Plenty of Fish in the Sea?
Shark Fishing and the Fin Trade in Ghana: A Biting Review

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Men hauling in their shark catch in Shama, Ghana. (Author’s photo, 2017)
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Abstract

Elasmobranch species, including shark, skates, and rays, are caught as targeted species and bycatch in Ghana. Both the targeted and bycatch shark fisheries provide locally-consumed animal protein, and a source of income for artisanal fishermen. Shark meat is harvested for the local market, while fins and other products are destined for the lucrative export market.

Since the 1980s, following China's "reform and opening-up" period, shark fin consumption has grown substantially. High demand for shark fin in China has left global shark populations in peril. Heightened media attention and substantial lobbying from conservation organizations and celebrities has pressured governments to regulate and, in some cases, ban shark fin trading and the gruesome practice of shark finning. These efforts, along with changing tastes among youth and reported health concerns, have resulted in noticeable declines in shark fin consumption in China and elsewhere.

However, a significant paucity in fisheries and trade data, especially in developing countries, makes it difficult to assess the true extent of global shark populations and the prevailing trade in shark products. Furthermore, little attention has been paid to smaller exporting nations, like Ghana, where a burgeoning trade in shark products has emerged to meet changing market demands. Inadequate catch/landings and socioeconomic data, especially at the artisanal level, hamper the ability of government and other key stakeholders to craft and implement sustainable fishery management policies that meet the present and future socioeconomic and environmental challenges presented by the trade.

This report fills in some of the missing pieces to the larger, complex puzzle of the global trade in shark products. Using semi-structured interviews, informal interviews, ethnographic observation, academic literature, grey literature, and international catch data, this research
provides key socioeconomic and environmental data on the shark fin trade and elucidates the complex linkages between actors in the shark fin supply chain, in three fishing communities in Ghana’s Western Region: Shama, Dixcove, and Axim.
Introduction

In 2015, leaders from around the world heeded the calls of the international community to double down on their commitments to ending poverty, improving education, protecting the planet, and tackling a host of other important social, political, economic, and environmental issues. On September 25th of that year, the United Nations adopted Resolution 70/1, Transforming our world: the 2030 Agenda for Sustainable Development, which contains therein the well-known Sustainable Development Goals (United Nations, 2015). The 17 SDGs, and 169 targets, serve as an intricate roadmap for governments, policymakers, NGOs, and other stakeholders to take actionable steps towards making the world a better place for all.

The SDGs, as opposed to their predecessors, the Millennium Development Goals (MDGs), are more elaborate, place the onus of action on all countries rather than only the developing countries, and situates the health and wellbeing of the planet – the environment – centerstage. With respects to the MDGs, environmental issues cannot be separated from larger issues of poverty and inequality, to be sure; however, in granting the environment its own space within the framework, the SDGs go to greater lengths in highlighting the urgency of environmental problems, and the crucial role that solving these problems play in safeguarding our collective future.

It is not within the scope of this paper to discuss the efficacy of the SDGs; an exhaustive corpus of literature exists on their merits and shortcomings. Instead, I would like to call your attention to the text of just one of the SDGs, SDG 14 - Conserve and sustainably use the oceans, seas and marine resources for sustainable development - which reads (Ibid: 23-24):
1. By 2025, prevent and significantly reduce marine pollution of all kinds, in particular from land-based activities, including marine debris and nutrient pollution

2. By 2020, sustainably manage and protect marine and coastal ecosystems to avoid significant adverse impacts, including by strengthening their resilience, and take action for their restoration in order to achieve healthy and productive oceans

3. Minimize and address the impacts of ocean acidification, including through enhanced scientific cooperation at all levels

4. By 2020, effectively regulate harvesting and end overfishing, illegal, unreported and unregulated fishing and destructive fishing practices and implement science-based management plans, in order to restore fish stocks in the shortest time feasible, at least to levels that can produce maximum sustainable yield as determined by their biological characteristics

5. By 2020, conserve at least 10 per cent of coastal and marine areas, consistent with national and international law and based on the best available scientific information

6. By 2020, prohibit certain forms of fisheries subsidies which contribute to overcapacity and overfishing, eliminate subsidies that contribute to illegal, unreported and unregulated fishing and refrain from introducing new such subsidies, recognizing that appropriate and effective special and differential treatment for developing and least developed countries should be an integral part of the World Trade Organization fisheries subsidies negotiation.¹

¹ Taking into account ongoing World Trade Organization negotiations, the Doha Development Agenda and the Hong Kong ministerial mandate.
7. By 2030, increase the economic benefits to small island developing States and least developed countries from the sustainable use of marine resources, including through sustainable management of fisheries, aquaculture and tourism

A. Increase scientific knowledge, develop research capacity and transfer marine technology, taking into account the Intergovernmental Oceanographic Commission Criteria and Guidelines on the Transfer of Marine Technology, in order to improve ocean health and to enhance the contribution of marine biodiversity to the development of developing countries, in particular small island developing States and least developed countries

B. Provide access for small-scale artisanal fishers to marine resources and markets

C. Enhance the conservation and sustainable use of oceans and their resources by implementing international law as reflected in the United Nations Convention on the Law of the Sea, which provides the legal framework for the conservation and sustainable use of oceans and their resources, as recalled in paragraph 158 of “The future we want”

The ambitious targets within SDG 14 underscore the immense value of the world’s oceans and seas, both for their own sake and in their service to mankind. To quote Gregory Stone, Executive Vice President and Chief National Scientist for Oceans at Conservation International:

The oceans of the Earth can exist without us. If we humans become extinct, they won’t even notice we’re gone. We, however, simply cannot exist without our oceans. We need them. They are the primary life support system on Earth, the lungs, climate regulator, and ultimate food factory - connected deeply to each of
us and nearly every economic activity that makes our world go round (Stone, 2016).

Part and parcel to ensuring the sustainability of our oceans and seas is protecting its innumerable species. This field practicum project draws much-needed attention to just one group of species, the Elasmobranch species, which include sharks, rays, and skates. The paper focuses predominately on shark species, which play a critical role in the ocean’s food chain and are currently under threat.

These species are caught as targeted species and bycatch in Ghana. Both the targeted and bycatch shark fisheries provide locally-consumed animal protein, and a source of income for artisanal fishermen. With regards to sharks specifically, meat is harvested for the local market, while fins and other products are destined for the lucrative export market.

Since the 1980s, following China’s "reform and opening-up" period, shark fin consumption has grown substantially. High demand for shark fin in China has left global shark populations in peril. Heightened media attention and substantial lobbying from conservation organizations and celebrities has pressured governments to regulate and, in some cases, ban shark fin trading and the gruesome practice of shark finning. These efforts, along with changing tastes among youth and reported health concerns, have resulted in noticeable declines in shark fin consumption in China and elsewhere.

Though new markets and trade routes have emerged for shark fin and other products, a significant paucity in fisheries and trade data, especially in developing countries, makes it difficult to assess the true extent of global shark populations and the prevailing trade in shark products. Furthermore, little attention has been paid to smaller exporting nations, like Ghana,
where a burgeoning trade in shark products has emerged to meet changing market demands. Inadequate catch/landings and socioeconomic data, especially at the artisanal level, hamper the ability of government and other key stakeholders to craft and implement sustainable fishery management policies that meet the present and future socioeconomic and environmental challenges presented by the trade.

This report fills in some of the missing pieces to the larger, complex puzzle of the global trade in shark products. Using semi-structured interviews, informal interviews, ethnographic observation, academic literature, grey literature, and international catch data, this research provides key socioeconomic and environmental data on the shark fin trade and elucidates the complex linkages between actors in the shark fin supply chain, in three fishing communities in Ghana’s Western Region: Shama, Dixcove, and Axim. Some of the many questions imbued in this research project are as follows:

• Who are the major stakeholders engaged in the capture, sale, processing, distribution, and export of shark fin in Ghana?

• What roles do these stakeholders play in the trade? How do they carry out their respective roles to bring shark fin from ocean to market?

• How do fishermen catch shark? What kind of gear and equipment do they use? What kind of knowledge, information, and techniques do they rely on?

• What are the challenges stakeholders face in the shark fin trade?

• How do payments and credit flow throughout the trade?

• What species of shark are harvested for their fins, and how much do they cost at different levels of the trade?
• What is the history of the shark fin trade in Ghana? How long has it been going on? How did it begin?

• What are the laws, policies, regulations, and other factors, at local, national, and international levels, that govern the fin trade?

Research findings reveal nuanced information that government and other key stakeholders can use to design and implement better management, conservation, and economic plans and policies with respects to the local, national, and international shark fisheries.
Background on Ghana

The Republic of Ghana is a Sub-Saharan, West African nation bordered by the Republic of Côte d'Ivoire (Ivory Coast) to the west, Burkina Faso to the north, the Togolese Republic (Togo) to the east, and the Gulf of Guinea to the south (CIA, 2016). The Gold Coast gained independence from Great Britain in 1957 forming Ghana, the first nation in Sub-Saharan Africa to achieve sovereignty from a European colonial power (Ibid). Ghana is 238,533 sq. km, roughly the size of the US State of Oregon, with a population of 28,206,728 (Ibid and World Bank, 2016). Ghana’s population is growing 2.2% annually (World Bank, 2016). The country, divided into ten regions, boasts major cities, including Kumasi, at a population of roughly 2.5 million and Accra, the nation’s capital, at approximately 2.27 million, and many smaller cities and towns (CIA, 2016) The 28.2 million Ghanaian people are diverse, representing manifold ethnic groups, including the Akan, the Mole-Dagbani, and the Ewe to name a few, and unique religious, cultural, and linguistic heritages (Ibid).

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2 Total population and growth rate figures are from United Nations World Population Prospects
Ghana’s economic situation is tentatively promising. Its GDP (current USD) is $42.7 billion (2016), marking a 32% increase from 2010, with a current annual GDP growth rate of 3.6% (World Bank, 2016).³ From 2000 to 2016, Ghana’s per capita GDP (current USD) increased from a paltry $263.1 to $1,513.5 USD (Ibid)⁴. In 2016, Ghana’s GDP per capita (current USD) surpassed the average income for Sub-Saharan Africa for the second time since 1971 (Ibid).⁵

To put these macro-level figures into perspective, consider Africa’s six Lions, Ethiopia, Ghana, Kenya, Mozambique, Nigeria, and South Africa, who are compared because of their growth and economic dominance on the continent (Bhorat et al, 2016). In 2016, Ghana’s GDP growth rate (3.6%) ranked 4th among the Lions, behind Ethiopia (7.6%), Kenya (5.8), and

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³ GDP (Current USD) was 32,174,772,956 in 2010  
⁴ The height of the period was 1,814.5 (Current USD)  
⁵ GDP per capita (current USD) was 1,450 in 2016
Mozambique (3.8) respectively (World Bank, 2016). In terms of GDP per capita (current USD), Ghana ranked 3rd, followed by Kenya ($1,455.4), Ethiopia ($706.8), and Mozambique ($382.1) (Ibid). Compared to its neighbors (Burkina Faso, Ivory Coast, and Togo), Ghana has the highest GDP (current USD), and the 2nd highest GDP per capita (current USD) at $1,513.5, close to Ivory Coast’s at $1,526.2 (Ibid). Ivory Coast, Togo, and Burkina Faso are all growing at faster rates than Ghana, with Ivory Coast leading the pack at an annual GDP growth rate of 8.8% in 2016 (Ibid).

The surge in Ghana’s GDP in the past decade can be explained by remarkable growth in the service and industrial sectors, which represented, respectively, 56.8% and 24.3% of the total GDP in 2016 (Ghana Statistical Service, 2017: 5). Growth in the industrial sector can be explained by the exploitation of oil and gas reserves, which were only discovered in 2007, increases in mineral rents, and breakneck growth in the construction subsector (Ibid; Kopiński et al, 2013; Osei et al, 2008).

However, it is worthwhile to note that the jury is still out with regards to the success of Ghana’s industrial sector. The contribution of oil and gas to Ghana’s GDP rose from a miniscule 0.4% in 2010, to 6.7%, 7.7%, and 8.2% in 2011, 2012, and 2013 respectively, and has since dwindled to 2.1% in 2016 (Ghana Statistical Service, 2017: 5). Dips in mining and quarrying in the last couple of years can also be gleaned from the data (Ibid: 7).

Ghana possesses an array of valuable natural resources, including sizable amounts of gold, diamond, bauxite, manganese, aluminum, oil, cocoa, timber and water (CIA, 2016). Extracted minerals and metals make up the bulk of Ghana’s export revenues. Although data on the composition of Ghana’s exports vary, it seems that gold is presently (2016 data) Ghana’s

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6 There is slight discrepancies between the data from the World Bank and from the Ghana Statistical Survey
leading export (42% of total), followed by cocoa beans (18%) and crude petroleum (9.1%) (Simoes et al, 2011). Data from the United Nations Commodity Trade Statistics Database shows that in 2016, Ghana exported $10.7 billion USD in goods; leading exports were “Pearls, precious stones, metals, coins, etc.” ($4.4 billion USD), followed by “Cocoa and cocoa preparations” ($1.9 billion USD), “Mineral fuels, oils, distillation products, etc.” ($1.4 billion USD), “Edible fruit, nuts, peel of citrus fruit, melons” ($992.4 million USD), and others (United Nations, 2017).

Ghana’s largest export partners for goods in 2016 were Switzerland ($1.9 billion USD), India ($1.6 billion USD), the United Arab Emirates ($1.4 billion USD), and China ($941.8 million USD) (Ibid). Ghana’s largest import partners for goods in 2016 were China ($2 billion USD), the United Kingdom ($1.1 billion USD), and the United States ($881.8 million USD) (Ibid). It is worth noting that Ghana’s exports of goods peaked in 2011, and the country enjoyed a trade in goods surplus of $5.5 billion USD (Ibid). This surplus coincided with the beginning of Ghana’s oil boom; in 2011, Ghana’s exports of “Mineral fuels, oils, distillation products, etc.” reached $7.3 billion USD (Ibid). However, the value of Ghana’s exports fell precipitously after 2011, largely due to steep declines in oil revenues. Ghana is currently running a trade deficit with the world (Ibid).

In brief, future projections of economic growth and development must be tempered by a degree of skepticism. Furthermore, the Ghanaian government still struggles with insufficient public revenues, daunting infrastructural obstacles, especially in the energy sector, and exogenous factors, such as a fluctuating international oil market (Molini et al, 2015).
National Development Challenges

Ghana ranks among the most peaceful African countries, second among member countries of the Economic Community of West African States (ECOWAS) (ranked no. 2, behind Sierra Leone) (Institute for Economics and Peace, 2017).\(^7\) With regards to the Millennium Development Goals (MDGs) – a UN-sanctioned, global framework to tackle issues of health, education, inequality, and others – Ghana has made incredible strides. Ghana has progressed in mitigating poverty, promoting gender equality, ensuring universal education, and bolstering health (National Development Planning Commission, 2015). From 2000, when the MDGs were adopted, to 2015, the benchmark year for achievement, Ghana has halved extreme poverty (MDG 1A), halved the proportion of the population without access to safe drinking water (MDG 7C), provided universal access to primary education (MDG 2A), and achieved gender parity among students in primary school (MDG 3A) (Ibid: 9-12). In other areas, such as reducing HIV, Malaria, and other communicable diseases, Ghana has made significant progress, short of achieving the MDG 6 (Ibid: 11).

However, Ghana still struggles to provide full and productive employment, reduce under-5 and maternal mortality rates, protect the environment, and ameliorate other key development challenges (Ibid: 9-12). Therefore, despite relative political stability and peace, and progress in critical areas of development, formidable challenges still inhibit Ghana’s sustainable growth and prosperity into the future.

\(^7\) The Global Peace Index (GPI) ranking are based on twenty-three indicators, categorized into the following three areas: Ongoing Domestic and International Conflict, Societal Safety and Security, and Militarization. For more information, please see Appendix A (GPI Methodology) in the publication, starting on pg. 112. Cabo Verde was not ranked in this report.
Primary Environmental Concerns

While the MDGs primarily focused on poverty reduction and public health, the Sustainable Development Goals (SDGs), a follow-up to the MDGs, were instrumental in raising the importance of the environment and its relevant development objectives (Sachs, 2012: 2206). The SDGs highlight the interconnectedness of widespread development issues, like health, poverty, and inequality, and the mammoth role the environment plays in their solutions. The SDGs puts the onus on every country, irrespective of level of socioeconomic development, to protect the environment, in our collective interest of global posterity. Indeed, climate change and other environmental issues know no borders.

Given the sheer ambitiousness of the SDGs, Ghana, like most countries, still has lots of work to do in order to achieve them. While all of the SDGs somehow involve the environment, the following SDGs are particularly focused on the environment (United Nations, 2015):

- Clean Water and Sanitation (Goal 6)
- Affordable and Clean Energy (Goal 7)
- Sustainable Cities and Communities (Goal 11)
- Responsible Consumption and Production (Goal 12)
- Climate Change (Goal 13)
- Life Below Water (Goal 14)
- Life on Land (Goal 15)

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8 The expansion of goals, from 8 MDGs to 17 SDGs, underscores the complexity and magnitude of the SDGs. In addition, many of the goals are to achieve complete eradication of certain development challenges, like poverty (Goal 1), hunger (Goal 2), and energy (Goal 7) (United Nations, 2017b).
Zeroing in on the environment-focused SDGs listed above, Ghana’s progress to date has been limited. Only 14.9% of the population have access to improved sanitation facilities (Goal 6); 21.7% of the population still do not have access to electricity, and an even a higher proportion of the population (83.7%) do not have access to cleaner, non-solid fuels (Goal 7); 45.8% of fish stocks are overexploited or collapsed within Ghana’s exclusive economic zone (Goal 14); and forest area is dwindling at an alarming rate (8.9% annually) (Sachs et al, 2017: 340-341). On the other hand, Ghana ranks 4th in Sub-Saharan Africa (109th globally) on the SDG Index Scorecard, behind Gabon (85th Globally), Mauritius (103rd), and South Africa (108th) (Ibid: 10-11). On specific indicators, like mean area that is protected in terrestrial sites important to biodiversity (Ghana: 85%), Ghana ranks remarkably high (15th globally and 4th in Sub-Saharan Africa) (Ibid: 340-341).

In short, Ghana faces daunting environmental challenges, many potentially exacerbated by climate change, including deforestation, soil degradation, coastal erosion, and water pollution (World Bank, 2006). In Ghana, nationwide environmental degradation and pollution caused by the illegal mining industry, desertification of the agricultural drylands in the northern regions, and coastal degradation threaten Ghanaian livelihoods and the present, and future, ability of the country to develop (Aryee et al, 2003).

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9 The 2017 SDG Index assigns a score to each country based on a number of indicators reflective of the SDGs. Scores signify “a country’s position between the worst (0) and best (100) outcomes,” So Ghana’s overall index score of 59.9 means that the country is, on average, 59.9% of the way to the best possible outcome across the 17 SDGs (Sachs et al, 2017: 9).
Background on Ghana Fisheries

Ghana’s fishing industry is vital to the health and prosperity of the nation. Scores of marine species constitute important sources of revenue for the government and income for citizens. While estimates vary, primarily due to the substantial informal economy within the subsector, the fishing subsector likely contributes around 1.1 percent to Ghana’s total GDP (Ghana Statistical Service, 2017). Since 2006, the agricultural sector’s overall contribution to GDP has declined; the fishing sub-sector’s contribution has decreased twofold, from 2.5 to 1.1 percent, over the nine-year period (Ibid).

The paramount role fishing activities play in Ghana’s economy and culture is not surprising, since Ghanaian fisherfolk are renowned for their fishing prowess. Ghanaian fishermen have been fishing the waters of the North Atlantic coast, from Senegal all the way down to the Congo, for a hundred years (Marquette et al., 2002; Atta-Mills et al., 2004). This history reflects in consumption habits as well. It is estimated that fish represents 50-60 percent of the total intake of animal protein in Ghana (FAO, 2016). Other sources estimate that this proportion exceeds 63 percent, representing the highest in Africa (Anon, 2000, cited in in Béné et al., 2005).

One need not look further than the map of Ghana itself to grasp the significance of water to the country. Ghana boasts a vast, 539-kilometer coastline along the Gulf of Guinea, and numerous lakes, rivers, and streams within its borders (CIA, 2016). One of the inland bodies of water, the infamous Lake Volta, is among the largest man-made lakes in the world. Lake Volta formed as a reservoir behind the Akosombo Dam, which along with the Bui and Kpong dams, provided 53% (1580 mw) of Ghana’s energy in 2014 (Eshun et al, 2016). Hydroelectric power capabilities aside, Lake Volta and other inland bodies of water are rich with fish and other edible
and commercially-viable aquatic species. The FAO estimates that of the total 331.5 thousand tons of aquatic animals harvested in Ghana in 2014, 128.5 thousand, or approximately 38 percent, were produced inland (FAO, 2016).

Figure 2. Map of Ghana, showing the Akosombo Dam, Lake Volta, and the Volta River. (Google Earth, 2018)

While the fishing industry’s contribution to GDP pales in comparison to other economic activities, like crop production, mining, and service activities, the fishing industry remains important, especially to the plethora of households who rely on the industry for their sustenance and livelihoods. The FAO estimates that the fisheries sector employs 10 percent of the entire Ghanaian labor force (FAO, 2016).\(^\text{10}\) The majority are employed in the small-scale, artisanal fisheries sub-sector, which consequently provides over 70 percent of total fish catch, and

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\(^{10}\) I could not find where FAO obtained these statistics, as the Ghana Living Standards Survey of 2014, the most recent and ostensibly accurate statistics, placed 44.7 percent of “Currently employed [Ghanaian] population 15 years and older” as working in the “Agriculture, forestry, and fishing” industry; I could not find employment statistics with regards to the fishing industry specifically (Ghana Statistical Service, 2014b: 51).
employs over 60 percent of women engaged in the industry (Ibid). For those 10 percent – fisherfolk, fish processors, smokers, salesmen, and the droves of others engaged in the fishing industry – the sustainability of marine resources is critical to survival.

Growing demand, both domestically and abroad, has placed a considerable strain on marine resources. To meet the heightened demand for these resources, fisherfolk all over the world have overexploited the waters. Desirable species, like Tuna, Cod, and others, are dwindling at worrying rates. Enumerating the extent of global fish stock losses is difficult, an issue constantly debated in the academic literature. Worm et al examined 166 stocks around the world to find that 63 percent of those stocks needed rebuilding (2009: 579). The FAO, in their annual State of the World Fisheries and Aquaculture report asserted that “31.4 percent of fish stocks were estimated as fished at a biologically unsustainable level and therefore overfished” (FAO, 2016b: 6).

In Ghana, total fish production has decreased from a high of 377.6 thousand tons in 2000, to 203 thousand tons in 2014 (Ibid). These statistics are especially concerning because from 2000 to 2010, consumption of fish remained steady, at around 586,000 tons (live weight), while Ghana’s population has increased around 2.5 percent within the same period (World Bank, 2016; FAO, 2016). Ghana has had to compensate for decreasing catches by importing massive amounts of fish; Ghana’s seafood trade balance ran a 33 million-dollar (USD) surplus in 1997, and by 2013 it ran a 319 million-dollar deficit (FAO, 2016; United Nations, 2017).11

Severely depleted fish stocks, an outcome of the unmitigated overfishing observed all over the world, have serious implications for food security and the overall health of the environment. Fish play an especially important role in food security in West Africa, where they

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11 The commodity category “Fish, crustaceans, molluscs, aquatic invertebrates ne” includes live, fresh, chilled, frozen, smoked, and salted fish for human consumption.
not only provide a large proportion of protein intake, but also fill the void in micronutrients – iron, zinc, calcium, vitamin A, and others – that cannot be furnished by staples like maize and cassava (Béné et al, 2005).

Given the significance of marine resources and the fisheries sector, especially to countries like Ghana, it is not surprising that increasing attention is being paid to the illegal, unreported, and unregulated (IUU) fishing. The FAO estimates that over 15 percent of the world’s total annual fish capture is illegal (FAO, 2016b). In Ghana, it is difficult to definitively determine illegal capture rates, however the FAO estimates between 65 and 70 percent of commercial catches are illegal (FAO, 2016). The figures for illegal catches in the artisanal fishery are unknown.

Members of the international community have responded, in varying degrees, to the overexploitation of global marine stocks by implementing laws, adopting conventions, and deploying other mechanisms to ensure the sustainability of a variety of affected marine resources. Ghana has too demonstrated its international commitment to safe, legal, and sustainable fishing as party to the United Nations Convention of the Law of the Sea (UNCLOS), the Ministerial Conference on Fisheries Cooperation among African States Bordering the Atlantic Ocean (ATLAFCO), and the International Commission for the Conservation of Atlantic Tuna (ICCAT) (Ibid). Ghana is also subject to the substantial regulations governing the fish trade as a member of the World Trade Organization (WTO) (Ibid).

On a national level, fisheries management falls under the authority of the Ministry of Fisheries and Aquaculture Development (MOFAD). Laws and regulations governing domestic fisheries activities were codified under the Fisheries Act of 2002, which defines the legal parameters for fishing activities, stipulates requirements for fishing permits and licenses, and
specifies fines for non-compliance of the laws therein (Ministry of Fisheries and Aquaculture Development, 2002). National law notwithstanding, fisheries activities are often under the purview of traditional, customary authorities, like chiefs and local fishing councils, who manage local fisheries and mediate conflict among fishermen (Marquette et al., 2002; Bennett et al., 2014).

Despite the domestic legal framework and relevant international maritime laws, however, fisheries governance has encountered limited success in Ghana. The effectiveness of the governance of marine resources is wholly dependent on the appropriateness of the governance measures, and adherence to those measures. The assumption that adopted governance measures, namely policies, will be successful in combating the overexploitation of marine resources must be based in sound data and evidence. An equally important determinant in the efficacy of such measures is compliance. Vigorous monitoring needs to be conducted at the local, regional, and national levels to ensure such measures are being followed. For Ghana, ensuring compliance has been a struggle; monitoring and enforcement mechanisms have been weak in combating illegal, unreported, and unregulated (IUU) fishing (Republic of Ghana, 2011; Republic of Ghana, 2014; Republic of Ghana, 2014b). In response to increasing levels of IUU fishing, the Ghanaian government, in tandem with local, national, and international partners, has invested in research, monitoring and evaluation, and other measures to strengthen institutions and ensure the viability of the Ghanaian fisheries sector. Such measures have also strived to include input and involvement from members of local fishing communities, emphasizing the importance of women’s participation (Ibid).

Major obstacles to effective governance of natural resources generally, and marine resources specifically, remain a thorn in the side of Ghanaian policymakers. In addition to the
poor monitoring, control, and surveillance (MCS), insufficient data presents an almost
insurmountable challenge. With respects to the fisheries sector, data paucity presents perhaps the
greatest challenge to a variety of key stakeholders across government, international
organizations, and, perhaps most importantly, local communities engaged in fishing. Suffice it to
say, without sufficient data on fisheries in Ghana, effective governance can neither be
implemented nor achieved.
Background on Shark Fisheries and Field Practicum Issue

Elasmobranch species – including sharks, rays, and skates – are caught as targeted species and bycatch in Ghana. Both the targeted and bycatch shark fisheries provide locally-consumed animal protein, and a source of income for artisanal fishermen. Artisanal fishermen harvest shark for their meat and fins; meat is harvested predominantly for the local market, while shark fin is destined for the lucrative export market, shipped mainly to Asia. I could not find comprehensive, reliable data on the character and extent of the shark export market in Ghana specifically, but other than for meat and fin utilization, shark oil, cartilage, skin, and other parts are used in pharmaceuticals and cosmetics worldwide (FAO, 2016b: 49; Dent et al, 2015).

Figure 3. Global Capture of Sharks, Rays, and Chimeras, from 1950 – 2015. (FAO, 2017)

The major driver behind the global shark fin trade is shark fin soup, which is consumed predominately in China, Hong Kong, and Singapore, as well in places where there are large Chinese diaspora communities. Shark fin has been a part of Chinese cuisine for hundreds of years. Its origins can be found in the Song Dynasty (960-1279 AD) where the delicacy was
served at banquets to reflect the power, wealth, and generosity of the emperor (Freeman, 1977, cited in Fabinyi, 2012: 87). Techniques for preparation and consumption of shark fin soup can be found in writings as far back as the 18th century, published in the *Recipes from Sui Garden* in 1792 by poet/scholar Yuan Mei.\(^\text{12}\)

Shark fin soup has always been considered an haute seafood dish, along with other high-priced seafood items, like bêche-de-mer (sea cucumbers). In fact, shark fin is referred to as one of the “big four” of traditional Chinese seafood delicacies (Li, 2009).\(^\text{13}\) Shark fin can be found in a number of Chinese dishes around the world, including in *Buddha Jumps Over the Wall*,\(^\text{14}\) or Buddha’s Temptation, originating from the Fujian Province of Southeast China, *Shark Fin and Prawn Dumpling in Superior Soup*,\(^\text{15}\) a dim sum dish from Hong Kong, and others. Aside from prepared dishes, dried shark fin and other products can be purchased in traditional Chinese medicine shops around the world. Bile from shark gallbladder were used to treat tonsillitis and pharyngitis in ancient China (Meng, 1934, cited in Wang *et al*, 2014). The appeal of shark fin can be associated with its perceived health benefits, which include increasing strength and serving as an aphrodisiac (Clarke *et al*, 2007).

\(^{12}\) Ch. For an English translation see (Chen, 2017). The original Chinese text is available at https://zh.wikisource.org/zh-hant/隨園食單

\(^{13}\) The big four (Ch. 鮑參翅肚) are Abalone (Ch. 鮑), Sea Cucumber (Ch. 鰂), Shark Fin (Ch. 翅), and Maw/ Swim Bladder (Ch. 肚).

\(^{14}\) Ch. 佛跳墻

\(^{15}\) Ch. 魚翅灌湯餃
The government of the People’s Republic of China under Chairman Mao, especially during the Cultural Revolution (1966-1976), discouraged, and sometimes banned, the consumption of haute goods, like shark fin, because they were considered anti-revolutionary, capitalist, bourgeoisie luxuries. Even if these items were not banned outright, delicacies like shark fin were too expensive for the bulk of Chinese to afford.

Beginning in the late 1970s and early 80s, however, ushered in by the significant economic reforms led by then Chairman Deng Xiaoping, China began its swift ascent to global
economic power status; simultaneously, the Chinese upper and middle classes grew exponentially. From then on, shark fin and other prized delicacies have become more affordable and thus increasingly consumed. Shark fin, seen as exclusive, is widely-consumed and gifted as a sign of wealth, power, and privilege.


The precipitous rise in global shark catches is alarming because sharks are especially vulnerable to exploitation. Many shark species are apex predators, meaning they are situated at the top of the food chain, and prey on smaller fish and marine animals. Though the concrete effects that changing populations of shark species have on other fish populations and the marine ecosystem are unknown, it can be deduced that apex predator mortality affects trophic interactions, and thus life further down the food chain (Stevens et al, 2000). Their place at, or near, the top of the food chain, coupled with their “slow growth, late attainment of sexual maturity, long life spans, low fecundity, and natural mortality” make shark species especially vulnerable to overfishing (Ibid: 476). Given their vulnerability, it is not surprising that according to IUCN’s best estimate, 30 percent of shark and ray species are threatened (IUCN, 2016).

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16 The period of economic reforms beginning in the late 1970s is known as opening and reform (Ch. 改革開放), when China began to privatize its industries, attract foreign investment, and end crippling protectionist policies.

17 For in-depth analysis of the historical, social, and cultural elements of luxury seafood consumption, see Fabinyi, 2012.
In response to the shark crisis, significant steps have been taken to better manage shark populations at the international level. The FAO-led International Plan of Action for Conservation and Management of Sharks (IPOA-Sharks) seeks to “ensure the conservation and management of sharks and their long-term sustainable use” (FAO, 2017b). IPOA-Sharks “applies to States in the waters of which sharks are caught by their own or foreign vessels and to States the vessels of which catch sharks on the high seas” (Ibid). The International Union for Conservation of Nature (IUCN) has established a shark specialist group – IUCN Species Survival Commission (SSC) Shark Specialist Group (SSG) – to provide scientific and technical expertise for shark, ray, and chimera conservation.¹⁸ The Convention on the Conservation of Migratory Species of Wild

¹⁸ 48 states have signed the MOU. See http://www.iucnssg.org/
Animals (CMS) advanced The Memorandum of Understanding (MOU) on the Conservation of Migratory Sharks in 2010, a non-binding international instrument for the conservation of migratory shark species.\(^{19}\) The Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), which has 183 party/member nations, protects a number of shark species through the prescription of strict regulations.\(^ {20}\) A number of regional bodies include shark conservation in their objectives. The International Commission for the Conservation of Atlantic Tunas (ICCAT), for example, conducts stock assessments on pelagic shark species under their mandate to conserve tuna and tuna-like species in the Atlantic Ocean (ICCAT, 2017).

On the ground, declining shark populations have garnered significant attention around the world. National governments, international bodies, civil society organizations, media outlets, corporations, academic institutions, and individual consumers have contributed to shark conservation efforts. Famous celebrities, like former NBA All-Star Yao Ming and actor Jackie Chan, have spearheaded campaigns to save shark populations (see figures 2 and 3). The visibility of their campaigns cannot be underestimated; according to Fabinyi et al, more than 80% of 300 consumers in Shanghai and Beijing reported having seen Yao Ming’s WildAid advertisements (2016).\(^ {21}\) Chinese government statistics estimate nationwide consumption to have decreased by 80% in recent years; imports and sales of shark fin have declined an estimated 81% in the major markets of Beijing, Shanghai, and Guangzhou (Xianlin, 2015, cited in Vallianos et al, 2018: 4).

\(^{19}\) See http://www.cms.int/sharks/en
\(^{20}\) All of the shark species protected by CITES are categorized under Appendix II: “not necessarily now threatened with extinction but that may become so unless trade is closely controlled” (CITES, 2017)
\(^{21}\) The WildAid advertisements also included information on ivory and rhino horn in addition to shark fin.
Figure 6. Yao Ming’s WildAid Public Service Announcement: “When the buying and selling stops, the killing can too” encouraging consumers to stop buying shark fin soup. (YouTube, 2017)

Figure 7. Yao Ming featured on WildAid poster: Join Me, Say No To Shark Fin Soup. (Vallianos et al, 2018)
Such declines in shark fin consumption in China are resultant of a tripartite effort from government, the private sector, and civil society. In December of 2010, the Chinese Communist Party banned the serving of shark fin at official banquets and receptions as part of a larger crackdown on corruption, profligacy, and official spending (Vallianos et al, 2018; Denyer, 2013). In April of 2017, China Southern Airlines, China’s largest carrier, banned the shipping of shark fin, joining 43 prominent airlines, like Air China and American Airline (Vallianos et al, 2018: 7). Some of the biggest names in shipping, including multinationals like DHL and UPS, have taken significant steps to ban shark fin from cargo (Ibid). In 2014, after much pressure from the international conservation community, Starwood Hotels & Resorts Worldwide, Inc., a subsidiary of Marriot International, Inc., banned shark fin at all of their thousands of hotels and restaurants worldwide (Business Wire, 2014).

In the United States, federal legislation, like the High Seas Driftnet Fisheries Enforcement Act (1992), the Shark Finning Prohibition Act (2000), the Magnuson-Stevens Fishery Conservation and Management Reauthorization Act of 2006, the Shark Conservation Act of 2010, and the Eliminate, Neutralize, and Disrupt Wildlife Trafficking Act of 2016, have all worked to regulate the shark fin trade in various ways. Most notably, the Shark Conservation Act of 2010 successfully closed many loopholes that existed in previous legislation, like the Magnuson-Stevens Fishery Conservation and Management Act, to explicitly prohibit the removal of shark fins and tail at sea, the transfer of fins without carcass to other vessels, and the landing of fins that have been detached from sharks. In March of 2017, New Jersey Senator

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22 The ban of shark fin soup at official function extends to Hong Kong (Animal Welfare Institute; 2017b).
23 For a comprehensive list of companies that have banned, partially or fully, shark fins and other shark products, see Animal Welfare Institute, 2017b.
Cory Booker introduced S.793 – Shark Fin Trade Elimination Act of 2017 – which would prohibit the possession, purchasing, selling, and transport of shark fins and any product containing it.²⁵ So far, the bill has only been introduced and referred to the Senate Committee on Commerce, Science, and Transportation.

Many US states have prohibited, or seriously curtailed, the purchase of shark fins (Oceana, 2015; Animal Welfare Institute, 2017a).²⁶ The Northern Mariana Islands (PL 17-27), Guam (5 G.C.A. § 63114.1), and American Samoa (24 A.S.A.C. § 24.0961), territories of the United States, have also banned the possession, sale, and distribution of shark fins (Daily Mail, 2011; Rand, 2011; Animal Welfare Institute, 2017a).

Other countries have made similar moves towards greater shark conservation. The entire European Union, the United States, and many other countries have placed bans or heavy restrictions on the practice of shark finning, and some countries have even banned outright the fishing of shark species, in their territorial waters and/or by vessels bearing or flying their flag (Black, 2009; Rand, 2011; Jolly, 2010; Eilperin, 2011; Harris, 2011; Animal Welfare Institute, 2017b). On the African continent, the following countries have full or partial bans on the practice of shark finning and/or placed full or partial bans on shark fishing (bolded countries indicate complete bans on shark fishing; Animal Welfare Institute 2017b):

- South Africa
- Namibia

²⁶ States that have enacted legislation (Animal Welfare Institute, 2017a) are as follows: California (CAL. FISH & GAME CODE ANN. § 2021-2021.5), Delaware (DEL. CODE ANN. TIT. 7 § 928A), Hawaii (HAW. REV. STAT. § 188-40.7), Illinois (IL. FISH & AQ. LIFE CODE ANN. § 5-30), Massachusetts (MA GEN. LAWS ANN. CH. 130 § 106), Maryland (MD. NAT. RES. CODE ANN. § 4-747), New York (N.Y. ENVTL. CONSERV. LAW § 13-0338), Oregon (OR. REV. STAT. ANN. § 498.257), Washington (WASH. REV. CODE ANN. § 77.15.770), and Texas (SECTION 66.2161, PARKS AND WILDLIFE CODE).
The international conservation community has applauded the efforts of countries in slowing the depletion of shark populations. These efforts have been aided, and informed, by changing tastes, preferences, and consumption habits, as well as growing environmental consciousness, among Chinese youth (Clarke et al, 2007: 207; Lee, 1998; Jeffreys, 2016; Latchford, 2013; Wang, 2018). In addition, reports of negative health effects of shark consumption have contributed to the declines in consumption of shark products in China, the United States, and elsewhere. Sharks are reported to contain high levels of mercury; hydrogen peroxide and formaldehyde, a known carcinogen, are believed to be used as agents in the finishing of shark fin and other shark products (Clarke 2004; Dickman et al, 1998, cited in Clarke et al, 2007: 308; Vallianos et al, 2018: 18-19). The levels of mercury in fish increase with each trophic layer, which means that sharks, as apex predators at the highest trophic levels, possess exceedingly higher levels of mercury, leaving consumers of shark products vulnerable to high levels of mercury exposure (Vallianos et al, 2018: 19).

27 Guinea-Bissau has banned shark fishing in marine protected areas
The significant declines in shark and shark fin consumption recently must be grounded by the fact that markets for shark and shark products still exist, and that new markets for those products are emerging. Outside of Mainland China, Hong Kong, Macau, Singapore, Taiwan, Indonesia, and Vietnam remain formidable players in the shark fin trade. Thailand is also becoming a burgeoning market for shark fin. A 2017 report commissioned by WildAid found that most urban Thais (57%) have consumed shark fin (Mushtaq, 2017: 17-18). Some estimates place Thailand as the world’s top exporter of shark fins today (Food Intelligence Centre Thailand, cited in Mushtaq, 2017: 13-14).

Fins aside, an estimated 3 million sharks are killed every year for their liver oil, which is used in cosmetic products in the form of squalene (Clemens, 2015, cited in Vallianos et al, 2018: 17). The shark meat industry is also growing, placing additional pressures on global shark stocks. The FAO estimates that shark meat imports have nearly doubled (42% increase) between 2000 and 2011 (cited in Vallianos et al, 2018: 16). Brazil and Italy have become booming markets for shark meat, Brazil having increased its imports eight-fold between 2000 and 2011, becoming the world’s largest importer of shark meat (Barreto et al, 2017, cited in Vallianos et al, 2018: 16).

This information serves to attest to the coexistence of both declining and increasing demand on shark products. Given the preponderance of laws, regulations, and other actions to conserve sharks, the market has turned to other places, like Ghana, to meet demands for shark fins. Since the late 1950s, Elasmobranch catches have increased, although erratically, in Ghana, peaking in 1975 with 11,478 tons landed in Ghana (FAO, 2017). In 2015, the FAO recorded 8,152 tons of sharks, rays, and chimeras were caught in Ghana (FAO, 2017).
Trade data similarly reflect a growing Ghanaian shark fin export market. From 2012 to 2017, UN COMTRADE recorded Ghanaian exports of shark fin to Singapore and Hong Kong (see figure 9 on the following page; United Nations, 2017c).
<table>
<thead>
<tr>
<th>Year</th>
<th>Flow</th>
<th>Reporter</th>
<th>Partner</th>
<th>Commodity Code</th>
<th>Trade Value (USD)</th>
<th>Net Weight (Kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2012</td>
<td>Import</td>
<td>Singapore</td>
<td>Ghana</td>
<td>030571</td>
<td>$251,866</td>
<td>14,350</td>
</tr>
<tr>
<td>2013</td>
<td>Export</td>
<td>Guinea</td>
<td>Ghana</td>
<td>030571</td>
<td>$11,400</td>
<td>12,000</td>
</tr>
<tr>
<td>2013</td>
<td>Import</td>
<td>Singapore</td>
<td>Ghana</td>
<td>030571</td>
<td>$3,909</td>
<td>500</td>
</tr>
<tr>
<td>2014</td>
<td>Import</td>
<td>Hong Kong</td>
<td>Ghana</td>
<td>030571</td>
<td>$295,329</td>
<td>4,944</td>
</tr>
<tr>
<td>2014</td>
<td>Import</td>
<td>Singapore</td>
<td>Ghana</td>
<td>030571</td>
<td>$644,033</td>
<td>33,500</td>
</tr>
<tr>
<td>2015</td>
<td>Import</td>
<td>Hong Kong</td>
<td>Ghana</td>
<td>030571</td>
<td>$267,724</td>
<td>3,430</td>
</tr>
<tr>
<td>2016</td>
<td>Import</td>
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<td>Ghana</td>
<td>030571</td>
<td>$1,389,798</td>
<td>29,627</td>
</tr>
<tr>
<td>2016</td>
<td>Import</td>
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<td>Ghana</td>
<td>030571</td>
<td>$620,430</td>
<td>61,740</td>
</tr>
<tr>
<td>2017</td>
<td>Import</td>
<td>Hong Kong</td>
<td>Ghana</td>
<td>030392</td>
<td>$703,754</td>
<td>11,350</td>
</tr>
<tr>
<td>2017</td>
<td>Import</td>
<td>Hong Kong</td>
<td>Ghana</td>
<td>030571</td>
<td>$677,357</td>
<td>7,521</td>
</tr>
</tbody>
</table>

Figure 9. Exports of Shark Fin from Ghana, 2012 – 2017. (United Nations, 2017c).28

The catch and trade data available illustrate a possible trend of increasing Elasmobranch capture in Ghana. However, historical data on shark capture is tenuous, mainly due to difficulties

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28 030571 - Fish Fins, Heads, Tails, Maws And Other Edible Fish Offal: Shark Fins
030392 - Fish; Frozen, Shark Fins
in species identification and deficient reporting. Fortunately, identification and reporting mechanisms are improving, allowing data to more accurately reflect the state of the global shark fishery.²⁹

Ghana is encouraged, and in some cases obliged, to comply with international agreements to manage and conserve their sharks. Ghana is signatory to many of the international mechanisms mentioned earlier in this section, including IPOA-Sharks, the MOU on the Conservation of Migratory Sharks (CMS), the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), and ICCAT. Ghana has yet to implement their own shark management plan, although Ghana mentions the IPOA-Sharks as one of seven international apparatuses for countering IUU fishing (Republic of Ghana, 2014b). To the chagrin of relevant stakeholders, a dearth in reliable shark data hinders Ghana’s ability to comply with such mechanisms.

Research on the shark fishery and the shark trade in Africa is extremely limited, and virtually nonexistent when it comes to Ghana. Diop et al (2011), which is one of the few valid studies of shark fisheries and trade in West Africa, focuses on members of the Subregional Fisheries Commission (SRFC) only, which include Cabo Verde, Gambia, Guinea, Guinea-Bissau, Mauritania, Senegal, Sierra Leone.³⁰ Shark value chain assessments have been conducted in Bangladesh (Hoq et al, 2011), the UAE and Oman (Jabado et al, 2015b), and Madagascar (Cripps et al, 2015), and numerous studies characterizing the shark fisheries have been conducted in Fiji (Glaus et al, 2015), the Maldives (Anderson et al, 1993), the United Arab Emirates (Jabado et al, 2015), Madagascar (Robinson et al, 2013; McVean et al, 2006), and other locations. The academic literature attempting to broadly characterize shark fisheries focus

²⁹ Shark capture statistics reported to the FAO have increased four-fold from 1995 to 2013 (FAO, 2016b: 88).
³⁰ See http://www.spcsrp.org/en for more information
on describing the regulatory frameworks governing shark fishing, the various scales of shark fishing (commercial, semi-industrial, artisanal, and traditional), species composition, gears and techniques used to capture shark, and presenting key landing data distinguishing shark bycatch from targeted species.
The contextual-conceptual framework was inspired by Cripps et al (2015) study of shark fisheries in Madagascar. Like Cripps et al, I found it useful to map the shark value chain and represent it visually. This was helpful in positioning my research and role within both the broader shark value chain, as well as within the work of Hen Mpoano, the NGO I collaborated with in Ghana.

The purpose, therefore, of the contextual-conceptual framework is to present the different nodes along the value chain, where the main players lie, and how they interact with each other to bring the shark product (fins and meat) to market. In addition, the framework shows the interactions between the fisherfolk engaged in the trade and the non-market actors/stakeholders (Hen Mpoano and partners).
The yellow-outlined arrow pointing up (connecting Hen Mpoano and partners to Fisherfolk) represents the transfer of extension services, equipment, and information from Hen Mpoano and partners to fisherfolk. The green-outlined arrow pointing down represents the transfer of local knowledge and practices from fisherfolk to Hen Mpoano and partners. Further down the framework, there is a transfer of knowledge, information, and expertise between Hen Mpoano and partners and myself. Hen Mpoano and partners are providing me the technical expertise to conduct my field practicum, and I am providing them with the findings from my study.

Notice that the field practicum work, as represented in the contextual-conceptual framework, is composed of semi-structured interviews, a review of the primary and secondary literature, and catch data. The results of my study are intended to lead to better decision-making and planning of the shark fishery, which should ultimately drive more sustainable management practices. The feedback loop, represented by the black arrow starting from the bottom-right corner of the framework, shows that the sustainable management practices will then bear on the future work of the fisherfolk engaged in the shark fishery as well as Hen Mpoano and partners. The process of learning and negotiation that influences changes to management practices will consequently take place all over again.

The two streams of shark products and their value chains are represented in the upper-right section of the framework. Once the canoes arrive at their respective landing beaches, the fishermen and members of the local community offload the catch onto the beach. The larger fish – billfish, sharks, manta rays, dolphins, swordfish, and others – are lined up on the beach, while the tunas are offloaded separately onto plastic tarps or bare ground. Crew members wait until
their respective canoe owner or canoe company representative is present before offloading their catch.

Before the negotiation process ensues between the canoe owner and fishmongers (referred to as Fish Mammies in the framework), a crew member or a butcher will cut off the shark fins and place them into large head pans (Fante: hwiasiamɔ). The head pans are taken away by the canoe owner for further processing, which entails washing the fins with water, and drying them for up to a week depending on weather conditions.

After the fins are separated, negotiation ensues between the canoe owner and the fishmongers. With respects to sharks, the entire carcass is sold to a fishmonger without the fins. Canoe owners set a price based on the size and species of shark, although carcasses are neither weighed nor formally measured. In other words, the canoe owner sets the price based off an eyeball estimate. Then, fishmongers and the canoe owner negotiate a price. Once a price is determined, the carcass is butchered on the landing beach, chunks of meat are placed into large head pans, and the pans are hauled away by fishmongers to be dried and later sold as what could be characterized as a type of shark jerky (Fante: Kako) in local markets.

After the fins are dried, they will change many hands as they travel downstream towards the export market. The following sections will reveal more about the trade.
Background on Field Sites

Though all reliant on the artisanal fishing industry, the three field sites in this study – Shama, Dixcove, and Axim – are unique, faced with distinct development challenges. This section serves to provide a brief introduction to these communities, and some of their development challenges. The first three sub-section below focus on Shama, Dixcove, and Axim respectively. The final sub-section focuses on their similarities and differences with respects to those challenges in the fishing sector.

Figure 11. Map of Ghana with locations of primary research sites (Shama, Dixcove, and Axim) in relation to secondary research sites (Tema and Kumasi) and my residence (Mpatado). (Google Earth, 2018)
Figure 12. Map of Ghana’s Western Region with locations of primary research sites (Shama, Dixcove, and Axim) in relation to Takoradi and my residence (Mpatado). (Google Earth, 2018)

Shama

The first fishing community is Shama Apo, one of the seven coastal communities within the larger town of Shama, located in the Shama District. Of three close settlements (Shama Apo, Shama Bentsir, and Amena-Ano), Shama Apo is the largest, with more than 500 homes, interspersed along the coast, straddling the Pra River (Coastal Resources Center et al, 2010: 31). According to the most recent Ghana Population and Housing Census, the entire Shama district had a population of 81,966 people, 46,070 classified as urban and 35,896 classified as rural (Ghana Statistical Service, 2010).<sup>31</sup> Estimates put the population of the three coastal Shama

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<sup>31</sup> This population figure for Shama District is ostensibly contested. A report by the Ghana Fisheries Commission indicated the population of Shama District is 366,579 (Akyeampong et al, 2013: 12). It is hard to believe this figure, given that the same report indicated the population of the Sekondi-Takoradi, the largest city in the Western Region, is 445,205 (Ibid: 13).
communities at over 10,000 (Shama Apo, Shama Bentsir, and Amena-Ano; Coastal Resources Center \textit{et al}, 2010: 31).

![Map of Shama](image)

**Figure 13.** Map showing Shama in relation to the Pra River. (Google Earth, 2018)

Connecting houses, small shops, and public toilet facilities is a main paved road, branching out into smaller, dirt roads traveling away from the sea. The settlement is quite dense, with many single-story houses with corrugated aluminum or asbestos roofing (Ibid: 30). The Shama Apo landing beach, where the artisanal, wooden canoes dock their boats and land their catch, is connected to the main road by a sloped, dirt road. Bars, small shops and kiosks, canoe owner’s/company’s tents, a premix fuel station, and the Shama Fishermen’s Association meeting hall, are concentrated in and around the landing beach.\footnote{32} Some of the shops sell all types of lines, hooks, nets, gear, and other supplies needed by fishermen.

\footnote{32} The station is not like a typical fuel station, but rather a small construction where premix fuel, in large plastic barrels, are sitting for distribution to fishermen.
A fifteen-minute walk from the landing beach stands Fort San Sebastian. The large, white-washed fortification built by the Portuguese in the early 16th century is an imposing figure on the landscape. One can visit the fort, at a price of 5 Ghana Cedis for locals, and $10 USD for foreigners (Ghana Museum and Monuments Board, 2017). The tro tro [minibus] and taxi stations are a short walk from there, providing transportation to Shama junction, the main street in Shama, around fifteen minutes away.

The people of Shama overwhelmingly identify as belonging to the Fante ethnic group, one group being indigenous to the area (tracing their ancestral roots to Techiman) and one group being migrants from Moree, Apam, and Winneba (Central Region). The indigenous Fantes live predominantly in Shama Apo and Shama Bentsir, while the migrants live in the Amena-ano area (Coastal Resources Center et al, 2010: 31). The majority of residents are Christians, predominantly Methodist and Catholic, while a significant Muslim minority exists as well (Ibid). Fante, a dialect of the Akan language, is the main language spoken in Shama.

Aside from the population that calls Shama Apo their permanent home, a significant migrant population exists in Shama Apo. The artisanal fishing industry, the economic mainstay of the area, is typified by migration all over the Guinea Coast, brought about by the availability of fish, availability of buyers and cash, seasonality, and other considerations. Many fishermen told me the immediacy of cash, in places like Tema or Sekondi-Takoradi, where there are large fish markets and ports, prompted them to sell their catches outside of Shama. It is also common for local fishermen and their families to travel as far as Senegal, but more typically to neighboring Ivory Coast, to fish for a period of anywhere between a couple of months to a couple of years (Ibid).
The local economy is reliant on artisanal fishing, with limited revenue generation from tourism and petty trading (Ibid: 32). A small tourism sector revolves around Fort San Sebastian and the annual *Pra Nyiani Afahye* [Pra River Festival] (Ibid). This annual, week-long festival is a traditional celebration of family, social harmony, and the purification of the land and Pra river (Ghana News Agency, 2013). The celebration involves the chiefs and traditional authority of the area, and people give thanks to the gods of the Pra River, praying for protection and a good harvest for the coming year (Ibid). Limited agricultural production exists in Ameno-ano, where smallholder farmers cultivate cassava, maize, and vegetables for household consumption (Ibid: 32). When fish catches decline during the lean season, fishmongers will buy fish from cold stores to sell, and engage in the trade of agricultural products, which they buy from farmers in other parts of the Shama district (Ibid).

According to the most recent Ghana Marine Canoe Frame Survey, Shama Apo was home to a total of 1,287 fishermen (Akyeampong *et al.*, 2013: 49). Field enumerators recorded 222 canoes and 207 canoe motors; the bulk of fishing gear recorded in the community were drift gill nets (n=107), lobster nets (68), ali nets (39), hooks and and lines (6), and a couple of purse seine nets (Ibid). The larger canoes use drift gill nets to catch a variety of tuna species, including Skipjack (*Katsuwonus pelamis*), Yellowfin (*Thunnus albacares*), Bigeye (*Thunnus obesus*), and Frigate (*Auxis thazard*), billfishes (Marlin, Swordfish, and Sailfish), Manta Rays, many types of sharks (Great White, Hammerhead, Blue, Thresher, Sand, Milk, and Tiger), dolphins, turtles, and others (Ibid; Doyi, 1984).

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33 The direct translation of *Pra Nyiani Afahye* is *Pra Without Eyes Festival*, which speaks to the festival’s central theme of purification.

34 There is discord between the figures presented by the Ghana Marine Canoe Survey and the figures presented by the Coastal Resources Center in their 2010 publication *Report on Characterization of Coastal Communities and Shoreline Environments in the Western Region of Ghana*. In the latter publication, 265 canoes were reported.

35 For drift net picture and description, see Appendix 1 and 2.
targeted using hooks and lines. The large, artisanal canoes are made from a single log and wooden planks; a single log is carved for the hull, and the sides are constructed from wooden planks.\textsuperscript{36}

\textbf{Dixcove}

The second fishing community is Dixcove, located in the Ahanta West District, wedged between Busua to the east, Achowa to the west, and Sunkoe to the north (Coastal Resources Center \textit{et al}, 2010: 147). The seat and largest town in the Ahanta West District is Agona Nkwanta. The population of the entire Ahanta West district is 106,215; 31,286 are urban and 74,929 are rural dwellers (Ghana Statistical Service, 2010). Dixcove is estimated to house 30,000 people (Coastal Resources Center \textit{et al}, 2010: 147). Two different sets of traditional authorities govern Dixcove, hence the community is split up into two: Upper Dixcove (west) and Lower Dixcove (east) (Ibid). Upper and Lower Dixcove have separate landing beaches, though fishermen told me that the sea state – the condition of the sea’s surface with respects to swells and wind waves – will dictate where they land their catch.

The landscape is as beautiful as it is striking. Dixcove lies on an island-perforated bay. A single, shoddy road straddles the rocky beach. Shops, kiosks, and petty traders line this busy road, selling everything from fried \textit{one-man-thousands}, the popular tiny anchovy found throughout Ghana, to on-the-fly pedicures. As you move northward away from the beach, the rocky landscape becomes hilly and lush, mud-brick and cement-block houses strewn throughout. Fort Dixcove, better known as Fort Metal Cross today, stands on a hilltop in Lower Dixcove, overlooking the bay. The British, later Dutch, fortification was built in 1692, and served as a

\textsuperscript{36} See Appendix 3 for schematic of canoe
trade hub for the colonial slave and timber trades (Ghana Museum and Monuments Board, 2017b).

The indigenes of Dixcove are originally from Edina Eguafo, a town in the Central Region of Ghana, close to the larger city of Cape Coast (Coastal Resources Center et al, 2010: 147). It is said that a war between the Fantes and Ashantis in Edina Eguafo prompted the Fantes to emigrate coastward, and that under the direction of Nana Dekyi, the first chief of the area, they eventually settled in Dixcove (Ibid). The main ethnic group in the Ahanta West District is Ahanta, with significant populations of Nzema and Fante (Ibid: 106). These ethnic groups all fall
under the umbrella of the larger Akan group, and the languages spoken in Dixcove are Ahanta, Nzema, and Fante (Ibid). It is worthwhile to note that interethnic marriage is common in Dixcove, especially between the Ahantas and Fantes (Ibid: 147). Christians make up the majority of residents in Dixcove, while there are minority populations of Muslims and Traditionalists (Ibid: 106). The community is served by several churches, representing the Methodist, Catholic, Jehovah’s Witness, Pentecost, Salvation Army, Christ Healing and 12 Apostle denominations (Ibid: 147).

Like Shama, the local economy is reliant on artisanal fishing, with limited revenue generation from tourism and petty trading (Ibid: 148). A small tourism sector revolves around Fort Metal Cross, and the neighboring community of Busua, which draws domestic and international tourists to its beaches. Entry into the Fort complex is charged at a flat rate of 3 Ghana Cedis per person (Ibid). Busua beach, a thirty-minute walk from the Lower Dixcove landing beach, is a popular tourist destination with accommodating facilities for budget and luxury travelers alike. Busua beach has several hotels, guest houses, bars and restaurants, with activities, like surfing, yoga, and sight-seeing, readily available to visitors. The Ahanta Waves Surf School & Camp offers private and group surf lessons, board rentals, and other activities (2017). The Ahanta Waves Surf School & Camp and Surf & Impact, a volunteering and ecotourism NGO, host a beach clean-up, live music, and other activities in celebration of International Surfing Day, observed on the third Saturday of June annually (Surfrider Foundation, 2017). Residents of Dixcove peddle a variety of food and consumer products in Busua. The annual Kundum Festival may draw in tourists to the area as well. During the Kundum Festival, celebrated by the Ahanta and Nzema, people dance, drum, and feast to celebrate the harvest to come and to expel demons (Ansah, 1999; cited in Shaw, 2004).
While agriculture is the chief economic activity in the Ahanta West District, with palm and rubber cultivation at its core, the coastal communities, including Dixcove, rely on fishing for their livelihoods, with around 90% of Dixcove residents engaged in the fishing sector (Coastal Resources Center et al, 2010: 106 and 148).

According to the most recent Ghana Marine Canoe Frame Survey, Dixcove was home to a total of 3,500 fishermen (Akyeampong et al, 2013: 50). Field enumerators recorded 450 canoes and 442 canoe motors; the bulk of fishing gear recorded in the community were drift gill nets (n=420), lobster nets (16), ali nets (4), hooks and lines (4), and purse seine nets (4) (Ibid). As in Shama Apo, the larger canoes use drift gill nets to catch a variety of tuna species, including Skipjack (Katsuwonus pelamis), Yellowfin (Thunnus albacares), Bigeye (Thunnus obesus), and Frigate (Auxis thazard), billfishes (Marlin, Swordfish, and Sailfish), Manta Rays, many types of sharks (Great White, Hammerhead, Blue, Thresher, Sand, Milk, and Tiger), dolphins, turtles, and others (Ibid; Doyi, 1984). As in Shama Apo, sharks, while also caught as bycatch using the drift gill nets, are targeted using hooks and lines.

Axim

The third fishing community in this study is Axim, the capital of the Nzema East Municipal Assembly (Coastal Resources Center et al, 2010: 179). Eleven coastal communities are present in the Nzema East Municipal Assembly, three communities of which can be found in Axim (Ibid: 215-223). The three communities are Fante Line and Boat Ase, in Lower Axim,

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37 838 fishermen in Upper Dixcove and 2,662 fishermen in Lower Dixcove
38 112 canoes in Upper Dixcove and 338 canoes in Lower Dixcove; 106 motors in Upper Dixcove and 336 motors in Lower Dixcove; Pursing and Ali nets were only found in Lower Dixcove
39 The Ghana Marine Canoe Frame Survey cites 17 coastal communities, 13 of which are in Axim (6 in Upper Axim and 7 in Lower Axim; Akyeampong et al, 2013: 51).
According to the most recent Ghana Population and Housing Census, the entire Nzema East district had a population of 60,828, 20,655 urban and 40,173 rural (Ghana Statistical Service, 2010). The population of Fante Line is estimated at 650 (380 houses), Boat Ase at 700 (400 houses), and Solo at 1000 (400 houses; Coastal Resources Center et al, 2010: 215-223).

The drive into Axim is breathtaking. The road from Isakro – where National Highway 1 (Agone-Elubo Road) meets Axim Road – to Axim is lined with palm and plantain trees. As you near Axim, the landscape changes into small, single-story concrete-block homes, with kiosks and hawkers lining the streets. Arriving at the minibus/taxi station, the epicenter of Axim, the first thing a traveler notices is Fort Santo Antonio, a whitewashed colonial fortification overlooking the ocean. When school is over, children play football (soccer) on the large, brown swath of land in front of the Fort, called Victory Football Park. Axim Road ends at a crossroads, where an unnamed road branches north and south along the Axim coast. Lining the street, towards the landing beach, are mainly small shops, bars, and rural banks; they are a mixture of one and two-story concrete block or cement-plastered constructions with corrugated aluminum roofing (Ibid: 219). Next to the landing beach is a public toilet facility bearing the name “Landing Beach Committee Lower Axim.” The landing beach comes up virtually to the road, a sign of significant coastal erosion.

Three main ethnic groups live in Axim; they are the Nzema, Ga, and Simpas (Simpas are originally from Winneba, Central Region) (Coastal Resources Center et al, 2010: 215). The area is predominantly Christian, with small populations of Muslims and Traditionalists (Ibid: 181). Nzema, a dialect of the Akan language, is the main language spoken in Axim (Ibid: 174).

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40 Again, the report cited is conflicting with the Ghana Marine Canoe Survey.
The local economy is reliant on artisanal fishing, with limited revenue generation from tourism and petty trading (Ibid: 220). Like in Shama and Dixcove, the small tourism sector in Axim revolves around a colonial fortification, Fort Santo Antonio. Like Dixcove and other towns across the Western Region, the annual Kundum Festival may draw in tourists as well. A short taxi ride away from the coastal fishing communities lies Axim Beach Hotel, which is a resort that caters to luxury, mainly foreign, travelers.

Figure 15. Fisherfolk waiting for the catch in Axim. (Author’s photo, 2017)

According to the most recent Ghana Marine Canoe Frame Survey, the communities of Fante Line, Boat Ase, and Solo were home to a total of 964 fishermen (Akyeampong et al, 2013:
Field enumerators recorded 131 canoes and 92 canoe motors; the bulk of fishing gear recorded in the communities were drift gill nets (n=37), ali nets (28), hooks and lines (5), and purse seine nets (31) (Ibid: 51).\textsuperscript{42} Like Shama Apo and Dixcove, the larger canoes use drift gill nets to catch a variety of tuna species, including Skipjack (Katsuwonus pelamis), Yellowfin (Thunnus albacares), Bigeye (Thunnus obesus), and Frigate (Auxis thazard), billfishes (Marlin, Swordfish, and Sailfish), Manta Rays, many types of sharks (Great White, Hammerhead, Blue, Thresher, Sand, Milk, and Tiger), dolphins, turtles, and others (Ibid; Doyi, 1984). Like Shama Apo and Dixcove, sharks, while also caught as bycatch using the drift gill nets, are targeted using hooks and lines.

\section*{Challenges in the fishing sector}

\subsection*{Declines in fish catches}

Fishermen and fishmongers interviewed in all three communities expressed to me their concerns about declining fish catches. Of particular concern to them is the issue of light and dynamite fishing. Light fishing is the practice of employing lights of various types – portable, battery-powered lights in these communities – to attract fish to a certain place in order to make catching them easier. Dynamite fishing involves detonating explosives to stun, and/or kill, schools of fish, which makes them easy to capture.

Chemicals, like carbide and DDT, are also used by some fishermen to catch fish in these communities. These chemicals pose serious health and environmental risks. Fishmongers have claimed that these chemicals have decreased the shelf life of fish, even after being smoked.

\begin{footnotesize}
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\begin{itemize}
\item \textsuperscript{*41} Boat Ase (Lower Axim) had 334 fishermen, Fante Line (Lower Axim) had 559, and Solo (Upper Axim) had 71.
\item \textsuperscript{*42} Boast Ase had 40 canoes, Fante Line had 62, and Solo had 29; Boat Ase had 12 drift gillnets, Fante Line had 25, and Solo had none; Boast Ase had 2 ali nets, Fante Line had 26, and solo had none; Boat Ase had no lines, Fante Line had 1, and Solo had 4; Boast Ase had 10 purse seine nets, Fante Line had 9, and Solo had 2.
\end{itemize}
\end{footnotesize}
Coastal Resources Center et al, 2010). Light, on the other hand, does not present health risks, but presents problems for the viability of fish stocks, as it is an unsustainable way of fishing. Other unsustainable fishing methods include fishing juveniles, mainly by using small mesh sized nets and explosives, and Fish Aggregating Devices (FADs), like buoys, to attract lots of fish to a certain spot in the water for easy capture. The increased number of canoes and industrial fishing vessels in operation in Ghanaian waters are also driving down fish catches.

**Difficulties obtaining loans and credit**

Fishermen in these communities rely on credit to fund their fishing expeditions, purchase equipment and repair boats. They find it difficult to meet the stringent credit requirements of local financial institutions (Lower Pra Rural Bank, Shaco Credit Union, etc.). These credit requirements include meeting a certain individual or group threshold of collateral and capital, and, depending on the institution and/or other factors, may require backing from a guarantor. Fish processors and sellers, almost entirely women, are the de facto lenders to fishermen in these communities, and they often invest earnings from their fish businesses in other economic activities (trading, farming, etc.), especially during the lean seasons, making it difficult to furnish monies for the purposes of the capital/collateral requirements of the lending institutions (Coastal Resources Center et al, 2010). It seems that historically high default rates have prompted banks to institute strict policies and requirements with regards to credit lending.

**Issues with premix fuel**

Premix fuel is the subsidized fuel product that artisanal fishermen use to power their boats. Unreliable access to premix fuel is cited as a local, regional, and national problem,
fundamentally emanating from availability, politics, and price. Problems at the Tema Oil Refinery have caused premix fuel supplies to be erratic (Coastal Resources Center et al, 2010: 129). Another major issue is that there are a limited number of Landing Beach Committees (LBCs), the entity that supervises the distribution of premix fuel to fishermen.

For instance, Fante Line (Lower Axim) does not have its own LBC, and fishermen must go to Boat Ase and other communities to purchase premix fuel (Ibid: 217). Some fishermen have claimed that this is due to political reasons (Ibid: 218). The consequence of inadequate numbers of LBCs is that migrants from other fishing communities strain local premix fuel supplies (Ibid: 143). If a community has an LBC but fuel is unavailable, which occurs for a variety of reasons, fishermen must travel to other communities to acquire fuel; this may involve acquiring fuel from private sources at a heavy premium (Ibid: 150). The increasing price of premix fuel also presents a challenge to fishermen, as fish catches, and thus livelihoods, are declining. Complex challenges with premix fuel, as mentioned above, can substantially delay fishermen’s ability to go to sea.

After John Atta Mills won the presidential election, and the National Democratic Congress (NDC) was voted back into power in Ghana (2008), the laws regarding premix fuel changed (Coastal Resources Center et al, 2010: 187). In the past, widespread corruption and fuel shortages plagued the administration of premix fuel (Ibid; Ministry of Food and Agriculture, 2017). Individuals, including Chief Fishermen, were allegedly pocketing the profits of the subsidized fuel instead of using it towards community development (Ibid).

In 2009, a National Premix Secretariat (NPS) was appropriated to the National Premix Committee (NPC), and tasked with supervising the administration, allocation, and distribution of premix fuel throughout the country (Ministry of Food and Agriculture, 2017). Under the guidance of the new NPS, Landing Beach Committees (LBCs) were instituted to permit
communities to manage the sale of premix fuel in their respective communities (Ibid). LBCs oversee the sale of premix fuel, the monitoring of local supply and demand, and the ordering of premix fuel (orders to the Tema Oil Refinery are placed through an oil marketing company of their choosing) (Ibid). The NPS also instituted guidelines for profit sharing among LBCs and the community, whereby proceeds are allocated in the following manner (Ibid):

- 12% to the Chief Fishermen
- 18% to members of the LBC (excluding the Chief Fishermen)
- 10% Premix Fuel Secretary
- 7% Pump Attendant
- 53% Fishing Community

**High input costs and scarcity of fishing inputs**

In addition to the increasing costs of premix fuel, other necessary inputs, like motors, canoes, maintenance and repair, and nets, are cost prohibitive to fishermen in these fishing communities. Drift gillnets, for instance, cost fishermen anywhere between 15,000 and 18,000 Ghana Cedis (approximately $3,300 to $4000 USD); large canoes cost between 8,000 and 10,000 Ghana Cedis ($1,700 to $2,200 USD); and Yamaha-band, 40hp outboard motors cost between 7,200 and 8,500 Ghana Cedis ($1,600 to $1,890 USD) (Akyeampong et al, 2013: 56).\(^{43}\) Outboard motors are not only expensive, but also scarce in the marketplace due to heightened demand (Coastal Resources Center *et al*, 2010: 150, 182, 229). Fishermen in Ngyeresia, a fishing community in the Sekondi-Takoradi Metropolitan Area (STMA), relatively close to Shama, suggest that people outside of the fishing industry are buying subsidized fishing inputs and

\(^{43}\) These prices, quoted in the 2013 Ghana Marine Canoe Survey, were mean prices reported in the Western Region. The precise number of drift gillnets used for this figure is unknown.
selling them to fishermen at a premium (Ibid: 93). Another issue worth noting is that fishing gear and other inputs are largely imported, therefore prices are augmented when the Ghanaian Cedi depreciates against the US Dollar.

**Conflicts over fishing grounds**

The prevailing conflicts over fishing grounds center primarily around competition from migrant fishermen, the perceived encroachment of migrants on community’s fishing grounds, and the exclusion zones around oil rigs. In Shama, fishermen have expressed tension between themselves and migrant fishermen, citing migrant fishermen’s employment of unsustainable practices, like light fishing, as aggravating the tension (Ibid: 36). Instances of conflict have resulted in near-fatal accidents and damage to gear (Ibid). Such sentiments can be found in many fishing communities throughout Ghana because of the preponderance of migrant fishermen.

The criticism levied against oil and gas companies, and the perceived complacency of the government, is two-fold: 1) fish are drawn towards oil rigs because of the light emanating from the structures, and because of the structures themselves; and 2) fishermen are no longer free to fish in areas where rigs have emerged because it is illegal, even though they used to fish their before (Osei-Tutu, 2012: 3). Scholars have also noted that oil and gas exploration may present consequences to youth and women in vulnerable communities, as the high-skilled jobs slated to be provided by oil and gas development are out of their reach (Ibid; Boohene et al, 2011). The lack of community-level engagement with regards to oil exploration and extraction off Ghana’s coast has likewise been presented by scholars as a challenge to community buy-in (Ackah-Baidoo, 2013).
Adverse market dynamics

The prevailing price discrepancies in different fishing communities is concerning to fishermen. Fish of the same species and quality fetch different prices when sold at different landing beaches, despite being then sold, by fishmongers and traders, at the same markets throughout Ghana (Coastal Resources Center et al, 2010: 36). The availability of fish at cheaper prices allows intermediaries to negotiate a lower price, and this creates a race to the bottom scenario (Ibid).

Environmental issues

These fishing communities face issues of environmental degradation. Coastal erosion and water pollution are especially problematic to fishermen and their livelihoods. Pollution is due to industrial and agricultural activities, which occur outside of these communities, harmful fishing practices, like DDT and carbide fishing, and sanitation practices at the local level. Illegal, small-scale mining, known as Galamsey in local parlance, has caused significant contamination of the Pra River. One scientist found: “The average dissolved Hg concentration in the main river (48.40 ± 26.08 ng/mL) and in the tributaries (27.59 ± 18.23 ng/mL) were above the WHO guideline value of 1.0 ng/mL” (Oduro et al, 2012: 1). Other pollutants, like PFOs, have also been recorded in the Pra River, however the extent to which contamination can be attributed to industrial or agricultural activities is unknown (Essumang et al, 2017: 732-733).

Other contributing factors to environmental degradation are poor water, sanitation, and hygiene (WASH) conditions, inadequate public infrastructure, including latrines and garbage-disposal facilities, public defecation, and widespread, untended littering. These issues affect

44 Hg is the chemical symbol for Mercury.
45 PFOS are Perfluorooctanesulfonic acid
negative health outcomes for community residents. Of course, environmental degradation is complex, and not all of the degradation in these communities can be attributed to the practices and behaviors of their residents. Sand winning, or sand mining, is the practice of extracting sand, from coasts and other places; sand is used for construction and waste management, commercially and residentially, in Ghana. Sand mining has contributed to major coastal erosion in Ghana. Coastal communities have responded in varying ways to sand mining; in Shama district and others, the practice is claimed to be illegal, but continues to occur (Coastal Resources Center et al, 2010: 14). Communities have attempted to stave off further coastal erosion by dumping waste on the coast (Coastal Resources Center et al, 2010: 12).

Another important environmental issue, stemming directly from fishing, is the phenomenon of Ghost Fishing. This phenomenon is characterized by broken or dilapidated fishing gear that is discarded into oceans, rivers, and other water sources, whereby the gear traps the fish and other marine species (National Ocean Service, 2017). The name evokes an image of gear that continues to catch fish without the control of a fisherman, which is exactly what happens in marine environments all over the world. Though not only a problem in Ghana, Ghost Fishing is especially prevalent in this context because of the widespread use of illegal, monofilament nets. These nets, as opposed to multifilament yarn nets, are made of Polyethylene, or plastic, which do not biodegrade in the ocean. The durability and price of these nets are the main drivers of their persistent use, even though they are illegal.
Methods, Challenges, and Limitations

Four methods were employed to conduct the field practicum research: 1) semi-structured interviews; 2) informal interviews/conversations 3) primary data review; and 4) secondary literature review.

Over two months, twenty-five semi-structured interviews were conducted with canoe owners, shark fin buyers, and shark fin sellers, using snowball sampling. Informal interviews were also conducted with a variety of market and non-market actors, including restaurateurs, petty traders, Fisheries Commission staff, Hen Mpoano staff, casino patrons, miners, chefs, and others. Most of the semi-structured interviews in Shama, Axim, and Dixcove were conducted with the help of local field assistants, contracted by Hen Mpoano for the NOAA-funded project *Enhancing the management and conservation of Elasmobranchs (sharks, skates and rays) and Billfishes through improved fisheries data collection and characterization of knowledge on harvest and trade.*

While interview questions were adapted from a seminal report conducted by the Indian Ocean Commission, *A preliminary value chain analysis of shark fisheries in Madagascar* (Cripps et al, 2015), they had to be further modified to meet the needs of the field practicum study. After consulting with Hen Mpoano, and subsequently pilot testing the interview questions in the first fishing community I visited, Shama, the interview questions were shortened and modified to better serve the project. The length of the original interview protocol was concerning, given that I was asking interviewees to sacrifice their precious time amidst the busy, bumper season. Other concerns included ambiguous language, jargon, and context-insensitive terminology. Mr. Cephas Asare, Fisheries Specialist at Hen Mpoano, and Sagoe, the Shama-

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46 NOAA award no. NA16NMF4630340. For more information on the project, visit http://henmpoano.org/elasmobranchs-and-billfishes/
based field assistant, were integral to the modification process, providing nuanced insight, invaluable guidance, and helpful feedback.

My interview questions focused on attaining the following information, broadly grouped as economic, social, political, and environmental (some information below traverse categories), with regards to shark fishing and the fin trade:

1) Economic
   - number of buyers
   - agreements between buyers and sellers (loans, financing, etc.)
   - whether or not shark fins are the main sources of income
   - prices of fins; different qualities/species; price changes over time
   - gear and special techniques to catch sharks
   - cost of fishing trips
   - changes in number of sharks caught, changes in composition of shark catch (i.e. how many of each species you catch now as compared to the past); changes in the sizes of the different shark species caught over time
   - perceptions of the business now and in the future

2) Social
   - history of the fin trade
   - whether or not shark fins are the main earners

3) Political
   - laws and regulations

4) Environmental
   - gear and special techniques to catch sharks
   - distance
   - Seasons
   - changes in number of sharks caught, changes in composition of shark catch (i.e. how many of each species you catch now as compared to the past); changes in the sizes of the different shark species caught over time
   - laws and regulations

Despite possessing one set of interview questions, the questions I asked each respondent depended on the work of the respondent, and his relationship to the shark fin trade. One striking
challenge was the ambiguity of respondents’ roles within the shark fin trade. Some respondents occupied many different roles within the shark fin trade, such as canoe owner as well as fin trader or intermediary. The vagueness of roles made it difficult to determine the precise questions to ask; often it was not until the middle of the interview that I figured out the main role of the respondent within the shark fin trade.

I faced many such challenges with the semi-structured interview instrument in my project. The locations of the interviews perhaps contributed the most difficulties. I conducted most interviews next to the landing beaches of each fishing community. There, canoe owners were often surrounded by other canoe owners, crew members, and friends, resting and/or socializing in netted enclosures. In these clubs, canoe owners were busy playing checkers, chatting on their phones, watching videos on their phones, eating, drinking akpeteshie [En. palm wine], socializing, repairing nets, and relaxing. At any given time, there could be five to ten people in these spaces, and isolating canoe owners for an interview was challenging, if not outright impossible.

Canoe owners frequently insisted I ask them questions in these congested and distracting spaces, in front of other fisherfolk, who were not shy about chiming in during the interviews. One interview question would spark debate and discussion among everyone, which tainted interviews by conflating respondents’ individual thoughts and perceptions with those of the entire group. Other times, asking sensitive questions, pertaining to such issues as shark fin prices, in a group setting would make the respondent feel uncomfortable, causing the respondent to evade the question(s). If I was successful in isolating respondents, it was only temporarily, as onlookers would gather around during the interview. In addition, since I was in these communities during the peak, bumper season, respondents were often called away to attend to
work-related matters. In some instances, I was asked if the interview could be done another time, or if I could hurry up my questions, in which I had no choice but to duly oblige.

Identifying willing interview respondents was among the chief challenges of the field practicum. In the field, I had assistants from the local community, employed by Hen Mpoano to collect catch data, helping me identify potential respondents, and to translate interviews from Fante to English when necessary. Having assistants to help me in the field was indispensable on the one hand, and detrimental on the other. For one, I feel that assistants’ ties to the communities we worked made it difficult to assuage respondents concerns that I would interfere, or worse, engage, in their business. On more than one occasion, despite communicating my intentions as simply a researcher, and disclosing the voluntary nature of their participation in the study, fisherfolk remained suspicious of my work, denying my request for an interview. However, this suspicion was the exception, not the rule, and most fisherfolk were happy to talk to me. I think that the use of field assistants, who often had family and friends engaged in local business, fishing-oriented or otherwise, may have exacerbated the issue of trust between interviewer and respondent. Also, one field assistant found every opportunity to socialize during interviews, often walking away mid-interview to take phone calls, chat with friends, or catch a bite to eat.

Later in my stay, I traveled to Kumasi, the second largest city in Ghana, and Tema, the major port city, close to the capital Accra, to find bigger shark fin traders. I scoured local markets, Chinese and Korean markets and restaurants, casinos, and the Tema harbor to find bigger traders. Unfortunately, I was unable to find the major players in the export trade. Since neither my host organization, nor staff at the Fisheries Commission, knew much about the export of shark fins, I was largely on my own, roaming the streets looking for people who possessed
any information relevant to the trade. I used a snowball sampling system to track down those knowledgeable of, or involved in, the shark fin trade, in Takoradi, Kumasi, and Tema.

I used primary and secondary literature to corroborate some of the findings yielded from the semi-structured interviews. The primary literature consisted of international catch and trade data, data from nationwide canoe surveys, and Ghanaian legal documents. The secondary literature consists of reports and academic articles written about shark fishing, the shark fin trade, and conservation, in other areas around the world.
Results

History

It seems that the fin trade began sometime in the mid to late 1970s. A canoe owner in Shama Apo told me that he remembered exactly when it started, in August of 1974; he claims that he remembered because it was during that time that driving changed from right-hand to left-hand-side driving. Another canoe owner claimed that the fin trade started around 1975 or 1977. Yet another canoe owner, in Axim, claimed that the fin trade began between 1983 to 1985. It is likely that fishermen in different landing beaches began trading fins at different times.

All the canoe owners who claimed to have remembered the beginning of the fin trade reported that the early days were not a monetary trade, but rather a barter trade. Back then, fins were traded for nets, lanterns, metal pans, lamps, soap, sugar, and rice. Canoe owners reported recalling buyers from Togo, Senegal, China, and/or broadly Asia. The fin trade is monetary today, but the shift from barter to monetary trade is unknown. One canoe owner I interviewed in Axim, but is from Moree, claims that the fin trade became a cash trade in 1991. However, another canoe owner I spoke to claims that the cash trade for fins began in the early 1980s.

The one middleman from Guinea I spoke to claims that there are 5 Guinean buyers that live in Shama, and that they all sell fins to buyers in Tema. He sells to Chinese buyers. He told me that he moved to Ghana from Togo, where he was working in the garment industry, and it is in Togo that he saw Chinese people interested in buying shark fins.

Agreements

Most of the canoe owners and middlemen I interviewed (81%) had some type of agreement with either the seller upstream or the next buyer downstream in the shark fin supply
chain. While the precise nature of these agreements varied, most of them involved the next buyer downstream – a middleman or another canoe owner – providing cash loans to fishermen in exchange for exclusive buying rights to the fins. Canoe owners indicated that loans were primarily used to purchase fishing gear and repair canoes, and that fin buyers would sometimes buy gear outright in lieu of loaning cash.

Rather than a fixed-term loan agreement, where regular payments are expected with a mutually agreed-upon interest rate, fin buyers who have an agreement with their sellers will demand a lower price for the fins if the seller still owes money on a loan. Most canoe owners indicated that the fin prices buyers would demand if they still owed on a loan was anywhere between a third to a half lower than they would normally pay; some canoe owners simply said that the price would be lower, though the precise price difference depended on other factors, like species, and was thus hard to determine. The extra profit margin that the buyer earned from paying lower fin prices serves as the interest paid.

Those who did not have a loan agreement with a buyer, and still sold to only one buyer, cited loyalty and trust as the primary reason.

**Experience**

Canoe owners’ experience in the fishing industry ranged from 10 to 50 years (average of 27 years). With respects to trading fins, canoe owners and middlemen reported having been in the trade for an average of 18 years (range of 3 to 37 years). The average age of canoe owners and middlemen was 51 (range of 37 to 67).
Trade complexity

The average number of canoes owned by canoe owners was 2 (range of 1 to 4). Most of the canoe owners and middlemen interviewed reported selling to only one buyer (68%). The rest reported selling to two buyers (32%). Middlemen reported buying from an average of 19 sellers (range of 8 to 30).

In response to the question “What is the nationality of your fin buyer(s)” canoe owners and middlemen answered Guinea (41%), followed by Ghana (35%), Ghana and Guinea (12%), and China (12%). No canoe owners reported their buyers to be Chinese, and no middlemen reported their buyers to be Ghanaian, further downstream.

Livelihood

Most middlemen (80%) reported that shark fins were their main source of income. Few canoe owners reported that shark fins were their main source of income (38%), citing fish as their main source of income (mostly tuna species).

Shark fishing techniques, costs, and seasonality

Canoe owners reported the distance they travel out to sea to catch shark to be around 155km (average), with a range of 77.5km to 250km. Canoe owners reported fishing trips to be around 4 days (range of 2.5 to 5 days), at a total cost of between 1,250 to 2000 Ghana Cedis per trip (average of 1600 Ghana Cedis, which is roughly $360 USD). In response to the question “When is best season to catch shark,” I received a wide array of answers. It seems that the tremendous variability in the answers I received is because fishing is a year-round job in Ghana. The two productive upwelling seasons in Ghana are December/January - February and July -
September, though fishermen indicated that the latter was the bumper season. For sharks specifically, canoe owners cited distance, quality of the bait, and the lunar cycle as the most important determiners of productive shark catches.

One canoe owner told me that in December, fishermen start to travel a further distance to fish because the tuna season is over; at further distances, he claims, fishermen can catch more sharks. Many canoe owners I spoke to corroborate the fact that sharks are more prevalent in the deep ocean, further away from the shore. However, I received conflicting information with regards to the nature of sharks during the rainy (bumper) season. For instance, one canoe owner told me that during the rainy (bumper) season, the big fish, like marlins, swordfish, and sharks, will follow the small fish closer to the surface and to the shore, making them easier to catch. Canoe owners corroborated the fact that during the rainy season, fish come closer to the shore and surface, but the question remains whether sharks follow the same pattern during the rainy (bumper) season. It may be that since fishermen are focused on catching tuna species during the rainy season, that they neglect to throw hooks and longlines, which are used specifically to catch sharks.

Figure 16. Hook used to catch shark in Shama. (Author’s photo, 2017)
Canoe owners communicated the importance of good bait to catching sharks. They reported that the best bait was dolphin, which they catch, mainly as bycatch, or purchase from Sekondi or Tema. Canoe owners reported that alternative baits could be used, including pork, beef, and herring, but that dolphin was ideal. Canoe owners also widely reported that sharks were easier to catch during a full moon when the bait is more visible.

Figure 17. Dolphin on cart in the Tema Fishing Harbor. (Author’s photo, 2017)

One canoe owner explained to me that canoes typically carry between 20 and 30 nets. At 6:00pm, as the canoe owner explained, fishermen cast all their nets. The nets will remain in the water for 6-7 hours, so by 12:00 to 1:00am, the fishermen begin to pull up the nets into the canoe. At that point, depending on how many fish they caught, they will determine if they need
to travel further out. They do not cast their nets again until 6:00pm. The reason they deploy their nets at night is because at night, the fish are unable to see the drift nets, and get caught in them.

Figure 18. Fishermen repairing nets in Axim. (Author’s photo, 2017)

**Laws**

The majority of canoe owners, and all of the middlemen, I interviewed were not aware of any laws governing the catching or trading of sharks and shark products (i.e. fins). Surprisingly though, one canoe owner I spoke to in Axim told me he thought fisheries law bans the capture of endangered sharks, dolphins, and sea turtles. He continued by saying that no one, to his knowledge, has been punished for catching sharks, but that he knew of a fisherman being arrested for catching dolphin. At least four canoe owners mentioned that they were not allowed
to catch sea turtles. At least nine canoe owners mentioned that they were not allowed to catch
dolphins.

Figure 19. A butchered sea turtle in Shama. (Author’s photo, 2017)
According to the Fisheries Act - 2002 (Act 625), marine mammals, which include dolphins, are not allowed to be fished for Ghanaian waters, and “Any marine mammal caught incidentally shall be released immediately and returned to the waters from which it was taken with the least possible injury” (Ministry of Fisheries and Aquaculture Development, 2002: 37). According to the law, penalties for breaking this law will not be less than $50,000 USD for local industrial or semi-industrial vessels, not more than $1,000,000 USD for foreign vessels, and “500 penalty units in any other case” (Ibid). According to the Wildlife Preservation Act - 1961 (Act 43), all marine turtles are protected from being hunted, captured, or destroyed at all times (Forestry Commission of Ghana, 1961: 4358).

Sharks are not explicitly protected under Ghanaian fisheries law. Laws governing tuna also apply to shark species, as “tuna” is defined in the fisheries law to “include[s] tuna-like species of fish and sharks (Ministry of Fisheries and Aquaculture Development, 2002: 65). However, under the Fisheries (Amendment) Act of 2014 (Act 880), the Fisheries Act of 2002 (Act 625) is amended to include a new section (45a) under section 45 “Consultation on international fisheries management,” as follows: “Giving effect to international conservation and management obligations” whereby “The minister shall, by notice in the Gazette, publish the list of international fisheries conservation and management which are binding on the Republic” (Ministry of Fisheries and Aquaculture Development, 2014: 2).

The canoe owners that knew they were not supposed to catch dolphin expressed that they caught them anyway. One canoe in Dixcove told me “When we catch dolphin and they are dead when we bring them up to the boat, we obviously take them. What’s the point in throwing them away?” (paraphrased from interview, June 18th, 2017). Canoe owners also indicated that they

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47 The genera *Chelonia* is completely protected, and the law specifically mentions Hawksbill turtle (*Eretmochelys imbricata*), Green or Edible turtle (*Chelonia mydas*), and Leathery turtle (*Dermochelys coriacea*) (Ibid).
would hide the dolphins they caught if necessary, but that such laws were not really enforced. A
couple of canoe owners juxtaposed the lacking enforcement of such laws in Ghana with the
robust enforcement and tight laws of Ivory Coast.

**Crew Payment**

The pay structure in the artisanal fishery is largely uniform throughout Ghana. Individual
crew members work for a canoe owner for anywhere between one to three years, depending on
the specific contractual agreement, before being paid cash. During this period, canoe owners will
calculate the profit earned after each fishing trip; that is, they will record the total amount of
money they will be paid by the fishmongers for their catch, subtracting the costs associated with
the fishing trip (repairs, gear, fuel, food and water, etc.). Before profit is calculated, however,
crew members are entitled to take home a certain amount of fish from that trip, which they
consume and sell, and this serves as their salary within the one-to-three-year period where they
are not paid in cash by their canoe owner. The fish they are entitled to take home after each trip,
their interim salary, is called *Mboadze* in the local Fante language. At the end of the period in
which the crew members and canoe owner agreed, half of the total profits within that period will
be given to the crew members, divided among themselves based on crew position and seniority,
and the other half of the profits will be kept by the canoe owner. Informal conversations with
fishermen suggest that canoe captains (Fante: Edzekyir) determine how the money is divided
between the crew.

Most canoe owners I spoke to claimed that revenues from shark fins are not included in
this revenue-sharing system, and that the money from shark fins goes to the canoe owner alone.
Some of the canoe owners expressed that the revenue from shark fin sales went towards gear
purchase and canoe maintenance/repairs. One canoe owner indicated that he gave a third of the money from fins to his crewmen.

Figure 20. Fisherfolk sorting through tuna catch in Dixcove. (Author’s photo, 2017)
**Catch and species composition**

All but one canoe owner I spoke to indicated that shark catches have generally decreased, and all of them told me that the composition of their shark catch has changed over time. When asked to elaborate on how the composition of their shark catches have changed, most of them indicated that while they used to catch an array of species before, now most of their catches are composed of blue sharks. Specifically, many canoe owners told me that they do not catch hammerhead or milk sharks anymore, even though they used to before. The middlemen I spoke to corroborated this; one Guinean middleman I spoke to said “Hammerheads and Milk sharks have decreased a lot! The last time I saw Hammerhead fins was two months ago” (paraphrased from interview in Shama, June 7th, 2017). Another Ghanaian middleman I spoke to from Shama said “7 years ago, I was buying over 120 kgs of fins per month from fishermen, and now I am getting only over 85 kgs of fins in the good season and only over 55 kgs of fins in the bad season (paraphrased from interview in Shama, June 1st, 2017). One canoe owner from Moree lamented “30 years ago, we could catch 100 sharks per canoe per trip, and trips were only 2 days total” (paraphrased from interview in Axim, July 12th, 2017). The increased time spent at sea (average of 4 days) reflects the farther distances fishermen must go to catch fish, especially sharks. In terms of changes in sizes of sharks caught, most canoe owners (64%) reported that the sizes of sharks they caught have decreased, while the remaining reported the sizes have stayed the same.
The narrative with regards to blue sharks is consistent with the academic literature. Blue shark catches have swelled three-fold since 2000 (IUCN, 2008, Cited in Vallianos et al: 23). A recent study found that between 34.1 percent to 64.2 percent of shark fins traded in Hong Kong in 2015 were blue shark fins (Fields et al, 2017, cited in Vallianos et al: 23). One factor that may explain the increase in blue shark capture in Ghana is that they are especially vulnerable to the pelagic hook and longline technique used (Coelho, 2012, cited in Vallianos et al: 23). Another reason may be that other species are becoming scarcer.
Prices

Canoe owners and middlemen agreed that prices for shark fins have generally increased over time. The interview data reveal historical price fluctuations, though determining when the hikes and falls occurred is difficult. It seems that somewhere between 2011 and 2013, prices fell, and since 2014 have been rising. Many canoe owners claim that current prices (summer, 2017) are the highest they have ever been, and are stable. Many canoe owners also reported that fin prices increased with the appreciation of the US dollar over the Ghana Cedi, and at least one noted that fin prices increase with oil prices.

Figure 22. Various types of shark fin laying out to dry outside of middleman’s home in Shama. (Author’s photo, 2017)
When inquiring into historical price decreases, some canoe owners said that there were points in time when the trade completely halted. One canoe owner in Shama claimed that buyers stopped buying fins around 2014. A Guinean middleman I spoke to confirmed this by telling me that the Chinese people who bought fins from him stopped buying for a period of 6 months sometime around 2013, though he was unsure of the precise year. Other canoe owners, referencing different years (2000, 2010, 2011, 2013, and 2015), specified that buying/selling freezes occurred because of adverse health effects and investigations into drugs (cocaine) being smuggled in fin cargo. I was unable to confirm this information in any reports.
### Species, fin type, fin price, and conservation status

<table>
<thead>
<tr>
<th>Name</th>
<th>Scientific Name</th>
<th>Local Name (Fante)</th>
<th>Price paid to canoe owner (average; no money owed on loan; expressed in GH₵ per dry kilo)</th>
<th>Middleman sale price (average; no money owed; expressed in GH₵ per dry kilo, with USD equivalent)</th>
<th>Conservation Status (IUCN, 2016)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Great White (tail only)</td>
<td>Carcharodon carcharias</td>
<td>Edu</td>
<td>275</td>
<td>367 ($83)</td>
<td>Vulnerable&lt;sup&gt;48&lt;/sup&gt;</td>
</tr>
<tr>
<td>Great White (excludes tail)</td>
<td></td>
<td></td>
<td>5-25</td>
<td>10-30 ($2.25-$6.80)</td>
<td></td>
</tr>
<tr>
<td>Common Thresher (tail only)</td>
<td>Alopias vulpinus</td>
<td>Katsipole/pole</td>
<td>213</td>
<td>280 ($63)</td>
<td>Vulnerable</td>
</tr>
<tr>
<td>Common Thresher (excludes tail)</td>
<td></td>
<td></td>
<td>5-25</td>
<td>10-30 ($2.25-$6.80)</td>
<td></td>
</tr>
<tr>
<td>Hammerhead</td>
<td>Sphyrna spp.</td>
<td>Anto</td>
<td>247</td>
<td>305 ($69)</td>
<td>Vulnerable&lt;sup&gt;49&lt;/sup&gt;</td>
</tr>
<tr>
<td>Milk</td>
<td>Rhizoprionodon acutus</td>
<td>Esua</td>
<td>256</td>
<td>355 ($80)</td>
<td>Least Concern&lt;sup&gt;50&lt;/sup&gt;</td>
</tr>
<tr>
<td>Blue</td>
<td>Prionace glauca</td>
<td>Semin/Agrogro</td>
<td>112</td>
<td>170 ($39)</td>
<td>Near Threatened&lt;sup&gt;51&lt;/sup&gt;</td>
</tr>
<tr>
<td>Sand Tiger</td>
<td>Carcharias taurus</td>
<td>Ewia Ber</td>
<td>102</td>
<td>162 ($36)</td>
<td>Vulnerable&lt;sup&gt;52&lt;/sup&gt;</td>
</tr>
<tr>
<td>Common Tiger</td>
<td>Galeocerdo cuvier</td>
<td>Mpo Agyinamo</td>
<td>107</td>
<td>137 ($31)</td>
<td>Near Threatened&lt;sup&gt;53&lt;/sup&gt;</td>
</tr>
<tr>
<td>Common Guitarfish&lt;sup&gt;54&lt;/sup&gt;</td>
<td>Rhinobatos rhinobatos</td>
<td>Esin</td>
<td>196</td>
<td>200 ($45)</td>
<td>Endangered</td>
</tr>
</tbody>
</table>

Figure 23. The table shows the prices of fins broken down by type and species at different levels of the value chain, as well the IUCN conservation status of each species. (Author’s photo, 2017)

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<sup>48</sup> Needs updating; last assessed in 2005 (IUCN, 2016).
<sup>49</sup> Unsure of the different types of Hammerhead species caught in Ghana, so the generic Sphyrna spp. is used.
<sup>50</sup> Needs updating; last assessed in 2003 (Ibid).
<sup>51</sup> Needs updating; last assessed in 2005 (Ibid).
<sup>52</sup> Needs updating; last assessed in 2005 (Ibid).
<sup>53</sup> Needs updating; last assessed in 2005 (Ibid).
<sup>54</sup> Guitarfish is not a species of shark, although the fins are harvested.
Of the sharks mentioned in Figure 23 above, Hammerhead and Thresher sharks are also listed under Appendix II of CITES, which means they are “not necessarily now threatened with extinction but that may become so unless trade is closely controlled” (CITES, 2017).

**Domestic Market and Exports**

Informal conversations and interviews with Chinese restaurateurs, canoe owners, and middlemen lead me to believe that a small domestic market for shark fin exists in Ghana. I was able to find Shark Fin Soup on menus of five Chinese restaurants, one in Takoradi, two in Kumasi, and two in Tema. However, cooks and managers at these restaurants indicated that shark fins are either not regularly in stock or sold, or not sold at all. One manager in Kumasi told me that although shark fin soup was printed on the menu, it has not been sold in the decade he has been working there. Another manager told me that the kitchen only had a little bit of shark fin left in stock.

Figure 24. Snapshot of menu at the Chinese menu at Han Palace Chinese Restaurant in Takoradi. Number 129 is Shark Fin Soup, at a price of 100 Ghana Cedis ($22 USD). (Author’s photo, 2017)
Though I was unable to find major exporters of shark fin in Ghana, I did find one Chinese restaurant and hotel owner in Tema who told me he sold shark fins to Chinese people. However, he claimed that his customers only purchased a couple kilograms, at most five, of shark fins before they went back to China. He was not comfortable discussing his profit margins with me, nor how he specifically processed the fins, but did tell me that the fin export trade probably runs through Togo. He did not provide me with any contacts who may know more about the fin export trade.

Figure 25. Asia Hotel and Restaurant in (Author’s photo, 2017)
While it is difficult to tell where fins are exported from, the publicly-available data from UN COMTRADE indicates that fins are being exported from both Ghana and Togo, though exports from Togo are greater in quantity and value (see Figures 27 and 28 on the following pages).
<table>
<thead>
<tr>
<th>Year</th>
<th>Flow</th>
<th>Reporter</th>
<th>Partner</th>
<th>Commodity Code</th>
<th>Trade Value (USD)</th>
<th>Net Weight (Kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2012</td>
<td>Import</td>
<td>Singapore</td>
<td>Ghana</td>
<td>030571</td>
<td>$251,866</td>
<td>14,350</td>
</tr>
<tr>
<td>2013</td>
<td>Export</td>
<td>Guinea</td>
<td>Ghana</td>
<td>030571</td>
<td>$11,400</td>
<td>12,000</td>
</tr>
<tr>
<td>2013</td>
<td>Import</td>
<td>Singapore</td>
<td>Ghana</td>
<td>030571</td>
<td>$3,909</td>
<td>500</td>
</tr>
<tr>
<td>2014</td>
<td>Import</td>
<td>Hong Kong</td>
<td>Ghana</td>
<td>030571</td>
<td>$295,329</td>
<td>4,944</td>
</tr>
<tr>
<td>2014</td>
<td>Import</td>
<td>Singapore</td>
<td>Ghana</td>
<td>030571</td>
<td>$644,033</td>
<td>33,500</td>
</tr>
<tr>
<td>2015</td>
<td>Import</td>
<td>Hong Kong</td>
<td>Ghana</td>
<td>030571</td>
<td>$267,724</td>
<td>3,430</td>
</tr>
<tr>
<td>2016</td>
<td>Import</td>
<td>Hong Kong</td>
<td>Ghana</td>
<td>030571</td>
<td>$1,389,798</td>
<td>29,627</td>
</tr>
<tr>
<td>2016</td>
<td>Import</td>
<td>Singapore</td>
<td>Ghana</td>
<td>030571</td>
<td>$620,430</td>
<td>61,740</td>
</tr>
<tr>
<td>2017</td>
<td>Import</td>
<td>Hong Kong</td>
<td>Ghana</td>
<td>030392</td>
<td>$703,754</td>
<td>11,350</td>
</tr>
<tr>
<td>2017</td>
<td>Import</td>
<td>Hong Kong</td>
<td>Ghana</td>
<td>030571</td>
<td>$677,357</td>
<td>7,521</td>
</tr>
</tbody>
</table>

Figure 27. Exports of shark fin from Ghana, 2012 – 2017 (United Nations, 2017c).55

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55 030571 - Fish Fins, Heads, Tails, Maws And Other Edible Fish Offal: Shark Fins
030392 - Fish; Frozen, Shark Fins
<table>
<thead>
<tr>
<th>Year</th>
<th>Flow</th>
<th>Reporter</th>
<th>Partner</th>
<th>Commodity Code</th>
<th>Trade Value (USD)</th>
<th>Net Weight (Kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2012</td>
<td>Import</td>
<td>Hong Kong</td>
<td>Togo</td>
<td>030571</td>
<td>$3,681,373</td>
<td>35,770</td>
</tr>
<tr>
<td>2013</td>
<td>Import</td>
<td>Hong Kong</td>
<td>Togo</td>
<td>030571</td>
<td>$1,385,549</td>
<td>19,194</td>
</tr>
<tr>
<td>2014</td>
<td>Import</td>
<td>Hong Kong</td>
<td>Togo</td>
<td>030571</td>
<td>$2,068,467</td>
<td>26,203</td>
</tr>
<tr>
<td>2015</td>
<td>Import</td>
<td>Hong Kong</td>
<td>Togo</td>
<td>030571</td>
<td>$1,818,889</td>
<td>29,070</td>
</tr>
<tr>
<td>2016</td>
<td>Import</td>
<td>Hong Kong</td>
<td>Togo</td>
<td>030571</td>
<td>$1,441,620</td>
<td>22,850</td>
</tr>
<tr>
<td>2017</td>
<td>Import</td>
<td>Hong Kong</td>
<td>Togo</td>
<td>030571</td>
<td>$1,608,498</td>
<td>23,253</td>
</tr>
</tbody>
</table>

Figure 28. Exports of shark fin from Togo, 2012 – 2017 (United Nations, 2017c).\(^{56}\)

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\(^{56}\) 030571 - Fish Fins, Heads, Tails, Maws And Other Edible Fish Offal: Shark Fins  
030392 - Fish; Frozen, Shark Fins
Discussion and Recommendations

The aim of this report and the associated field practicum was to determine the extent of the shark fin trade in Ghana, its inner rules and dynamics, and its social, economic, and environmental implications. This section outlines some recommendations for key stakeholders engaged in the shark fin trade in Ghana based on the research conducted for this report. Most of the recommendations below are focused on improving the management of the shark fishery through better research, monitoring, and enforcement. I have grouped recommendations by target stakeholder.

**Recommendations for National Government Agencies**

- Utilize local, regional, national, and international mechanisms to gather fisheries data of the highest caliber, especially with regards to shark species, and standardize the collection, storage, analysis, and sharing of said data among stakeholders.\(^{57}\)

Data paucity remains of the foremost challenges to improving the management of shark fisheries throughout the world. Ghana is no exception. Comprehensive fisheries data will help inform government policymakers and other stakeholders when it comes to taking measures to manage different fisheries. Such data (catch quantity, species composition and size, bycatch versus targeted catch, time at sea, number of fishermen, etc.) is extremely limited in Ghana, especially with regards to the shark fishery. This report uncovered several vulnerable or near-threatened shark species that are harvest for their meat and fins. Protecting these species requires a complete updating of stock assessments; these species may have since advanced into more serious conservation statuses, such as endangered, critically endangered or worse (IUCN, 2016).

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\(^{57}\) See recommendations from Diop et al, 2011: 74
For fisheries data to be successful in improving planning and management of shark fisheries, relevant stakeholders need to share information and resources. Standardizing data collection, storage, analysis, and sharing mechanisms is the best next step in achieving the goal of using data to inform better policy and action. The national government ought to be more proactive in coordinating activities and standardizing norms, procedures, and protocols between the various local, regional, and national agencies involved in shark fisheries management.

- **Monitor local and international shark markets, current and projected consumer trends, and trade patterns annually.**

Shark fisheries around the world are being exploited for various products, including meat, fins, and oil. However, old markets are shifting, new markets are emerging, laws and regulations are changing, and market forces are dictating new pathways. Therefore, it is imperative that the national government agencies stay on top of these changes by monitoring market trends. By monitoring market trends, national government agencies can better anticipate future regulatory needs, and maintain resilience in the face of uncertain, constantly-changing markets. This information will also allow policymakers and others to legitimize their actions, and better communicate directives to local-level stakeholders.

- **Communicate the importance of shark populations and their conservation throughout Ghana, especially in coastal communities.**

The success of conservation and management efforts, in the forms of regulations, monitoring, and enforcement, is contingent on local, community buy-in. While legislation and a strong regulatory framework is important in fisheries conservation and management, it has not
proven sufficient in combatting illegal, unreported, and unregulated (IUU) fishing. The research in this report found that few fisherfolk were aware of the importance of shark stocks, and the integral role they play in the marine ecosystem. The national government should carry out educational campaigns throughout the country, especially in coastal communities, to stress the critical role sharks play in the ecosystem, and more importantly, how depleted stocks will affect people’s livelihoods.

- **Strengthen institutional capacity so that the Ghanaian Fisheries Commission and other stakeholders can monitor and enforce illegal, unreported, and unregulated (IUU) fishing, and empower artisanal fishermen with the necessary resources to improve monitoring, reporting, and enforcement practices.**

Previous recommendations have underscored the importance of information as a means of informing better practices. Above placing a premium on information, including qualitative and quantitative data, the national government must commit themselves to strengthening the capacity of the Fisheries Commission and other stakeholders so that they can gather information. More resources – money, equipment, manpower, and training – need to be allocated towards the monitoring and enforcement of the shark fishery. Meetings with stakeholders tasked with fisheries monitoring and enforcement explained how dismal resources severely limited their abilities to carry out their work. Local stakeholders, including the fishermen themselves, must also be empowered to improve monitoring and enforcement of the shark fishery. This will not only require a substantial amount of resources, including money and training, but also the explicit authority from national government agencies.
- **Broaden multi-stakeholder partnerships for the monitoring, conservation, and protection of sharks and other vulnerable and endangered species in Ghana.**

The national government agencies must not only work together, but also work with other stakeholders engaged in monitoring, conservation, and protection of sharks and other vulnerable and endangered species. National government agencies, such as the Fisheries Commission, must strive to collaborate with local, national, and international NGOs, educational institutions, and other stakeholders who can fill gaps in knowledge, expertise, and local context. Learning from, and growing with, partners is key to the success of any actions with regards to conservation and management of shark species because they are migratory, and their interactions with ecosystems are complex. In addition, since many of the drivers of the shark trade, and challenges facing fishing communities, fall outside of the purview of the Fisheries Commission and other government entities, the government must work with others to tackle underlying issues influencing the conservation and management of shark species.

- **Increase education and training for students, technical staff, and others by leveraging partnerships at local, national, and international levels.**

The next generation of policymakers, scientists, educators, and advocates will have to deal with the manifold problems facing society and the environment. It is necessary for the national government to recognize the imperative to equip this next generation with tools to succeed in solving these problems. Since developing human capital requires an enormous amount of resources, the national government should take steps to increase investment in education by leveraging partnerships with international agencies, international institutions of higher learning (i.e. universities), and both domestic and foreign corporations. Increasing
investment in education and training for the current and future generation of fisheries-focused personnel would go a long way in improving the management and conservation of the shark fishery.

- **Strengthen institutional capacity so that the Customs Division of the Ghana Revenue Authority, Ghana Ports & Harbor Authority, and other stakeholders can monitor and regulate the activities of both domestic and foreign individuals and firms importing and exporting shark fins through Ghana’s ports and borders.**

Though this research did not uncover the major exporters of shark fin and other shark products in Ghana, it must be assumed that these products are being exported to other nations either vis-a-vis Kotoka International Airport, Port of Sekondi-Takoradi, and/or Port of Tema, or by way of Togo through the Ghana-Togo border at Aflao. The national government must strengthen the capacity of the Customs Division of the Ghana Revenue Authority, Ghana Ports & Harbor Authority, and other key stakeholders so that firms and individuals engaging in the shark fin trade are held accountable if they are breaking the law. The national government should train relevant personnel in these agencies on species identification, commodities coding, international regulations and restrictions (CITES, CMS, and WTO restrictions on the trade in wildlife products), and best practices in enforcement. In addition to training, the national government, in partnership with international agencies, must furnish personnel with other resources – money, equipment, and manpower – necessary to carry out their activities. Furthermore, the national government must ensure that these activities are carried out transparently, and that personnel engaged in corruption are prosecuted to the fullest extent of the law.
Utilize economic measures, such as taxes, duties, fees, penalties, and others, to bolster funding for shark research and conservation programs.

Ghana is a developing country that has many policy priorities above conservation. Given the limited financial resources allocated towards conservation programs and projects in Ghana, innovative solutions must be adopted to fill in the resource gap. One step the national government could take to fill the prevailing resource gap is to earmark certain funds collected through taxes, import and export duties, fees from fishing licenses, and penalties from fishing violations, towards shark research and conservation.

Ensure the interests of artisanal fishermen and their communities are protected.

Mistrust permeates the relationship between members of fishing communities and the national government. Any action, legislative or otherwise, taken to regulate the shark fishery must ensure that fishermen and their families are respected, and their livelihoods are protected. Protecting fisherfolk’s interests is fundamental to achieving management and conservation goals. Therefore, research, the creation of new policies, and other actions and activities must be coordinated with diverse community members, not only leading figures, like chief fishermen. Participation from men and women, canoe owners and crew members, government officials and traditional authorities, and everyone in between can maximize the potential for the success of conservation and management of the shark fishery.

Amend the Fisheries Act of 2002 (Act 625) to include endangered shark species.

The Fisheries Act of 2002 (Act 625) was amended in 2014 (Act 880) to allow the Minister of Fisheries and Aquaculture Development to “Giv[e] effect to international
conservation and management obligations” (Ministry of Fisheries and Aquaculture Development, 2014: 2). The specific legal provision allows the Minister to “publish the list of international fisheries conservation and management which are binding on the Republic [of Ghana]” (Ibid). While the language of the law is vague, it ostensibly requires the Minister to regulate species that Ghana must protect under its obligations to CITES, CMS, WTO, and other international conventions.

The research in this report found that Hammerheads and Thresher sharks, harvested for their fins and meat, are among the species listed under Appendix II of CITES. Appendix II of CITES designates species that are “not necessarily now threatened with extinction but that may become so unless trade is closely controlled” (CITES, 2017). Exports of species in this category, which include Hammerhead and Thresher sharks, are restricted in the following ways:

1) An export permit or re-export certificate issued by the Management Authority of the State of export or re-export is required.

2) An export permit may be issued only if the specimen was legally obtained and if the export will not be detrimental to the survival of the species.

3) A re-export certificate may be issued only if the specimen was imported in accordance with the Convention (CITES, 2017).

The author recommends that the national government further amends the Fisheries Act of 2002 to incorporate endangered shark species by explicitly stipulating export restrictions and other regulations consistent with CITES and other conventions.
- **Amend the Wildlife Preservation Act - 1961 (Act 43) to prohibit the capture of dolphins.**

  The research in this report showed that dolphins are the preferred bait used to catch sharks and are therefore targeted in Ghana. One step the national government could take to ensure conservation and protection efforts are uniform throughout different agencies would be to synchronize the Wildlife Preservation Act of 1961 (Act 43) with the Fisheries Act of 2002 (Act 625) to specifically prohibit the capture of dolphins.

- **Strengthen relationships with CITES, CMS, and other international conventions, mechanisms, and programs so that Ghana is aligned with best practices in conservation of sharks and other wildlife.**

  This recommendation echoes a previous recommendation that calls on the national government to broaden multi-stakeholder partnerships. CITES, CMS, and other international conventions, mechanisms, and programs possess a deep knowledge and understanding of the conservation of sharks and other wildlife. The national government should therefore strive to enhance their relationship with these entities, calling on them to lend expertise when necessary.

- **Design and implement a National Plan of Action (NPOA) in congruence with the UN’s International Plan of Action for Conservation and Management of Sharks (IPOA-Sharks).**

  A comprehensive NPOA would be a strong step in the right direction towards ensuring shark population are protected and managed sustainably in Ghanaian waters. Possessing a

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58 See recommendations from Diop et al., 2011: 75
59 See FAO, 2017b for information on IPOA-Sharks.
NPOA would demonstrate Ghana’s commitment towards shark species, and would also serve the generation of future legislation, regulation, etc.

- **Advocate for the elevation of Blue sharks (Prionace glauca) to conservation status as prescribed in CITES Appendix II at the United Nations’ Conference of Parties 2018 in Sri Lanka in 2019.**

   As mentioned in the results section of this report, the capture of Blue sharks has increased precipitously. During the United Nations’ Conference of Parties in 2018, representatives of member states will convene to review the implementation of CITES and consider species to add to the CITES Appendices I and II. The delegation from Ghana should push member states to review the status of Blue sharks, and perhaps lobby to have the species included in Appendix II to stave off further declines in their populations.

**Recommendations for International Agencies**

- **Leverage resources to aid relevant government agencies in Ghana to better conserve and manage their shark fisheries.**

   This recommendation is brought and serves to underscore the need for international agencies, such as the Fisheries and Aquaculture Department of the FAO, to step up their work in developing countries. As mentioned throughout this report, Ghana has limited resources to allocate towards fisheries conservation and management, and yet has the most to lose from depleted fish stocks. It is time that the countries that are contributing most to the shark crisis,

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60 This recommendation comes from WildAid. See Vallianos *et al*, 2018: 25.
such as China, and developed countries that have expendable resources, take responsibility and work through international agencies to help those countries in need. Resources to contribute include research, technology and capacity, training, education, and finances.
My Experience and Advice to Future MDP Students

The Field Practicum experience remains one of the most unique and rewarding experiences of my life. Through the Field Practicum, I had the chance to spend the summer in a country I had never been, perfect my local language skills (Twi), and meet some truly inspiring people. I must say that the best part of the experience was living with a local family. Most mornings, if I didn’t wake up to the crowing of roosters or the shouting of hawkers peddling their goods, I woke up to the sounds of incessant knocking on my door. Promptly at the crack of dawn, whether I was awake or not, four of the most adorable children would gather outside of my door, banging and laughing, inviting me to join them for a breakfast of oats before they went to school.

I recall those mornings with great fondness. When I think back to my Field Practicum, that scene – the chaos of Fifi and Adom fighting, Isabelle laughing, Kofi crying, and Nhyira meticulously placing his textbooks in his bag – comes to mind before anything else. The opportunity to be a part of these kids lives, be accepted into a Ghanaian family, and learn from ordinary people as they partake in the routines of everyday life, was something I would not trade in for anything. On a more logistical note, having a family and support systems that can help you is important. If I hadn’t lived with a local family, it would have been exceedingly difficult to manage some of the more difficult things one may encounter in the field, like going to the hospital or extending a visa.

I would therefore highly encourage future MDP students to identify people, perhaps a local family, they can share the Field Practicum experience with. Whether you live with them or not, you can learn from them in wonderful ways, and they can support you when you become stressed and face challenges, which you undoubtedly will.
Figure 29. Picture with Amma and the boys in Mpatado. (Author’s photo, 2017).

Figure 30. Gentleman on bike in Mpatado. (Author’s photo, 2017)
As for the more concrete elements of the Field Practicum, like the research, choosing a partner organization, etc. I would encourage future MDP students to start to look for organizations and opportunities early. The spring semester before your field practicum will begin and end in a flash, and you do not want to be left without a project, or without accommodations, a week before you are supposed to depart for the field. At the same time, you want ample time to think about what kind of experience you want, how the Field Practicum fits in with your education and career goals, and the organization and context that will allow you to achieve those goals.

I chose my Field Practicum because I knew I wanted to go to Ghana. After connecting with several UF faculty and alumni, I finally came across Hen Mpoano, the organization I worked with through the summer. Since I felt strapped for time, I accepted the offer to work with Hen Mpoano on this project. This was the first and only offer I received. Looking back, I wish I would have considered the work, and how it would fit in with my career goals. My interest in fisheries work was nonexistent before carrying out my Field Practicum, and I am not actively pursuing a career in fisheries work after graduation.

Another consideration I wish I would have paid more attention to was the size and capacity of the organization. Hen Mpoano is a small, specialized environmental NGO. Prior to my arrival in Ghana, I had minimal logistical support from the organization. I was left to find housing, coordinate transportation, and figure out other logistics by myself. When I arrived in Takoradi, I was warmly welcomed by the organization, given a desk, and acquainted with its structure, operations, and projects. However, when it came to conducting the research for my field practicum, Hen Mpoano provided little support. Transportation and accommodations in the
field were not coordinated by the NGO, despite assurances of such logistical support. I attribute the lack of support to the size of the NGO and limited capacity. After all, each staff member was busy doing their own work, and had little time to deal with my concerns. Most of the help I received in Ghana came from my host family and their connections.

After returning to Gainesville after completing my fieldwork, my requests for the data I had failed to secure in country went unanswered. I cannot blame this all on Hen Mpoano because requests for data had to be made through various agencies, like the Fisheries Commission and the Ghana Export Promotions Authority. However, I was disappointed that Hen Mpoano, with direct connections to such agencies, could not do more to help fulfill my requests. When I was in the process of writing my Field Practicum report, requests from Hen Mpoano to edit and provide feedback also went unanswered.

In all, I cannot stress enough the importance of thinking about the organization you want to work with. Small organizations, like Hen Mpoano, may not have the resources or capacity to take you in, teach you, mentor you, and guide you. Part of the Field Practicum is learning the ins and outs of a development organization. Unfortunately, I did not have the opportunity to imbed myself in the inner workings of a development organization.
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Appendix 2. Drift gill net description (Coastal Resources Center, 2010: 17).
Appendix III. Medium-size canoe for fishing with gill nets and drift nets (Doyi, 1984).
Figure 31. Fisherman repairing net in Dixcove. (Author’s photo, 2017)

Figure 32. Middleman displaying an assortment of dried fins in Axim. (Author’s photo, 2017)
Figure 33. Pile of blue sharks in Tema. (Author’s photo, 2017)

Figure 34. Canoe owners overseeing the landing in Dixcove. (Author’s photo, 2017).
Figure 35. Confiscated illegal (monofilament) nets at the Fisheries Commission office in Tema. (Author’s Photo, 2017).
Figure 36. Fin being weighed in Tema. Initials of the canoe company or canoe owner are written on the fins with charcoal (Author’s Photo, 2017).

Figure 37. The view from the roof of my house in Mpatado. (Author’s Photo, 2017).