocks and issuing fisheries status reports (Eagle 2008). Thus, according to MSA, as a highly migratory species, the United States' Atlantic bluefin tuna fishery is managed by NMFS.

The 1976 MSA came at a time in which nations, through the United Nations Convention on the Law of the Sea (UNCLOS), were attempting to define their offshore boundaries as well as assert

jurisdiction and lay claim to the natural resources, including fisheries, existing within these boundaries. This led to many countries establishing and agreeing to the 200-mile EEZ designation² and passing legislation that effectively nationalized all fisheries within this offshore territory. For the United States, the MSA nationalized fisheries and created the aforementioned agencies and institutions to manage these activities through establishing a Fishery Conservation Zone that extended 200 miles from the coast (Crockett 2011, Eagle 2008). Upon creation of these institutions and territorial designations, the primary goal of the 1976 MSA was to ensure that the American fishing industry remained economically viable by phasing out foreign fishing and promoting the U.S. industry (Crockett 2011, Eagle 2008). Therefore, FMPs were by and large managed for short-term gains (Eagle 2008). Maximum Sustainable Yields (MSY) for fisheries, a scientific determination of the amount of fish stock that can be caught without a population collapse, could be determined, per the language contained in the MSA, by also weighing in social, economic, or ecological factors (Eagle 2008). This set the stage for the short-term economic concerns of the industry and politically powerful fishing interests to dominate MSY determinations and outweigh ecological considerations (Eagle 2008). As expected, this led to the creation of hugely successful fisheries in the 1980s, like cod and snapper, the very same fisheries that would crash just a decade later (Crockett 2011). To this day these fisheries have yet to fully recover.

b. 1996 Sustainable Fisheries Act and the 2006 Amendments

The 1996 Sustainable Fisheries Act amended the MSA in an attempt to redefine and refocus the FMPs to prioritize conservation of fish stocks (Eagle 2008). To better promote conservation under the MSA, the Amendments focused primarily on prohibiting setting catch level above that which is sustainable for economic reasons, rebuilding depleted fisheries, identifying and protecting essential habitat, and bycatch reduction (NOAA 2012). Despite the Act, American fisheries continued to be subject to overfishing.

In 2006, the MSA was again amended in an attempt to prioritize conservation and improved long-term management of fish stocks (Crockett 2011, Eagle 2008). The 2006 Amendments included such conservation promoting measures as; requiring management plans to include annual catch limits that do not allow overfishing nor exceed the recommendations of their scientific committees, utilizing different market-based tools for more effective management and economic viability (Eagle 2008), and the implementation of accountability measures if annual catch limits are exceeded (Crockett 2011), and an ecosystem based approach to management (NOAA 2012). It was with these 1996 and 2006 Amendments that the ten National Standards were established (Eagle 2008). Ending overfishing, rebuilding fisheries, minimizing bycatch, and protecting fish habitat continued to be the conservation goals of the MSA (Crockett 2011).

iii. Highly Migratory Species

Under the MSA, NMFS is responsible for managing fisheries that fall outside the scope of the RFMCs. These fisheries include those that cross jurisdictional boundaries, domestically and internationally. Recognizing that the U.S. fisheries of highly migratory species requires the coordination of domestic and international management structures, the MSA was amended in 1990 to grant the Secretary of Commerce authority over the domestic management of these species (NMFS(a)). With the passage of the 1990 Amendments, the Secretary of Commerce then delegated

² The United States is a signatory to UNCLOS, though to this day has not ratified the treaty. Despite this, in 1983, the United States formally claimed sovereign rights up to 200 miles offshore through a Presidential Proclamation (Eagle 2008, Hunter et al 2007).

its authority to manage highly migratory species to NMFS (NMFS(a)). In the interest of best addressing the multiple levels and management structures that exist for pelagic, highly migratory species that span international waters NMFS established and continues to manage a Highly Migratory Species Program on both coasts. Since Atlantic bluefin tuna spends a portion of its life inhabiting waters off the Gulf and Atlantic coasts, the United States' bluefin tuna fishery is managed by NMFS' Atlantic Highly Migratory Species Management Division (NMFS(b)).

To better manage highly migratory species along the Atlantic Coast, in 1999 NMFS created a Fishery Management Plan for Atlantic Tunas, Swordfish, and Sharks (64 FR 29090 1999). These regulations led to the 2006 Consolidated Atlantic Highly Migratory Species Fishery Management Plan (71 FR 58058 2006). While a Highly Migratory Species Fishery Management Plan exists, under the MSA NMFS is exempted from having to rebuild fisheries within ten years if "management measures under an international agreement in which the United States participates dictates otherwise" or in establishing a catch limit if one is established through international agreement (Crockett 2011). Furthermore, and as will be discussed below, bluefin tuna stocks in the U.S. are not really managed through a joint domestic-international, but rather according solely to plans and quotas designed by International Convention for the Conservation of Atlantic Tuna (ICCAT) as the U.S. has formally rolled ICCAT's U.S. designated catch share into the MSA through the Atlantic Tunas Convention Act.

iv. Atlantic Tunas Convention Act

The Atlantic bluefin tuna fishery is managed through the Regional Fisheries Management Organization, ICCAT. As a multilateral effort to manage the fishery, ICCAT member states are to adopt the policies and provisions decided upon by ICCAT, as this is reflective of the RFMO's collective management decisions. The Atlantic Tunas Convention Act of 1975 (16 U.S.C. 971-971) is the legal mechanism through which the United States adopts and implements ICCAT's provisions into its domestic bluefin fisheries management plan (NOAA). Therefore, NMFS must allocate and regulate Atlantic bluefin quotas set by ICCAT among U.S. fishermen (Crockett 2011). The Atlantic Tunas Convention Act (ATCA) thus ensures that decisions on provisions agreed upon by ICCAT members, including the U.S., are actually implemented, and prevents NMFS from adopting regulations that would prevent U.S. fishermen from catching their ICCAT quota, thereby making the RFMO's efforts at regional bluefin management relevant and consequential. This strict adherence to ICCAT, however, may be an impediment to truly effective fisheries management. Under the Act domestic bluefin management becomes only as strong as ICCAT's provisions. ATCA essentially precludes the U.S. from enacting stricter bluefin fishery management measures that would prevent U.S. fishermen from catching their ICCAT designated quota (Crockett 2011); a quota that, as will be discussed below, is highly contentious.

B. International Bluefin Fisheries Management

As a pelagic, highly migratory species, the Atlantic bluefin tuna fishery is also managed multilaterally at the international level. As previously stated, Atlantic bluefin tuna fisheries management decisions made at the international level through negotiations and consensus building these multilateral regimes ultimately guide and dictate quota levels in national level FMPs. This section begins by first looking at how these internationally comprised regional fisheries regimes came into being.

i. History of International Fisheries Management

Throughout human history, the oceans have been viewed as a vast, limitless source of natural resources. For centuries there was no way of really knowing what lived beneath the surface of the ocean. Additionally, the high seas were a lawless place, where the sovereignty of each ship tied actions on the ocean back to land. The widespread, industrialization of fishing, however, officially closed this chapter. After World War II, technological advancements in fishing methods and tracking led to ability of the world's fishing fleets to catch unprecedented amounts of fish in waters far from their country of origin's coast (Iudicello 2008). Fearing continued exploitation and loss of resources, nations established internationally accepted territorial designations for the Territorial Sea and EEZs under UNCLOS (Eagle 2008). As described above, addressing offshore sovereignty led to the nationalization of fisheries. By the 1950s, fisheries scientists began tracking most fishery stocks in an attempt to ensure that food and jobs would remain in place season after season. However, some fisheries' stocks extended beyond the 200 miles of the EEZ and with each country seeking to maximize its annual catch additional, international management efforts were necessary.

ii. Regional Fisheries Management Organizations (RFMOs)

Many of the most highly demanded, valuable marine species, such as tuna, salmon, swordfish, and pollock, are highly migratory fish that occupy and travel vast expanses of the world's oceans, traversing international waters and coastal territories. These much sought after fish are often targeted in international waters by fleets hailing from a variety of countries. First established in the 1940s, RFMOs are multinational fishery management structures designed with the intent to effectively manage fisheries targeted by multiple fleets that inhabit multiple international jurisdictions and the high seas. Since their inception, both nations and international organizations (such as the Food and Agriculture Organization and the United Nations) have cited RFMOs as the management structure of choice for dealing with these expansive and profitable fisheries (Allen 2010, Iudicello 2008).

Comprised of member states who have an interest in the fishery, whose waters form a part of the fisheries' territory, and/or those States with high seas fishing fleets, regulations and management of these international fisheries are decided upon by consensus. While this broadens the appeal of RFMO membership and theoretically ensures buy-in from all member states, these attributes are also seen as a major weakness of RFMOs. The strength and enforcement of the regulations agreed upon by the RFMOs must be unanimously agreed upon, which can often lead to greater politicization of RFMO policies options/decisions, the threat of provisions representing the "lowest common denominator" due to the need for complete consensus, and the possibility of more powerful fishery nations dominating the RFMOs decision making process. Additionally, RFMOs rely on member states to carry out the implementation and enforcement of their agreed upon plans, quotas, and other provisions.

iii. International Convention for the Conservation of Atlantic Tunas (ICCAT)

Established in 1969 and consisting of 48 member countries, ICCAT is responsible for Atlantic bluefin fishery management. Therefore, ICCAT's main power lies in its ability and legal authority to set bluefin tuna catch quotas. Like many international fisheries treaties and MEAs,³ ICCAT is governed by a commission in which the leadership comes from its member states (Moomaw and Blankenship 2012, ICCAT 2007). Additionally, as an RFMO, ICCAT has an

³ For a comprehensive list of international fishery and marine treaties, treaty mechanisms, and analysis please refer to Moomaw and Blankenship 2012.

established scientific advisory board (Moomaw and Blankenship 2012, ICCAT 2007). Like other RFMOs, ICCAT's scientific advisory body is charged with the responsibility of accurately assessing the bluefin fishery stock so that quotas and other provisions will be informed by science. ICCAT's provisions were first operationalized in the 1975 fishing season (Iudicello 2007).

Overall, bluefin fishery management under ICCAT has been a disastrous failure. ICCAT has consistently set catch quotas for both stocks of Atlantic bluefin well above levels recommended by ICCAT's own scientific panel (Strickland 2010, Letter from Senator Debbie Wasserman Schultz 2010, CITES Secretariat COP15 Proposal 19 2009). In 2008, an independent review commissioned by ICCAT found that:

“ICCAT contracting parties’ performance in managing fisheries on bluefin tuna particularly in the eastern Atlantic and Mediterranean Sea is widely regarded as an *international disgrace*.⁴ The Panel found the management of fisheries on bluefin tuna in the eastern Atlantic and Mediterranean and the regulation of bluefin farming to be unacceptable and not consistent with the objectives of ICCAT. This finding coupled with the published statements from the European Community (EC) has prompted the Panel to recommend to ICCAT the suspension of fishing on bluefin tuna in the eastern Atlantic and Mediterranean until the CPCs fully comply with ICCAT recommendations on bluefin. The Panel further recommends that ICCAT consider an immediate closure of all known bluefin tuna spawning grounds at least during known spawning periods. Referring to illegal fishing pushing annual catches to twice the quota levels and four times scientific recommendations...*It is difficult to describe this as responsible fisheries management.*”

(CITES Secretariat COP15 Proposal 19, 2009 with original emphasis citing Hurry et al. 2008)

ICCAT's track record for setting high quotas and its member state's unwillingness and/or inability to even enforce these overly generous catch allocations is very troubling, especially since ICCAT's provisions are seemingly the last word when it comes to domestic Atlantic bluefin tuna FMPs.

II. Background - Sharks

Sharks are one of the most iconic animals on Earth. Sharks are among the oldest species on Earth, having first appeared in the evolutionary landscape in the Devonian period, around 400 million years ago (Eilperin 2011). It is estimated that modern sharks first appeared 200 to 145 million years ago (Eilperin 2011). With around 400 species of sharks, rays, and skates currently identified (Florida Museum of Natural History), they are found in nearly every marine habitat. Sharks are an important component of any marine ecosystem, serving to regulate prey populations. Like many apex predators, sharks are slow to mature, long-living creatures with low reproductive rates. However, compared to other organisms, our understanding of sharks is still in the nascent stage. Only recently have scientists been able to determine how some species reproduce (Eilperin 2011) let alone how they feed, travel, and sleep (Graham 2011).

In addition, unlike fish, most shark populations have yet to be fully assessed (Clarke et al 2007) and data on catch and kills is even scarcer. Efforts have been made to collect shark data, primarily through the FAO's IPOA-Shark agreement. To date though, the resources and effort

⁴ Emphasis added.

needed to adequately and accurately assess the state of the world's shark populations have yet to materialize. Yet, our lack of data and understanding of sharks and its lifecycle has not deterred our ability and willingness to cull millions of them from the ocean for our consumption. While sharks have always been consumed to some extent, especially in coastal communities, the development of China's economy, resulting in perhaps the largest and fastest creation of a middle class in human history, has spurred a full-scale assault on the Earth's sharks. As detailed below, the recent rapid and massive decline of shark populations is directly attributable to an increasing number of people being able to afford the shark fin soup – a luxury food once consumed by only the most elite in Imperial China. This burgeoning demand has given rise to one of the most lucrative and shadowy food markets in Asia. Based on shark fin trade data it is estimated that up to 73 million sharks are killed annually (Clarke et al 2007). The overwhelming majority is slaughtered for one reason - their fins.

A. The History of Shark Finning

i. The Practice of Shark Finning

Shark fins are primarily acquired by the practice of “finning.”⁵ Fishermen catch sharks, either deliberately or as bycatch, bring the animal on board, and slice the fins off. Special attention is usually given to the tail and dorsal fins, since these are the largest fins and thus the most valuable in the shark fin trade.

In many cases, the sharks caught are still very much alive and in good condition, since the sharks have not sustained mortal injuries (Edwards 2006). Therefore, after the finning mutilation takes place, the now fin-less, living shark is thrown back into the ocean. Without fins, the shark is doomed to die, either by bleeding out, being eaten, or by drowning, as a shark's physiology demands that it remain in constant motion to be able to breathe. Once finned, a shark has zero chance of survival.

Shark finning occurs to all species in all parts of the world. However, data collected on shark fins, through a number of identification methods including DNA tracing (Eilperin 2011, Clarke 2008) indicate that 40 percent of shark fins auctioned in Hong Kong came from 14 species of sharks (Clarke 2008). These include: blue, shortfin mako, silky, dusky, sandbar, tiger, bull, oceanic whitetip, great hammerhead, scalloped hammerhead, and three species of thresher sharks (Clarke 2008). In addition, basking shark and whale shark fins have been identified in markets (Clarke 2008) and in the case of the whale shark, for decorative display to accompany shark fin soup consumption (Eilperin 2011). As will be discussed, many of these species have either been internationally designated or recognized as threatened or endangered with some RFMOs taking steps to address their inclusion in bycatch.

Though brutal, bloody, and cruel, the practice of finning requires very little effort. Once aboard a vessel, sharks are no longer the top predator or threat that they are in the ocean, and it requires just a single knife to remove the fins. Its effortlessness combined with the value of the fins and the ease of transporting them has resulted in finning becoming a nearly universal practice, as it is notoriously difficult to enforce anti-finning regulations (Clarke 2008). Shark finning has even occurred in designated marine sanctuaries, areas with the highest use restrictions and most stringent

⁵ “The term ‘shark-finning’ means the taking of a shark, removing the fin or fins (whether or not including the tail) of a shark, and returning the remainder of the shark to the sea.” H.R. 5461 *Shark Finning Prohibition Act*. §9 “Shark-Finching Defined.” 2000.

conservation mandates. One of the worst cases of shark fishing and finning occurred in the protected of the Galapagos in which a ship was seized with 357 sharks of various kinds, including hammerhead, hammerhead, and mako sharks (Anon(b) 2011).

B. Shark Consumption

i. Shark Meat

Shark meat has been consumed throughout human history, with the earliest records of consumption dating back to the fourth century (Vannucci 1999). In terms of global trade, however, it is not a popular product and therefore shark meat is not the main driver of the global shark catch (Vannucci 1999). Shark meat has traditionally been consumed in coastal areas. The meat is prepared in a variety of ways, though if not eaten fresh it is often smoked, dried, or cured. This processing is essential as sharks contain a high amount of ammonia, giving their meat an unpalatable smell and taste, if not rendering it altogether inedible. As with many types of fish and seafood, shark meat goes by many different names that are more palatable for consumers.

ii. Medicinal Shark Products

For the most part, the bodies of sharks are not all that valuable, especially when compared to the value of their fins. Shark skin is often used to make sandpaper or can be made into leather. Shark cartilage is used as a health supplement, and is also known as chondroitin, glucosamine chondroitin, or chondroitin sulfate. This product is often used to combat arthritis, osteoporosis, and cancer. Though there is no evidence that chondroitin has any effect on cancer, studies are still being conducted on the product's effectiveness in combating and promoting bone and cartilage health. Despite questions of its efficacy, chondroitin supplements have grown in popularity. Yet, this increase in demand has not directly translated to an increase in shark fishing since a viable substitute exists in bovine cartilage, a much cheaper and more readily available source than sharks.

Another popular shark product is shark liver oil. Like shark cartilage, its usage as a homeopathic remedy is based on historic use and its apparent effectiveness in combating respiratory ailments, topical sores, and internal and external inflammation has yet to be scientifically validated. At this time, the demand for shark liver oil appears to be met by existing shark fisheries and therefore is not a product contributing to any significant degree to unmanaged, unregulated global shark catch.

iii. Shark Fin Soup

Shark fin soup is *the* driving force behind the 73 million sharks finned and killed annually. As detailed, shark finning is largely an indiscriminate practice. The recipe for shark fin soup does not require that the fin come from a specific species; it only requires that the fin come from a shark. This is due to the history of this dish. Centuries ago, shark fin soup was the soup of Chinese dynasties. It was a luxury food item created from a rare and dangerous animal. In addition, the preparation of shark fin soup is very labor intensive. Once obtained, the fin must be dried. This drying process will ultimately yield the product necessary for shark fin soup. Once a chef is ready to prepare the soup, the fin is soaked for anywhere from an hour to days, depending on the size and quality of the fin. If the fin has not been cleaned already, the skin and bones must be removed so that only the fin's cartilage remains. The goal of the soaking process is to soften the cartilage. Once the fin has achieved the proper consistency, it is cooked in a broth made of chicken stock and traditional Chinese spices and flavors (Eilperin 2011, Ramsay 2011). The soup, often sold as a

course during banquets for special events such as weddings, has been found to generally cost around \$85 to \$100 per bowl (WildAid 2012).

The end result is a very flavorful soup that obtains none of its flavor or coloring from its key ingredient. Gastronomically, the fin is only important for the texture and appearance it lends to the soup, more often than not described as being exactly the same as glass rice noodles (Eilperin 2011, Ramsay 2011). This glutinous texture is a common theme in Asian cooking and appears frequently in equally prestigious and rare dishes including bird's nest and sea slugs; ingredients that are also showcased by preparation methods and broths similar to shark fin soup (Cost 2000).

While all shark fins can be utilized, some are more valuable than others. The size is the key thing. So of course larger species like whale sharks have extremely valuable fins, but fishermen do not seek out whale sharks specifically, they seek out all species. Certain species are more sought after than other, but really not all that important. Without DNA testing, it is virtually impossible to distinguish where fins/dried fins come from (Eilperin 2011, Clarke 2008).

C. Shark Management in the United States

The following section examines domestic, federal legislation and regulations that specifically address shark conservation. This section will begin with the first fisheries management plan for sharks, the 1993 Atlantic Shark Fishery Management Plan and conclude with the most recent federal act on sharks, the Shark Conservation Act of 2010. All of the shark management and conservation plans fall under the purview of the MSA.

It is important to note that the domestic legislation highlighted in this section is in fact part of growing movement towards more comprehensive shark conservation management efforts. A more detailed discussion of the various forms of shark conservation strategies that have been implemented at the subnational and national level can be found in the subsequent section on the similarities and differences in the institutional regulatory policies surrounding sharks and bluefin tuna. In addition, that section will also provide in-depth analysis of the current momentum within the United States at the state level in adopting and implementing bans on the trade in shark fin. This section is solely dedicated to reviewing national shark management plans in the United States.

i. 1993 Atlantic Shark Fishery Management Plan

In the United States, as in many countries, sharks and shark catch do not readily fall under a fisheries management regime. With the exception of specialized, coastal shark fisheries, such as the Pacific common thresher fishery in California (NOAA 2012), most shark species are not directly targeted by commercial fisheries and thus are not managed. However, the reality of fishing practices and our relationship with the marine environment has resulted in the need for non-fisheries marine species to be managed and protected.

The first national fisheries management plan for sharks was 1993's Atlantic Shark Fishery Management Plan (NMFS 2009, Spiegel 2001). This Plan was developed in direct response to the dramatic decrease in sharks along the Atlantic coast in particular blue sharks (Spiegel 2001). Per the MSA, NMFS is responsible for implementing and managing this plan. With the passage of the Atlantic Shark Fishery Management Plan, regulations were designed for 39 species of sharks (Spiegel 2001). Additionally, the 1993 Plan required data collected and sharing with NMFS and, for the first time, attempted to address the practice of shark finning in federal waters by requiring full landing of the 39 managed shark species (Spiegel 2001). As conservation groups lobbied heavily for such a

shark fishery management plan (Speigel 2001), there tends to be a stronger conservation agenda in the 1993 regulations as opposed to a more traditional “fisheries” management plan.

ii. 1999 Atlantic Shark Fishery Management Plan

In 1999, the Atlantic Shark Fishery Management Plan merged with the Highly Migratory Species Fishery Management Plan (NMFS 1999). NMFS thus remained the agency responsible for shark fishery management. The 1999 plan expanded the 1993 plan’s finning regulations to include all sharks along the Atlantic (Speigel 2001). However, while this plan strengthened shark conservation efforts in federal waters off the Atlantic, other federal waters and state waters can and did operate under different, less stringent regulations. This inconsistency led to the need for a federal shark conservation act that covered all U.S. waters.

iii. 2000 Shark Finning Conservation Act

In 2000, Congress took steps to “eliminate the wasteful and unsportsmanlike practice of sharkfinning”⁶ by amending the MSA to include the Shark Finning Prohibition Act (H.R. 5461 2000). The Shark Finning Prohibition Act was the first piece of legislation domestically and internationally to impose “the 5 percent rule.” The Act reads:

“...there is a rebuttable presumption that any shark fins landed from a fishing vessel or found on board a fishing vessel were taken, held, or landed in violation of subparagraph (P) if the total weight of shark fins landed or found on board exceeds 5 percent of the total weight of shark carcasses landed or found on board.”
(H.R., 5461 Sec. 3 Prohibition on Removing Shark Fin and Discarding Shark Carcass At Sea)

Based on data compiled by NMFS showing that wet fins account for about 5 percent of the weight of a dressed shark (Clarke et al 2007), this measure was an attempt to ensure that if sharks are caught they are not finned, but rather landed whole. The flexibility this rule grants to fishermen, however, essentially created a loophole allowing unattached fins to be landed. However, the passage of this Act eliminated the regulatory inconsistency within federal waters and set the baseline for state level regulation. It was thus a major step for shark conservation as it brought consistency to shark management plans and finning and landing practices.

iv. The Shark Conservation Act of 2010

On January 4, 2011, President Obama signed into law the Shark Conservation Act. This primary function of this Act was to amend the Shark Finning Conservation Act, and therefore the MSA, so as to close the 5 percent loophole. With the signing of this bill, all sharks commercially fished in the United States must be landed whole with fins attached. The only exception, for primarily political reasons (Keim 2011), is the dogfish fishery in North Carolina, which maintains a shark to fin landing ratio.

D. International Shark Management

Unlike bluefin and other fish, most sharks do not have a fishery per se, as many are caught indirectly as bycatch or if caught directly, their catch often is a form of illegal, unreported, unregulated (IUU) fishing. Since few formal shark fisheries exist and there are no shark specific RFMOs to manage pelagic stocks, efforts to manage and protect sharks have generally fallen under international fisheries management efforts, as either addendums – as is the case with RFMOs – or

⁶ H.R. 5461 *Shark Finning Prohibition Act*. 106th Congress.

indirectly through technology focused conventions. At this time there is only one shark specific international agreement, the FAO's International Plan of Action for the Conservation and Management of Sharks (IPOA-Sharks). The following sections will briefly examine each of these three international structures for addressing directly or indirectly shark conservation.

i. RFMO Shark Provisions

Bycatch has been identified as a primary threat to sharks (Cosandy-Godin 2011). The initial explosion in demand for shark's fin soup in the 1990s further exacerbated the issue of incidental shark bycatch. Previously discarded, shark bycatch came to be seen as extra profit. It is now standard practice by many fishermen to fin incidentally caught sharks. As instruments governing the management of the world's largest fisheries, RFMOs are directly linked to issues of shark bycatch. RFMOs have, therefore, begun incorporating shark catch and conservation provisions. These provisions address such factors as the amount of sharks caught as bycatch, with some RFMOs incorporating more "shark friendly" fishing technology and methods, and finning. Many RFMOs, including ICCAT, have incorporated the 5 percent fin to carcass ratio into their landing provisions (Oceana 2010, Clarke et al 2007).

ii. Technology Focused Agreements

Technology focused agreements, treaties, and resolutions are seeking to address the devastating externality of bycatch that occurs with the use of large scale, destructive fishing methods. One particularly destructive fishing practice affecting global shark populations was the use of driftnets. Their impact on sharks and other non-targeted species resulted in a number of regional and domestic acts and conventions regulating and/or banning their usage. The most comprehensive ban on driftnets, and thus one of the best examples of a technology focused regime that has positively impacted marine life, including shark, populations is the United Nations General Assembly Resolution 46/215.

a. U.N.G.A. 46/215

As discussed, the fishing industry and its technology began to rapidly evolve and expand starting in the 1950s. One such technological advancement was the creation of large-scale, high seas driftnets. While nearly all forms of fishing includes bycatch, the levels are especially high in large-scale, non-discriminatory, and non-targeted fishing practices such as driftnets that capture any species that comes within in path (Moomaw and Blankenship 2012). By the 1980s, the incidental take from driftnets that included non-fishery targeted fish, sea turtles, sea birds, marine mammals, and seabirds became a cause for alarm (Iudicello 2007). By the early 1990s, it was estimated that driftnet fisheries accounted for 30,000 tonnes of shark and ray bycatch annually (Bonfil 2000).

Furthermore, while legal at the time in many fisheries, driftnets were an indiscriminate practice and did not account for the bycatch of commercially valuable species targeted by other fisheries were being negatively impacted. These fishery and environmental impacts coupled with differing levels of compliance and non-compliance by fishery nations with large, high seas fleets, led to a series of domestic and regional bans. Global consensus for a ban on large-scale driftnet use continued to grow and resulted in the 1992 passage of U.N.G.A. 46/215 effectively ending the use of large-scale driftnets in the world's oceans by year end (Iudicello 2007). Though this resolution did not directly address sharks, its broader implications for the health and sustainability of marine ecosystems translated to removing one more threat and source of shark bycatch from fishery practices.

ii. Conservation Focused Agreements

There are a number of international conservation focused treaties and regimes that include sharks. For the purposes of this section, only the FAO's International Plan of Action for the Conservation and Management of Sharks (IPOA-Sharks), an agreement that deals solely with sharks, will be examined. Other, more broadly focused MEAs, treaties, and regimes, will be examined in the subsequent section on the similarities and differences in the institutional regulatory policies surrounding sharks and bluefin tuna since both species fall under the scope of these agreements.

a. IPOA-Sharks

Developed in 1999 as part of the FAO's Code of Conduct for Responsible Fisheries, IPOA-Sharks is a voluntary agreement that encourages States to implement shark conservation and management plans at the national level (FAO 2012). IPOA-Sharks calls on member states to create a National Plan of Action (NPOA) specifically for sharks. IPOA-Sharks has an institutional goal to serve as a kind of open source or repository of shark data, including biological, stock, and trade data (FAO 2012, Edwards 2006). IPOA-Sharks also promotes the sustainable management of shark fisheries; with shark fisheries including directed and non-directed catch (Edwards 2006, FAO 2012). Thus, the agreement serves more as a set of guidelines, with the FAO's fisheries and aquaculture department agency overseeing and serving as a facilitator for IPOA-Sharks (Edwards 2006).

As alluded to above, IPOA-Sharks has had very limited success in fulfilling its data collection and NPOA advocacy mandates. Independent research on the shark fin trade that extrapolates the amount of global catch from the number of fins traded finds that an average of 1.70 million tonnes of shark are caught per year (Clarke 2008). This data is reliant upon first-hand accounts and available records, and therefore could be on the conservative side of total shark catch, since the fin trade, as stated, is increasingly an illicit trade, reliant upon IUU fishing, and record keeping within the industry is notoriously spotty. Despite the data challenges involved in reaching this estimate, the 1.70 million tonnes estimate is still three to four times higher than the data put forth by the FAO that has been collected through IPOA-Sharks (Clarke 2008). This indicates that the FAO is simply not receiving even the data that openly exists pertaining to shark catch and fin trade. In regards to the fostering the implementation of NPOA-Sharks, to date only twelve nations have formally submitted NPOA-Shark plans to the FAO⁷ (FAO(a) 2012). And as with all voluntary, international regimes, submission of an NPOA-sharks plan does not constitute full implementation or enforcement, though arguably, countries that submitted are at the very least recognizing the validity and legitimacy of the regime.

III. Atlantic Bluefin Tuna Versus Sharks – Similarities and Differences

The following portion of this thesis will highlight some of the key similarities and differences that exist between bluefin tuna and sharks. Section I, Similarities, examines two general similarities, with some caveats, between the two species: ecological and economic. Section II, Differences, presents three broad categories of differences that exist between Atlantic bluefin tuna and sharks: the product, social factors, and institutional factors. These broad are each broken down into a number

⁷ These countries include: the United States, the United Kingdom, Taiwan, Mexico, Australia, Ecuador, Malaysia, Canada, Seychelles, Uruguay, Argentina, and Japan. (FAO(a) 2012). The FAO also lists an NPOA-sharks plan created for the Mediterranean, however what countries and provisions are included within this plan cannot be determined as the document is inaccessible.

of specific characteristics for more in-depth analysis and to get a better sense of what are the influencing factors and how they are or are not responsible for the different choices, momentum, and nuances that exist in bluefin tuna and shark conservation efforts.

A. SIMILARITIES

i. Ecological

Though vastly different biologically, both bluefin tuna and sharks play similar ecological roles in marine ecosystems. Bluefin tuna and sharks are both top predators and are a necessary component for any healthy marine ecosystem. Apex predators are needed to ensure that the population of lower trophic species, that is prey species that live lower on the food chain, remain at the levels required for a robust, functioning, and balanced ecosystem. Bluefin tuna and sharks also share the general biological characteristics that all upper level predators, marine or terrestrial, possess. For example, both animals mature slowly, have long lifespans, and have low reproductive rates. These characteristics are a direct result of thousands of years of evolution in ecosystems that require and can only maintain so many top predators that there is no need for rapid growth or reproduction. In addition, their carnivorous existence at the top of the food-chain predisposes sharks and bluefin to bio-accumulate the nutrients and chemicals in their food sources. Thus, both species contain high levels of mercury (FDA 2004) and other neurotoxins, including those linked to degenerative diseases like Alzheimer's (Main 2012), found in both prey species and marine habitats.

ii. Economic

The bluefin tuna and shark trades share similar economic traits. Markets for both animals are centered primarily in Asia, where demand is the highest and there is a long history and network of trade in bluefin and shark parts. Japan leads the world in terms of international bluefin catch, trade, and consumption. Meanwhile, Hong Kong remains the center of the world's shark fin trade, with mainland China serving as the trade's biggest market. Consumption of both products is highly culturally dependent, though as will be highlighted below, the demand for shark fin is arguably more culturally entrenched, while the appeal of bluefin, though without question driven by Japanese aesthetics and demand, has begun to transcend local customs and permeate the dining habits of elite consumers seeking luxury foods worldwide (Miyake 2010).

Like all markets for luxury goods, both the bluefin tuna and shark fin trade are highly lucrative. However, in terms of overall value the Atlantic bluefin tuna market is an order of magnitude greater than the shark fin market. It is estimated that from 1998 to 2010 the Atlantic bluefin tuna market was worth \$13.5 billion (The Pew Charitable Trusts(a) 2011). This amounts to roughly \$1.1 billion in annual trade. It is important to note that these figures are based solely on recorded catch. As a fishery notoriously overfished and subject to high levels of illegal and unreported it is estimated the figure is much higher and that the value of the market is closer to \$1.5 billion annually (The Pew Charitable Trusts(a) 2011). The global shark trade is estimated to be worth between \$400 million to \$550 million at minimum, annually (Clarke et al 2007).

B. DIFFERENCES

i. The Product

a. Part Versus Whole

One key way in which the markets for sharks and bluefin tuna differ is in the product demanded. In regards to bluefin tuna, though the fatty, *o-toro*, part of the belly is the most prized part of the fish, the entire fish is caught, landed, and sold. Like the majority of fish, every part of the bluefin is sold, utilized, and consumed. Additionally, bluefin tuna are massive fish that can weigh up to and over a ton. The size of bluefin combined with the market's demand for peak freshness, theoretically make illicit trading more difficult. With Tokyo's Tsukiji Market serving as the premier destination for bluefin tuna trading, those invested in the fishery will strive to have their catch appear at auction. This auctioning process and the media coverage it generates shines some light onto the bluefin industry. Lastly, and to be discussed in more detail, ICCAT has recently approved measures to shift to digitized catch and landing data. While electronically reporting catch data is by no means revolutionary, in fact it is the status quo for most fisheries in industrialized nations, it is an attempt by ICCAT to increase efficiency and transparency while improving the fisheries' data collection measures. Thus, the fact that Atlantic bluefin tuna are prized in their entirety, rather than for a specific part, has resulted in more open public demand and trade in bluefin, while making the supply-side of the market extremely exploitative.

The vast majority of sharks on the other hand, are caught and killed for only one part, their fin. As discussed, there are very few true shark fisheries meaning that sharks that are caught, whether intentionally or as by-catch are more likely than not to be casualties of shark finning. Long-line tuna fisheries are a major contributor to the global level of shark by-catch and finning (Clarke 2008). Beginning with the rising demand for shark fins in the 1990s, sharks that were once caught and released in long-line tuna fisheries are now being caught and finned. Shark fins are thus viewed as an additional source of income above and beyond the revenue brought in from tuna. Fins are in essence a type of gratuity for the crew (Sutton 2011).

Tuna fisheries thus deal directly in traditional "whole" fish catch and management as well as unregulated, often illicit, shark catch and "parts" trade. By throwing the body overboard, fishermen save space in their hulls for other catch and render the majority of fins saved, unidentifiable. Fins, especially dried fins, are also easily portable. All of these factors lead to a product that lends itself to illicit trade. Once fins make it past landing, it is very easy for them to find their way to market. The global shark fin trade is also notoriously secret. Little to no paperwork is kept to track the fins that are frequently imported, exported, and then re-imported as traders attempt to maximize their profits. Unlike bluefin tuna, in which there is data on their population and annual catch regardless of whether the fishery's member nations acknowledge or use it, there is almost no concrete data on shark populations and catch (Clarke 2008).

b. Catch and Handling Method

The lives of tuna and sharks frequently overlap. This is especially true in long-line tuna fisheries in which sharks make up a large portion of bycatch. However, after initially being caught, the manner in which each animal is handled differs dramatically, driven entirely by the "part versus whole" product differentiation that exists between the market demand for whole fish versus shark fin.

The cruel, wasteful, and inhumane nature of finning is directly responsible for conservation efforts and legislation regulating and/or fully banning the practice of finning. Increased public awareness of the practice of finning may also be causing a change in public perception that is in turn leading to an increase in anti-fin trade and shark conservation efforts that go beyond outlawing the

practice. The United States, for instance is experiencing an increase in state sponsored legislation banning the trade in shark fins. Growing awareness of finning, the shark fin soup driven trade for fins, as well as a growing awareness of states passing successful legislation has created feedback loops in which more people and governments are demanding and prioritizing shark conservation. A once unknown practice, finning is increasingly becoming a part of the public's conscience (Goldenberg 2011). A variety of factors are contributing to this increased awareness including education and outreach on the part of conservation groups working to pass anti-finning and anti-shark trade legislation.

Though awareness is growing, many people remain unaware that finning occurs. However, once they learn, they become outraged by the cruelty and wastefulness of the practice (Fearing 2011). As a still relatively unknown practice, video documentation of finning, unlike other forms of animal cruelty, has a captive audience. Having never seen finning, people will watch the entire video, whereas with more publically acknowledged forms of animal cruelty, many people can assume what is documented and will, understandably so, refuse to watch (Fearing 2011, Ramsay 2011). As stated, documentation and media attention in regards to finning, increasing levels of public awareness, and advancements in global shark conservation efforts and legislation, among other factors, all contribute to a rising level of global outrage against finning and growing momentum for shark conservation measures (Goldenberg 2011).

Catching and/or farming bluefin tuna in no way carries the level of stigma or elicits the guttural reaction evoked by finning. With the exception of overfishing, which occurs in nearly every fishery, catching bluefin is simply not viewed as wasteful or morally reprehensible as finning a live shark. While the practice of scouting bluefin stocks with helicopters is, in every sense, technological overkill and penning a species that evolved to traverse the world's oceans may in fact be unfair and inhumane, these practices do not differ very much from the technological capacity and practices used in other fisheries or in offshore aquaculture. In fact, most of the controversy surrounding tuna fisheries, especially long-line fisheries, is in the amount of bycatch they generate especially of non-targeted, possibly endangered species, including sharks.

As wild catch declines, the demand for large, adult bluefin tuna with high fat content has resulted in the practice of "bluefin farming." This practice involves fleets using purse seines to catch adolescent bluefins. These tuna are then kept in offshore pens, not unlike those used by offshore aquaculture facilities. Confined to these pens (also known as "farms" or "ranches") tuna are then fattened up until they reach the size and fat content necessary for the sashimi market (Miyake 2010). The market for high-grade bluefin is so lucrative and demanding that small bluefin juveniles have been penned and raised for up to a year (Miyake 2010). Bluefin farming is extremely resource intensive as bluefin are carnivores that large amounts of fish to reach a fat content and size that are profitable. The first commercial bluefin farming began in the 1960s and has since spread globally to involve all stocks of bluefin in the Atlantic as well as in the Pacific (Miyake 2010). By 1997, bluefin farms, many backed by Japanese investors (Klinger et al 2010) were established along the coasts of many Mediterranean countries including traditionally powerful fishery nations such as Spain and Italy as well as ICCAT member-nations Croatia, Malta, Turkey, Libya, and Tunisia (Miyake 2010, COP 15 Proposal 19, 2009).

c. Perceived Food Value

As a food product, societies view tuna as existing on two opposite ends of the value spectrum, with the fatty meat from bluefin tuna synonymous with high-end sushi, while all other tuna meat is viewed as a more low-end, cheap protein for the masses. One potential reason why tuna conservation efforts have failed thus far, is that it may be more difficult to rally the public around conserving a species in which the majority of fish constitute a cheap lunch and where others end up as highly valued, expensive piece of sashimi that will be enjoyed by elites with large disposable incomes. As a food source that appeals to all levels of consumers, public perception may conflate efforts to conserve bluefin tuna with efforts to protect all tunas. While sashimi aficionados are very knowledgeable about the differences between bluefin, skipjack, and yellowtail, everyday grocery shoppers searching for canned tuna or tuna steaks may only be looking for “tuna.” Yet, it is precisely because tunas are so universally demanded and enjoyed, that effectively managing tuna stocks, especially such valuable species as Atlantic bluefin, is imperative if we are to continue to rely so heavily on these fish as a part of our global diet.

Sharks, on the other hand, exist in a very different food reality. Like tuna, sharks too exist on both ends of the value spectrum. Shark fins are highly valuable, highly prized products that are used solely for only one particular dish, shark fin soup. Meanwhile, shark meat, in almost all cases except where there is an historic and cultural consumption of sharks, is viewed as quite low-grade. The demand for shark meat is so low that finning is sadly the most practical method for obtaining fins, since in most cases the bodies are not even worth landing.

Essentially one can view a societies’ willingness to conserve sharks and tuna as one of opportunity costs. In the case of tuna, societies around the world value it as an important and usually cheap source of protein. While Japan has a very specialized bluefin tuna market, the appeal of a deep-red, buttery piece of fatty tuna has transcended cultures. Therefore, the thought of conserving tuna has a very real opportunity cost for a wider variety of consumers. Broader market demand coupled with a growing global appreciation for very high quality sashimi arguably make Atlantic bluefin tuna conservation efforts all the more difficult.

Conserving sharks, on the other hand, may have a lower opportunity cost especially for those outside of Asia. While people across cultures consume tuna regularly, shark meat is currently not a highly demanded, protein staple. Unlike bluefin tuna, shark fin soup consumption of extremely culturally dependent. Since the majority of the world’s populations who are not ethnically Chinese do not regularly consume (or knowingly consume) shark or shark fin soup, there is little to no opportunity cost in switching from shark consumption to shark conservation. That being said, China is *the* critical component in any global effort to conserve sharks. But in terms of the growing momentum in shark conservation efforts, this initial starting point in which the trade and consumption of sharks is highly centralized in a cultural practice that is not integrating into the food norms of other cultures, it makes sense that there is more momentum in shark conservation efforts.

d. Product Substitutability

As detailed, shark fin soup’s distinguishing characteristic is solely the use of the shark fin. The texture the fin gives to the soup is analogous to the texture that can be achieved through using fish fins or even “glass” rice noodles. Thus, at least from a textural standpoint, substitute products for shark fins do exist. Consumers who simply enjoy the soup for its gastronomic features would not lose out by switching over to a faux-shark fin soup.

The existence of a viable substitute is oftentimes a necessary, though not always sufficient, condition in wildlife conservation efforts that target products that originate from specific plants and animals. For example, efforts to end the ivory trade under the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) are often seen as a success due in large part to the existence of ivory substitutes (Sutton 2011, Aschenbach 1992). Since consumers have the option to purchase faux-ivory plastics products that maintained the look and feel of ivory, there was no reason for them to purchase actual ivory products. Of course, there are still high-end consumers, who desire the cache of real ivory. For these consumers, there is no substitute for authentic ivory and it is this market that continues to drive elephant poaching and illicit ivory trade. However, for the vast majority of consumers plastic or other ivory substitutes are perfectly acceptable.

Though substitutes for achieving the texture in shark fin soup exist, the trade in shark fins may be more nuanced than of ivory. Shark fin soup is served less for its gastronomic values and more for its ostentatious display of wealth. Substitutes therefore are less important. Shark fin soup is served at a Chinese wedding simply due to its cultural significance as the decadent, feast dish of imperial China. While soup consumers praise the recipe and the texture, these are not the key for consumption. Fish fin soup or glass noodle simply do not have the luxurious, honorific cache of shark fin soup. Restaurants would most likely not go out of their way to advertise fish fin soup, since it essentially would be like any other soup served. Thus, the market demand for shark fin soup is really all or nothing. This is evidenced by shifts in public opinion within Chinese and Chinese diaspora communities as well as by the measures taken by service industry corporations operating in Hong Kong and throughout East Asia, such as Walt Disney (Anon 2005) and Peninsula Hotels (Peninsula Hotels 2012). Following the precedent set by Peninsula Hotels, Shangri-la Hotels and Resorts banned the serving and sale of shark fin soup and also initiated a sustainable seafood policy committed to phasing out the sale of endangered marine species including bluefin tuna (Watts 2012).

This differs from bluefin where the market is very specific. All species of tuna are valuable, but bluefin is the by far the most valuable. As described above, Japan is the major market for bluefin tuna. Annually, around New Year's, Tokyo's Tsukiji Market hold bluefin auctions with great media attention and fanfare. The six-figure bids bluefin fetch are indicative of their value as a luxury food as well as of the prestige and clout of the bidders, for whom bidding on bluefin is as much about publicity as it is about ensuring that prestigious sushi bars will fetch top dollar for their famous fish when it is served. In this regards, there is no substitute for bluefin tuna. While shark fins and shark fin soup is an ostentatious, luxury food good that garners prestige for those who serve it, there is much less price point differentiation in dried fins than the price point difference that exists between a can of tuna and the most prized portion of sashimi.

As the world's largest market for bluefin tuna, there is much speculation that Japan is preparing for a future without wild caught tuna. There is a belief that major Japanese businesses, preparing for the end of wild bluefin, have been stockpiling frozen tuna in an effort to supply future demand and ensure Japanese food security (Farwell 2010). The expertise and technology necessary to keep and raise captive bluefin tuna exists, with the Monterey Bay Aquarium being the only U.S. site to successfully maintain a captive population (Block 2010). Japan could very well be investing in and may already have the capability to maintain and even raise captive populations of bluefin from fry as well. This would be a big step from the increasingly common practice of wild-sourced farming.

ii. Social Factors

a. Charismatic Megafauna

Another reason why bluefin and shark conservation efforts have differed could lie in how both species are perceived by the public. In general, society views tuna completely differently from marine species like whales, dolphins, and turtles. Unlike these species, tuna, like most fish, is far from charismatic. For the most part, people do not feel any emotional attachment towards tuna, other than as a source of food. Whales, dolphins, and turtles, on the other hand, are charismatic megafauna; species that members of the public feel compassion for, want to protect, and view with a high existence value. Tuna is just simply another fish we eat.

Unlike tuna, sharks are charismatic creatures (Eilperin 2010, Graham 2011). Sharks have fascinated humans for centuries with our perception of sharks highly contingent upon the culture and the time period (Eilperin 2010). Additionally, how sharks are portrayed in the media and popular culture is becoming increasingly important. While sharks may not evoke the compassion and empathy that one feels towards a dolphin, sharks are a universally popular predator. In more modern times, this fascination with sharks has resulted in a kind of unhealthy rivalry with them - that we must to kill them before they kill us. Recreational shark-catch tourism continues to fuel romantic “Man versus Wild” ideals. In 2004, recreational shark catching in the United States resulted in an estimated catch of 12 million sharks, rays, and skates. (Eilperin 2011, Stevens et al. 2005). An increasing number of people are seeking violence-free shark experiences. Experiences such as swimming with whale sharks (Graham 2011), cage diving with great white sharks (Eilperin 2011), and other forms of shark-centric ecotourism are becoming increasingly popular and increasingly lucrative.

In terms of media presence, it goes without saying that the 1980s movie *Jaws* based on the Peter Benchley novel of the same name has left an indelible mark on our global psyche. In the United States, post-*Jaws* generations have grown up with the Discovery Channel’s *Shark Week*, one of the highest rated, annual, week long programming events since it first aired in 1987 (Gibson 2010). In fact, since 1995, over 20 million viewers tune in to *Shark Week* (Gibson 2010). Sharks then, unlike tuna, do not face the problem of being ignored or thought of simply as something you make a sandwich out of, but rather they face the problem of having had a wildly successful, negative public relations campaign.

There are number of signs that the public’s perception of sharks is changing. Shifting opinions on sharks could be one of the reasons that shark conservation efforts are gaining traction. While it continues to be wildly sensational, *Shark Week* shows are no longer solely dominated by shark attack stories and have begun to offer more balanced, conservation-minded, pieces in its programming (Graham 2012). Partnering with conservation groups Oceana, Ocean Conservancy, and the Pew Charitable Trusts, Discovery Channel’s programming now includes data on annual shark kills versus attacks against humans (73 million sharks versus around 60 attacks (Eilperin 2011, Gibson 2010)), the growing endangerment of sharks, and shark finning (Gibson 2010). As with any change in public opinion, it is difficult to determine if the changes within the media in how they present sharks is driving public opinion or if a the growing population of people concerned about shark conservation are driving the media. In any event, increased media attention to shark livelihoods, ecological importance, over-consumption, and finning can only help conservation efforts.

iii. Institutional Factors

a. Conservation Management Plans

There are significant differences between existing as well as proposed bluefin tuna and shark fishery and conservation management plans. As previously described, bluefin tuna fishery management plans, both domestic and international, have a long history and are therefore more ingrained within societies and institutionalized within fisheries management agencies/regimes. On the other hand, sharks – despite having been fished throughout human history – lack the institutional and management structures that have come to define fisheries. While this has resulted in unprecedented levels of exploitation, the fact that sharks are not “locked into” highly politicized fishery management regimes with entrenched political interests may be yet another reason behind the current momentum in shark conservation efforts versus the ongoing stalemate between conservationists and ICCAT.

Unlike bluefin tuna, there are no shark specific RFMOs, nor are there very many, formally managed shark fisheries especially when compared to the global number of bony-fish fisheries. This lack of management coupled with their alarming decline has led to a variety of management plans focused solely on conservation. Therefore, in a strange way, sharks are in a better position to be incorporated into conservation efforts since they are not trapped in a highly institutionalized, and thus difficult to change, domestic or international fisheries management regime.

b. Atlantic Bluefin Tuna Conservation Management Plans

As stated, one possible explanation for the lack of movement in bluefin conservation efforts lies in the international fisheries structure of bluefin management. Since its establishment in 1969, ICCAT has had the sole responsibility for international Atlantic bluefin tuna management, the establishment of national catch quotas, and the enforcement of tuna management plans (Iudicello 2007). Like all regional and international agreements, ICCAT is only as strong as its members – either through the powers they wield as sovereign nations in protecting their resources or through those they grant (or deny) to the international body. RFMOs in general and ICCAT in particular retain a significant amount of power, much more so than any international agreements concerning sharks. As detailed above, ICCAT’s member countries, like the United States, cannot readily alter bluefin fisheries management plans as member countries legally adopt ICCAT’s governing decisions as those to be implemented and enforced at the national level. Additionally, non-member countries cannot easily address bluefin management within their waters due to the shared, “commons,” characteristic that defines the bluefin tuna fishery. Thus, even if a country were willing and able to enforce stricter quotas or conservation measures, the gains made could easily be lost as “conserved” bluefin migrate to other waters and are caught by other fleets. Therefore, there is little political and even less economic incentive for countries to enact bluefin conservation policies stricter than the status quo.

Catch limits for Atlantic blue fin are flagrantly violated and while poaching has occurred, the bluefin fishery is not so much an illicit market as it is a corrupt industry. Exceedances of quotas go unpunished, regulations unenforced, and poaching unreported. For the bluefin tuna fishery, it is not so much ignorance or a lack of information, but rather, that the fishery is just too lucrative. The existence of an extremely profitable market coupled with the need for unanimous decisions requiring collective action make any attempt at strengthening and enforcing regulations close to impossible. Abiding by quotas and collectively implementing more sound fishery management

policy are two factors that are very hard to achieve in a market where a single bluefin can be sold for six figures. Bluefin tuna represents a classic example of the “tragedy of the commons.” If any one player chooses to play by the rules, that is manage its fleet and adhere to quotas, then it is placing itself an extreme disadvantage. With little cost, other countries and fishing fleets will simply catch what the rule-follower failed to catch; these countries will make the profit and gain any additional benefits. It is in this system that the free-rider reigns supreme.

c. Shark Conservation Management Plans

There are three major forms of shark conservation. In order of least to most comprehensive they are: 1) a ban on the practice of shark finning, 2) a ban on the trading of shark fins, and 3) the creation of shark sanctuaries. The conservation measures increase in scope and effectiveness, because each one builds upon the previous form. For example, governments implementing bans on the shark fin trade are those that already have regulations on shark finning in effect. Additionally, areas with shark sanctuaries also contain regulations banning shark finning and trade.

1. A Ban on Shark Finning

Though shark fisheries do exist, their number and size is nowhere close to those of bony fish. Shark meat is just not as widely consumed or as valuable. As detailed, only the fins are truly valuable. The practice of finning is so prevalent due to demand as well as the harsh reality that with a vessel’s hull space as the limiting and defining factor of catch and profit, fishermen are simply not going to retain a shark carcass that is of little to no value, when that space could be used for a more profitable species. However, the extreme cruelty and wastefulness of finning and the ecological effects of culling large amounts of sharks from marine ecosystems have resulted in the implementation of bans on the practice of shark finning.

Shark Finning Bans in the United States

As described above, the United States was one of the first countries to implement a ban on the practice of shark finning. Domestic efforts to end finning were further strengthened in January 2011, when President Obama signed the Shark Conservation Act, which closed the existing 5 percent loophole under the previous Shark Finning Act.

It is important to note that in the United States, legislation to reduce finning first appeared as a way to foster healthy fisheries. As apex predators, sharks are a vital component of the balanced ecosystem that more valuable and edible fish species inhabit. Without sharks to serve as a biological check, prey species overpopulate and can result in undesirable species out competing valuable fishery species for the same resources. In the 1990s, lower trophic species overpopulation was becoming especially apparent along the Atlantic Coast. Therefore, many states passed legislation requiring full-shark landing. This ultimately led to the 2000 Shark Finning Conservation Act that, as detailed, led to the 2010 Shark Conservation Act that effectively made the landing of any unattached shark fin illegal in the United States.

Enacting shark finning regulations that focuses primarily on conservation tracks the trend of fisheries and marine species legislation that increasingly focused on a more holistic form of sustainable fisheries management. Promoting healthy marine ecosystems so as to sustain the populations of commercially valuable species by necessity requires the sustainability of ecologically important species that may or may not be commercially valuable. Classic fisheries management, however, focuses on a single species, with regard for ecosystem based management. Yet, as fisheries

collapse, as the most commercially valuable (and typically upper trophic) stocks become threatened, and public awareness on marine issues - especially those involving charismatic species – grows, legislation and management practices once designed solely for ensuring the economic sustainability of a fishery begins to evolve into a vehicle for promoting species conservation and more holistic management.

Shark Finning Bans Internationally

The cruelty and wastefulness of the practice of finning, has led to many countries banning its practice in their waters and by their fleets. Finning has been banned by the European Union, Australia, Brazil, Canada, Cape Verde, Costa Rica, Ecuador, El Salvador, Egypt, Mexico, Namibia, Nicaragua, Oman, Palau, Panama, Seychelles, and South Africa (Clarke 2008). Anti-finning recommendations and resolutions have also been agreed upon by RFMOs (Clarke 2008), signaling that these multilateral management regimes at the very least recognize the threat their fisheries' practices place on shark species.

While the growing number of countries passing finning bans is heartening, not all bans are created equally. As with any legislation, implementation and effectiveness varies considerably from country to country. Many of these finning bans contain the five percent loophole. However, this too is changing. The European Commission recently put forth legislation that would eliminate the fin to body weight ratio, thereby requiring that sharks are landed with fins attached in all of the EU's fisheries (Dunmore 2011). This proposal reflects changes that are occurring within European Union member states, as countries, such as the United Kingdom, closing the 5 percent loophole through national legislation (Press Association 2011). Anti-shark finning measures in the EU are absolutely critical for advancing global shark conservation efforts as EU fishery nations are major shark fin suppliers (Clarke 2008). For example, it is estimated that from 2000 to 2008, shark fins from Spain alone accounted for “22 to 39 percent of Hong Kong's total shark fin imports.” (Clarke 2008).

In Asia, Taiwan has become the first nation to ban shark finning (Noce 2011). The Taiwanese legislation differs slightly from finning bans in other nations in that it overtly promotes consumption of the entire shark caught. While legislation in other countries specifically advocates for the landing of whole sharks, the message is much less about promoting the use of sharks, and more about discouraging the practice of finning. Taiwanese legislation takes a different stance, looks at the shark finning problem more in terms of waste and prefers that the public start consuming more shark products, which would encourage the landing of a full shark with its fins. This has given rise to concerns in the environmental community that while promoting the full consumption of sharks could reduce the destructively wasteful practice of finning, it does not adequately account for endangered species that could still be caught, killed, landed, and consumed (Noce 2011).

2. A Ban on Shark Fin Trade

A ban on shark finning addresses the cruelty and waste issues surrounding the practice. However, even if this ban became both universal and strictly enforced - in which fins came only from sharks landed whole and utilized to the fullest extent - it would not reduce the demand for the fins. Hypothetically, if enforcement were not an issue, fishermen would just spend more time at sea in order to focus on formal fisheries catch and shark catch. The price of fins could climb even higher, as fishermen would demand extra compensation for having to expend extra resources to catch whole sharks as opposed to the current system, where sharks are “free” bycatch and fins are often viewed as a source of additional income to their more traditional seafood catch. Highly

regulated shark fishing may even result in increased lobbying efforts for increased government support of shark fishing, as is the case now with highly subsidized “whole fish” fisheries.

While a ban on shark finning is an important first step and component for any shark conservation strategy, more effort is needed to address the trade aspects driving the mass removal of shark populations from the ocean. Requiring the landing of full sharks, that will then be finned, may in fact perversely incentivize by-catch and directed shark catch, as demonstrated by the example of Taiwan calling for greater use of shark meat to justify fin consumption. The trade in shark fins in and of itself lies at the heart of the shark conservation problem and is *the* driving factor behind the devastating depletion shark populations are undergoing. In light of the strong demand for shark fins, the most viable policy option to address the shark fin trade is to make it illegal through an outright ban.

Shark Fin Trade Bans in the United States

Shark fin trade bans are gaining tremendous traction and appear to be the policy of choice in the United States. State legislation is the driving force behind trade bans. The United States’ system of federalism means that states have a high degree of autonomy and the ability to pass legislation that differs from and is more stringent than federal legislation.

Hawaii

At the state level, Hawaii has historically been the first mover in promoting stronger shark conservation efforts. For example, when Congress passed the 2000 Shark Finning Conservation Act that contained the 5 percent loophole, Hawaii passed legislation that banned the practice of shark finning in its entirety (Clarke et al 2007), thus removing the loophole and setting the precedent for what would become the 2010 Shark Conservation Act.

Just as it led with its full ban on finning, Hawaii was the first state to pass legislation banning the trade of shark fins. Introduced by state Senator Hee, Senate Bill 2169 (SB 2169) banning the trade of shark fins was signed into law on May 29, 2010 and went into effect on July 1, 2010. Popularity for this legislation was as much political, with the former first lady of Hawaii, Vicky Cayetano, strongly backing the effort (Fearing 2011), as it was cultural. Stark cultural differences exist amongst Hawaii’s various Asian communities. Indigenous Hawaiian culture is an island culture that in fact celebrated sharks and continues to shape people’s views to this day (Eilperin 2011, McAvoy 2010). It is believed Hawaii’s traditional culture and views towards sharks trumped the transplanted, “newer,” Chinese culture of shark fin consumption (Fearing 2011, McAvoy 2010). Additionally, Hawaii’s culture provided a more open and receptive environment for shark finning awareness campaigns. Wildlife advocates, WildAid, played a significant role in mobilizing public opinion (Fearing 2011, Sutton 2011) through a variety of public relations strategies including celebrity appearances and support from long-time “WildAid Ambassador” Yao Ming (WildAid 2010). Ultimately, this cultural foundation along with a growing anti-finning/anti-shark consumption public, and the socio-political climate that surrounds shark species as detailed above led to the successful passage of legislation banning the trade of shark fins. In addition, the signing of SB 2169 occurred without much of the controversy that emerged on the mainland, in particular in California.

The Pacific Northwest

Hawaii’s legislation opened the door for proposals banning the shark fin trade in Washington and Oregon. By February 2011, public hearings were being in Olympia, Washington

for Senate Bill 5688 (SB 5688) that would prohibit the possession and trade of shark fins (Shark Savers 2011). The bill passed the Senate and House with overwhelming bipartisan support – 95 to 1 – that April and was signed into law by Governor Gregoire on May 12, 2011 (Shark Defenders 2011). The Washington shark trade ban went into effect two months later on July 22, 2011 (Washington State Legislature 2012).

Shark fin trade ban legislation next came up in Oregon. By June 2011, both houses of the Oregon State Legislature had voted in favor of a statewide ban (Learn 2011). As in Washington, the bill passed with overwhelming bipartisan support, 88 votes in favor to 1 (Learn 2011). House Bill 2838 was signed into law by Governor Kitzhaber on August 4, 2011 (Oceana 2011).

The South Pacific Territories

Shark fin trading bans are also coming into effect across the American territories in the South Pacific. Days after President Obama signed the Shark Conservation Act of 2011, the U.S. Commonwealth of the Northern Mariana Islands passed and signed a bill banning the possession, sale, and distribution of shark fins (Pew(a) 2011, Pew(c) 2011). In March, Guam followed suit, passing its own legislation banning the trade (Pew(b) 2011). With the imposition of fin trade bans throughout major ports in the Pacific, the landing and trading of fins becomes more difficult and expensive (Karan 2011). For example, ships with shark fins from the South Pacific, legally or illegally acquired, will be forced to go to ports that increasingly farther away (Karan 2011), thus requiring more fuel and perhaps mitigating the “gratuity” that fins once provided as additional revenue will have to go towards increased fuel, supply, and labor costs for more time at sea.

California

On October 7, 2011, California Governor Jerry Brown signed into law Assembly Bill 376 (AB 376), effectively banning the trade of shark fins in the State of California. Under AB 376, the acquisition and distribution of shark fins in California was to end in January 2012. Restaurants then have one year, until January 2013, to use up their existing stock.⁸ After this time, barring certain exemptions, it will be a crime in the State of California to sell, possess, or trade shark fins.⁹

Exemptions to the shark fin bill are found in the corresponding Assembly Bill 853 (AB 853). Contingent upon the adoption of AB 376, AB 853 allows for shark and fin possession and trade given that the person in possession of the products is properly licensed or permitted under California’s Fish and Game Code. This bill therefore addresses and allows for people to legally engage in sustainable shark fishing and consumption,¹⁰ as well as possession of sharks and shark

⁸ “Before January 1, 2013, any restaurant may possess, sell, offer for sale, trade, or distribute a shark fin possessed by that restaurant, as of January 1, 2012, that is prepared for consumption.” AB 376, Chap. 524, Sec. 2-2021(d).

⁹ “This bill, except as specified, would make it unlawful for any person to possess, sell offer for trade, or distribute shark fin as defined. The bill, by creating a new crime, would impose a state-mandated local program.” AB 376, Chap. 524. *And* “Except as otherwise provided in subdivisions (c), (d), and (e), it shall be unlawful for any person to possess, sell, offer for sale, trade, or distribute shark fin.” AB 376, Chap 524, Sec. 2-2021(b).

¹⁰ “The Ocean Protection Council shall submit an annual report to the Legislature that lists any shark species that have been independently certified to meet internationally accepted standards for sustainable seafood, as defined in Section 35550 of the Public Resources Code, and adopted by the Ocean Protection Council pursuant Section 35617 of the Public Resources Code, including chain of custody standards.” AB 853, Chap. 525, Sec. 1-2021.5(b)(1).

products for taxidermy.¹¹

Passage of anti-shark fin trade bills in Hawaii, Washington, and Oregon set the stage for addressing the shark fin trade in California. The issue of finning and its trade coupled with California's long-standing reputation as one of the nation's most experimental states in terms of environmental laws and policies made it imperative, from the view of conservation, marine life, and animal welfare advocates, that the state successfully adopt and implement legislation that effectively addresses and ends the large-scale trade of shark fin in California (Fearing 2011). San Francisco is one of the nation's leading cities for shark exports, while Los Angeles is far and away the epicenter of American shark fin imports (Anon 2012). California's adoption of anti-shark fin trade legislation would also effectively shut down the trade along the entire West Coast of the United States.

Coalition building and public outreach, culturally and politically, was absolutely critical for creating and passing California's shark fin trade ban legislation (Fearing 2011, Sutton 2011). Due to shark fin soup's historic, cultural, and social significance, any attempt by local and state governments to ban trade in shark fins must include Asian and Chinese-American communities and constituencies. This was especially true for California, which has the largest population of people of Asian heritage in the country (U.S. Census 2011).¹² In addition, California's major ports are key links in both the North American and global shark fin trade (Monterey Bay Aquarium et al. 2011).¹³ San Francisco, home to the nation's largest Chinatown, is a highly important trade hub and market for North American shark fin trade. This bill, coupled with a mayoral race placed San Francisco at the epicenter of California's shark fin trade debate.

The fight to pass anti-shark fin trade legislation in California is a clear demonstration of just how controversial and culturally sensitive the use of shark fin is to the public and serves as a testament to the cross-cultural outreach and coalition building needed to ensure the passage of such legislation. Unlike Hawaii, California does not have an underlying indigenous Asian culture with a mythology and long history of respecting sharks (Eilperin 2011, Fearing 2011). Additionally, the consumption of shark and shark fin soup in the United States is far from universal. Shark fin soup is consumed almost entirely by members of the Chinese community. Unlike other Asian foods, like sushi, shark fin soup is not a dish that has reached a level of universal appeal or popularity, so as to become ubiquitous to all types of Asian restaurants and thus reaching a wider Asian and non-Asian consumer base. Shark fin soup is a Chinese delicacy, consumed by Chinese, according to Chinese ceremonial tradition. That said, just as many non-Japanese restaurants have incorporated sushi into their menu to increase their revenues, there is indication that some Chinese restaurateurs are more or less agnostic to the dish and serve it simply because it is a highly demanded and profitable (Fearing 2011). Shark fin soup is often one dish at a larger banquet event, with some restaurants finding that the inclusion of shark fin soup as a course is a determining factor of whether or not they

¹¹ "Any person who holds a license or permit issued by the department to take or land sharks for recreational or commercial purposes may possess, including for purposes of consumption or taxidermy, or may donate to a person licensed or permitted pursuant to Section 1002, a shark fin or fins consistent with that license or permit" AB 853. Chap 525. Sec. 1-2021.5(a)(1) *And* "Nothing in Section 2021 prohibits the sale or possession of a shark carcass, skin, or fin pursuant to Section 3087." AB 853. Chap 525. Sec. 1-2021.5(a)(3).

¹² As of the 2010 Census, 5.6 million people who identified themselves as "Asian" or "Asian in combination" descent resided in California. (U.S. Census 2011).

¹³ "According to a 2005 report to Congress by the National Oceanic and Atmospheric Administration, San Diego and Los Angeles are two of the top entry points for shark fin imports." (Monterey Bay Aquarium et al. 2011)

will cater the event (Eilperin 2011). Because the soup is such an ostentatious, status item it also ends up defining the banquet, the family who has organized it, and the quality of the restaurant.

Thus, while supporters of what was to become AB 376 came from a variety of cultures and ethnicities, its success was contingent upon it being accepted by the Chinese community. Although groups affiliated with the bill - including the Monterey Bay Aquarium, the Humane Society of the United States, WildAid, and Oceana – could draw on their large membership pools for support (the Humane Society alone represents roughly 1 million members (Fearing 2011)) additional public outreach was absolutely critical for an issue with so much social, economic, and cultural significance. While members of these groups represent a variety of demographics, the bill initially lacked direct access and support from the Asian-American community, in particular members of the Chinese diaspora and Chinese-Americans. Thus, reaching the growing number Chinese-Americans who do not support the consumption of shark fin soup, raising awareness in those who may not know where the soup comes from, and galvanizing those in the community who already feel passionate about social, environmental, and animal welfare issues generally was critical.

It was with these goals in mind that, under the guidance of political consultant Bill Wong, the Asian Pacific American Ocean Harmony Alliance (APAOHA) was created to unify Californians of Asian-descent against the practice and trade of finning as well as sponsor anti-fin trade legislation (APAOHA 2011). In addition to raising public awareness and support in Asian communities about the humane and environmental issues surrounding shark finning and shark fin soup, APAOHA also worked in building alliances and partnerships with active Asian professional groups, community leaders, elected leaders of Asian heritage and those who represent large Asian constituencies, and Asian-American celebrities and chefs (APAOHA 2011). While APAOHA's efforts coincided with the public awareness campaigns conducted by other advocacy groups and organizations, its ability to the garner support and drive momentum in the Asian community for anti-shark fin legislation cannot be overemphasized.

The successful creation and passage of shark-fin trade legislation required support from both the public and those in office. Again, the complexity and nature of anti-shark fin trade legislation required backing from Assembly members who reflected and represented California's Asian and Chinese-American communities if the bill was to be at all viable, let alone make it through the state legislature and onto the Governor's desk. Conservation and animal welfare groups found partnerships with Assembly member Jared Huffman (Democrat - San Rafael) who had been working on a city level ban in San Francisco (Fearing 2011) and Assembly member Paul Fong (Democrat -Cupertino) who ultimately brought AB 376 and accompanying bill AB 853 to the floor of the California legislature.

Due to the cultural component of the shark fin trade portions of the California's Chinese community viewed the proposed ban on fin trading as a direct attack on traditional Chinese culture (Associated Press 2011, Worth 2011). State Senator Leland Yee, who was running for mayor of San Francisco during this time, was firmly opposed to any anti-shark finning trade legislation¹⁴ (Worth 2011). For example, AB 376, though introduced by Democratic Assembly member Paul Fong, was

¹⁴ “... Yee acknowledged that shark finning is an issue, but argued that there are way to handle the practice other than completely banning their consumption, which he described as ‘the latest assault on Asian cultural cuisine.’ ‘Some sharks are well-populated and many can and should be sustainably fished,’ he said.” California State Senator Leland Yee (Worth 2011).

opposed by San Francisco's Democratic State Senator Leland Yee (Buchanan 2011). This division between elected officials and within the Chinese-American community played out heavily in the media.

In light of the divisive media coverage and to gain a better sense of the public's view towards anti-fin trade legislation, a public opinion firm was commissioned to conduct an independent survey of California voters (Monterey Bay Aquarium 2011, Fearing 2011, Sutton 2011). According to the study, 76 percent of those surveyed supported AB 376 (Monterey Bay Aquarium 2011, Fearing 2011, Sutton 2011). Breaking down those surveyed along demographics, 70 percent of Asian-American respondents supported the bill (Monterey Bay Aquarium 2011, Fearing 2011, Sutton 2011). Opposition to the bill broke down in a similar manner with 14 percent of all voters and 17 percent of all Chinese-American voters against AB 376 (Monterey Bay Aquarium 2011). Interestingly, the study found no evidence that California's Chinese-American contains generational differences that have come to define previous findings and reports about shark fin soup's popularity and acceptance (Monterey Bay Aquarium 2011). Of the Chinese-Americans surveyed, 47 percent of those aged 50 and older strongly supported Assembly member Fong's bill, as did 48 percent of those under 50 (Monterey Bay Aquarium 2011). While there are perhaps many reasons why California's Chinese community differs from other communities that show generational differences over shark fin consumption, one factor could be the educational outreach and public awareness campaigns that were occurring during the time of the survey. Some groups found that after learning about practice of finning and the shark fin trade, even more traditional, elderly Chinese-Americans became opposed to the practice (Fearing 2011), thus suggesting that increasing awareness may have just as much of an effect in changing long-held socio-cultural perceptions of shark fin soup as naturally occurring generational changes in norms and values.

While the support and backing of AB 376 from the Asian community was imperative, it was by no means sufficient in ensuring successful passage of the bill. Bipartisan support of AB 376 was also needed. This was especially true since no party held a majority in terms of supporting the bill. The controversy the bill caused within the Chinese-American community split the Democrats, whose members generally tend to vote more favorably on environmental legislation. With this Democratic split, securing the votes Republican and more conservative lawmakers was critical (Fearing 2011, Sutton 2011). It turned out that in many cases, GOP representatives fully supported AB 376 without needing a hard sell. This is due to the fact that many of these lawmakers and their constituents are active outdoorsmen. As devoted hunters, gamers, and fishermen they very idea of catching a shark, finning it, and throwing it back to sea was deemed wasteful, unsportsmanlike, and morally reprehensible (Fearing 2011, Sutton 2011). Ultimately, the state Senate approved the bill 25 to 9 (Thompson 2011), sending it to the Governor's desk for signature. A month later, Governor Brown signed the bill into law, effectively shutting down the shark fin trade on the West Coast.

3. The Creation of Shark Sanctuaries

The creation of shark sanctuaries along with legislation banning the practice of finning and the fin trade is the most comprehensive form of shark conservation. This form of conservation is largely being driven by the Pew Charitable Trusts and their work with small island states/countries (Karan 2011). Palau was the first nation to establish a shark sanctuary (Nevin 2009). As of the time of this writing, shark sanctuaries have also been designated in the Marshall Islands, Guam, the Northern Marianas, Honduras, the Bahamas, the Maldives (Weise 2011), and Tokelau (Pew(c) 2011). Sanctuary legislation in these countries ends commercial shark fishing and finning in all territorial waters (coastal and EEZ) and includes provisions outlawing the landing and trade of all shark

products regardless of origin (Karan 2011). Additionally, shark sanctuaries have the potential to be the most economically viable. Shark sanctuaries provide unique opportunities for tourism which, as stated, is becoming increasingly popular and can generate millions of dollars a year in revenue.

While shark sanctuaries and the anti-finning and fin trade legislation that accompanies them are the most comprehensive form of shark conservation, the efficacy of this form of conservation comes down to one of implementation and enforcement. Many of these sanctuaries are extremely large. For example, Palau's sanctuary is roughly the area of France (Nevin 2009). However, at the time of its designation, Palau only had one coast guard ship to patrol the entire area (Nevin 2009). This lack of enforcement capacity places the effectiveness of the sanctuary at risk as ships engaging in IUU fishing as well as shark finning could easily enter and leave the territory without being caught. Palau is by no means the only shark sanctuary country to face this dilemma. Most designated sanctuaries to date are very large and rely on implementation and enforcement by small island nations that simply do not have the capacity or funding. In the interest of ensuring that these sanctuaries are effective and remain viable, major conservation organizations have been providing funding to these countries (Eilperin 2011, PEW website). However, this could change if should shark tourism continue to gain in popularity and revenues from the industry are fed back into shark conservation and sanctuary enforcement.

IV. International Fisheries and Wildlife Treaties and Regimes

Atlantic bluefin tuna and sharks differ greatly in terms of applicable international and regional management regimes. As evidenced, bluefin tuna exist within a well-established fisheries framework. While components of this framework have so far been inadequate in ensuring the long-term commercial survival and viability of the Atlantic bluefin fishery, at the very least regimes and methods exist that theoretically could be modified and strengthened so as to be effective. Sharks, on the other hand, are not truly reflected in any well-established regional fishery regime. While sharks benefit from international treaties targeting indiscriminate and harmful fishing practices and technology, they do not currently have a unique, shark-focused management regime. The one shark specific international agreement that does exist, IPOA-Sharks is non-binding and is primarily concerned with data collection and creating best practices guidelines that can be incorporated at the national level within member states. IPOA-Sharks stands in contrasts to fishery treaties, including RFMOs that effectively or not, are mandated to manage specific fisheries and stocks. The voluntary nature of IPOA-Sharks coupled with the fact that most utilized sharks are originally caught as bycatch has resulted in the aforementioned lack of data on shark species and difficulty in assessing the extent of overfishing that has occurred in shark populations (Clarke 2008).

As threatened or endangered species, Atlantic bluefin tuna and shark species all fall under the purview of CITES. Dedicated to effectively regulating trade in endangered and threatened species, there have been consistent efforts to list both Atlantic bluefin tuna and some of the more sought after and endangered shark species, including some of the 14 species that are more actively targeted for the shark fin trade. For Atlantic bluefin tuna, CITES has been seen as a way to address their plight and impact the market outside of the ICCAT/fisheries management structure. For sharks, CITES has been seen as a potentially effective tool to promote shark conservation in light of the void in international level shark management.

This section provides an overview of the CITES regime and a more in-depth account and analysis of how the regime actually functions using the 2010 proposals to list the Atlantic bluefin

tuna and a number of shark species as case studies. These highly contentious proposals and their results clearly illustrate the issues that exist within the CITES regime, amongst fishing nations, and between regulatory and management regimes. The section begins with a general overview and analysis of CITES touching upon its history, purpose, key components, and major players.

A. The Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)

The Convention on International Trade in Endangered Species of Wild Fauna and Flora (1973) is an international agreement that aims to combat international illegal trading, poaching, and consumption of endangered species (CITES Secretariat 1973). CITES ranks species according to their level of endangerment and extent of trade in three Appendices (CITES 1973). Trade in species listed in Appendix I is completely banned since these species are “threatened with extinction.” (CITES Secretariat 1973).¹⁵ As a Convention, CITES serves as a framework to guide member countries or “Parties” in regulating the international trade of endangered species, their parts, and products in addition to combating illegal trade and poaching. CITES guidelines do not supersede domestic laws and policies and therefore it is only as strong as the domestic policies and enforcement measures of its Parties (CITES Secretariat 1973).

Inspired by an 1963 resolution by the International Union for Conservation of Nature and Natural Resources (IUCN) and created in 1973 during the “Golden Age of Environmental Legislation,” CITES is an international attempt to conserve biodiversity by using a species-specific approach to regulate trade. Also known as the “Washington Convention,” and spearheaded by the United States, the final text of CITES was agreed upon on by twenty-one nations on March 3, 1973, in Washington, D.C. (Strickland 2010). The Convention entered into force on July 1, 1975, with the United States again taking the lead by being the first country out of eighty to officially ratify it nearly a year and a half earlier, on January 14, 1974 (CITES Secretariat 2009).

A landmark international environmental agreement CITES very much mirrored the growing number of U.S. domestic legislative acts, especially the 1969 Endangered Species Act (ESA). In many ways the ESA served as the foundation for CITES, incorporating ideas like a species-specific focus on biodiversity conservation, the idea of designating certain species according to the level of peril their survival faces, and a process by which species can be proposed, added to, and removed from the lists. In fact, the initial ESA list was more or less rolled into the first round of CITES’ appendices listings (Sutton 2010).

Since 1973, other nations party to CITES have gained power and influence within the regime. Depending upon on a variety of internal and external factors, this power could range from a member nation successfully proposing a species listing to exercising veto power through filing reservations. A number of Parties have also played internal leadership roles within the regime itself. For instance, the CITES regime is comprised of a number of committees and those countries serving on the committees and/or serve as a host country for a Conference of the Parties (COP) become major players. External factors, such as a species listing proposal could catapult a range state for that species into a key negotiating position. For the most part though, developed countries such as the United States, Japan, Australia, and European nations hold the most power and leverage

¹⁵ “[t]hreatened with extinction. Trade in specimens of these species is permitted only in exceptional circumstances.” (CITES Secretariat 1973)

in negotiations since they overwhelmingly represent the market demand for species trade, have the most financial and administrative capacity to carry out CITES, contribute to funding mechanisms, and are deeply involved in providing foreign aid to developing countries outside of the CITES regime (Reeve 2002). These factors coupled with CITES species-specific approach and use of trade bans have resulted in an overall regime success rate that can only be determined on a case-by-case basis. For example, CITES parties' efforts to regulate the ivory trade and protect elephants are considered a political and ecological success (Sutton 2011, Sutton 2010). Policies to regulate the trade in endangered birds of prey on the other hand may be viewed as less successful, or its success may be incumbent upon the political environment of certain states (Reeve 2002).

A number of shark species and bluefin tuna have been proposed for listing in CITES appendices. At this time, only three shark species - the great white, the basking shark, and the whale shark - are listed and all of them fall under Appendix II designation (Clarke et al 2007). It is thought that these species achieved CITES listings because they are some of the most iconic and endangered of all shark species and that these listings, which occurred between 2001 and 2002 (with the great white being up-graded from Appendix III to Appendix II in 2004) are in response to the IPOA-Shark's failure to persuade nations to voluntarily address shark finning and catch in the years immediately following its creation (Clarke et al 2007), a time in which the policy window for shark conservation was supposedly open. Since then, additional shark species such as the oceanic whitetip and scalloped hammerhead, as well as bluefin tuna have been proposed various times only to be rejected.

i. Background - COP15

The fifteenth meeting of the Conference of the Parties (COP15) for the Convention on International Trade of Endangered Species of Wild Fauna and Flora (CITES) took place from March 13th through 25th in Doha, Qatar. These two week long COPs take place every 2 and a half years (Reeve 2002). During these biennial meetings, member parties review and vote on proposed resolutions to improve the Convention, amendments to the Annexes, and work towards resolving any other policy issues (USFWS 2003). At Doha there were a number of important and highly publicized proposals, including those for Atlantic bluefin tuna and sharks.

ii. The History of the Atlantic Bluefin Tuna Proposal at COP15

The singular threat to *T. thynnus* is international trade, thus making an Appendix I CITES listing an appropriate measure to take to preserve what remains of the Atlantic bluefin population. It is important to note that unlike other Appendix I proposals, the intended ban on bluefin and closure of its fisheries would be short-term, would work in close conjunction with ICCAT, and would be lifted as soon as scientific evidence shows that stocks have rebounded enough to recommence fishing (CITES Secretariat COP15 Proposal 19, 2009). The proposal was structured in this way because it took a tremendous amount of effort to achieve buy-in from the European Union. As the world's leading supplier of Atlantic bluefin, any proposal to list the species without at least temporary, if not grudging support from major European fishery countries such as France, Spain, and Italy, would have been dead in the water.

a. Proposal 19

Proposed by Monaco, and with strong support from the European Union and the United States, Proposal 19 recommended listing Atlantic bluefin tuna as an Appendix I species (CITES Secretariat 2010). As an Appendix I species, all international trading in Atlantic bluefin tuna would

be banned. Domestic bluefin tuna fisheries and consumption, however, would not be affected. Therefore, the main objective of this proposal is essentially to protect *T. thynnus* from the Japanese market. Japan is responsible for 80 percent of bluefin market (Sutton 2010, MacFarquhar 2010, Klinger et al. 2010), therefore it is imperative that any attempts at regulating trade, reducing catch, lowering consumption, and advocating for species conservation focuses on and preferably includes Japan. Besides Japan, other key parties to the vote included Canada, Libya, Iceland, and Arab League States all of which are members of ICCAT. China and Russia were also important in that they could vote against the proposal as a way to gain allies to veto other proposals affecting species that are more heavily traded in their economies.

b. Decision on Proposal 19

On March 18, 2010, Proposal 19 was defeated in a vote of 68 to 20 with 30 abstentions (CITES Secretariat Press Release 2010). Japan led the opposition and was joined by Canada and Arab League States (CITES Secretariat Press Release 2010). Deliberations over Proposal 19 and the ensuing voting process were incredibly heated and controversial. Tensions were already high going into negotiations, since Japan from the outset said that it would file a reservation if the proposal passed (Jolly 2010). Adding to the tension, upon arriving in Doha, the Japanese delegation had an extremely effective and aggressive lobbying campaign and even served bluefin tuna sashimi at a reception the evening before the vote (Sutton 2010). During the negotiations, one witness claims that there was a “theatrical performance... including cursing, swearing, and foul language” (James 2010). According to the CITES press release, Libya requested to close deliberations, at which point Iceland called for a secret ballot (CITES Secretariat Press Release 2010). This resulted in confusion over voting procedure and a complete lack of transparency (CITES Secretariat Press Release 2010). The entire negotiating and voting process was a complete fiasco.

Japan and other opposing countries firmly believe that ICCAT is best equipped to handle bluefin fishery management and existing stocks, in addition to the belief that the stocks are actually much healthier and larger than what the scientific evidence shows. However, it is the opinion of many delegates, representatives, and scientists that the real reason these countries are rejecting these proposed marine listings has nothing to do with sound scientific evidence and much more to do with the high economic value of these species,¹⁶ a lack of political will to address consumer demand, and a fear that if they admit that an extremely high value fishery is a complete failure¹⁷ then other fisheries, regulations, and policies will also end up in the international spotlight.

ii. The History of Shark Proposals at COP15

At COP15 the Palau and the United States put forth two proposals recommending that six shark species be listed as Appendix II species. According to the Convention, Appendix II species are defined as those:

“[t]hat are not necessarily now threatened with extinction but that may become so unless trade is closely controlled. It also includes so-called “look-alike species”, i.e.

¹⁶ “Simply put, science has been trumped by economics, and the fate of Atlantic bluefin hangs in the balance.” Julie Packard- Executive Director, Monterey Bay Aquarium. (Packard 2010).

¹⁷ “Scientists and conservationists have long warned that bluefin stocks in the eastern Atlantic Ocean and Mediterranean Sea are facing imminent collapse after years of mismanagement by ICCAT. Stocks in the Gulf of Mexico and West Atlantic have already declined so significantly that U.S. and Canadian fleets routinely fail to even meet their annual ICCAT catch quota, while catch limits are routinely ignored and wildly exceeded by European and Japanese vessels.” (Gronewold 2009).

species of which the specimens in trade look like those of species listed for conservation reasons (see Article II, paragraph 2 of the Convention). International trade in specimens of Appendix-II species may be authorized by the granting of an export permit or re-export certificate. No import permit is necessary for these species under CITES (although a permit is needed in some countries that have taken stricter measures than CITES requires). Permits or certificates should only be granted if the relevant authorities are satisfied that certain conditions are met, above all that trade will not be detrimental to the survival of the species in the wild.” (CITES Secretariat 2012)

An Appendix II listing would be especially fitting for many shark species as though some species are more targeted than others, finning is by and large an indiscriminate practice with fins from all shark species eventually showing up in the trade and in shark fin soup.

a. Proposal 15

Proposal 15 covered *Sphyrna lewini*, *Sphyrna mokarran*, *Sphyrna zygaena*, *Carcharhinus plumbeus*, and *Carcharhinus obscurus* (CITES-COP15 Proposal 15 2010). The main objective of this proposal was to protect *S. lewini* the commercially valuable scalloped hammerhead shark. The U.S. and Palau proposed listing other species of sharks with *S. lewini* because officials cannot distinguish the difference between these species’ shark fins and *S. lewini*’s during inspections. Using recent rates of decline, it is projected that the scalloped hammerhead population will fall to less than 20 percent of its historical baseline within 10 years (CITES-COP15 Proposal 15 2010). In addition, an international effort to manage *S. lewini* is vital since the species has low reproductive rates, has a circumglobal range, and as stated, is economically valuable. The main threats to *S. lewini* are shark finning and recreational bycatch (CITES-COP15 Proposal 15 2010). The fins are the most valuable aspect of this shark, though its liver, skin, and teeth are also used to produce shark oil, leather, and jewelry/souvenirs respectively.

b. Proposal 16

Proposal 16 covered *Carcharhinus longimanus* or the oceanic whitetip shark (CITES-COP15 Proposal 16 2010). This shark has an extremely wide range and is a very high trophic level predator. Like the other shark species, *C. longimanus* also has a low reproductive rate. It is predicted that within 5 to 10 years, the population will be at 15 to 20 percent of its historical baseline. *C. longimanus* is extremely valuable for its fins and is also often caught as bycatch. This species already appears on the IUCN Redlist and in Annex I of UNCLOS. Like the scalloped hammerhead shark, the oceanic whitetip shark is highly valuable and much sought after, due in large part to the fact that it inhabits warm coastal waters that are already heavily targeted by other fisheries (Edwards 2006, Vannuccini 1999).

c. COP15’s Decision on Proposals 15 and 16

Like the other Proposals to list and protect marine species, including bluefin tuna, Proposals 15 and 16 failed (Jolly 2010). The proposed resolutions on sharks would have increased transparency in the shark trade and called for improved tracking and monitoring of illegal shark fishing and finning. The resolution failed due to the United States’ and the European Union’s inability to get the two-thirds majority vote needed to counteract votes cast by China, Japan, and Russia (Craig 2010). Led by these three key countries, which are the world’s largest shark fin and

luxury seafood consumers, parties that were against listing sharks. Furthermore, dissenting nations claimed that shark populations are not diminishing and that any measure to regulate and/or restrict their trade will harm developing countries' economies and fisheries (Jolly 2010).

Japan, China, and Russia along with supporting developing countries continued and succeeded in the opposition to CITES regulating any marine species. These parties, especially China and Japan, are the largest consumers of the species proposed for regulation. These countries firmly believe that existing fisheries and management are best equipped to handle existing stocks of these species, in addition to the belief that the stocks are actually much healthier and larger than what the scientists and proposing countries have stated. However, it is the opinion of many delegates, representatives, and scientists that the real reason these countries are rejecting these proposed marine listings has nothing to do with sound scientific evidence and much more to do with the high economic value of these species,¹⁸ a lack of political will to address consumer demand, and a fear that if they admit that an extremely high value fishery is a complete failure (Gronewold 2009)¹⁹ then other fisheries, regulations, and policies will also end up in the international spotlight. China, the world's largest consumer of shark fins had a definite national economic interest to reject any form of shark regulation, mirroring Japan interest in opposing all international bluefin tuna regulation. CITES delegates claimed that strong lobbying by Japan directly resulted in votes cast against proposals to regulate marine species (Hood 2010).

iii. Fished to Death?

Many in the environmental and marine science community consider COP15 a failure and question what future role CITES will play in protecting commercially valuable marine species (Sutton 2010). Contrary to the CITES Secretariat's claims that the failed marine species proposals at COP15 represent a "transitional process"²⁰ (CITES Secretariat Press Release 2010), the failure to accept listing proposals for Atlantic bluefin tuna and sharks seems indicative of the impasse that many international environmental regimes are currently experiencing. The highly visible fracturing within CITES, the reasoning behind the collapses in discourse, and consistent reports of the overall hostility and theatrics at COP15 serves as a sad testament that the international community lacks the political will and vision to collectively address major environmental problems.

V. The Future of Bluefin Tuna and Shark Conservation

A. The Future of Domestic Legislation in the United States

i. Bluefin Tuna

¹⁸ "Simply put, science has been trumped by economics, and the fate of Atlantic bluefin hangs in the balance." (Packard 2010)

¹⁹ "Scientists and conservationists have long warned that bluefin stocks in the eastern Atlantic Ocean and Mediterranean Sea are facing imminent collapse after years of mismanagement by ICCAT. Stocks in the Gulf of Mexico and West Atlantic have already declined so significantly that U.S. and Canadian fleets routinely fail to even meet their annual ICCAT catch quota, while catch limits are routinely ignored and wildly exceeded by European and Japanese vessels." (Gronewold 2009)

²⁰ "CITES will be closely watching the progress made on the adoption of conservation measures to protect marine species in other fora. To say that the Conference was a disaster is simply an exaggeration. [T]he rejection of more listings this week reflects a transitional process to adjust existing regimes managing depleted fishery stocks towards something more robust and coherent." Willem Wijnstekers- Secretary General of CITES. (CITES Secretariat, Press Release 2010).

The most likely scenario for bluefin tuna management in the United States is that the species will continue to be managed according to provisions and quotas set by ICCAT. Any changes to domestic bluefin management, such as the inclusion of conservation provisions within management plans, will have to be undertaken at the RFMO-international level talks and will ultimately have to be adopted by ICCAT and implemented through the Atlantic Tunas Conservation Act.

While reforming ICCAT provisions to better reflect the scientific assessments of the ever dwindling bluefin stock and encouraging the inclusion of regional conservation efforts within the fishery is in the best interest of ensuring the long-term viability of the species, the fishery, and ICCAT member states, history has shown that the tyranny of the status quo - short-term economic gains and entrenched political interests - reign supreme. As well be discussed below, this does not mean that efforts to reform ICCAT should be abandoned, but rather it suggests that perhaps there are other avenues to better ensure bluefin's long-term commercial viability and survival as a species through other forms of domestic legislation and policy. One avenue that is being explored is listing the Atlantic bluefin tuna as an endangered species.

a. Listing Bluefin in the Endangered Species Act

With bluefin failing to gain CITES Appendix I listing, and fisheries management quotas dictated by ICCAT, some conservation groups in the United States turned their sights to domestic conservation measures. One strategy entailed listing Atlantic bluefin tuna as an endangered species under the Endangered Species Act (ESA). It was believed that if the international community would not act, then perhaps the United States, as one of the key backers of the bluefin tuna proposal, could at least afford bluefin stocks within its waters a degree of protection.

In the wake of BP's Deepwater Horizon oil spill in the Gulf of Mexico - a prime spawning ground for the Eastern Atlantic bluefin stock - the Center for Biological Diversity (CBD) filed a petition with the DOC to list the Atlantic bluefin tuna as "endangered if not threatened" (Center for Biological Diversity 2010). It was thought that an ESA listing would further validate the scientific evidence and reasoning as to why Atlantic bluefin tuna are critically endangered and thus in need of policies that will ensure the survival of the species and the fishery. An ESA listing could also strengthen the United States position in regards to bluefin conservation whether it be at future CITES COPs, ICCAT meetings, or at regional fishery negotiations. Additionally, for decades U.S. fishermen have been the hardest hit by the bluefin decline (Safina 1997). Conservation groups believed that it was in the U.S.'s best interest to promote domestic conservation measures while simultaneously taking the lead to ensure that all bluefin fishery nations practice responsible fishery management and conservation techniques when dealing with such a economically and ecologically valuable straddling stock (Letter from Center for Biological Diversity et al. to NMFS 2010). This position was in direct conflict with fishing interests, including politically powerful Northeastern fishermen (Sutton 2010, Safina 1997), who view the fishery as already being managed at sustainable levels and that any national attempts at bluefin conservation will spell economic ruin for themselves and their fishing communities (Canfield 2011).

Ultimately, the proposal to list bluefin tuna under the ESA failed. Assessments carried out by NOAA determined that while all stocks of Atlantic bluefin tuna can be formally designated as a "species of concern" under the ESA it does not qualify for listing as either a threatened or endangered species at this time (NOAA 2011). NOAA, however, will revisit the listing request in

2013, at which time there is scheduled to be new stock estimates as well as more conclusive data about the effects of the BP oil spill on the Eastern Atlantic bluefin population²¹ (NOAA 2011).

East Coast legislators and their fishermen constituencies praised the decision (Ball and Tracy 2011), as any listing would have had resulted in the creation of a conservation management plan which would have reduced quotas, thereby affecting a fishery that in 2009 brought in \$13.3 million for its fishermen (Ball and Tracy 2011). That said, due to concerns surrounding the impact of the BP oil spill, NOAA is re-visiting its finding leaving open the possibility of a change in designation. Additionally, as highlighted throughout this thesis, conservation efforts are driven in large part by public awareness. The process of petitioning for an Atlantic bluefin listing kept issues surrounding bluefin and ICCAT in the news and could possibly increase pressure on ICCAT and its member nations to better address bluefin management as it is now clear that conservation groups are ready and willing to explore other avenues to conserve bluefin.

ii. Sharks

Domestically, it is anticipated that more states will adopt legislation that will ban the trade of shark fins. Efforts underway in Maryland, Illinois, New York, Florida, and Virginia definitively point to a strong trend in state-level bans on shark fin trade. Though it depends heavily on the state, its population, constituencies, and economy, major challenges to anti-fin trade legislation are similar to those faced on the West Coast. For example, at the time of this writing, recently introduced legislation in New York is receiving considerable pushback from New York City's large Chinese-American community and restaurants (Rosenthal 2012).

One challenge that differs slightly from those faced on the West Coast and New York is that posed by the strong, recreational shark fishing and tourism industry in Maryland. At the time of this writing, the Maryland State Senate has passed Senate Bill 465 with the House still considering passage of its version of the bill (The Humane Society 2012). As a state with a strong fishing constituency as well as an active recreational shark fishing culture, there has been pushback against fin trade bans from coastal businesses, restaurants, and the state's Secretary for Natural Resources and Governor (Eilperin 2012). This opposition is notable in that it is not concerned the actual trade and consumption, factors that restaurant groups and fin traders and California pressed, but rather that banning the trade of fins in a state in which sharks are required to be landed whole will result in the fins being "wastefully discarded" once on land²² (Eilperin 2012).

Though passing legislation banning the trade in fins will not just happen on its own, many of the states listed have already seen state house versions of the bill pass with the same overwhelming bipartisan support (Anon(a) 2012). There is no doubt that an East Coast state and/or Illinois will have banned the trade by the end of the year. Once this occurs, it is highly likely that more states will continue to enact more stringent laws regarding the shark fin trade ban in the foreseeable future.

²¹ "We will revisit the status of the species in early 2013 when we will have a new stock assessment and information from the Natural Resource Damage Assessment of the oil spill. We will also take action in the interim if new information indicates the need for greater protection." Dr. Jane Lubchenco (Under-secretary of Commerce for Oceans and Atmosphere and NOAA Administrator) (NOAA 2011)

²² "In a statement, (Secretary of Natural Resources) Griffin said that while the administration of Gov. Martin O'Malley, a Democrat, shares the sponsors' goals, 'We feel that the bill in the current state will hurt the honest Maryland commercial fisherman who already abides by the law and humanely lands sharks whole. As the bill stands, watermen will still be allowed to land sharks, but the fins will have to be wastefully discarded later in the process.'" Maryland's Secretary of Natural Resources John Griffin. (Eilperin 2012)

Under the United States' form of federalism, as state and federal laws begin to diverge there is often a movement to amend or adopt federal legislation that more closely aligns with more stringent state regulations in an effort to provide uniformity and consistency. As shark fin trade bans come into effect in States that contain nationally important fisheries, ports, and markets, it is entirely possible that should States in the Northeast and along the Atlantic implement bans that the Federal Government may be inclined to act. In fact, along with the obvious goal of ending shark finning and impacting the shark fin trade, some in the conservation community view a federal law prohibiting the import and export of shark fins as both a logical next-step and a definite goal (Sutton 2011). This would follow the same evolutionary path of finning legislation, in which varying jurisdictions with varying regulations on the practice of finning ultimately led to a full ban on finning with the Shark Conservation Act of 2010.

B. The Future of International Legislation

i. RFMOs

While conservation efforts and management measures concerning sharks and bluefin tuna have been largely divergent, the best policy option moving forward may be one that can simultaneously address the plight of both species. As RFMO quotas dictate national quotas and FMPs, the most effective and direct way to change these quotas and/or incorporate conservation provisions is at the RFMO level. Additionally, RFMOs are increasingly viewed as regulatory regimes that can address and enforce shark regulation and protection measures while carrying out their original mandate of fisheries management (Sutton 2011, Edwards 2006).

A system of jointly regulating fish and incidental shark catch is especially critical in tuna fisheries. Due to their geographic scope, high effort levels, and the technology used, especially longlines (Pew 2010), tuna fisheries are responsible for a significant amount shark bycatch. Thus, any adoption of policies by RFMOs that focus on reducing shark bycatch, ending the practice of finning, and adopting fishing technology that more directly targets fishery species, would be a significant step in reducing shark mortality, mitigating bycatch, and perhaps maximizing the fisheries' efficiency and effectiveness in targeting its directed catch.

As discussed, many RFMOs, including ICCAT, are already addressing the direct and indirect shark catch that occurs within their fisheries (Oceana 2011, Clarke et al 2007, Edwards 2006). As provisions created by the RFMOs dictate international and domestic fisheries negotiations, policies, and management plans there is increasing momentum to incorporate marine conservation in general (Crockett 2011) as well as shark regulation into RFMOs provisions and purview (Sutton 2011). This view is even present in the U.S. fishery and shark legislation and amendments described above as many cite the need to address these issues and advocate for better fishery and shark provisions at the RFMO level.

ii. CITES

In terms of international conservation efforts of endangered species, CITES continues to be the mechanism of choice. CITES is well established, has high level of buy-in in terms of number of member states, and the agreement has had well-recognized success in curtailing the killing and trade of some of the world's most iconic species including elephants, rhinos, and tigers. However, like all MEAs, CITES also contains a number of weaknesses, especially in regards to the roles and duties of

member states, implementation of CITES trade restrictions, and enforcement. The next section will begin by broadly examining the weaknesses of CITES.

a. Weaknesses of CITES

Wildlife crime, overconsumption, and the illegal trade of endangered species and their parts are low on the list of international issues and funding. Environmental issues in general are often low priority in terms of a nation's domestic and international policy "to do list," though CITES seems to rank particularly low overall²³ (Reeve 2002). As an MEA, CITES is exceptionally underfunded, understaffed, underdeveloped, and underappreciated. In 1973, CITES was groundbreaking in its recognition that it will take an international effort to solve the problem of over-exploiting and endangering species driven by the demands of a global market. Yet since 1973, CITES has been plagued by internal conflicts, an often times controversial and inadequate power structure, and a failure to initiate adaptation and improvement measures (Reeve 2002). For example, since its inception, there has been a recognized need for either an Enforcement Committee or a Committee on Compliance to ensure that CITES policies are properly and adequately enforced, that enforcement officials (i.e. those on the ground actually carrying out the goals of the Convention) have a seat and a say at COPs, and that policies and proposals are informed and based in scientific evidence as well as the realities of existing enforcement and compliance mechanisms and the actual capacity of a the country's enforcement agencies (Reeve 2002). Despite the clear need for a Compliance Committee, Parties have been unwillingly to advance the issue (Reeve 2002). In addition, other components of the regime, especially the Secretariat, have been unwillingly to relinquish their steadily increasing power and/or include a new group of experts, the enforcement officials, who may very well go against or cite the lack of applicability and feasibility of the entrenched interests and plans of the other committees (Reeve 2002).

Adding to its institutional challenges, CITES is also one of the most poorly funded out of all the environmental regimes. For example, funds available to CITES in 2002 amounted to less than \$10 million (U.S.) per year (Reeve 2002, Sand 1999). Compare this to the Montreal Protocol's 1990 start up fund of \$240 million, which is then replenished very three years (Reeve 2002) and it is clear that funding CITES is on the backburner of international environmental policy.

As stated previously, as a regime, CITES is only as strong as the domestic policies and enforcement measures of its Parties (CITES Secretariat 1973). This has led to "a patchwork of national management regimes" (Bräutigam 2006) and free-rider countries. Free-rider countries very often lack the political will necessary to effectively implement CITES policies through domestic legislation. However, there are countries where the political will exists, but the administrative capacity is either lacking or non-existent and there is the constant lack of financial means to develop and carryout regulation and enforcement. Lastly, there are some signatory Parties that have the administrative, technical, and financial capacity to carry out the goals of CITES, but they do not have the necessary domestic legislation or political and public will to do so. For example, Japan, a key CITES signatory, has only designated customs officials and police to carry out CITES enforcement (Reeve 2002). There is no separate CITES enforcement agency or officials connected to fishery or wildlife ministry or department. In addition a technical team commissioned by CITES to investigate how different nations carry out CITES found that the designated police and customs

²³ "Wildlife crime is not, nor is likely ever to be, a top priority for the enforcement authorities." CITES Secretary General, 1998 (Reeve 2002 citing Topkov 1998)

officials “did not have an extensive knowledge of international wildlife crime and illicit trade” and that “wildlife crime is not viewed as a major problem” (Reeve 2002). This is in spite of the fact that Japan, like other OECD countries, is one of the largest markets for trade in endangered species.

CITES also allows Parties to file reservations. This is essentially the “veto power” that plagues so many MEAs. Though reservations significantly weaken CITES, they do provide the opportunity for Parties to opt out of CITES regulations (or portions of them) that they feel infringe upon their national sovereignty. Reservations are essentially seen and used as loopholes. Parties can opt out of regulations and by doing so up front they are in a sense dismantling the “name and shame” tactic that CITES uses when it lists non-compliant Parties in an attempt to embarrass or shame them into following CITES trade regulations. While some Parties are simply free-riders to CITES, or just refuse to comply, more influential players tend to file reservations.

When considering the future of Atlantic bluefin tuna under CITES it should be understood that Japan is well known for filing reservations. When it joined CITES in the 1980s, Japan entered in with nine reservations, and at one point held a maximum of fourteen reservations (Reeve 2002). Japan’s reservations, or vetoes, carry a lot of weight since it is one of the most important importing countries in the world (Reeve 2002) and is a very influential Party at the COPs. Japan’s role and influence in CITES as well as other MEAs and multinational agreements, including RFMOs has been and will continue to be a defining factor in how conservation measures for both bluefin and sharks will take shape under these types of agreements.

b. ICCAT Responds to CITES

As it did in 2010, Japan consistently argues that ICCAT, not CITES, is the better regime and mechanism for managing Atlantic bluefin tuna and ensuring that the fishery is sustainable. As Japan is a leading member of ICCAT, some in the conservation and scientific community see this position as a “wolf guarding the henhouse.” Others see this as Japan continuing its hard-line stance that sees any attempt to deny it access to natural resources, regardless of the reasoning behind the “denial,” as a threat to national sovereignty (Sutton 2010). As decades of CITES COPs have shown, Japan is particularly defensive over marine resources which may make sense in the context that historically the oceans have been open access, a trait crucial for the survival of a resource limited, island nation. Therefore, if Japan maintains control over ICCAT, thereby controlling Atlantic bluefin tuna, it will have maintained its dominance over this piece of its food supply, upheld its cultural norms, and asserted its sovereignty and power on the international stage, among other things. Yet, regardless of the underlying reasons behind Japan’s vociferous opposition to Atlantic bluefin listing, the threat of a CITES listing has influenced policy changes within ICCAT before (Klinger et al 2010, Safina 2010, Sutton 2010) and it appears to have done so again (Crockett 2011, Safina 2011).

Post-CITES, ICCAT has made an effort to reduce bluefin quotas by more closely following the recommendations of its scientific panel (The Pew Charitable Trusts 2010). Most recently, in November 2011, ICCAT member nations met in Istanbul for their annual conference. By the end of the meeting, there was consensus for the implementation of an electronic system for reporting catch and landings (well behind other fisheries- where this is common practice). While ICCAT did not consider an electronic bar-code method of tracking, which is common for other globally sourced and traded foods, and in which there are a growing number of bluefin fisheries related companies that have put this more effective form of tracking into effect (Crockett 2011) commitment to more efficiently and effectively tracking bluefin catch and landing is a definite step in the right direction

for such a massively overfished fishery. Additionally, ICCAT has approved provisions to address the bycatch of silky sharks in the fishery.

Outside of the formal provisions passed in Istanbul, 2011 also saw ICCAT attempting to address situations that have the potential to place extreme stress on Atlantic bluefin stocks. In 2011, Atlantic bluefin stocks as well as a portion of their Mediterranean spawning grounds were threatened by the uprising and military intervention in Libya that rendered the country incapable of regulating its waters (Reuters 2011). Fearing that bluefin poaching would become rampant, the EU called for ICCAT to suspend Libya's fishing rights (Reuters 2011). Yet despite ICCAT's member nation's approval of reduced quotas and calls for collective regulatory action, poaching within Libyan waters was rampant (Black 2011).

Successful or not, far-reaching or incremental, the steps ICCAT is taking to adapt and change its provisions and practices may be driven in part by the results of CITES 2010 and the impending CITES 2013 meeting. Japan and other nations protesting bluefin listing argued strongly that the RFMOs that already exist are in the best mechanisms for addressing the management of marine resources. Should ICCAT continue to fail in improving its management of Atlantic bluefin tuna it is likely that bluefin listing proposals will continue to be put forth. While those against listing may have the ability to continually block the success of these proposals, they cannot block the fact that proposals generate media coverage. More proposals mean more media coverage, which ultimately leads to increased awareness of the species, the issues it faces, and what countries and markets are involved in the trade.

Therefore, an Atlantic bluefin tuna listing under CITES remains a possibility, however it seems improbable that Japan will have changed its stance by the 2013 meetings. Additionally, the alliance between the United States and European Union for the 2010 Atlantic bluefin listing was one that required a lot of effort and negotiating as the any fishery related proposal or regulation must be accepted and agreed to by France, Spain, and Italy, Europe's three largest and most politically powerful fishery states. A bluefin tuna CITES proposal without these countries would fracture the EU and weaken the relevancy of an EU sponsorship. Should the U.S. decide to again file a listing proposal, it will not only have to again secure full EU buy-in, but will have to find other co-sponsors and supporters that were not around in 2010, so as to ensure that first and foremost that the proposal voting process is actually carried out and not subject to spoilers or maneuvering to cast the vote in secret. This could eventually lead to shifts in the market and/or public backlash against countries both driving the trade and vetoing the proposals, which in turn could result in any number of policy implications and reactionary measures.

The reality that RFMOs continually viewed as the multilateral fisheries management tool of choice, any chance of conserving the Atlantic bluefin tuna fisheries hinges upon the ability to exercise restraint and self-control. How likely this is to occur is contingent upon what values governments, especially ICCAT member nations, decide to place and more importantly uphold in ensuring the long-term viability of the species and the wild caught bluefin industry. So far, as illustrated, ICCAT and the fishing industry in general's track record do not point to an exceptionally promising future. Despite post-CITES reforms, the 2010 fishing season saw the worst overfishing on record (The Pew Charitable Trusts 2011). Moreover, while the meeting in Istanbul led to gains in improved catch reporting for bluefin as well as measures to address silky shark bycatch, the inevitable question of actual and effective implementation remains. Tragically, it appears that this industry may be just too lucrative and while efforts to raise awareness of the plight of bluefin and to

curtail demand are helpful, they are not occurring at the necessary speed, scale, or scope. Nothing short of a revolutionary change in its perception, market, and management, will save this species from commercial extinction in the next decade.

However, until this happens, Atlantic bluefin tuna are not a lost cause. Mechanisms to conserve the species must continue to be explored, whether they attempt to evolve existing frameworks like ICCAT, push conservation through means outside the RFMO fishery management structure and/or, address the demand side of the market externally through non-regulatory measures such as raising public awareness, promoting sustainable fisheries, and supporting businesses and restaurants that refuse to sell bluefin tuna products. When it comes to ensuring the survival of Atlantic bluefin tuna every option must be on the negotiating table and every avenue must continue to be explored. To do otherwise would not only signal defeat in our ability to change and conserve one of the most valuable living natural resources and food products in the world, but it would also signal the end of the existence of one of the oceans most powerful and ecologically important predators.

c. Re-proposing Listing of Sharks

CITES remains one of the most critical international mechanisms to afford protection to and address the trade of endangered species. Therefore, it is highly likely that the most threatened shark species will once again be proposed for listing. With COP16 set to occur in 2013, shark proposals could be in a better position than they were in 2010 for the following reasons.

First, the social and political climate surrounding shark conservation, shark finning, and the trade in fins have changed significantly over the past two years. As outlined above, almost every month new shark sanctuaries are created, legislation is being passed at the subnational and national level around the world to make the practice of shark finning illegal and/or to ban the shark fin trade, consumer awareness is growing, and changes are being made in the private sector to ban the sale of shark fin soup. In addition, the DNA testing of fins is further proof that species like oceanic whitetip and scalloped hammerheads are being explicitly targeted for their fins. These changes strengthen the argument for listing the most imperiled shark species under CITES.

While veto countries can and often do ignore or refute the science behind the proposed endangerment listing, governments have a hard time ignoring their constituencies and an even harder time ignoring economics. As detailed, the pro-shark conservation momentum continues to grow, with significant strides made in Asia as more people come to reject shark fin soup, as major, Hong Kong-based restaurants and hotels stop serving the product, and as those against finning and fin consumption watch legislation and conservation efforts take hold throughout the world, even in areas with large populations of the Chinese diaspora (Anon 2011, WildAid 2012). Public awareness of finning will only continue to increase, more consumers will reject shark fin soup, more governments – from the municipal to national level – will pass anti-finning and fin trade legislation, and those countries that already have such legislation in place will continue to enforce and strengthen laws within their jurisdiction. It is only a matter of time that market demand will weaken and the trade will become less profitable.

Second, shark listings under CITES are more conducive with the mission of CITES than an Atlantic bluefin tuna listing. CITES sole mandate is to address the trade of endangered species. Species listed are those that are traded, used, and viewed as luxury goods, exotic pets, or for parts.

Despite being a food product, shark fin soup is for all intensive purposes a luxury good of minimal utility. Its consumption as a food product does not exist within the same realm as bluefin tuna, which though certain cuts of bluefin may in fact be a luxury, the fish overall is used as a more conventional food product. The species proposed for listing in 2010 are not only highly endangered, but reflect the most sought after and popular sharks used for the fin trade. This correlation strengthens the foundations for such a CITES proposal as it proves that these species have the most to gain by being listed.

Third, listing the most endangered shark species under CITES will raise global awareness of shark catch and the shark fin trade. A CITES listing will not only serve to regulate the trade and promote conservation of the listed shark species, but it will also further legitimize and strengthen all shark conservation efforts. The Pacific island nations who have initiated these proposals, passed comprehensive anti-finning and anti-fin trade legislation, designated sanctuaries, and whose waters are home to these shark species.

While renewing efforts to list the most endangered shark species under CITES should be pursued, it should not deter or detract from other efforts and forms of shark conservation. Though there is clear evidence that some sharks are more endangered and more likely to be targeted for their fins than others, shark finning continues to be a highly indiscriminate, global practice that affects all sharks. Therefore, while CITES is an important component and route to pursue in addressing the fin trade, its inability to stop all finning or afford protection to all sharks necessitates the need for other conservation and shark management strategies.

Additionally, these future shark listing proposals will not be passed without a fight. China, Japan, and other nations will most likely band together to veto these proposals in addition to those for marine species as any international efforts to manage them are viewed as hostile attempts against their sovereignty, access to resources, and domestic fisheries. Additionally, should shark proposals succeed, China still wields enormous power under CITES and its system of reservations. China could file a reservation, exempting it from adhering to shark trade regulations, a move that would seriously undermine global efforts at combating the trade and conserving sharks. If this were to happen, however, nations that approved and adhere to CITES provisions could employ other instruments, namely various non-CITES trade provisions on national and case by case basis. While examining these instruments is outside of the scope of this thesis, its important to note that they do exist, that bilateral trade negotiations have shifted CITES veto states in the past, and that the threat of states filing reservations under CITES should not deter re-proposing the listing of endangered sharks species.

iii. A New, International Treaty for Sharks – The International Shark Conservation Convention

Currently there is a vacuum in international shark legislation. IPOA-Sharks, as an international non-binding regulatory regime has thus far been unsuccessful in its two mandates: collecting data on global shark populations and catch and promoting the creation of national shark management plans. This vacuum, however, creates the space and impetus for the creation of a new international shark conservation treaty – the International Shark Conservation Convention (ISCC).

However, before examining the components, details, and mandates of the proposed ISCC it is useful to first explore existing marine conservation legislation that could inform an international shark conservation regime. Whales and the International Convention on the Regulation of Whaling

(ICRW) are most analogous to sharks in terms of endangerment, controversies between nations concerning their management, and need for an international regime uniquely dedicated to addressing the issues this particular group of iconic animals faces.

a. Sharks and Whales - Species Specific Conservation Treaties

Insofar as their relationship with humans, sharks have much more in common with whales than fish. They are charismatic creatures whose utility as a product for human consumption is tied solely to their fins, which in and of themselves are not so much useful as a public good, but rather as a luxury product that only provides a socially constructed benefit. Broadly speaking, sharks are not a food source to the same extent as fish. Therefore, shark consumption is much more analogous to whale consumption. Useful products such as whale oil, fell out of favor as society developed, substitutes were found, and tastes changed. Whale meat too generally fell out of favor, with only indigenous populations and countries with a long history of consumption continuing to seek out whales as a food source. The growing uselessness of whale products in society coupled with being driven to the brink of extinction led to the creation of an international treaty on whales, first in the form of a voluntary, industry-driven regime the International Council on the Exploration of the Seas (ICES) (Hunter et al 2007).

b. The History of the International Whaling Commission

Initially, whales were managed as open access, high seas fisheries. Fleets targeted whales on a first come, first serve basis with whaling inputs serving as the main limiting factor to how many whales a fleet could claim, kill, and process. The development of whale management policies initially underwent the same evolutionary regulatory process as traditional fisheries. A strong whaling industry dominated both coastal waters and the high seas. Certain species were targeted for their utility. As stocks of a species decreased, the whaling industry switched to another species, essentially “whaling down the line.”²⁴ Meanwhile, whaling technology improved, enabling whalers to decimate the populations at a faster rate. The open access, high seas, winner take all approach to whaling was no longer working. Faced with stocks on the verge of commercial and biological extinction and oversaturated whale product markets, the whaling industry had to find mechanisms in which to better manage existing stocks and maintain their economic livelihood (Hunter et al. 2007).

The first industry-attempt to better regulate decimated whale stocks was the ICES. IPOA-Sharks very much mirrors the ICES in that it was designed to serve as a repository for whaling and whale stock data and statistics and sought to establish guidelines for whale management that could be incorporated by member nations into their laws (Hunter et al 2007). Much like IPOA-Sharks, ICES’ success in carrying out these mandates was underwhelming. Additionally, ICES only applied to member nations and their jurisdictions, and thus was very limited in geographic scope as the agreement existed in a time before UNCLOS and the establishment of the EEZ. In an attempt to both broaden and strengthen ICES, in 1931, the League of Nations adopted the Convention for the Regulation of Whaling that would make ICES’ provisions universal in all waters (Hunter et al 2007).

²⁴ The idea and practice of fisheries depleting a higher trophic, more commercially desirable species and then moving on to a more abundant, lower trophic, and/or originally less commercially desirable species was first introduced in 1998, by Dr. Daniel Pauly. I have adapted the title and concept of his 1998 article, “Fishing Down Marine Food Webs” to describe, in my view, a similar phenomenon that occurred with whaling.

Despite the League of Nation's efforts, whale stocks continued to decline (Hunter et al 2007). In 1946, the International Convention for the Regulation of Whaling (ICRW) was created (Hunter et al 2007). ICRW carried with it the mandate that its provisions continued to be universally applicable in all waters. Other than that, ICRW was a distinct change from ICES. ICRW was intended to function as a whaling management regime and thus charged with ensuring the sustainability of whale stocks to further ensure and promote the sustainability of the whaling industry. Therefore, the ICRW can be thought of as a kind of global, whaling focused, RFMO, where member states, through the ICRW established International Whaling Commission (ICW) will take into consideration the findings of the ICRW's scientific body and vote on provisions concerning whale stock management and catch quotas. Like RFMOs, these provisions would be incumbent on national level implementation and enforcement. No overarching enforcement committee or dispute resolution mechanism was created under ICRW (Hunter et al 2007).

However, the Preamble of the ICRW also contains language that highlights the need to conserve whale populations and promote their sustainability from a biological and ecological standpoint (Hunter et al 2007). These dual mandates have resulted in a bipolar regime that the ICW and members nations struggle with to this day. Whether or not the ICRW is a whaling treaty or a whale conservation treaty has been further complicated by the 1987 moratorium on commercial whaling that still remains in place (Hunter et al 2007). This has led to a deep rift between those member nations that support the moratorium and those that believe that it directly counters the "original intent" of the convention to promote and support sustainable whaling – namely Norway, Japan, and Iceland. This disagreement over the language, intent, and implementation of the ICRW has led to these countries at times pulling out the treaty, establishing a regional, RFMO like whaling commission (the North Atlantic Marine Mammal Commission), exercising whaling practices through loopholes within the scientific permitting requirements (Hunter et al 2007), and creating an ICW meeting and negotiating environment not unlike the chaos experienced at the 2010 CITES complete with aggressive theatrics and vote buying.

Despite these very serious issues among member states, the ICRW has been seen, for the most part, as one of the most successful MEAs in existence. With some obvious exceptions, the moratorium on commercial whaling has not only been upheld, but has also led to improvements in global whale populations. Since its inception, public opinion and society's valuing of whales has also changed thereby strengthening the conservation components of the agreement and all but eliminating the global market for whale products. Therefore, a future International Shark Conservation Convention would be remiss not to look to the ICRW as a framework, while at the same time taking care to avoid the more contentious or weaker aspects of the treaty.

c. Creating an International Shark Conservation Convention

The current, indiscriminate, rapid extermination of the world's sharks is analogous to what occurred with whales roughly two centuries ago. It is recommended that the international community explore the creation of an International Shark Conservation Convention (ISCC). IPOA-Sharks, like ICES for whales, was a good starting point for at least recognizing and attempting to quantify the threat sharks face from rampant overfishing and finning. However, the weaknesses of IPOA-Sharks, its housing within the FAO - an organizational body that is most effective in serving an organizational, fact-finding, and research role – and its lackluster track record in carrying out its data collection mandate, all lead to the realization that a new international regime dedicated solely to

the creation and implementation of shark conservation plans must be created if there is any hope for ending the mass culling of sharks from the world's oceans.

In order for the ISCC to be effective, the regime must, at minimum, contain the following provisions: 1) the establishment of Secretariat, a Scientific Body, and some form of Enforcement, for example a dispute resolution mechanism;²⁵ 2) an unequivocal and universal ban on practice of finning; 3) a mandate that all sharks are landed whole with fins attached; 4) the enactment of a moratorium on all shark fishing and bycatch utilization in international waters; 5) the establishment of a member-state funding/technology transfer mechanism to build enforcement capacity within member states, especially those with established shark sanctuaries; and 6) the enactment of a moratorium on the catching and landing of any shark species that have been scientifically determined by national governments, the IUCN, the UN, CITES, and/or any other international wildlife conservation or fisheries management regime to be endangered until such stocks are rebuilt.

Learning from the ICW and from the realm of fisheries management, the ICSS must also be drafted in such a way that the regime is unquestionably a conservation treaty. This could be done through the inclusion of an organic act, mandating that the ISCC regime, considering the precautionary principle, utilizing the best scientific data available, and employing ecosystem based management adopt, implement, and enforce provisions that prioritize both conserving and rebuilding global shark populations. As the majority of shark fins are obtained outside of any fishery management structure and since the formal shark fisheries that do exist are covered by existing fishery regulations and management plans, the ISCC could include exemptions for any formal, domestic shark fisheries. Drafting the ISCC as, first and foremost, a shark conservation regime with fishery exemptions would eliminate the identity crisis that plagues the IWC, which as described above, simultaneously contains whaling and conservation mandates.

Conclusion

There is no question that the highly endangered state of the world's Atlantic bluefin tuna and shark populations is a direct result of our unmitigated over-consumption, over-fishing, and obsessive love of short-term gains. While the need to conserve the highly lucrative, iconic seafood species is widely acknowledged conservation efforts between the two groups have diverged in terms of tactics, momentum, and success. This is due, in large part, to a variety of economic, fishery, seafood product based, social, and institutional factors. Considering these factors, sharks simply have an advantage over Atlantic bluefin tuna, which has led to momentum in shark conservation efforts. In addition, nothing breeds success like success with positive conservation efforts now paving the way for future shark conservation initiatives. It is therefore recommended that subnational and national level shark conservation efforts continue while seeking an International Shark Conservation Convention that could more comprehensively address the endangerment and mass slaughter of 73 million sharks annually. Atlantic bluefin tuna, however, are not a lost cause and efforts to ensure their survival should not fall by the wayside. Given the sheer profitability of the market and the complex, interest-entrenched institutional structure in which they are managed, the fight for to conserve the last remaining bluefin is unparalleled. It is therefore recommended that bluefin conservation efforts continue take an "all hands on deck" mentality – by working at all levels, within all sectors of society, inside and outside the ICCAT structure. The future existence of

²⁵ For further discussion on the structures and effectiveness of international and regional fishery agreements and marine resources MEAs see Moomaw and Blankenship 2012.

these two iconic top-predators - Atlantic bluefin tuna and sharks - cannot afford anything less than concerted, consistent, and comprehensive conservation efforts.

References:

Allen, Robin. "International Management of Tuna Fisheries: Arrangements, Challenges, and a Way Forward." *FAO Fisheries and Aquaculture Technical Paper*. No. 536. FAO. 2010.

Anon. "Calls to Ban Shark Fin Soup Growing Around the World." *The Independent*. March 25, 2011. <http://www.independent.co.uk/life-style/food-and-drink/calls-to-ban-shark-fin-soup-growing-around-the-world-2251407.html>

Anon. "Shark Soup's Off." *New Scientist*. Vol. 187. Issue 2506. July 2, 2005. pp.6-7.

Anon. "Shark Fin Bans." *The Washington Post*. April 1, 2012. http://www.washingtonpost.com/national/health-science/2012/04/01/gIQAKfwcpS_graphic.html

Anon(a). "Shark Fin Ban Sails Through House Committee." *State Representative Sara Feigenholtz – 12th District*. February 21, 2012. <http://www.staterepsara.com/news1/>

Anon(b). "357 Dead Sharks Found On Boat Inside Galapagos Park." *MSNBC*. July 22, 2011. http://www.msnbc.msn.com/id/43856767/ns/world_news-world_environment/t/dead-sharks-found-boat-inside-galapagos-park/#.T5QIVo4jXqp

Aschenbach, Joy. "Worldwide Hunt Is on for Ivory Substitutes: Animals: Ban on African Elephant Tusks Prompts Search for Alternative Material. 'Vegetable Ivory' from South American Palm Tree Nuts is One Novel Source." *National Geographic*. March 29, 1992. http://articles.latimes.com/1992-03-29/news/mn-313_1_elephant-ivory

Asian Pacific American Ocean Harmony Alliance. "About APAOHA." 2011. <http://apaoha.org/page2/page2.html>

Associated Press. "Bluefin Tuna Goes for Record \$736,000 At Tokyo's Tsukiji Fish Market." January 5, 2012. www.huffingtopost.com/mobileweb/2012/01/05bluefin-tuna-record_n_1185770.html

Associated Press. "Calif. Lawmakers Pass Bill Banning Shark-Fin Trade." September 7, 2011. <http://www.usatoday.com/news/nation/story/2011-09-07/Calif-lawmakers-pass-bill-banning-shark-fin-trade/50291584/1?csp=34news>

Associated Press. "Giant Bluefin Tuna Fetcher Record \$396,000 At Tokyo Auction." January 5, 2011. http://www.huffingtonpost.com/2011/01/05/bluefin-tuna-record-tokyo-auction_n_804553.html

Ball, Jeffrey and Tennille Tracy. "No Endangered Label for Bluefin Tuna." *The Wall Street Journal*. May 28, 2011. <http://online.wsj.com/article/SB10001424052702304520804576349343147953146.html>

Barringer, Felicity. "U.S. Declines to Protect the Overfished Bluefin Tuna." *The New York Times*. May 27, 2011. <http://www.nytimes.com/2011/05/28/science/earth/28tuna.html>

Bauer, Donald, Tim Eichenberg, and Michael Sutton Eds. *Ocean and Coastal Law and Policy*. American Bar Association. 2007.

Berger, Matthew. "CITES Faces Political Storm Over Tuna Ban." *IPS*. March 6, 2010. www.ipsnews.net/news.asp?idnews=50571 (accessed March 19, 2010).

Black, Richard. "Bluefin tuna ban proposal meets rejection." *BBC News*. March 18, 2010. <http://news.bbc.co.uk/2/hi/8574775.stm> (accessed March 19, 2010).

Black, Richard. "Tuna Fished 'Illegally' During Libya Conflict." *BBC News*. November 6, 2011. <http://www.bbc.co.uk/news/science-environment-15597675>

Block, Barbara. "Testimony of Dr. Barbara A. Block, Prothro Professor of Biology, Stanford University." *Oversight Hearing on CITES- House Natural Resources Committee, Subcommittee on Insular Affairs, Wildlife, and Oceans*. February 11, 2010. Hardcopy of transcript on file with author.

"Bluefin tuna tops CITES conference agenda in Doha." *Japan Today*. March 14, 2010. www.japantoday.com/category/politics/view/bluefin_tuna_tops_cites_conference_agenda_in_doha

Bodansky, Daniel. *The Art and Craft of International Environmental Law*. Harvard University Press. 2010.

Bonfil, Ramon. "The Problem of Incidental Catches of Sharks and Rays, Its Likely Consequences, and Some Possible Solutions." *Pacific Fisheries Coalition – Shark Conference 2000, Honolulu, Hawaii*. 2000. <http://www.pacfish.org/sharkcon/documents/bonfil.html>

Bräutigam, Amie and Karen L. Eckert. *Turning the Tide: Exploitation, Trade and Management of Marine Turtles in the Lesser Antilles, Central America, Colombia and Venezuela*. Cambridge: TRAFFIC International, 2006.

Buchanan, Wyatt. "Governor Signs Shark Fin Bill." *The San Francisco Chronicle*. October 8, 2011. <http://www.sfgate.com/cgi-bin/article.cgi?f=/c/a/2011/10/07/BABD1LEU1T.DTL>

California Assembly Bill No. 376. Fong. *Shark Fins*. Approved by Governor October 7, 2011. Filed with Secretary of State October 7, 2011.

Canfield, Clarke. "Bluefin Tuna Escapes Endangered Species List." *Associated Press*. May 28, 2011. http://seattletimes.nwsourc.com/html/nationworld/2015164320_bluefin27_wt.html

Center for Biological Diversity. *National Geographic's New TV Show 'Wicked Tuna' Trivializes Plight of Disappearing Bluefin Tuna*. March 30, 2012. http://www.biologicaldiversity.org/news/press_releases/2012/bluefin-tuna-03-30-2012.html

Center for Biological Diversity. *Petition to List the Atlantic Bluefin Tuna (Thunnus thynnus) as Endangered Under the United States Endangered Species Act*. May 24, 2010.

Chasek, Pamela. *Global Environmental Politics*. 2009.

CITES-COP15, "Consideration of Proposals for Amendment of Appendices I and II" Proposal 15. 2010. pp.1-28. <http://www.cites.org/eng/cop/15/prop/E-15-Prop-15.pdf>

CITES-COP15. "Consideration of Proposals for Amendment of Appendices I and II" Proposal 16. 2010. pp. 1-20. <http://www.cites.org/eng/cop/15/prop/E-15-Prop-16.pdf>

CITES Secretariat. "The CITES Appendices." 2012. <http://www.cites.org/eng/app/index.shtml>

CITES Secretariat. 1973. Convention on International Trade of Endangered Species of Wild Fauna and Flora. 3 March. TIAS no. 8249. <http://www.cites.org/eng/disc/text.shtml#texttop>

CITES Secretariat. 1973. Convention on International Trade of Endangered Species of Wild Fauna and Flora. 3 March. TIAS no. 8249. Article VIII. <http://www.cites.org/eng/disc/text.shtml#texttop>

CITES Secretariat. "Daily Journal." Issue Number 6. <http://www.cites.org/eng/news/meetings/cop15/dj/6.shtml>

CITES Secretariat. "How CITES works." <http://www.cites.org/eng/disc/how.shtml>

CITES Secretariat. *Press Release* "Bluefin Tuna main course of CITES world conference." February 5, 2010. http://www.cites.org/eng/news/press/2010/20100205_cop15.shtml

CITES Secretariat. *Press Release* "Conference ends without new sharks in its net." http://www.cites.org/eng/news/press_release.shtml (accessed April 17, 2010).

CITES Secretariat. *Press Release* "Governments not ready for trade ban on bluefin tuna." March 18, 2010. www.cites.org/eng/news/press/2010/20100318_tuna.shtml

CITES Secretariat. *COP15 Proposal 19*. December 2009. <http://www.cites.org/eng/cop/15/prop/E-15-Prop-19.pdf>

- CITES Secretariat. *COP 15 Proposal 19*. December 2009.
<http://www.cites.org/eng/cop/15/prop/E-15-Prop-19.pdf> Citing Hurry, G.D, Hayashi, M and Maguire, JJ (2008) Report of the independent review, International Commission for the Conservation of Atlantic Tunas (ICCAT). <http://www.iccat.int/com2008/ENG/PLE-106.pdf>
- Clarke, Shelley, E.J. Milner-Gulland, and Trond Bjørndal. “Social, Economic, and Regulatory Drivers of Shark Fin Trade.” *Marine Resource Economics*. Vol. 22. 2007. pp. 305-327.
- Clarke, Shelley. “Statement of Shelley Clarke, PhD – Visiting Researcher, Imperial College, London.” *House Subcommittee on Fisheries, Wildlife, and Oceans, Oversight Hearing on Illegal, Unreported, and Unregulated (IUU) Fishing and Bycatch*. April 16, 2008. Hardcopy of transcript on file with author.
- Cost, Bruce. *Asian Ingredients: A Guide to the Foodstuffs of China, Japan, Korea, Thailand, and Vietnam*. Harper Collins. 2000. pp. 336 at 151-153.
- Craig, Nicolette. “Bad News for Sharks and Atlantic Bluefin Tuna.” March 22, 2010.
<http://www.practicalfishkeeping.co.uk/content.php?sid=2678>
- Crockett, Lee. Personal communication between author and Lee Crockett - Director of Federal Fisheries Policy with the Pew Environment Group at Pew Charitable Trusts. December 7, 2011. Notes on file with author.
- Discovery Channel. “Tuna Wars.” 2012.
<http://www.yourdiscovery.com/tunawars/index.shtml?cc=US>
- Dunmore, Charlie. “EU Proposes Ban on Shark Finning.” *Reuters*. November 21, 2011.
<http://www.reuters.com/article/2011/11/21/us-eu-sharks-ban-idUSTRE7AK1C320111121>
- Eagle, Josh. “Chapter 9: Domestic Fishery Management.” In *Ocean and Coastal Law and Policy*. Donald C. Bauer, Tim Eichenberg, and Michael Sutton Eds. American Bar Association. 2008. pp. 275-301.
- Edwards, Holly. *When Predators Become Prey: The Need for International Shark Conservation*. 12 OCEAN & COASTAL L.J. 305. 2006-2007. pp. 305-354.
- Eilperin, Juliet. *Demon Fish*. Pantheon Books. 2011.
- Eilperin, Juliet. “Shark-fin Bans Gain Steam Along Coasts.” *The Washington Post*. April 1, 2012.
www.washingtonpost.com/national/health-science/shark-fin-ban-gathers-steam-in-maryland-and-beyond/2012/04/01/glQAZVwcpS_story.html
- Ellis, Richard. *Tuna: A Love Story*. Alfred. A Knopf. 2008.
- FAO. “About the IPOA-Sharks.” 2012. <http://www.fao.org/fishery/ipoa-sharks/about/en>
- FAO(a). “International Plan of Action for the Conservation and Management of Sharks – National Plans of Action – Publications.” 2012. <http://www.fao.org/fishery/ipoa-sharks/npoa/en>

Farwell, Chuck (Curator of Pelagic Fish Programs, Monterey Bay Aquarium). Presentation: “New Years in Japan 2010: Would YOU pay \$178,000 for a single tuna?” Monterey Bay Aquarium. March 16, 2010. Notes on file with author.

FDA. “What You Need to Know About Mercury in Fish and Shellfish.” FDA and EPA. March 2004. <http://www.fda.gov/Food/FoodSafety/Product-SpecificInformation/Seafood/FoodbornePathogensContaminants/Methylmercury/ucm115662.htm>

Fearing, Jennifer. Personal communication between author and Jennifer Fearing -California Senior State Director with The Humane Society of the United States. December 14, 2011. Notes on file with author.

Florida Museum of Natural History. “Ichthyology at the Florida Museum of Natural History.” <http://www.flmnh.ufl.edu/fish/education/questions/basics.html>

Gibson, Megan. “‘Shark Week’: A History of the Discovery Channel Event.” *Time*. August 2, 2010. <http://www.time.com/time/arts/article/0,8599,2008020,00.html>

Graham, Rachel (Wildlife Conservation Society). Presentation: “Whale Sharks” The New England Aquarium. October 20, 2011. Notes on file with author.

Goldenberg, Suzanne. “Shark Conservation Is Gaining Momentum – But Are We Doing Enough?” *The Guardian*. October 27, 2011. <http://www.guardian.co.uk/environment/2011/oct/27/shark-conservation-gaining-momentum?intcmp=239>

Gronewold, Nathaniel. “Is the Bluefin Tuna an Endangered Species?” *Scientific American*. October 14, 2009. <http://www.scientificamerican.com/article.cfm?id=bluefin-tuna-stocks-threatened-cites-japan-monaco>

Hood, Marlowe. “Sharks, Elephants to Reappear on CITES Agenda.” *AFP*. March 24, 2010. <http://www.google.com/hostednews/afp/article/ALeqM5ijLvZzbPD0QygMuuQDGzOUK7JraQ?index=2>

The Humane Society. “Maryland Senate Passes Bill to Ban Shark Fin Trade.” March 27, 2012. http://www.humanesociety.org/news/press_releases/2012/03/maryland_senate_passes_shark_032712.html

Hunter, David, James Salzman, and Durwood Zaelke. *International Environmental Law and Policy*. Third Edition. Foundation Press. 2007.

ICCAT. “Introduction.” January 17, 2007. <http://www.iccat.es/en/introduction.htm>

ICCAT. *Basic Texts*. 5th Revision. 2007. pp. 1-117.

Iudicello, Suzanne. “Chapter 10: International Fisheries Management.” In *Ocean and Coastal Law and Policy*. Donald C. Bauer, Tim Eichenberg, and Michael Sutton Eds. American Bar Association. 2007. pp. 303-332.

James, Bonnie. "Conservation Groups See Hope for Shark Proposals." *Qatar Times*.
http://www.gulf-times.com/site/topics/article.asp?cu_no=2&item_no=350456&version=1&template_id36&parent_id=16

Jolly, David. "Japan Plans to Ignore Any Ban On Bluefin Tuna." *The New York Times*. February 19, 2010. <http://www.nytimes.com/2010/02/20/business/energy-environment/20tuna.html>

Karan, Elizabeth. Personal communication between author and Elizabeth Karan - Manager of the Global Shark Conservation Campaign with the Pew Environment Group at Pew Charitable Trusts. December 15, 2011. Notes on file with author.

Keim, Brandon. "Shark Conservation Act Becomes Law." *Wired Science*. January 6, 2011.
<http://www.wired.com/wiredscience/2011/01/shark-conservation-act/>

Klinger, Dane and Kimiko Narita. "Peak Tuna." *Foreign Policy*. February 12, 2010.
www.foreignpolicy.com/articles/2010/02/12/peak_tuna

Learn, Scott. "Oregon Legislature Unites Behind Shark Fin Ban, the Latest in a Global Drive Against Shark Fin Soup." *The Oregonian*. June 7, 2011.
http://www.oregonlive.com/environment/index.ssf/2011/06/oregons_legislature_unites_beh.html

Letter from Center for Biological Diversity et. al. to Mary Colligan (NMFS Northeast Regional Office) Re: Comments on the Atlantic Bluefin Tuna Positive 90-Day Petition Finding Under the Endangered Species Act. November 22, 2010. <http://www.scribd.com/doc/43834551/Support-for-the-listing-of-the-Bluefin-Tuna-as-ENDANGERED-per-Endangered-Species-Act>

Letter from Dr. Barbara Block (Stanford University) to Nancy Sutley (The White House Council on Environmental Quality) in support of CITES proposal. March 15, 2010. Hardcopy on file with author.

Letter from Senator Debbie Wasserman Schultz (D-FL), et al. to Assistant Secretary Tom Strickland (Department of the Interior) in support of CITES proposal. February 19, 2010. Hardcopy on file with author.

Letter from Senator Olympia Snowe (R-ME), et al. to Dr. Jane Lubchenco (National Oceanic and Atmospheric Agency) and Thomas Strickland (Department of the Interior) in support of improving ICCAT. February 18, 2010. Hardcopy on file with author.

MacFarquhar, Neil. "Talks to Address Trade in Tuna and Ivory." *The New York Times*. March 10, 2010. www.nytimes.com/2010/03/12/science/earth/12species.html?hp

Main, Douglas M. "Shark Fins Are Loaded With a Neurotoxin, Study Finds." *The New York Times*. March 6, 2012. <http://green.blogs.nytimes.com/2012/03/06/shark-fins-are-loaded-with-a-neurotoxin-study-finds/>

McAvoy, Audrey. "Hawaii Bans Shark Fins: First State In Nation To Do So." *Associated Press*. May 29, 2010. http://www.huffingtonpost.com/2010/06/02/hawaii-bans-shark-fins-fi_n_598231.html

McCurry, Justin. “Huge Bluefin Fetches Record Price in Tokyo, But Whale Is Left On the Shelf.” *The Guardian*. January 5, 2011. <http://www.guardian.co.uk/world/2011/jan/06/japan-bluefin-tuna-record-price>

Monterey Bay Aquarium. “Poll: California’s Chinese Americans Overwhelmingly Support Ban on Shark Fin Trade.” May 6, 2011. http://www.montereybayaquarium.org/aa/Pressroom/web/PressRelease_view.aspx?enc=Rlaw2TQ8bY2/WdsO/NKENQ

Monterey Bay Aquarium et al. *Fact Sheet: Assembly Bill 376 (Fong/Huffman): Promote Healthy Shark Populations & Oceans*. 2011.

Moomaw, William and Sara Blankenship. *Charting a New Course: Assuring Sustainable Global Fisheries*. Center for International Environment and Resource Policy. The Fletcher School of Law and Diplomacy – Tufts University. 2012. (Publication pending as of the time of this writing).

NMFS. http://www.nmfs.noaa.gov/sfa/reg_svcs/councils.htm

National Geographic. “Wicked Tuna.” 2012. <http://channel.nationalgeographic.com/channel/wicked-tuna/>

NMFS. *Final Fishery Management Plan for Atlantic Tuna, Swordfish, and Sharks*. Highly Migratory Species Management Division – Office of Sustainable Fisheries. April 1999.

NMFS(a). “Introduction to the Highly Migratory Species Management Division.” NOAA Fisheries – Office of Sustainable Fisheries. http://www.nmfs.noaa.gov/sfa/hms/intro_HMS.htm

NMFS(b). “Atlantic Highly Migratory Species Management Division.” NOAA Fisheries – Office of Sustainable Fisheries. <http://www.nmfs.noaa.gov/sfa/hms/>

NMFS. *Our Living Oceans: Report on the Status of U.S. Living Marine Resources*. 6th Edition. Department of Commerce – NOAA Technical Memo NMFS-F/SPO-80. 2009. pp. 1-369.

NOAA. “Atlantic Tunas Convention Act of 1975.” <http://csc-s-web-p.csc.noaa.gov/legislativeatlas/lawDetails.jsp?lawID=791>

NOAA. “Endangered Species Listing for Atlantic Bluefin Tuna Not Warranted.” NOAA. May 27, 2011. http://www.noaanews.noaa.gov/stories2011/20110527_bluefintuna.html

NOAA. “Magunson-Stevens Fishery Conservation and Management Act Reauthorized.” *NOAA Fisheries Feature*. 2012. <http://www.nmfs.noaa.gov/msa2005/>

NOAA. “Pacific Common Thresher Shark.” *FishWatch: U.S. Seafood Facts*. 2012. http://www.fishwatch.gov/seafood_profiles/species/shark/species_pages/pac_common_thresher_shark.htm

NOAA. “Regional Fisheries Management Council.” 2012.
http://www.nmfs.noaa.gov/sfa/reg_svcs/councils.htm

Noce, Julie. “Taiwan to Ban Shark Finning.” *Reuters*. November 29, 2011.
<http://www.reuters.com/video/2011/11/29/taiwan-to-ban-shark-finning?videoId=225891357>

Oceana. “Oregon Governor Signs Legislation to Protect Shark Populations.” August 4, 2011.
<http://oceana.org/en/news-media/press-center/press-releases/oregon-governor-signs-legislation-to-protect-shark-populations>

Oceana. *Transforming Shark Finning Bans: Towards A Real and Effective Finning Ban In ICCAT*. November 2011.

Packard, Julie. “Will We Only Save the Cute?” *Huffington Post*. March 12, 2010.
http://www.huffingtonpost.com/julie-packard/will-we-only-save-the-cut_b_497118.html

Pauly, Daniel, et. al. “Fishing Down Marine Food Webs.” *Science*. February 1998. Vol. 279. pp. 860-863.

The Peninsula Hotels. “Shark Fin Ban At All Peninsula Hotels.”
http://www.peninsula.com/Peninsula_Hotels/en/Enticements/Shark_Fin/default.aspx#/Peninsula_Hotels/en/Enticements/

The Pew Charitable Trusts. “Guam Senate Moves to End Shark Fin Trade.” Pew Environment Group – Global Shark Conservation. February 24, 2011. <http://www.pewenvironment.org/news-room/press-releases/guam-senate-moves-to-end-shark-fin-trade-328342>

The Pew Charitable Trusts(a). *Mind the Gap: An Analysis of the Mediterranean Bluefin Trade*. October 17, 2011. <http://www.pewenvironment.org/news-room/other-resources/mind-the-gap-an-analysis-of-the-gap-between-mediterranean-bluefin-tuna-quotas-and-international-trade-figures-85899364820>

The Pew Charitable Trusts(b). “Pew Applauds Commonwealth of Northern Mariana Islands Ban on Shark Finning.” Pew Environment Group – Global Shark Conservation. January 28, 2011. <http://www.pewenvironment.org/news-room/press-releases/pew-applauds-commonwealth-of-northern-mariana-islands-ban-on-shark-finning-8589941463>

The Pew Charitable Trusts(c). “Sharks Win Big in 2011.” Pew Environment Group – Global Shark Conservation. December 11, 2011. <http://www.pewenvironment.org/news-room/other-resources/sharks-win-big-in-2011-85899368056>

The Pew Environment Group. *CITES Proposal 16: Oceanic Whitetip Shark*.
http://www.pewtrusts.org/uploadedFiles/wwwpewtrustsorg/Fact_Sheets/Protecting_ocean_life/English_CITES_sharks_prop16.pdf

The Pew Environment Group. *Shark Bycatch In Tuna Fisheries: Kobe 2 Bycatch Workshop*. June 23-25, 2010.

Press Association. "Europe Urged to Back Global Ban on Shark Finning." *The Guardian*. November 21, 2011. <http://www.guardian.co.uk/environment/2011/nov/21/europe-global-ban-shark-finning>

Ramsay, Gordon. Video: "Gordon Ramsay: Shark Bait." Uploaded May 11, 2011. http://www.youtube.com/watch?v=7y_HIoCx3w0

Reeve, Rosalind. *Policing International Trade in Endangered Species: The CITES Treaty and Compliance*. The Royal Institute of International Affairs. 2002.

Reeve, Rosalind. *Policing International Trade in Endangered Species: The CITES Treaty and Compliance*. The Royal Institute of International Affairs. 2002. Citing Topkov, I. "Summary and Conclusions." *Proceedings of the EU Wildlife Enforcement Workshop*. London. March 1-2, 1998.

Reuters. "EU Wants Freeze on Libya's Bluefin Tuna Catch." *Reuters*. March 31, 2011. <http://www.reuters.com/article/2011/03/31/us-eu-libya-tuna-idUSTRE72U4HW20110331>

Rosenthal, Elisabeth. "New York May Ban Shark Fin Sales, Following Other States." *The New York Times*. February 21, 2012. http://www.nytimes.com/2012/02/22/nyregion/bill-in-albany-would-ban-sale-of-shark-fins.html?_r=1

Safina, Carl. "Nat Geo's Controversial New TV Show, *Wicked Tuna*, Debuts." *Huffington Post*. April 2, 2012. http://www.huffingtonpost.com/carl-safina/wicked-tuna_b_1396966.html

Safina, Carl. Personal correspondence between author and Carl Safina - President of the Blue Ocean Institute. December 16, 2011.

Safina, Carl. *Song for the Blue Ocean*. Henry Holt and Company. 1997.

Safina Carl. www.carlsafina.org/blog 2010.

Shark Defenders. "Washington State Passes Shark Fin Ban." May 13, 2011. <http://www.sharkdefenders.com/2011/05/washington-state-passes-shark-fin-ban.html>

Shark Savers. "Washington State Shark Fin Ban: New Bill Needs Your Support." February 11, 2011. <http://www.sharksavers.org/de/blogs-a-news/721-washington-state-shark-fin-ban-new-bill-needs-your-support.html>

Spiegel, Jessica. *Even Jaws Deserves to Keep His Fins: Outlawing Shark Finning Throughout Global Waters*. 24 B.C. INT'L & COMP, L. REV. 409. 2001.

Stevens, John D., Terence I. Walker, Sid F. Cook, and Sonja V. Fordham. "Threats Faced by Chondrichthyan Fish," *Sharks, Rays, and Chimaeras: The Status of Chondrichthyan Fishes*. Ed. Sarah L. Flower et al. IUCN. 2005.

Strickland, Tom. "Testimony of Tom Strickland- Assistant Secretary for Fish and Wildlife and Parks, Department of the Interior." *House Committee on Natural Resources, Subcommittee on Insular Affairs, Ocean, and Wildlife*. February 11, 2010. Hardcopy of transcript on file with author.

Sutton, Michael. Personal communication between author and Michael Sutton - Vice-President Center for the Future of the Oceans - Monterey Bay Aquarium. March 30, 2010. Notes on file with author.

Sutton, Michael. Personal communication between author and Michael Sutton - Vice-President of the Center for the Future of the Oceans - Monterey Bay Aquarium. November 28, 2011. Notes on file with author.

Thompson, Don. "Shark Fin Ban Passes: California Legislature Sends the Bill to Gov. Brown." *Associated Press*. September 6, 2011. http://www.huffingtonpost.com/2011/09/06/shark-fin-ban-passes-california_951385.html

U.S. Department of the Interior. "Strickland Announces Continued United States Support for International Proposal to Protect Bluefin Tuna." *News Release*. March 3, 2010. Hardcopy on file with author.

U.S. Census. "Facts for Features: Asian/Pacific American Heritage Month: May 2011." April 29, 2011. www.census.gov/newsroom/releases/archives/facts_for_features_special_editions/cb11-ff06.html

U.S. Fish and Wildlife Service. "The Process for Becoming an Observer at a CITES Meeting." 2003.

Vannuccini, Stefania. *Shark Utilization, Marketing, and Trade*. Fisheries Technical Paper No. 389. FAO. Section 6, Products. 1999. <http://books.google.com/books?id=sYn9Jr5HDOEC&pg=PA66&lpg=PA66&dq=consuming+shark+meat&source=bl&ots=moeGDNNCCJ&sig=QO3S4EIIQ7kzQAW9BKiaiPgEx24&hl=en&sa=X&ei=SXAIT7vpL8Ov0AGUiNyGCQ&ved=0CDQQQ6AEwAw#v=onepage&q=consuming%20shark%20meat&f=false>

Washington State Legislature. "History of the Bill – SB 5688 2011-12: Concerning shark finning activities." 2012. <http://apps.leg.wa.gov/billinfo/summary.aspx?bill=5688>

Watts, Jonathan. "Shangri-La Hotels Take Shark Fin Soup Off the Menu." *The Guardian*. January 18, 2012. <http://www.guardian.co.uk/environment/2012/jan/18/shangri-la-hotels-shark-fin-soup>

Weise, Elizabeth. "Huge Shark Sanctuary May Become Reality." *USA Today*. August 3, 2011. <http://content.usatoday.com/communities/sciencefair/post/2011/08/huge-shark-sanctuary-may-become-reality/1#.T4c6P44jXqo>

WildAid. "Sharks." 2012. <http://www.wildaid.org/sharks>

WildAid. "World's First Ban on Shark Fin Makes Hawaii Global Leader in Shark Conservation." June 30, 2010. <http://www.wildaid.org/news/worlds-first-ban-shark-fin-makes-hawaii-global-leader-shark-conservation>

Worth, Katie. "Sen. Leland Yee Speaks Out on 'Latest Assault on Asian Cultural Cuisine.'" *The SF Examiner*. February 14, 2011. <http://www.sfexaminer.com/blogs/under-dome/2011/02/sen-leland-yee-speaks-out-latest-assault-asian-cultural-cuisine>