

Improving International Fisheries Management by Prioritizing Geopolitical Issues: A Case Study
on Atlantic Shortfin Mako Management

By

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Table of Contents

List of Tables & Figures	4
Acknowledgements	6
Abstract	8
CHAPTER ONE: INTRODUCTION	9
Problem statement and research objective	9
Paper outline	10
<i>Background</i>	11
The origin of the high seas	11
RFMOs today	12
<i>ICCAT: Who are they and what do they do?</i>	14
Background	14
Data collection and use	14
Main actors at ICCAT	16
Assembling the nations	17
The decision-making process	18
A controversial past	20
<i>Species at ICCAT</i>	22
Management of sharks at ICCAT	22
Biology of the shortfin mako	23
<i>Mapping out the issue</i>	24
Management concerns for the shortfin mako	24
Conclusion	26
CHAPTER TWO	31
<i>Methods</i>	31
Semi-structured interviews	31
NVivo analysis	32
CHAPTER THREE	35
<i>Results</i>	35
Effective vs. Ineffective	35
Fisheries vs. non-fisheries factors	35
Industry-related factors	36
Science & data related factors	37
Unlawful activity factors	37
Institutional factors	37
Geopolitical factors	38
Economy-related factors	39
Background and perceptions of observers	40
Identifying priority areas needing improvement	40
Shortfin mako: Illicit activity in relation to Rec. 17-08	43

CHAPTER FOUR	66
<i>Discussion & conclusion</i>	66
Thoughts on challenging priority areas	66
Linking geopolitics and effectiveness at ICCAT	68
Next steps for research & conclusion	69
References	71
Appendices	76

List of Tables & Figures

Table 1. CPCs with ICCAT membership (52).....	27
Table 2. References made regarding effectiveness of ICCAT management, including representative quotes categorized under each factor.	46
Table 3. References made regarding issues/factors related to fisheries and unrelated to fisheries being discussed at ICCAT, including representative quotes categorized under.....	47
Table 4. References made relating to industry, including representative quotes from each issue/factor under the industry subcategory.....	48
Table 5. References made relating to science and data, including representative quotes from each issue/factor under the science and data subcategory.....	49
Table 6. References made relating to unlawful activity, including representative quotes from each issue/factor under the unlawful activity subcategory.	50
Table 7. References made relating to the ICCAT institution, including representative quotes from each issue/factor under the institutional subcategory.	51
Table 8. References made relating to geopolitics, including representative quotes from each issue/factor under the geopolitics subcategory.	53
Table 9. References made relating to economics, including representative quotes from each issue/factor under the economic subcategory.	55
Figure 1. World map indicating the Convention areas of the five current Tuna RFMOs in operation. ICCAT Convention area, indicated in yellow, spans the entirety of the Atlantic, and includes adjacent seas such as the Gulf of Mexico, Caribbean Sea, North Sea and Mediterranean Sea (World Ocean Review, n.d.).	28
Figure 2. The decision-making process at ICCAT and the pathway data/information must take between source and user before it is considered and informs decisions.....	29
Figure 3. Kobe plots for North Atlantic (NA) shortfin mako stocks produced in 2017 shortfin mako stock assessment by ICCAT. Plots are based on four different production model, which each identified NA stocks as overfished and experiencing overfishing (ICCAT, 2017)	30
Figure 4. Model used for analysis of interviews, consisting of four layers interviews were analyzed against; (1) effectiveness of ICCAT management, (2) relation of issues to	

fisheries, (3) issue/factor subcategories identified as themes in interviews, and (4) specific issues/factors related to each subcategory.	34
Figure 5. Pie chart displaying proportion of references made by participants relating to ICCAT’s effectiveness at managing shared fish stocks in the Atlantic.....	56
Figure 6. Pie chart displaying the proportion of references made by participants which were identified as either directly related to fisheries or unrelated to fisheries.	57
Figure 7. Pie charts displaying proportion of references made under subcategories related to fisheries (industry, science, unlawful activity) and those made under subcategories unrelated to fisheries (institution, geopolitics, economy).....	58
Figure 8. Pie chart displaying proportion of references made relating to issues/factors identified under the industry-related subcategory.	59
Figure 9. Pie chart displaying proportion of references made relating to issues/factors identified under the science-related subcategory.	60
Figure 10. Pie chart displaying proportion of references made relating to issues/factors identified under the unlawful activity subcategory.	61
Figure 11. Pie chart displaying proportion of references made relating to issues/factors identified under the institution-related subcategory.....	62
Figure 12. Pie chart displaying proportion of references made relating to issues/factors identified under the geopolitical subcategory.	63
Figure 13. Pie chart displaying proportion of references made relating to issues/factors identified under the economy subcategory.....	64
Figure 14. Bar chart displaying the proportion of references made for each issue/factor based on the background of participants. Participants were placed into one of three background categories, including conservation (orange), industry (yellow) or government (green).....	65

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Abstract

Managing internationally-shared fish stocks is incredibly difficult and requires international cooperation. The International Commission for the Conservation of Atlantic Tunas (ICCAT) is the regulatory body responsible for managing tuna and tuna-like species in Atlantic and adjacent seas fisheries. Although ICCAT has a strong conservation mandate, the abundances of pelagic species they manage have plummeted under their oversight. Furthermore, a lack of transparency regarding Commission meetings and the geopolitical relationships between Contracting Parties (CPCs) make understanding the ICCAT regime difficult. This research set out to describe and explain how these geopolitical relationships, and other barriers to cooperation, impact ICCAT effectiveness. Semi-structured interviews were conducted with individuals from various backgrounds who had past involvement attending ICCAT meetings. Interviews were analyzed to determine how participants perceive what goes on during ICCAT meetings, and analysis determined that not only are geopolitics playing a role in fisheries decision-making, but other factors are as well, especially those not directly related to fisheries. Overall, factors which are unrelated to fisheries management accounted for 62% of references made in relation to ineffective decision-making at ICCAT. Of those, institutional factors, such as ICCAT's failure to adapt to institutional inertia and the complex diversity of CPC's, were among issues referred to the most by interview participants as having an impact on effective decision-making. This research explores these factors which are infiltrating fisheries negotiations, using recent management decisions for threatened Atlantic shortfin mako stocks to further consider how factors are operating in real fisheries negotiations. This study also aims to prioritize factors, both related and unrelated to fisheries, that are considered in fisheries negotiations to inform improvements to decision-making in international fisheries fora.

Key words: ICCAT; RFMO; decision-making; shared fisheries; pelagic sharks; Atlantic shortfin mako; scientific recommendation; geopolitics; negotiation; institutional inertia

CHAPTER ONE: INTRODUCTION

Problem statement and research objective

Humans have had a long and complicated history with the oceans, and this history has shaped and influenced us for hundreds of thousands of years. The oceans have had a primary role in determining what we eat, where we live, and how we have evolved. They have also provided many resources that have created opportunity for society to develop and grow. But as we have grown, the capacity for our oceans to maintain that momentum and continue to provide those endless and essential resources has begun to dwindle (Grafton et al., 2007).

Our never-ending pursuit for more resources, and the economic prosperity that comes with resource exploitation, has pushed much of the activity occurring in our oceans to regions beyond the coastal waters of nation states, into what are known as the high seas. Due to the lack of national jurisdiction in these regions, as well as the enormous global interest in their potential, they require the collaboration of the international community to properly manage them. In fisheries, these collaborations coalesce to form what are known as Regional Fisheries Management Organizations (RFMOs), which operate to manage specific regions and groups of species as well as to manage the interest in them among nations around the globe.

Although RFMO's act as the regulatory body for these high seas regions, there is growing concern toward their ability to objectively and effectively manage the stocks under their purview (Cullis-Suzuki & Pauly, 2010; Telesca, 2015). This is especially true for RFMOs responsible for managing tuna and tuna-like species. The high commercial value for these species has attracted many nations to join these regulatory bodies in the hopes of gaining access to global trade markets and ultimately, a piece of the allocation "pie". But this swell of interest has also contributed to the complexity of RFMO regimes, and the political environment in which decisions are made (OECD, 2009). With so many members of the international community involved in their management, it is possible that other things operating in the international community, specifically with regard to geopolitics, could be infiltrating the management of these regimes (OECD, 2009; Telesca, 2015).

Using the International Commission for the Conservation of Atlantic Tunas (ICCAT) as a case study, this research aims to determine the frequency with which geopolitics enters fisheries management forums, as well as its perceived influence on decision-making from the various

actors who attend these forums (i.e., government, industry, environmental observer etc.). Additionally, RFMOs, most specifically ICCAT, have been criticized for many of the decisions they have made and their perceived effectiveness in sustainably managing the stocks under their authority. At the most recent ICCAT meeting held in Marrakesh, Morocco, nations failed to follow strong scientific advice calling for immediate drastic reduction in shortfin mako mortality. They also failed to agree on increasing monitoring and observer coverage for the purpose of improving our understanding of shortfin mako and the health status of Atlantic stocks. Using recent management of the shortfin mako at ICCAT as an example, this research will also explore the various factors which impact the overall effectiveness of ICCAT's recommendations and decision-making.

Finally, the question remains on whether these two aspects, geopolitics and effective decision-making, are independent or intertwined. Could geopolitical, or even just non-fisheries related issues in general be impacting the decisions that are made about fish, and the recommendations that are implemented at ICCAT? This research will attempt to identify any links between the two to determine the actual motivations driving negotiations and decisions at ICCAT.

Paper outline

This paper will begin by presenting some background information regarding fisheries management on the high seas as it pertains to RFMO management, and more specifically, ICCAT. Chapter 1 will also briefly outline some of the controversies around ICCAT's management history, and will explore management for the pelagic shark species commonly caught in association with ICCAT fisheries, such as the Atlantic shortfin mako.

Chapter 2 will explore the process with which information was collected, and presents the model used for analysis. Included in this chapter is the method of participant recruitment, description of the interview process, and description of all analytical processes.

Chapter 3 will present the results obtained in the previous chapter, including a series of figures to help visualize results. These results were determined through qualitative analysis of interviews conducted, and are expressed based on the perceptions of interview participants and the statements they made throughout interviews.

Finally, Chapter 4 will discuss these results in-depth to identify some of the key issues operating at ICCAT which are undermining the effectiveness of management outcomes. This section will include a number of quotes from interview participants to help support findings and explore these issues further. This discussion will also present which issues should be prioritized and addressed based on how often they are perceived by interview participants as negatively impacting ICCAT decision-making, and will conclude with some recommendations for the “next-steps” in this research.

Background

The origin of the high seas

The world's oceans are dynamic and continuous; borders and continental margins are obscured by choppy waves and endlessly looping currents. Although lines can, and have, been placed on a map to divide and designate ocean spaces, these illusory boundaries fail to adequately divide the marine life that teems below the surface. For this reason, managing ocean space is a challenging task, one that requires both cooperation and collaboration between nations across the globe.

Up until the mid-20th century, territorial boundaries were limited to those set by the Freedom of the Seas doctrine, which limited national and jurisdictional rights of ocean spaces to a marginal region along a nation's coastline (UN, 1982). This left the remainder of the world's oceans a common good, free to all and possessed by none (UN, 1982). As global interest in controlling marine resources, like oil and mineral reserves and fish grew, so did the push to extend national jurisdictions further offshore. The first challenge to the Freedom of the Seas doctrine came from the United States (US) led by President Harry Truman in 1945, which sought to extend US control of marine oil and gas reserves to the margins of the US continental shelf (UN, 1982). What followed the actions by the US was a cascade of nations looking to gain similar control over their surrounding waters and the resources hidden below. Growing demand for resources paired with the technological advances of the time meant the oceans were being exploited at a level higher and more efficient than ever before (Eigaard et al., 2014). Furthermore, competition for those marine resources resulted in rising tension and conflicting claims between nations over marine space.

In response to growing exploitation and a global interest in jurisdictional control, the United Nations (UN) recognized the need to update the Freedom of the Seas doctrine to account for technological advances and jurisdictional claims that were arising. Beginning in 1967, discussion over a new comprehensive treaty which would dictate how the oceans were managed commenced and persisted for 15 years until 1982 when the United Nations Convention on the Law of the Sea (UNCLOS) was adopted (UN, 1982). From this new constitution came one of its most notable features – the Exclusive Economic Zone (EEZ). These EEZ's designated jurisdictional control over the water column, sea floor and subsoils of coastal States to 200-nautical miles from shore; in other words, EEZ's transformed about one third of the worlds oceans into state property (Telesca, 2015; UN, 1998).

It was thought at the time that this transition to a compartmentalized ocean would result in greater fisheries sustainability. But anything beyond the borders of the EEZ's, deemed the high seas, remained a common good ripe for exploitation. UNCLOS and the designation of EEZ boundaries therefore failed to address the management of fish stocks that move within and between coastal EEZs as well as beyond EEZs into regions outside of national jurisdictions. Fish stocks which transcend the boundaries of national jurisdictions, commonly referred to as straddling fish stocks and migratory fish stocks, present distribution ranges that extend throughout the high seas and along many coastlines, running the risk of being exploited if they are not managed correctly (McWhinnie, 2009). The risk, and realization, of overexploitation led to the formation of the 1995 UN Fish Stocks Agreement, which saw the management of straddling and migratory fish stocks organized on a region-to-region basis by way of Regional Fisheries Management Organizations (RFMOs) (UN, 1995; Pintassilgo et al., 2010). These RFMOs would be made up of members of coastal states, states with distant water fishing operations and states claiming to have an interest in a specific stock or area (FAO, n.d.).

RFMOs today

RFMOs still function to facilitate the international collaboration needed to manage the fish stocks that are shared among states, and provide a platform where discussion and decision-making for these stocks can take place. RFMOs are considered regional fisheries bodies, and these bodies can have diverse roles in the management of the oceans; some act strictly as advisory bodies; some adopt legally binding conservation and management efforts; some focus

on managing inland or coastal fisheries; and some focus on promoting development and cooperation between states regarding fisheries specific issues (Asmundsson, 2016). What makes RFMOs different than the traditional regional fishery body, and what revolutionized the way commercial fisheries are managed, is the responsibility of RFMOs to abide by international law in adopting management measures for straddling and migratory stocks, as well as their role in managing regions within the high seas (Asmundsson, 2016).

Today, there are at least 16 RFMOs governing shared fish stocks within the oceans, with the potential for up to 18 organizations that could meet the requirements of being considered an RFMO (Asmundsson, 2016). In most cases, these organizations meet on an annual basis, if not more often, with delegates from member states joining to discuss and negotiate on regulation and policy for shared fish stocks (Axelrod, 2011). Not all RFMOs are created equal, and these organizations can be divided into three different groups; (1) General RFMOs; (2) Specialized RFMOs; and (3) Tuna RFMOs (OECD, 2007). General RFMOs are organizations with a wide management scope, adopting measures for most fisheries and species found within their designated Convention area. There are currently 8 General RFMOs and these are found throughout the high seas (Asmundsson, 2016). Specialized RFMOs are organizations with a narrow legal mandate that sees them managing specific types of fisheries or species. There are 3 official Specialized RFMOs in operation which are all species-specific, as well as 2 additional organizations which could be considered RFMOs due to their mandate relating to high seas management (Asmundsson, 2016).

Lastly are Tuna RFMOs. Although they are species specific like that of Specialized RFMOs, the unique characteristics of global tuna fisheries present challenges that require large management Convention areas to account for the highly migratory nature of the fish. There are 5 Tuna RFMOs operating in the international community, and these organizations are tasked with explicitly managing fisheries for tuna and tuna-like species (Figure 1) (Asmundsson, 2016). Tuna are considered one of the most commercially valuable species, and the industry is both lucrative and volatile. Due to the economic opportunities these fish present, there are over 70 countries currently involved in tuna fisheries worldwide (WWF, n.d.). Heavy fishing pressure and growing demand for the fish has led to overexploitation and population decline over time, but with so much to gain from the fishery, cooperation in management has been difficult (OECD, 2009; Cullis-Suzuki & Pauly, 2010; Telesca, 2015).

ICCAT: Who are they and what do they do?

Background

ICCAT represents the main governing body responsible for managing internationally shared fisheries for tuna and tuna-like species within the Atlantic Ocean and adjacent seas (ICCAT, n.d.) (Figure 1). The organization was established in 1969, three years after the Convention was signed at Rio de Janeiro's Conference of Plenipotentiaries in 1966 (ICCAT, n.d.). Although ICCAT is a tuna RFMO, as many as 30 species fall within their management Convention area, including marine birds, forage fish, and several pelagic shark species. These include yellowfin tuna, bigeye tuna, skipjack, albacore, Atlantic bluefin tuna, blue and white marlin, sailfish and swordfish, among others (ICCAT, n.d.). Under the Convention, ICCAT remains the only fishery organization which can complete the range of tasks needed to research and manage tuna and tuna-like species within the Atlantic, making them the authority for the commercial tuna industry in the region (FAO, n.d.).

There are currently 52 Contracting Parties (CPCs) who are members of ICCAT (ICCAT, n.d.) (Table 1). Membership within the organization is open to any government with an interest and/or stake in a specific stock or region within the ICCAT Convention area who is also a member state of the UN. Countries ineligible for membership may seek special "Cooperator" status within ICCAT, which grants them similar rights and obligations as CPCs (Table 1). There are currently five countries with this special status. These include Bolivia, Costa Rica, Chinese Taipei, Suriname and Guyana (ICCAT, n.d.). CPCs at ICCAT are required to meet every two years for General Commission meetings and every two years for Special Commission meetings as directed by the Convention text, with each Party sending a maximum of three representatives to delegate on the Party's behalf (ICCAT, 2017).

Data collection and use

In order to carry out the mandate of ICCAT, which focuses on the conservation of tuna and tuna-like species within the Atlantic Ocean, the Commission is responsible for undertaking research on the populations of species under their management through data collection and reporting by member countries. Research areas of interest include stock abundance, biometry and ecology of fishes, oceanographic characteristics of environments, and the effects of natural

stressors and anthropogenic activity on population health and abundance (ICCAT, 2017). Continuous collection of data is integral to forming reliable estimates for stocks with which CPCs use to inform management decisions.

Data collected for use at ICCAT consist mainly of fisheries observer data and personal communications data. Types of variables of interest that observers collect include the date, time and location of fishing events; total catch per fishing event; proportion of catch that consists of a target species; proportion of catch that consists of secondary catch and bycatch; the fate of bycatch (i.e., dead or alive, good health or bad health); amount of fish discarded and of what species; demographics of catch (i.e., males vs. females, adult vs. juvenile); fishing gear type; and tissue samples for genetic testing (Ruiz et al., 2017). These variables are important for producing reliable stock assessments and estimates as well as in determining demographics for total populations and subpopulation of species of interest within the Convention area. When up-to-date data and information for a species of interest is unavailable, historical data is often used to form estimates and assessments until new data can be obtained (ICCAT, 2017).

In accordance with the ICCAT Convention text, the Commission has four main duties in ensuring proper scientific information is obtained to inform new decisions. The first states that the Commission must collect and analyze statistical information relating to the current conditions and trends of fisheries resources which fall under the ICCAT Convention area/mandate (ICCAT, 2017). The second states the Commission must continuously study and appraise the methods used in decision-making and the measures being implemented to ensure management decisions will maintain stocks populations at levels which allow effective exploitation (ICCAT, 2017). Effective exploitation at ICCAT means managing a fishery in a way that allows for the Maximum Sustainable Yield to be obtained. This means management decisions must act to maintain fish stocks at levels where population growth is maximized, thus allowing for the highest amount of catch to be harvested while sustaining the stock for years to come (WWF, 2011). The third duty recommends the Commission regularly conduct studies and investigations on the CPCs (ICCAT, 2017). Lastly, the Commission is required to publish and disseminate all reports of any biological, statistical or other findings in a way that is accessible to the public (ICCAT, 2017).

The Convention text also outlines the responsibilities of CPCs in contributing to the collection of up-to-date biological and statistical data. Once accepted as a CPC at ICCAT, states

of interest are expected to collect adequate information and share findings as they pertain to statistics and economic related data via publication and through collaboration with the Commission. CPCs are also urged to create specialized departments within their fisheries administration departments which would support the undertaking of data collection and processing with regard to fisheries that fall under the Commission mandate.

Main actors at ICCAT

There are a number of organizational actors involved in ICCAT and the decision-making process in addition to the 52 CPCs and Coordinator status members. The first being the official Council. The Council consists of the assembly Chairman, Vice Chairman and representatives from between four and 10 CPCs excluding the Parties of the Chairman and Vice Chairman (Lovorka, 2007; ICCAT, 2017). Representatives of CPCs are elected to the Council at each regular Commission meeting. The Council performs such functions as are assigned in the ICCAT Convention text, which includes determining date and location of general assembly meetings, opening and closing meetings, and reporting to the Commission Executive Secretary on all matters relating to ICCAT staff (ICCAT 2017).

The Commission Executive Secretary is responsible for a number of functions at ICCAT, including for selecting and managing ICCAT administration, implementing the main functions of the Commission (ICCAT, n.d.). These include coordinating research programs, preparing budget estimates, dispersing funds for research and Commission affairs, arranging cooperation between sister organizations (i.e., other Tuna RFMOs), compiling fisheries statistics for review and preparing scientific and administrative reports (ICCAT, n.d.). Lastly, the Secretary is responsible for coordinating Panel discussions at ICCAT meetings. Panels that the Secretary coordinates include the Panel of Tropical Tunas, Northern Temperate Tunas, Southern Temperate Tunas, and Swordfish, Billfish and Small Tunas (Lovorka, 2007).

ICCAT also has a Standing Committee on Research and Statistics (SCRS). The SCRS carries out the scientific function of ICCAT by compiling fisheries statistics, coordinating research and stock assessments, providing quality and science-based management recommendations to the Commission on conservation and management measures, and advising the Commission on the analysis and dissemination of fisheries related statistics (ICCAT, n.d.). It is the responsibility of the SCRS to ensure the Commission has access to the most complete and

up-to-date information regarding fishing activity within the Convention area as well as biological information on the species under the ICCAT mandate (ICCAT, n.d.).

Other organizational actors/components operating at ICCAT include the Compliance Committee which is responsible for reviewing the compliance of CPCs to ICCAT rules and regulations, Permanent Working Groups (PWG) which are responsible for reviewing compliance of non-member states, the Standing Committee on Finance and Administration, and Special Working Groups which are responsible for discussing specific species, groups of species or regions within the Convention Area (Lovorka, 2007).

Non-Governmental Organizations (NGOs) have historically played a key role in influencing the decisions made at ICCAT and other RFMOs (Lovorka, 2007). NGOs will often participate in year-round lobbying to ensure their concerns are considered at the time of negotiations, and these concerns can be based on varying perspectives (Preble, 2011). For an NGO to be granted access to the inner-workings of ICCAT negotiations, they must qualify for “non-participatory observer status” (Preble, 2011). Under ICCAT’s “Guidelines and Criteria for Granting Observer Status”, NGOs must support the overall objectives of ICCAT and must demonstrate an interest in a specific species, group of species or region with the Convention area (Lovorka, 2007). As an official observer of the meetings, NGOs are permitted to sit-in on all meetings of ICCAT and its subsidiary bodies, with the exception of Executive Session meetings and meeting of the Heads of Delegations (Lovorka, 2007). NGOs, and other observers, are not permitted to vote in negotiations, but may be permitted to make statements addressing the CPCs at the invitation of the Commission Chairman. They may also distribute materials to CPCs and participate in Commission activities upon approval by the Chairman (Lovorka, 2007). NGO representative, and observers in general, can come from any number of disciplines, including environmental groups and academic institutions, among others.

Assembling the nations

Although ICCAT is required to host General and Special meetings every two years, there are multiple meetings that occur each year. In 2017, there was a total of 22 meetings that occurred throughout the year, and these ranged from Stock Assessment sessions, Working Group meetings and Intersessional meetings (ICCAT, n.d.). ICCAT General meetings occur on a biennial basis, with Special Commission meetings being held in the interim year. Special

Commission meetings are most commonly held in interim years, but can be called at any time by the request of a majority of CPCs or by the elected Council (Lovorka, 2007). Decision-making occurs during both General and Special Commission meetings, with other meetings that take place throughout the year being mainly for discussing new statistics and findings, concerns regarding specific species or groups of species and new developments in the Convention area, among others (Lovorka, 2007).

General and Special meetings begin with opening remarks to be presented by the Commission Chair, followed by an overview of the agenda (ICCAT, 2016). Each CPC is required to introduce their delegates, and all observers are required to do the same. Following introductions at the beginning of the meeting, daily schedules often include working group discussions, Compliance Committee meetings, plenary which takes place at the beginning and end of each day of discussions and panel discussions. (ICCAT, 2016). Panel discussions take place on the basis of a specific species, group of species or region within the Convention area (ICCAT, 2016). Each panel is responsible for conducting an overall review of the specific interest and must make recommendation on both measures to be implemented regarding that interest as well as studies needed to obtain necessary information on that interest for the purpose of implementing effective management measures.

Due to the length of the meetings, which normally spans 10-14 days, schedules for each day vary. Often, negotiations and discussion for certain species, like the lucrative Atlantic Bluefin tuna can eat up large amounts of time, leaving little time for discussion of other species for the day.

The decision-making process

The pathway scientific information must take to be considered at ICCAT can be extensive, and information must pass through a number of actors before it makes it to the floor for negotiations (Figure 2). First, data must be collected/acquired. As stated previously, ICCAT gains a large majority of their data through fisheries observers and personal communications with individuals within the fishing industry (i.e., fishers, government officials etc.). When new data are unavailable or not collected, ICCAT relies on historical data as the basis for scientific and statistical analyses. CPCs are required as members of ICCAT to contribute to the collection of up-to-date information pertaining to the species they have an interest in (Telesca, 2015). As

such, CPCs must share findings of their own research with ICCAT scientists. For example, research commissioned by Canada's Department of Fisheries and Oceans (DFO), if addressing a species under ICCAT regime, would share reports and findings from that research.

Following collection, data and information are presented to the SCRS for consideration. Members of the SCRS can include individuals from any CPC at ICCAT, and findings that were completed by a specific CPC may be presented to Species Groups or Working Groups by that CPC's representative during meetings. There are a number of meetings that take place throughout the year in addition to General and Special meetings. These include Working Group meetings, species-specific assessment sessions and Intersessional Species Group meetings among others (ICCAT, n.d.). Due to the number of meetings that take place throughout the year, analysis of all culminated data takes place continuously for the purpose of forming recommendations in time for General and Special meetings, where decisions are made (Lovorka, 2007).

While data and information are one component of decision-making, they are certainly not the only one. Consensus is the dominant mode of decision-making at ICCAT, with the Commission emphasizing the importance of buy-in from all CPCs on recommendations and proposals (Telesca, 2015), meaning things other than science can be used to stall conservation and management progress. In negotiations, voting is seen as a last resort, and is not considered an effective representation of the interests of all CPCs (Telesca, 2015). Consensus is often seen as integral in international forums, specifically when it comes to lawmaking decisions. This is in part due to the rise in independent countries following the Second World War (UN, n.d.). With the increase in independent countries came the potential for these countries to gain substantial power at international forums by banding together to form large voting majorities (Telesca, 2015). This saw Western countries, which traditionally held leadership roles in international organizations, at a disadvantage in voting systems. In order to account for this, consensus was heralded as the appropriate method of decision-making following decolonization. During ICCAT General and Special meetings, the SCRS presents their findings along with recommendations for consideration to the Commission. Because there are so many countries submitting their research findings, disputes about stock assessments and findings often arise between scientists in the SCRS. It is the responsibility of the SCRS to resolve any disputes and arrive at recommendations everyone can agree with (OECD, 2009). Recommendations or disputes from scientists will

usually illustrate the negotiating stances of the CPCs they belong to. For example, scientists from Japan would likely be more inclined to support recommendations for higher quotas of Atlantic Bluefin Tuna due to their high demand and potential profit from the sushi/sashimi industry (Yagishita, 2018). Following recommendations made to all CPCs, negotiations commence between the Parties to come to agreeable recommendations regarding implementation of conservation measures, increase or decrease in annual fishing quotas, and allocation of quota between Parties of interest (Telesca, 2015).

A controversial past

With so many countries involved, all with varying stakes in the tuna fishing industry, forming sound and sustainable decisions by consensus can be difficult. ICCAT therefore has a history of being criticised for their management of many of the species under their oversight, and have been questioned for their ability to make effective conservation decisions for the commercial species they manage (Moses, 2010).

In November of 2010, the annual ICCAT Commission meeting, which took place in Paris, France, became the focus of international media attention. The Commission was expected to discuss and agree upon management measures that would be key to the rebuilding of both the western and eastern/Mediterranean spawning stocks of Bluefin tuna. Population levels for the western stock were being reported as being greatly reduced (Rooker et al., 2007; SCRS, 2003; 2006). Furthermore, there remained uncertainty in the accuracy of landings data for the eastern/Mediterranean spawning biomass, and the level of fishing pressure on the stock was considered unsustainable, and thus the stock was likely in a state of decline (Rooker et al, 2007; SCRS, 2008). As a result of these findings, ICCAT implemented a 15-year rebuilding period for Bluefin tuna stocks in 2008 (Rec. 06-05) with the objective to recover biomass to Maximum Sustainable Yield levels (B^{MSY}) (Fromentin, 2007; ICCAT, 2009). However, the decisions made during the Paris Commission meeting did not reflect these objectives. The 2008 SCRS assessment of Bluefin tuna stocks concluded that significant reductions in TAC paired with time-area closures during spawning seasons would see large improvements in spawning stock biomass. Recommendations included lowering TAC to less than 15,000 t over three years (i.e., approximately 5000 t per year). What was decided upon at the Commission meeting was far

from this recommendation, with TAC being set at 12,900 for each year, just 600 t lower than previous years TAC, and no time-area closures implemented (ICCAT, 2009; ICCAT, 2010).

The decisions made during the 2010 Paris meeting for Bluefin tuna sparked anger and protest from many environmental groups, including Pew Environmental Group, World Wildlife Fund (WWF) and Greenpeace (Moses, 2010; Pew Environmental Group, 2014; WWF, 2010). This was not the first time ICCAT had failed to adhere to scientific recommendation, and it was not the last. In fact, according to a historical review conducted by WWF as of 2010, ICCAT had consistently set TAC and quotas above levels of scientific recommendation since 1982 (WWF, 2010). Concerns remain today about the effectiveness of ICCAT management, with ICCAT coming under fire more recently for inaction regarding the dire state of North Atlantic shortfin mako stocks (Sims et al., 2018).

Geopolitics and international relations unrelated to fisheries, such as tension between countries, have been suspected as a key motivator in many negotiations (Sinan and Bailey, In review.). In addition to this, illicit activities occurring on the water are also suspected to undermine the effectiveness of ICCAT management, especially in the Mediterranean region in association with Spanish, Portuguese and Moroccan fisheries. Documented examples of these include the illegal use of spotter planes and IUU fishing (Agnew et al., 2009; Malta Independent, 2007; WWF, 2011). Additionally, tuna fisheries in the Mediterranean are suspected to have strong ties with the Sicilian Mafia, with activity such as the trafficking of illegal immigrants, laundering of tuna at sea, and bribery of government officials being among the suspected activity taking place in the region (Chitty, 2013; Independent, 2008; Malta Independent, 2007; WWF, 2011).

The history of inaction, continued decision making that undermines the ICCAT mandate, and failure to adhere to scientific recommendations paints a bleak picture for the species under the ICCAT regime. Additionally, suspected illicit activity occurring in association with ICCAT fisheries further complicates the management of commercial species at ICCAT. This appears especially true for species with higher commercial value and interest, like the Bluefin tuna and shortfin mako. The question remains, what are the driving motivations behind decision-making at ICCAT and where does conservation fit into these decisions? Could any of these motivations be associated with suspected illicit activity? Furthermore, how is this history of ineffective

management impacting the populations of species which are more susceptible to overexploitation?

Species at ICCAT

The lack of physical borders within our oceans means that species can move freely within their distributional ranges, and thus do not always conform to jurisdictional boundaries. Additionally, many species have distributional ranges which extend across and between oceans, straddling the divide between jurisdictional and high seas waters. These species are commonly referred to as Highly Migratory Species (HMS). Groups of species which fall under this category include tunas, sharks, swordfish, and billfish (NOAA, 2017).

There are currently five RFMOs who primarily focus on management of HMS, and these organizations have jurisdiction over an ocean, ocean region or commercial/target species (Figure 2); these include (1) ICCAT, (2) Inter-American Tropical Tuna Commission (IATTC), (3) Commission for the Conservation of Southern Bluefin Tuna (CCSBT), (4) Indian Ocean Tuna Commission (IOTC), and (5) Western and Central Pacific Fisheries Commission (WCPFC) (Tolotti et al., 2015). Although the main focus of these governing bodies is managing tuna species, most with the exception of CCSBT, are also responsible for managing other species caught in association with tuna fisheries, such as pelagic sharks or billfish (Asmundsson, 2016; Tolotti, 2015).

Management of sharks at ICCAT

Sharks have traditionally been considered undesirable bycatch in tuna fisheries, however, this is no longer the case as many species are directly targeted or considered desirable secondary catch in Atlantic tuna fisheries (Oceana, 2014). In fact, sharks accounted for 12% of all reported catch by volume at ICCAT in 2013 (Oceana, 2014). There are over 350 shark species that are caught within the ICCAT convention area, however, few are considered in management at ICCAT; these include blue (*Prionace glauca*), shortfin mako (*Isurus oxyrinchus*), longfin mako (*Isurus paucus*), bigeye thresher (*Alopias superciliosus*), common thresher (*Alopias vulpinus*), oceanic whitetip (*Carcharhinus longimanus*), silky (*Carcharhinus falciformis*), porbeagle (*Lamna nasus*), scalloped hammerhead (*Sphyrna lewini*), and smooth hammerhead (*Sphyrna zygaena*) (Cortez et al., 2008; Oceana, 2014).

As of 2017, ICCAT has passed 7 species-specific recommendations for shark species identified as at risk due to impacts from fisheries within the ICCAT Convention area. In 2009, ICCAT passed Recommendation (Rec.) 09-07 for bigeye thresher which prohibits retention, transshipment, landing, storing or selling of any part or whole carcass (ICCAT, 2016). In 2010, the oceanic white tip was identified as one of the five species most at risk as a result of fishing pressure in the ICCAT Convention area. In response, Rec. 10-07 was passed which prohibits retention, transshipment, landing, storing or selling of any part or whole carcass of oceanic whitetip (ICCAT, 2016). Additionally in 2010, a similar recommendation, Rec. 10-08 was passed which prohibits the retention, transshipment, landing, storing or selling of any part or whole carcass of hammerhead sharks of the family *Sphyrnidae* (ICCAT, 2016). In 2011, Rec. 11-08 was passed which prohibits retention, transshipment, landing, storing or selling of any part or whole carcass of silky shark caught in the ICCAT Convention area (ICCAT, 2016). In 2015, Rec. 15-06 was passed which requires CPC vessels to promptly release unharmed, when possible, porbeagle sharks caught in association with ICCAT fisheries (ICCAT, 2016). In 2016, Rec. 16-12 was passed which aims to improve understanding of the status of blue shark stocks as well as overall frequency in catch for the species (ICCAT, 2016). This recommendation also requires that overall catch of blue shark be reviewed over the two years following implementation to determine if average catch levels documented between 2011-2015 are an accurate representation of actual frequency of catch (ICCAT, 2016). Finally, in 2017, Rec. 17-08 was passed which requires CPC vessels to promptly release North Atlantic shortfin mako sharks in the least harmful manner (ICCAT, 2017).

Biology of the shortfin mako

The shortfin mako, like all sharks, is a member of the class Chondrichthyes, a group of marine vertebrates characterised by their cartilaginous skeleton. Within this class are two subclasses: (1) Elasmobranchii (i.e., sharks, skates and rays) and (2) Holocephali (i.e., chimeras). This group is argued to be one of the most successful groups of marine vertebrates still alive today, with their evolutionary history dating as far back as 450 million years (Wilga et al., 2007). The traits which have allowed them to persist throughout millennia however, do not complement the oceans of the 21st century.

Elasmobranchs possess many K-selected life history traits which make them vulnerable to exploitation. These include slow growth, long generation time, late sexual maturation, large size at birth, low fecundity, and large maternal energy investment, all translating to low reproductive potential and slow population growth (Camhi et al., 2008; Frisk et al., 2011). The shortfin mako is no exception to this life history, and is even considered less resilient to exploitation and mortality due to their high longevity, late maturation and low fertility and productivity rates (Barreto et al., 2016; Camhi et al., 2008; Natanson et al., 2006). Estimates for litter size and gestation time for shortfin mako are variable, with litters estimated at 4 – 16 individuals with gestation of 15 – 18 months (Camhi et al., 2008). Estimates for age at maturity suggest males mature at roughly 8 years and 185cm Fork Length (FL) and females mature much later, at 18 years and 275sm FL (Natanson et al., 2006). Prior to this 2006 study on age of maturity, estimates for age were reported as much lower (Natanson et al., 2006).

Estimates for age at maturity are not the only conflicting information reported for the shortfin mako. In fact, many biological parameters associated with their life history are conflicting throughout reports, including size at maturity, age, and growth rates (Camhi et al., 2008; Cailliet et al., 2018; Natanson et al., 2016; Stevens, 2009). In addition to this disparity between estimates for biological parameters, overall data reporting for the shortfin mako has been poor, with estimates for catch and landings being largely underestimated (Sims et al., 2018). Following slight improvements to the quality of data collected and the models used in assessment, a 2017 stock assessment conducted by ICCAT confirmed North Atlantic shortfin mako stocks to be both overfished (i.e., stock is depleted to levels below B^{MSY}) and experiencing overfishing (i.e., Rate of mortality is higher than MSY) (ICCAT, 2017) (Figure 3). Estimates for decline in abundance of the species are as high as 80% in the North Atlantic, and the stock is designated as ‘Vulnerable’ by the IUCN Red List of Threatened Species (Cailliet et al., 2018).

Mapping out the issue

Management concerns for the shortfin mako

Although Rec. 17-08 was adopted at the 2017 Morocco Commission meeting for the purpose of aiding the recovery of shortfin mako stocks, the recommendation was far from that of scientific advice. Following the 2017 stock assessment for shortfin mako, the SCRS recommended fishing mortality for shortfin be reduced to less than 1000 t annually (SCRS,

2017). This reduction was calculated to have only a 27% probability of stock recovery to B^{MSY} by 2040 (SCRS, 2017). Reducing mortality to zero was predicted to have a greater probability of stock recovery, with a probability of 54% by 2040. Additionally, they recommended all individuals brought to vessels alive be released with the least amount of harm possible to further reduce fishing mortality (SCRS, 2017). However, the committee also determined that there was insufficient information or data available to properly assess whether releasing all individuals brought to vessels alive would reduce fishing mortality to 1000 t or less.

The recommendation that came out of negotiations at the 2017 Commission meeting requires vessels to release any shortfin mako brought to a vessel alive, in accordance with the SCRS recommendation. However, the recommendation is convoluted with exemption criteria which allow vessels which fall under specific categories to land shortfin mako under certain conditions. For example, if the shortfin mako is brought back to a vessel dead and landing it does not exceed the vessels average shortfin mako landings documented when observers are present, they may retain the fish (ICCAT, 2017). Other exemptions that allow the retention of shortfin mako include when a CPC's domestic law requires vessels to land all dead or dying fish, when the vessel has an observer collecting data of dead individuals and/or is monitored by an electronic monitoring system (vessels greater than 12 meters), when a shortfin mako is brought to the vessel dead (vessels smaller than 12 meters), or when a CPC's domestic law limits retention to individuals greater than 180 cm for males and 210 cm for females (ICCAT, 2017). These exemption criteria are expected to severely undermine the effectiveness of Rec. 17-08 throughout its implementation, and the conditions included in the measure were deemed minimal in the effort of reducing mortality (Ecology Action Centre, 2017).

Uncertainty remains another major issue for the effectiveness of shortfin mako management, specifically with regard to Task 1 data which addresses nominal catches for the species in ICCAT fisheries (SCRS, 2017). Due to this uncertainty, reported mortality and landings are suspected to be much lower than actual landings and mortality, resulting in inaccuracy in stock status and predictions (SCRS, 2017). Furthermore, the Commission has failed, to date, to increase percent of observer coverage on commercial and industrial fishing vessels, which would improve the overall quality of data and understanding on shortfin mako and other bycatch species. Currently, CPC's are required to have a minimum of only 5% observer coverage on fishing vessels, although scientific recommendation states 20% coverage

(Wolfaardt, 2016). Coverage of just 5% is expected to result in highly imprecise catch data (Wolfaardt, 2016).

Much information in addition to landings and mortality remain largely unknown or misunderstood for the shortfin mako. Biological parameters, like age and size at maturity, as well as species distribution, and spawning/nursery areas are not well documented. Increasing observer coverage for fisheries operating in the ICCAT Convention Area would vastly improve the overall understanding for the species, as well as other bycatch species caught in association with ICCAT fisheries. However, even with this lack of sufficient data and understanding for the shortfin mako, the push for increased observer coverage continues to be met with strong opposition from CPC's.

Conclusion

Currently, there are 52 countries signed on as CPC's at ICCAT, making it the largest tuna RFMO membership, which highlights the lucrative and competitive nature of tuna fisheries in the Atlantic. But with so much by-in comes complication. Key measures for sustainable management are consistently being rejected or watered down, reducing the meaningfulness of recommendations being adopted. Furthermore, ICCAT appears to have become an arena for issues seemingly unrelated to fisheries, like geopolitical relations and illicit activity, to be hashed out. But the question remains; could these two major pitfalls of ICCAT somehow be related? How might these geopolitical relationships between CPC's be operating at ICCAT? Could geopolitical relationships and illicit activity occurring in association with ICCAT fisheries be influencing the negotiating stances for some CPC's and the decisions that come out of negotiations? And finally, how might both geopolitics and suspected illicit activity be impeding meaningful management measures from being adopted for commercial and bycatch species, like the shortfin mako? These questions are examined throughout this paper for the purpose of better understanding factors, both related and unrelated to fisheries, that are influencing the decisions being made at ICCAT Commission meetings.

Table 1. CPCs with ICCAT membership (52).

CPCs				
United States	Japan	South Africa	Ghana	Canada
France	Brazil	Morocco	Korea	Cote D'Ivoire
Angola	Russia	Gabon	Cap-Vert	Uruguay
Sao Tome E Principe	Venezuela	Guinea Equatorial	Guinee	United Kingdom
Libya	China	European Union	Tunisia	Panama
Trinidad & Tobago	Namibia	Barbados	Honduras	Algeria
Mexico	Vanuatu	Iceland	Turkey	Philippines
Norway	Nicaragua	Guatemala	Senegal	Belize
Syria	St. Vincent & The Grenadines	Nigeria	Egypt	Albania
Sierre Leone	Mauritania	Curacao	Liberia	El Salvador
Guinea-Bissau	Grenada			

Cooperator Status

Bolivia	Chinese Taipei	Suriname	Guyana	Costa Rica
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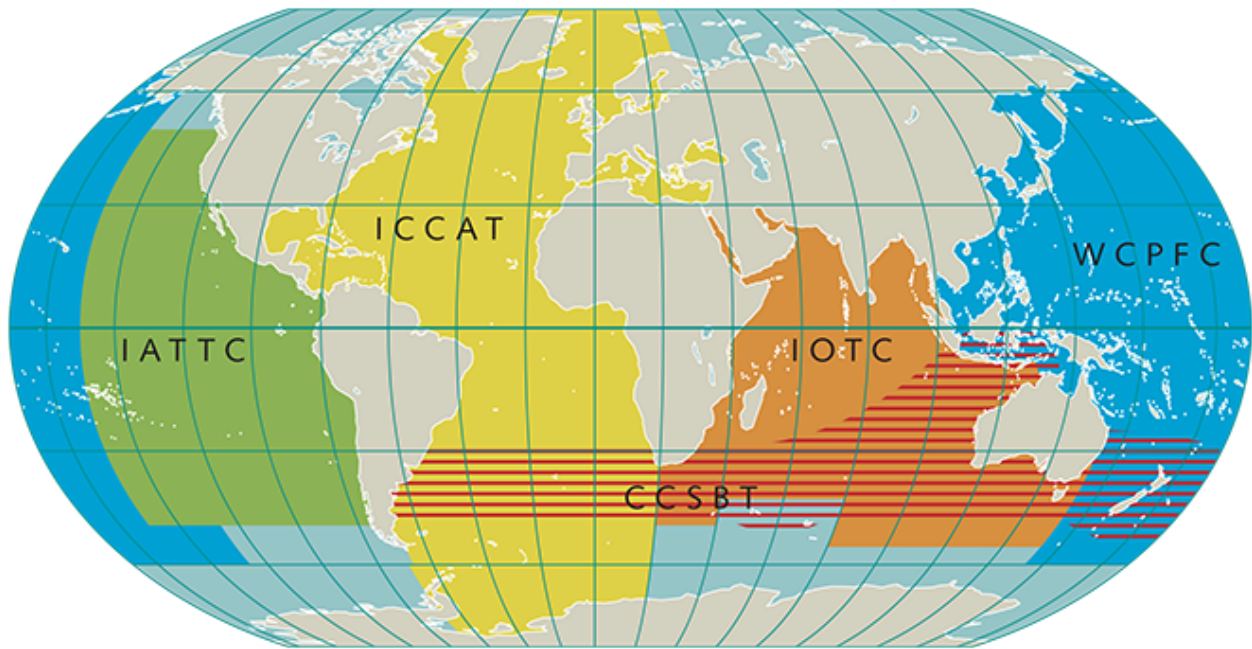


Figure 1. World map indicating the Convention areas of the five current Tuna RFMOs in operation. ICCAT Convention area, indicated in yellow, spans the entirety of the Atlantic, and includes adjacent seas such as the Gulf of Mexico, Caribbean Sea, North Sea and Mediterranean Sea (World Ocean Review, n.d.).

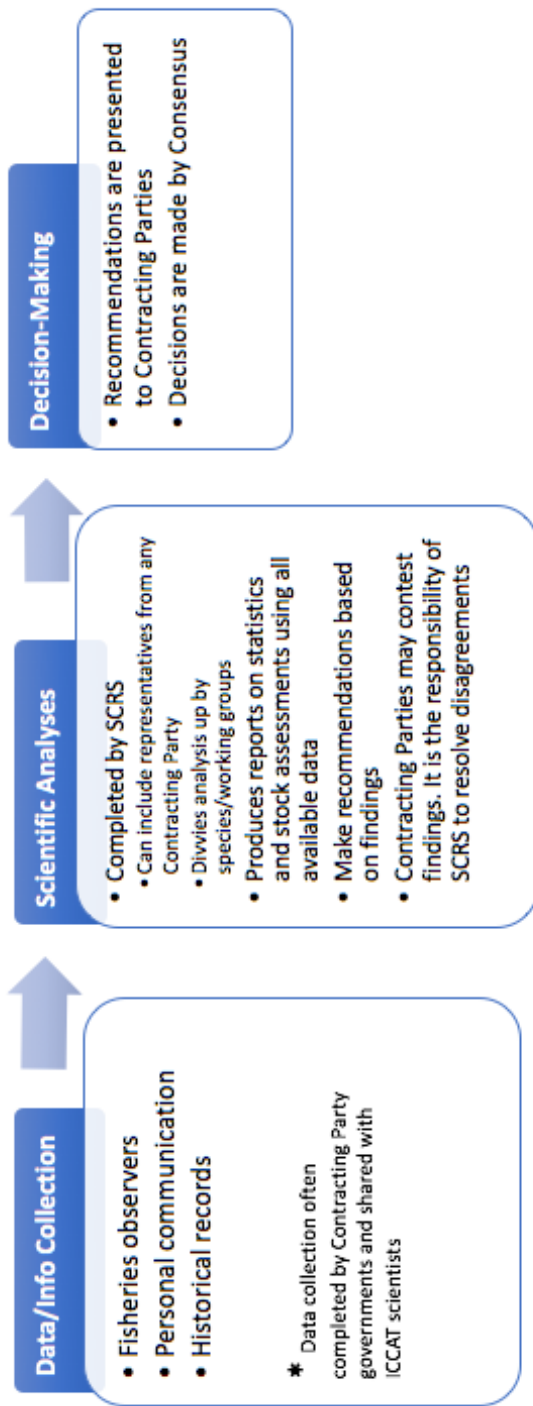


Figure 2. The decision-making process at ICCAT and the pathway data/information must take between source and user before it is considered and informs decisions.

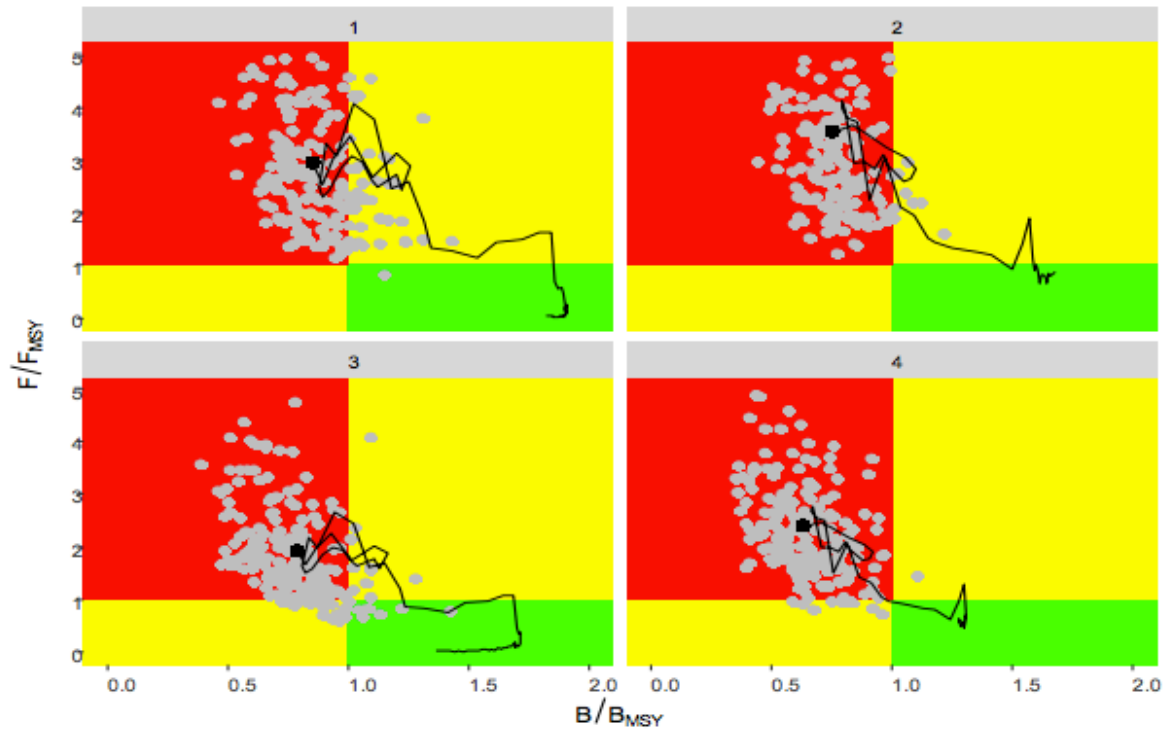


Figure 3. Kobe plots for North Atlantic (NA) shortfin mako stocks produced in 2017 shortfin mako stock assessment by ICCAT. Plots are based on four different production model, which each identified NA stocks as overfished and experiencing overfishing (ICCAT, 2017)

CHAPTER TWO

Methods

In order to address the main question of this project, namely to what extent do geopolitics impair management effectiveness at ICCAT, data were collected using semi-structured interviews (MAP2018-02). A total of nine interviews were conducted between the months of June and September 2018, and were transcribed and then analyzed using NVivo software.

Semi-structured interviews

A total of 26 individuals were identified through various contacts as having relevant experience attending ICCAT meetings. These individuals were each sent initial recruitment emails outlining the study and indicating why they would be suitable for interviews. If no response was given, follow-up emails were sent up to two times. Recruitment in general via email proved challenging, as less than half responded following recruitment and follow-up emails. If interviews were to continue following this initial study, researchers could enhance interview recruitment by obtaining phone numbers in addition to emails as another mode of reaching out to potential participants.

Interviews were conducted both in-person and via Skype with individuals identified with having past experience with the ICCAT regime and meetings (see Appendix A for the interview guide). Participants were individuals who attend and/or have attended ICCAT meetings, both Commission and Intersessional, as observers with various organizations. These organizations were diverse, including participants from environmental organizations, NGO's (Non-Governmental Organizations) and academic institutions, as well as research groups. Nine interviews were conducted, with all participants having attended at least one ICCAT Commission meeting.

Each interview took approximately one hour and was organized into four sections; (1) participant background and experience with ICCAT; (2) priority areas during ICCAT meetings and discussion; (3) information pertaining to the 2017 Morocco Commission meeting (where many of the mako regulations were tabled and discussed); and (4) overall effectiveness of ICCAT as a management regime. Interviews consisted of 19 questions, each left open-ended so participants could reflect on their experiences to support their responses and opinions. Questions were framed in a way that would promote a natural conversation with participants on their

experiences attending ICCAT meetings, with a focus on determining what factors they have been able to identify as undermining the success of ICCAT at managing shared Atlantic fisheries successfully. Finally, each interview was recorded using QuickTime Media Audio Recorder for MacBook Pro, and interviews were filed using unique number and letter combination identification codes to keep participant information and responses anonymous.

NVivo analysis

Each interview recording was transcribed using Microsoft Word and then analyzed using NVivo software to inductively (1) identify any factors participants were perceiving as undermining ICCAT's effectiveness and secondly (2) identify common themes in those undermining factors between interviews. From those themes, an analytical model was created which reflects how participants perceived ICCAT's effectiveness, whether they perceive undermining factors which reduce ICCAT effectiveness to be related or unrelated to fisheries, what general area those factors stem from, and the undermining factors themselves (Figure 4).

The analysis model used for analysis consists of four layers. The first layer addresses whether participants make a statement which frames ICCAT as "effective" or "ineffective" at managing shared fisheries. The second layer, which branches from statements that are deemed "ineffective", then asks whether the statements address issues "related to fisheries" or "unrelated to fisheries". When statements were related to fisheries, they were grouped under one of the three following general area-categories; (i) industry-related, (ii) science-related or (iii) related to unlawful activity. When statements were unrelated to fisheries, they were grouped under one of the three following general area-subcategories; (a) institution-related, (b) geopolitics, or (c) economy. Finally, each subcategory was further analyzed to inductively determine a number of common factors which were identified in interviews as undermining ICCAT.

Following the creation of this analysis model, full qualitative analysis was conducted for each interview using NVivo software. This software uses "nodes" in order to code text for certain themes. In this case, nodes were created to match each component of the analysis model listed above. Text was then analyzed against these nodes, and when common undermining factors were identified in-text, they were coded for the relevant node(s). Each statement was coded for at least three relevant nodes, the first being whether they were related or unrelated to fisheries, the second being the subcategory they fell under, and the last being the factor they best

reflected. Effectiveness was also coded for statements, but only when explicitly obvious (i.e., when a participant clearly related a factor to impacting effectiveness). Statements were coded for any and all subcategories or factors they could be connected to, resulting in many statements being coded at multiple nodes.

Once interviews were coded, the number of times each component of the model (i.e., subcategory, factor etc.) was made reference to during interviews was noted. The proportion of references to each component of the model were then analyzed to determine (a) how often ICCAT is being perceived by observers as effective vs. ineffective, (b) how often issue undermining ICCAT are being perceived as related to fisheries vs. unrelated, and finally (c) what factors are being perceived by observers as having the most impact on ICCAT effectiveness (i.e., which factors are mentioned the most throughout interviews).

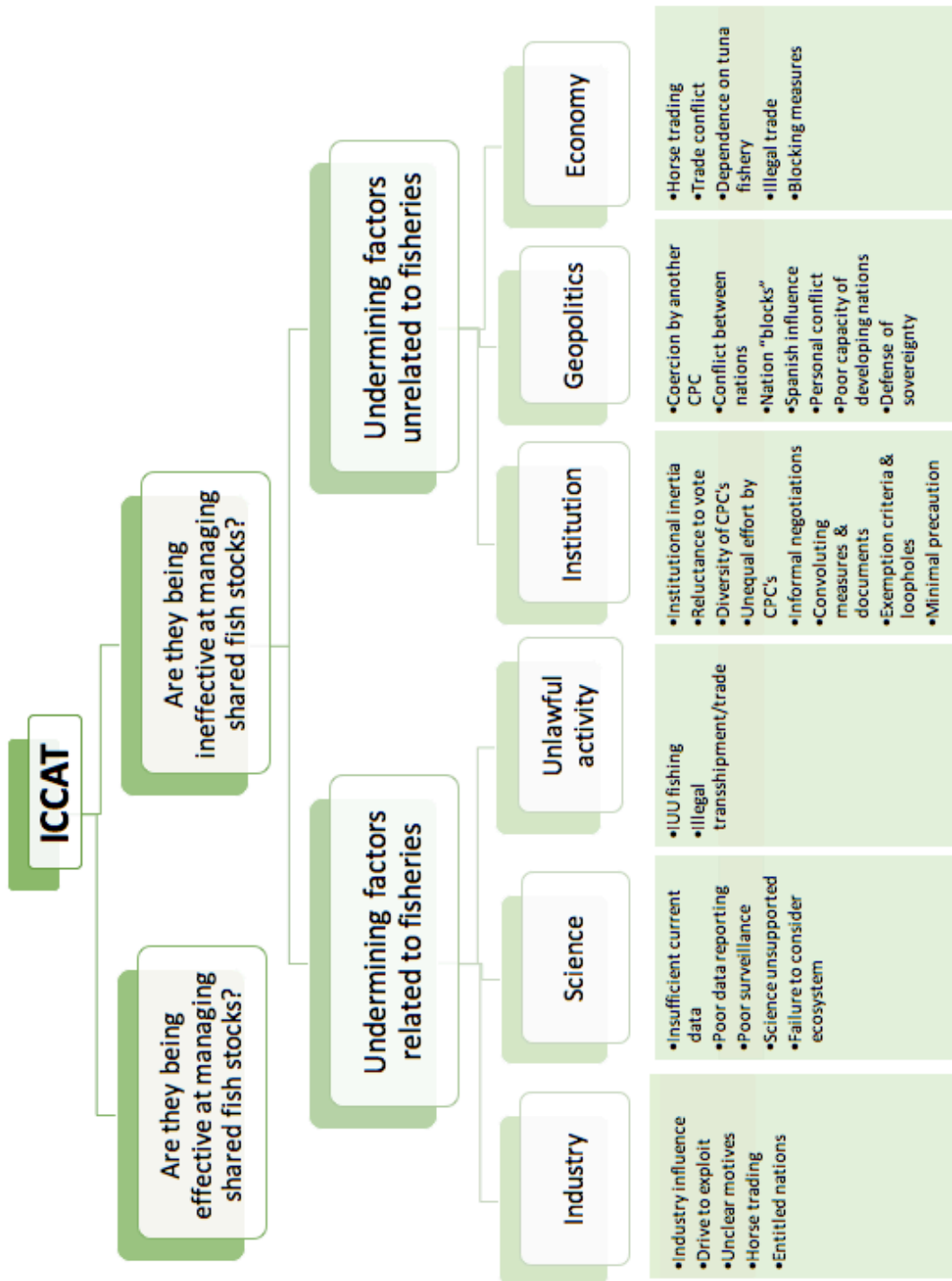


Figure 4. Model used for analysis of interviews, consisting of four layers interviews were analyzed against; (1) effectiveness of ICCAT management, (2) relation of issues to fisheries, (3) issue/factor subcategories identified as themes in interviews, and (4) specific issues/factors related to each subcategory.

CHAPTER THREE

Results

The results are reported in accordance with the analytical framework (Figure 4). Firstly, statements differentiating management effectiveness at ICCAT are reported, followed by fisheries-related management issues, and finally, non-fisheries-related management issues are reported.

Effective vs. Ineffective

Analysis of references to ICCAT's effectiveness found that participants made statements wherein ICCAT was deemed effective at managing shared fish stocks in 6 out of 9 interviews. In comparison, participants made statements wherein ICCAT was deemed ineffective at managing shared fish stocks in all 9 interviews. The number of references made in interviews regarding ICCAT's effectiveness totaled 157 references, with 18 (11%) references made which deemed ICCAT as effective, while 139 (89%) references made which deemed ICCAT as ineffective (Figure 5). A reference categorized as an example of ICCAT's effectiveness states "countries are trying to do the right thing for the most part, and they want to be shown in a good light" (Table 2).

Fisheries vs. non-fisheries factors

When effectiveness was perceived as poor, rationale for that perception was grouped as either related to fisheries or non-fisheries factors. Analysis of references made that were related to fisheries and unrelated to fisheries were identified in all 9 interviews. A total of 213 references were made, with 85 (38%) references were made which addressed issues related to fisheries, while 131 (62%) references were made which addressed issues unrelated to fisheries (Figure 6).

A total of 88 references made were identified as being related to fisheries (Figure 7). This number is slightly higher than value stated previously for issues related to fisheries as some references placed in this category could be coded under multiple issues (i.e., industry, science and/or unlawful activity) or subcategories (i.e., Under unlawful activity; (1) IUU fishing and/or (2) Illegal trade). Industry-related references were identified in all 9 interviews and of these, 39 (44%) references were made addressing issues fitting the industry subcategory. Science-related references were identified in eight of the nine interviews, with 41 (47%) references total made

addressing issues fitting the science subcategory. Finally, references relating to unlawful activity were identified in three of the nine interviews, with a total of 8 (9%) references made addressing issues that fit under the unlawful activity subcategory. One reference categorized as related to fisheries eludes to the extent to which discussion focuses on fisheries related matters, stating “the whole discussion is centred around who gets what” (Table 3).

A total of 156 references made were identified as being unrelated to fisheries (Figure 7). Institution-related references were identified in all nine interviews and of these, 68 (44%) references made addressing issues fitting the institution subcategory. Geopolitical references were identified all nine interviews, with 55 (35%) references total made addressing issues fitting the geopolitics subcategory. Finally, references relating to economy were identified in all nine interviews, with a total of 33 (21%) references made addressing issues that fit under the economy subcategory. In contrast to statements related to fisheries, those categorized as unrelated focused on issues or matters not directly related to fishing, with one statement under this category stating “It became more of a political thing to make sure they got their share of the pie” (Table 3).

Industry-related factors

References made which relate to the industry subcategory were identified 43 times throughout interviews (Figure 8). References made to issues/factors related to industry’s influence on delegations at ICCAT were identified in all nine interviews, with 11 (25%) reference made in total. Industry’s drive to exploit was also identified in all 9 interviews, with 25 (58%) references made. From participant responses, there were 5 factors that emerged under the industry subcategory, these include industry influence on delegations, drive to exploit fisheries, unclear industry motives, horse trading related to fisheries, and nations feeling entitled to allocation. The issue of industry having non-transparent, unclear motives was not as obvious in interviews, with only 3 of the 9 interviews addressing the issue. From those interviews, a total of 3 (7%) references were made. Finally, both horse trading in relation to fisheries goods and services, as well as the issue of nations feeling entitled to allocation were made reference to equally throughout interviews. Both were identified in two interviews each and accounted for a total of 2 (5%) references each from this subcategory. Examples of references categorized under each issue/factor can be found in Table 4.

Science & data related factors

A total of 56 references were made in relation to science-related issues/factors (Figure 9), with five factors emerging from responses, including insufficient current data, poor data reporting by CPC's, poor surveillance, unsupported science, and failure to consider the whole ecosystem in management decisions. References made with regard to insufficient current data available to ICCAT was identified in four of the nine interviews, with 8 (14%) total references made. References made addressing poor data reporting by CPC's as well as poor surveillance were identified in five of the nine interviews, with 12 (22%) and 13 (23%) references made respectively. A lack of support for science was identified as a key issue in seven of the nine interviews, accounting for 20 (36%) of references made for this subcategory. Lastly, failure to consider a whole ecosystem in their management was identified in just one of the nine interviews as an issue undermining ICCAT, and accounted for 3 (5%) of references made from this subcategory. Examples of references categorized under each issue/factor for the science and data subcategory can be found in Table 5.

Unlawful activity factors

A total of 10 references were made under the unlawful activities subcategory (Figure 10). The factors that emerged here include illegal, unreported and unregulated (IUU) fishing, and illegal transshipment/trade in relation to fisheries. References made to the issue of IUU fishing were made in 3 of the 9 interviews, accounting for 5 (50%) references, one which states "traditionally, there's a lot of illegal fishing in the area (Morocco). They're fishing far and wide outside their permitted area into areas that are hard to monitor" (Table 6). Illegal transshipment and trade related to fisheries goods and services were also made reference to 5 times, but were only identified in two of the nine interviews. In discussion regarding illegal trade in the Mediterranean region, one participant stated "there was talk that there was a fair bit of black market tuna from these countries" (Table 6).

Institutional factors

Institutional issues were identified as a key in undermining ICCAT, accounting for the highest number of references made of any of the subcategories analyzed (Figure 11) A total of 77

references were made which addressed factors related to this subcategory. These factors include failure to adapt to institutional inertia, reluctance to vote in decision-making, diversity of CPC's, unequal effort made by CPC's, informal negotiations taking place prior to and during ICCAT meetings, convoluting measures and documents, excessive exemption criteria and loopholes in measures, and minimal precaution in management. Failure to adapt in response to institutional inertia was identified as a key issue for this subcategory, with 15 (20%) references made in total out of six of the nine interviews. Diversity of CPC's was also a key issue identified, with references found in eight of the nine interviews, accounting for 16 (21%) of all references for this subcategory.

Although not as salient as these two key issues, other factors under the institution-related subcategory were identified a number of times throughout interviews. Reluctance to call for a vote was identified in 5 interviews, accounting for 9 (12%) of references made in this subcategory. Unequal effort among CPC's was identified in 3 of the 9 interviews, with a total of 7 (9%) references made. Informal negotiations occurring before and during ICCAT meetings were identified in 4 interviews, and also accounted for 7 (9%) of references for this subcategory. Convoluting management measures and documents were identified as an issue in three interviews, with 4 (5%) references made by participants. Exemption criteria and loopholes in management measures was identified in five interviews, and accounted for 11 (14%) references made. Finally, minimal precaution in management was identified in three of the nine interviews, with a total of 8 (10%) references made. Examples of references categorized under each issue/factor for the institutional subcategory can be found in Table 7.

Geopolitical factors

A total of 65 references were made addressing issues related to geopolitics, making it the second most-referenced subcategory after institution-related references (Figure 12). Under the geopolitics subcategory, seven factors were identified including coercion by another CPC, conflict between nations, nations forming "blocks" to attain personal goals, Spanish influence on other CPC delegations, personal conflicts between delegations, poor capacity of developing nations to implement and follow measures, and defense of sovereignty. Coercion by another CPC was referenced in five interviews a total of 9 times (14%). Conflict and or/tension between nations was identified as a key issue addressed in this subcategory, with references made

throughout eight of the nine interviews and accounting for 12 (19%) references made under the subcategory. Nations forming “blocks” in order to achieve management objectives was an issue identified in five interviews, accounting for 10 (15%) references. Both Spanish influence on other delegations and personal conflict between members on delegations were identified in five of the nine interviews, and both also accounted for 8 (12%) references made under the subcategory. Poor capacity by developing nations to implement measures and recommendations was also identified in five interviews, however only 7 (11%) references were made. Finally, defense of a nations sovereignty was identified in seven interviews, with a total of 11 (17%) references made. Examples of references categorized under each issue/factor for the geopolitical subcategory can be found in Table 8.

Economy-related factors

The final subcategory, economy-related factors, was references a total of 34 times throughout interviews (Figure 13). Lastly, five factors were identified under the economy subcategory; these include horse trading that is unrelated to fisheries (i.e., trade of other goods/services), trade wars/conflict among international community, dependence of Eastern nations on tuna fisheries, illegal trade unrelated to fisheries, and nations blocking measures for personal gain. Horse trading in relation to goods and services unrelated to fisheries was made reference to in four of the nine interviews, accounting for 6 (18%) references under the subcategory. References made with regard to trade wars/conflict between nations were identified in three interviews, with a total of 3 (9%) references made. Dependence of tuna fisheries by Eastern nations was also identified in three interviews, but accounted for 8 (23%) references for the subcategory. Illegal trade in relation to goods and services unrelated to fisheries was made reference to in five out of nine interviews, accounting for the most references in this subcategory, with 9 (26%) reference made. Finally, nations blocking measures for personal or national gain was referenced in seven of the nine interviews, with a total of 8 (24%) references made. Examples of references categorized under each issue/factor for the economic subcategory can be found in Table 9.

Background and perceptions of observers

Individuals who participated in interviews fit into one of three background categories; these include (1) conservation, (2) industry, or (3) government. A total of five interviews were conducted with members from the conservation community, two interviews were conducted with individuals involved in industry, and one interview was conducted with an individual employed by government in a role related to fisheries governance.

The perceptions of individuals from these backgrounds were measured in relation to how many references each group made for a subcategory (Figure 14). From this analysis, the conservation community identified a number of priority issues throughout the subcategories, with science related factors, industry-related factors and geopolitical factors being made reference to a number of times by participants. These subcategories were not however, references to as much as institution-related factors, which accounted for almost one third of references made by participants from a conservation background.

Perceptions of participants involved in industry favoured three subcategories as having undermining effects on ICCAT; these include science-related factors, institution-related factors and geopolitical factors, which were each made reference to a total of 17 times by participants from an industry background.

Lastly, perception of key issues from a government perspective were considered in the one interview conducted. The participant identified both geopolitical factors and institution-related factors equally as having undermining effects at ICCAT, however, with only one interview to base results of government perceptions, results are uncertain for individuals from a government background. Overall, identifying individuals from government with experience attending ICCAT meetings was difficult, as the contact networks used to identify potential participants favoured individuals from NGO and industry backgrounds.

Identifying priority areas needing improvement

Based on analysis of interviews, participants by and large perceived ICCAT as ineffective at managing the fish stocks under their authority. Even more interesting was that, based on response numbers, participants perceived issues that were unrelated to fisheries (i.e., institutional issues, geopolitical issues or economic issues) as having a larger role in undermining the effectiveness of ICCAT's management than issues directly related to fisheries (i.e., issues

with industry, scientific issues or issues in relation to unlawful activity) (Figure 6). Issues unrelated to fisheries accounted for almost two thirds of references made to issues undermining ICCAT management, with one participant explaining that “yes it’s (management) is about fisheries, but ICCAT is operating in a constellation of many other things that are going on in the international community” (Table 3) and then later stating that “these meetings (i.e., ICCAT Commission meetings) become events where all of this can sort of be worked out”.

Issues related to the ICCAT institution dominated discussion regarding issues unrelated to fisheries, accounting for almost half (77 total) of all references made to those issues, of which there were 156 total (Figure 7). The diversity of CPC’s involved in ICCAT management and their respective interests was the most prevalent issue under the institution subcategory (Figure 11). This was supported by a number of statements by participants, one reporting that “it’s easy for developed countries to follow management rules put in place, while others are less able to” (Table 7). Along a similar context to the complex diversity of interests operating at ICCAT, failure to adapt to institutional inertia was made reference to almost as often as the diversity of CPC’s. One participant described the issue, stating “these conventions are so complicated now, there’s so much to do and so many species to address that they can barely fit everything into the two weeks of discussion” (Table 7).

Geopolitical issues was another subcategory which dominated much of the discussion in interviews, with the second-most references behind the institution subcategory (65 references total) (Figure 7). Individual issues identified under this subcategory were made reference to fairly evenly, however, one issue did come up slightly more often than others, that being conflict between nations (Figure 12). Conflict between nations, especially between Asian countries, arose a number of times in conversation with participants. One conflict in particular which was identified as influential at ICCAT and that is also well understood in the media, was the tension between China and Taiwan (BBC News, 2016). The extent to which conflicts such as this one have on the decision-making process at ICCAT were presented by one participant who stated that “non-fisheries geopolitics gets into the ICCAT room” and later connecting these geopolitical incidents to conflicts like those between China and Taiwan, stating “China will position themselves in certain ways to limit the rights of Taiwan at ICCAT and their actions often have nothing to do with the fish” (Table 8). The observations by this participant, and others

interviewed, display just how much influence these geopolitical relationships are having not only on the way countries interact at ICCAT, but also the negotiating stances of these countries on certain issues.

Of the economic issues identified in interviews, the illegal trade of goods and services unrelated to fisheries was the most prevalent issue participants addressed, accounting for just over a quarter of references made under this subcategory (Figure 13). Illegal trade was largely discussed by participants as it pertained to fisheries operating in the Mediterranean Sea, an area seemingly plagued by illicit activity (NATO, 2017). One participant attributed this activity to the close ties the Mediterranean region has to the Sicilian Mafia based in Malta (see Farrugia, 2018 as well), stating “to anyone fishing in the Mediterranean, it’s well known that the Mafia runs the main fishing entities... and so there’s definitely illegal things going on in the boats such as drug running, fire arms trade and human trafficking” (Table 9). This connection of major crime to Mediterranean fishing operations was further supported by another participant who explained that the ocean “is where a lot of illegal activity happens and once you get into the issue of illegal tuna trade, it’s usually the same players. The infrastructure and networks are the same for illegal trade of fish as they are for illegal trade of drugs, weapons etc.”. Although participants were able to make the connection between fisheries and unrelated illicit activity and trade, the extent to which this activity influences negotiations is still largely unknown as they are rarely, if ever, discussed explicitly at ICCAT, according to participants.

Issues related to fisheries were not referenced as much as those unrelated to fisheries, however, some key challenges were identified through interviews (Figure 7). First, a lack of support for the science meant to inform management was identified as a key issue by most participants (Figure 9). This resulted in some participants describing the meetings as “frustrating” to observe. This lack of support for science was identified as an issue both in the earlier days of ICCAT as well as modern day ICCAT management. One participant who was actively involved in ICCAT during the 1980’s described how science was addressed, stating “there would be overfishing, and all the information was showing us the level we were fishing at, and then we’d spend 2 or 3 days going back and forth until eventually, the (scientific) information was thrown out the window. After that, I would ask myself, what is the point of going through all this work if everyone is just going to ignore it?” (Table 5). The challenge of

following scientific advice was identified by a number of active present-day members of ICCAT, with one participant expressing similar frustration to that of observers decades earlier, stating “they hear what the scientific recommendations provide but then they completely disregard them... To me, that’s the most impressive thing (about ICCAT), that knowing the science, they still just look to get the maximum use for a species”. Accounting for more than a third of references made to issues under the science subcategory, this lack of integration of science into management has been a challenge at ICCAT for decades (see WWF, 2010), and thus improving this relationship between the scientific advice and management decisions should be a priority for ICCAT moving forward.

Finally, participants made reference to a number of issues related to industry, with the most concerning being the drive for industry to exploit fish stocks as best they can. This was identified as an issue by participants from all backgrounds, and in all 9 interviews. Although the term “conservation” is in their title, the lack of conservation-minded decisions being made at ICCAT is evident, with one participant explaining that “if they really wanted to manage the stocks sustainably, they would take the scientific advice and adopt the scientific recommendations. But instead, they negotiate, they take economics into account and they find loopholes”. However, ICCAT appears to be moving in a direction which complements this idea of a more holistic management approach. Many participants acknowledged that ICCAT is moving toward Management Strategy Evaluation (MSE) and harvest control rules moving forward, which are expected to improve the sustainability of management decisions made. Participants identified MSE as an opportunity to streamline decision-making, making it more time and resource efficient.

Shortfin mako: Illicit activity in relation to Rec. 17-08

The extent to which some of the issues identified at ICCAT, specifically those connected to illicit/illegal activity, influence management decisions for species like the shortfin mako remains largely uncertain following interviews. One participant explained that discussions occurring “behind-closed-doors definitely helps them hide it (i.e., a connection)” (Table 7). Although participants were unable to confidently connect issues like human trafficking in the Mediterranean to outcomes of Rec. 17-08 for NA shortfin mako stocks, many considered it to be

likely. To quote one participant in particular when discussing the possible connection between human trafficking in the Strait of Gibraltar and the lack of improvements to observer coverage in Rec. 17-08 eluded to this activity having an influence, stating “they’ve done a number of investigations to know that these sorts of activities are happening, and therefore, you could make that leap to say that having observers (on vessels) observing that probably wouldn’t be best. So I think that is certainly some of the key drivers of motivations that government doesn’t really talk about”. Another participant considered this connection to be highly likely, discussing that it is not just legitimate industry that has their hands in management, but also others that may be less than legitimate.

In addition to this potential connection, a number of participants acknowledged the influence that Spain has on both the EU delegation and other delegations of smaller countries, thus making it possible for illegitimate industries operating in the country to infiltrate management discussions. This influence was summed up by a participant who explained that “Spain has their own set of rules and are highly influential. If Spain has a position on a topic, then it tends to be the EU position” (Table 8). Another participant reflected on this influence as it pertains to other delegations as well, explaining that Spain and bigger companies can have “leverage... over some of the smaller countries, such as in Western Africa”. This participant further explained that these influences are seen “all the time at ICCAT but are often hidden behind the scenes”.

Finally, participants from both conservation and industry backgrounds expressed concerns for the effectiveness of Rec. 17-08 at conserving NA shortfin mako stocks and reducing mortality. Furthermore, many had concerns regarding management for pelagic shark species under ICCAT’s oversight in general, with minimal observer coverage and therefore accountability among industry being a major challenge for management. Other challenges identified by participants with regard to management for pelagic sharks include watered down measures with excessive exemption criteria and loopholes (Figure 11). Many participants discussed management action taken by ICCAT for oceanic whitetip stocks, acknowledging the recommendation as effective, but also expressed concern for how long it took for ICCAT to agree upon those actions. One participant in particular provided an overall description of the challenges facing management for pelagic sharks, stating that, in relation to oceanic whitetip management, “of course, they waited until the species was in big, big trouble before doing

anything, and there was very few (whitetips) left. But then they banned all retention, dead or alive. However, if you caught a whitetip on the high seas and tried to land it in your own country, there is such little oversight of port measures, especially with so few observers, to enforce measures”.

Table 2. References made regarding effectiveness of ICCAT management, including representative quotes categorized under each factor.

Factor	Number of references	Representative quotes
Effective	18	<p>“All the science is very good”</p> <p>“Countries are trying to do the right thing for the most part, and they want to be shown in a good light”</p>
Ineffective	139	<p>“They are not succeeding in my opinion. Not in my time or later. Why we still have tuna is based more on the animal that our management”</p> <p>“They (SCRS) suggested a complete prohibition, and yet with perfectly clear science, ICCAT still couldn’t follow it</p>

Table 3. References made regarding issues/factors related to fisheries and unrelated to fisheries being discussed at ICCAT, including representative quotes categorized under.

Factor	Number of references	Representative quotes
Related to fisheries	85	<p>“Fisheries management since the 60’s has basically been focused single-species, usually those that are economically valuable”</p> <p>“The whole discussion is centred around who gets what”</p>
Unrelated to fisheries	131	<p>“It became more of a political thing to make sure they got their share of the pie”</p> <p>“Yes it’s (management) is about fisheries, but ICCAT is operating in a constellation of many other things that are going on in the international community”</p>

Table 4. References made relating to industry, including representative quotes from each issue/factor under the industry subcategory.

Industry Factors	Number of references	Representative quotes
Industry influence	11	“I think the main reason (ICCAT is ineffective) is industry sitting there pulling the puppet strings”
Drive to exploit	25	“Most CPC’s do not see the benefit of conservation. They want to fish as much as they can for the monetary benefits”
Unclear motives	3	“It’s very difficult to untangle motives”
Horse trading	2	“Horse trading goes on even though it’s not suppose to”
Entitled nations	2	“One of the main priorities in the individual countries was that they wanted to make sure they got what they perceived was their share of the resource”

Table 5. References made relating to science and data, including representative quotes from each issue/factor under the science and data subcategory.

Science/data Factors	Number of references	Representative quotes
Minimal current data	8	“There’s a big argument around blue shark, where we don’t have enough data to come up with a limit that’s science based”
Poor data reporting	12	“They would say there’s a lot more tuna coming out of the Mediterranean than what was actually being reported”
Poor surveillance	13	“The focus needs to be on how we can actually meet the 5% observer coverage and implement it”
Lack of support for science	20	“There would be overfishing, and all the information was showing us the level we were fishing at, and then we’d spend 2 or 3 days going back and forth until eventually, the (scientific) information was thrown out the window”
Failure to consider whole ecosystem	3	“From a larger ecosystem perspective, they’ve only just started looking at that”

Table 6. References made relating to unlawful activity, including representative quotes from each issue/factor under the unlawful activity subcategory.

Unlawful Activity Factor	Number of references	Representative quotes
IUU fishing	5	“Traditionally, there’s a lot of illegal fishing in the area (Morocco). They’re fishing far and wide outside their permitted area into areas that are hard to monitor”
Illegal trade	5	“There was talk that there was a fair bit of black market tuna from these countries”

Table 7. References made relating to the ICCAT institution, including representative quotes from each issue/factor under the institutional subcategory.

Institutional Factors	Number of references	Representative quotes
Institutional inertia	15	“These conventions are so complicated now, there’s so much to do and so many species to address that they can barely fit everything into the two weeks of discussion”
Reluctance to vote	9	“They need to get more comfortable with voting”
Diversity of CPCs	16	“It’s easy for developed countries to follow management rules put in place, while others are less able to”
Unequal effort by CPCs	7	“The RFMO level is usually the lowest bar (for observer coverage), and a lot of countries aren’t even meeting that”
Informal negotiations	7	“Doing all this behind closed doors definitely helps them hide it”
Convoluting documents	4	“This is a kind of tactic that’s used, making these recommendations seem way too complicated and like they won’t work”
Exemption criteria and loopholes	11	In the shortfin mako recommendation, you can see there’s a paragraph for Morocco and a paragraph for

		the U.S. etc. It's a classic example of pleasing everyone while watering down the measure"
Lack of precaution	8	"I almost never hear discussion of whether things are sustainable, or whether precautionary measures are being taken"

Table 8. References made relating to geopolitics, including representative quotes from each issue/factor under the geopolitics subcategory.

Geopolitical Factors	Number of references	Representative quotes
Coercion	9	“There could be instances where governments are paying off officials further down the management line”
Conflict between CPCs	12	“China will position themselves in certain ways to limit the rights of Taiwan at ICCAT and their actions often have nothing to do with the fish”
Blocks of nations	10	“What you see is countries banding together on some issues. So the fins attached recommendation has the Asian block”
Spanish influence	8	“Spain have their own set of rules and are highly influential”
Personal conflict	8	“You have officials that represent these countries going to multiple RFMO and international forums, and the personal baggage between those officials is brought to ICCAT too”
Poor capacity of developing nations	7	“With observer coverage, it’s costly and some countries, like developed ones who can’t afford increased coverage would be opposed to increased coverage”

Defense of sovereignty

11

“They didn’t want to do anything that would threaten this sovereignty as a nation, or that would give up authority to a body (ICCAT) that they didn’t really have control over”

Table 9. References made relating to economics, including representative quotes from each issue/factor under the economic subcategory.

Economic Factors	Number of references	Representative quotes
Horse trading	6	“Anything that has to do with restrictions is very unlikely to pass unless a country has leverage on other countries. It’s all about horse trading”
Trade conflict	3	“This year (2018), NAFTA will come into play in negotiations between Canada, USA and Mexico”
Dependence on tuna fishery	8	“They didn’t think we should be lecturing them on certain species because their economies were lower and they depended more on the tuna than we did”
Illegal trade	9	“To anyone fishing in the Mediterranean, it’s well known that the Mafia runs the main fishing entities... and so there’s definitely illegal things going on in the boats such as drug running, fire arms trade and human trafficking”
Blocking measures	8	“All a CPC has to do is say no, I don’t like that. You don’t even need to give a reason why you don’t agree to consensus”

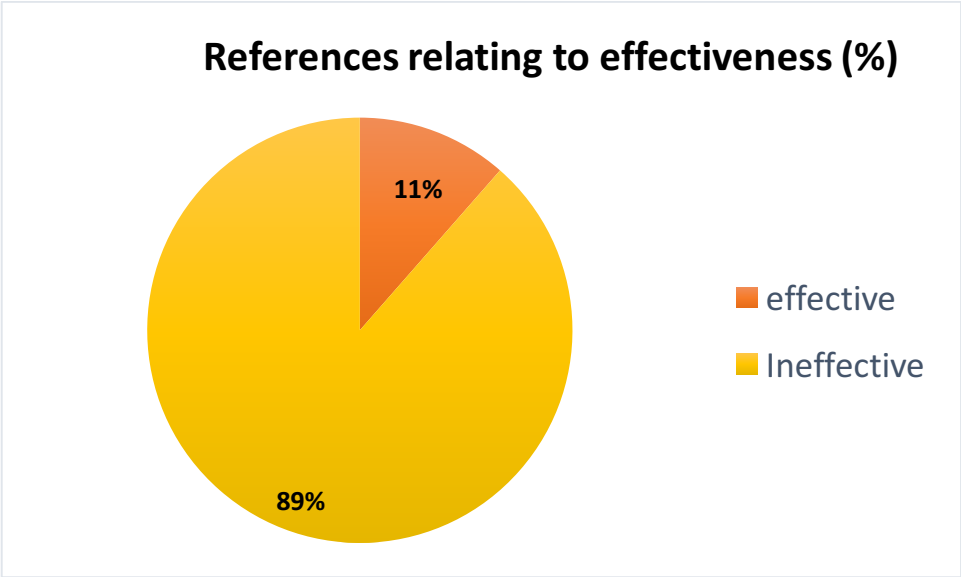


Figure 5. Pie chart displaying proportion of references made by participants relating to ICCAT’s effectiveness at managing shared fish stocks in the Atlantic.

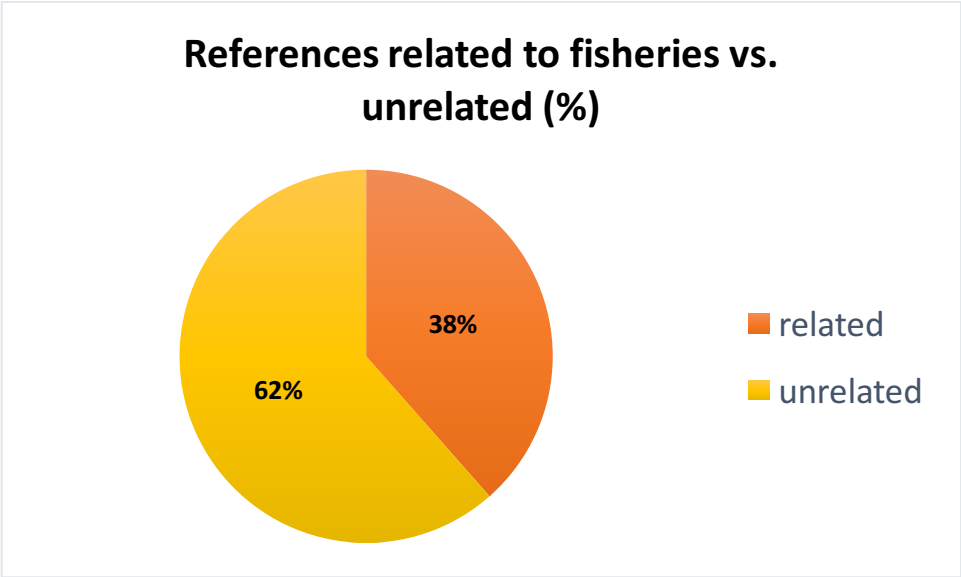
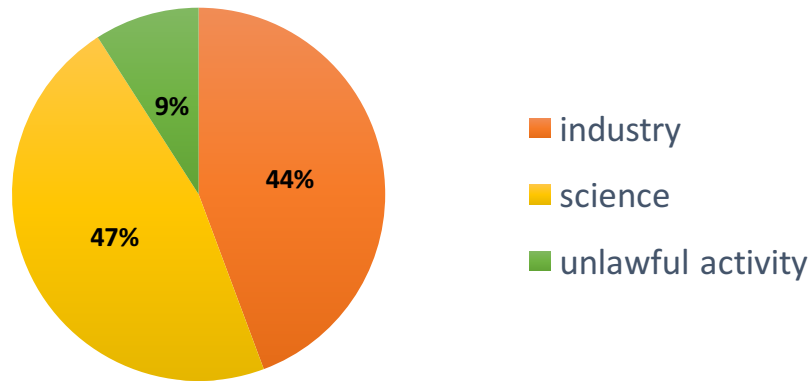


Figure 6. Pie chart displaying the proportion of references made by participants which were identified as either directly related to fisheries or unrelated to fisheries.

References to factors related to fisheries (%)



References to factors unrelated to fisheries (%)

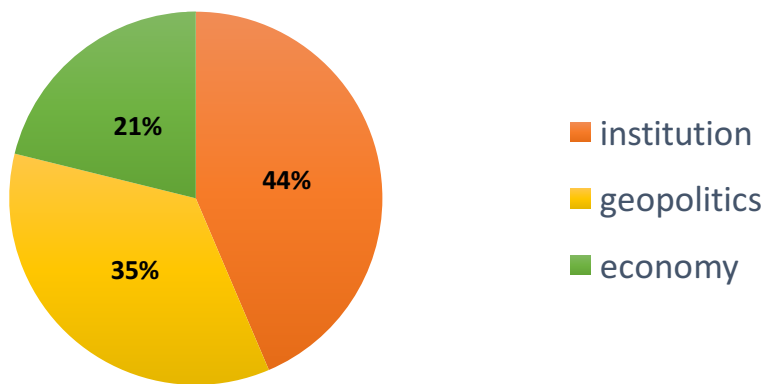


Figure 7. Pie charts displaying proportion of references made under subcategories related to fisheries (industry, science, unlawful activity) and those made under subcategories unrelated to fisheries (institution, geopolitics, economy).

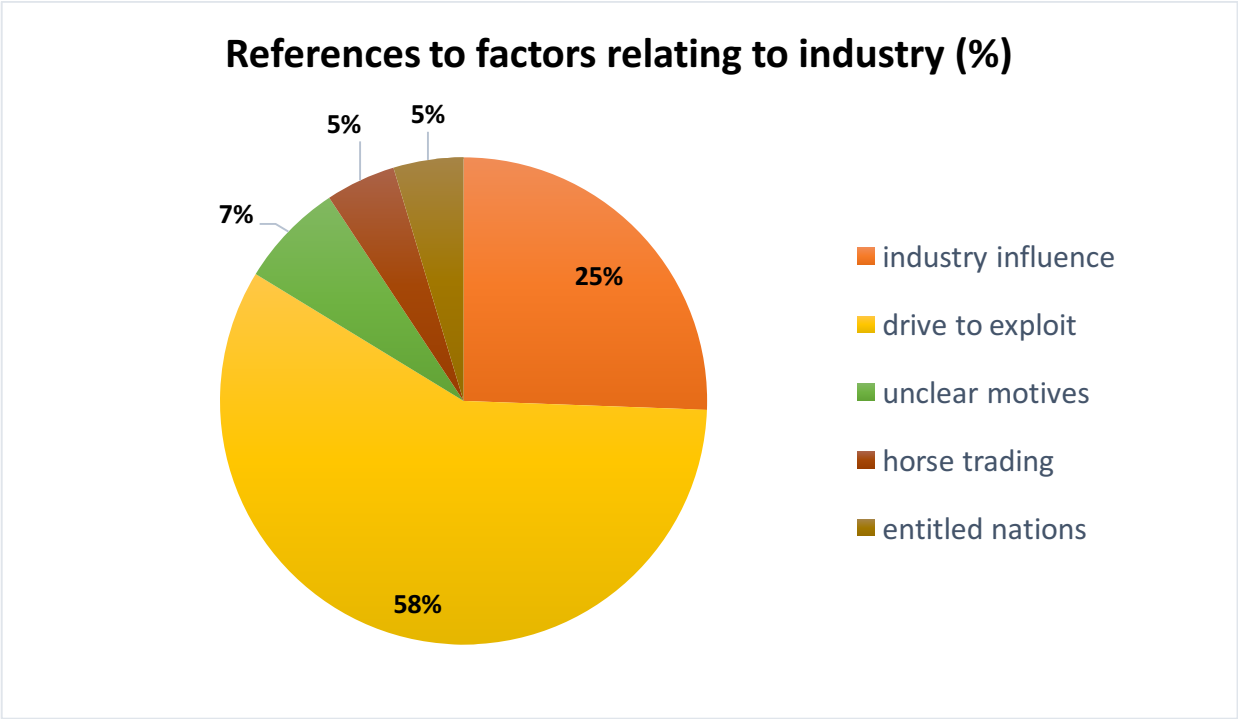


Figure 8. Pie chart displaying proportion of references made relating to issues/factors identified under the industry-related subcategory.

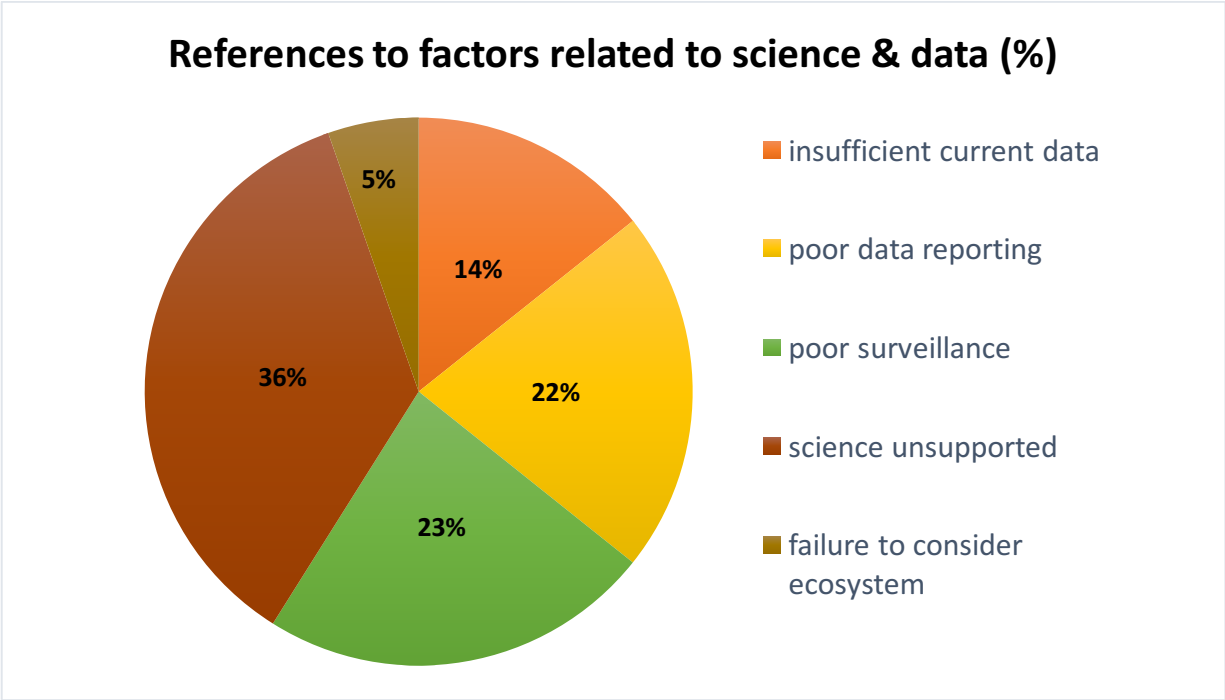


Figure 9. Pie chart displaying proportion of references made relating to issues/factors identified under the science-related subcategory.

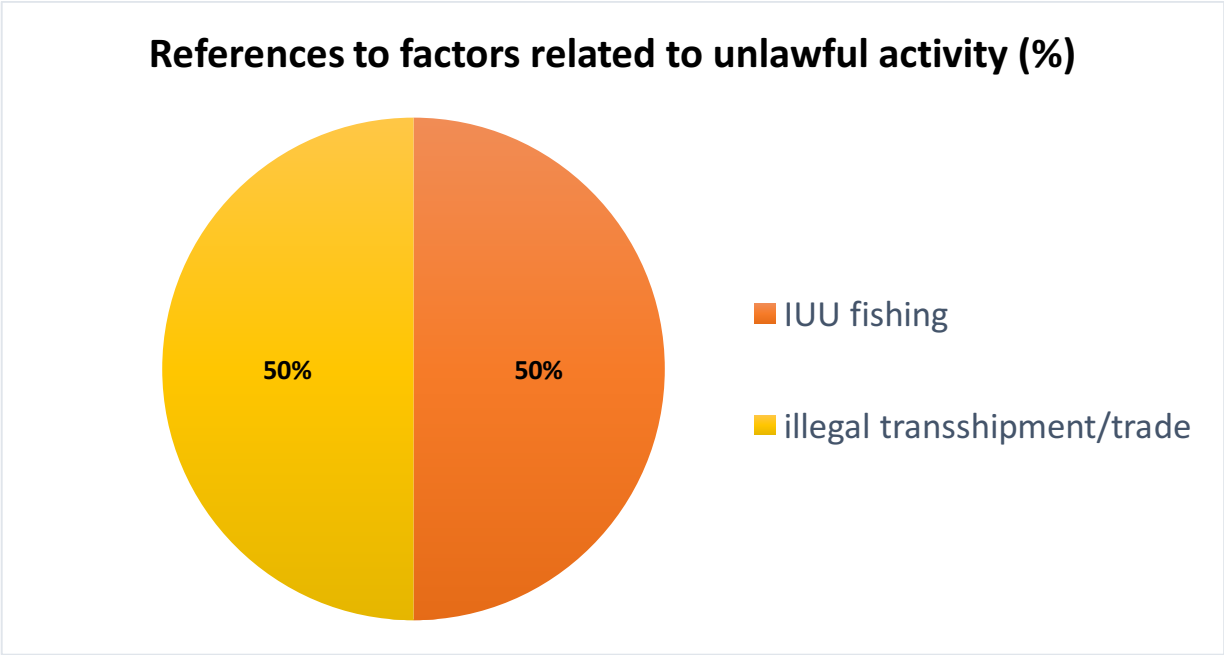


Figure 10. Pie chart displaying proportion of references made relating to issues/factors identified under the unlawful activity subcategory.

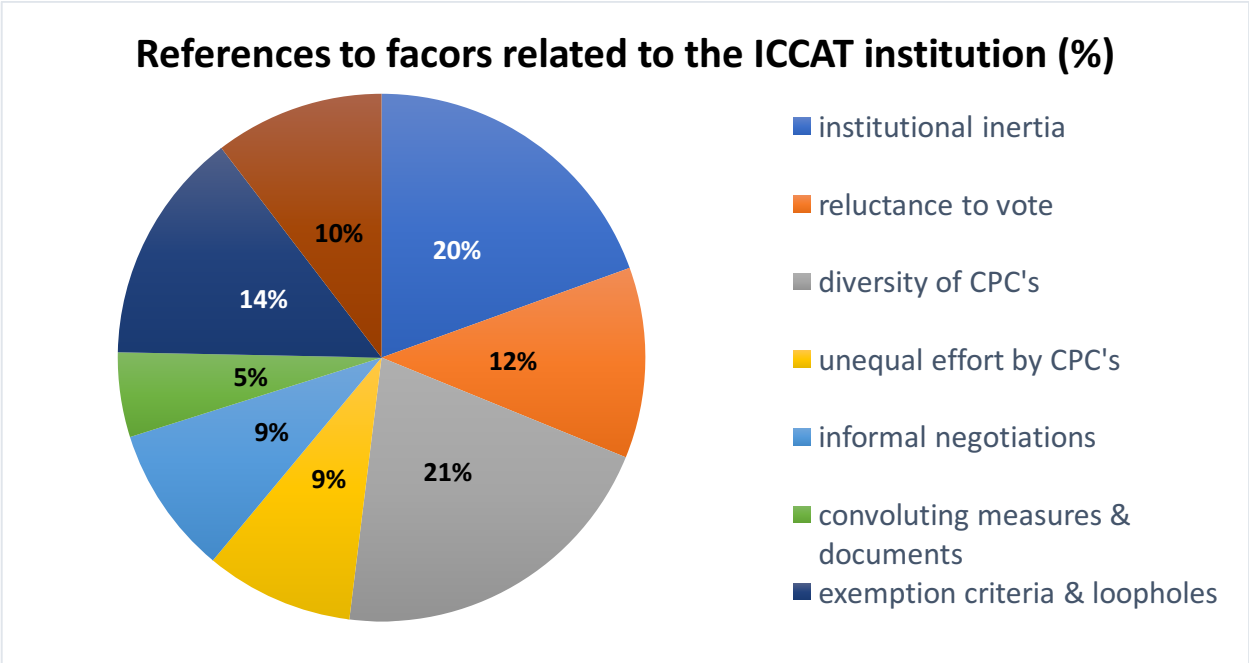


Figure 11. Pie chart displaying proportion of references made relating to issues/factors identified under the institution-related subcategory.

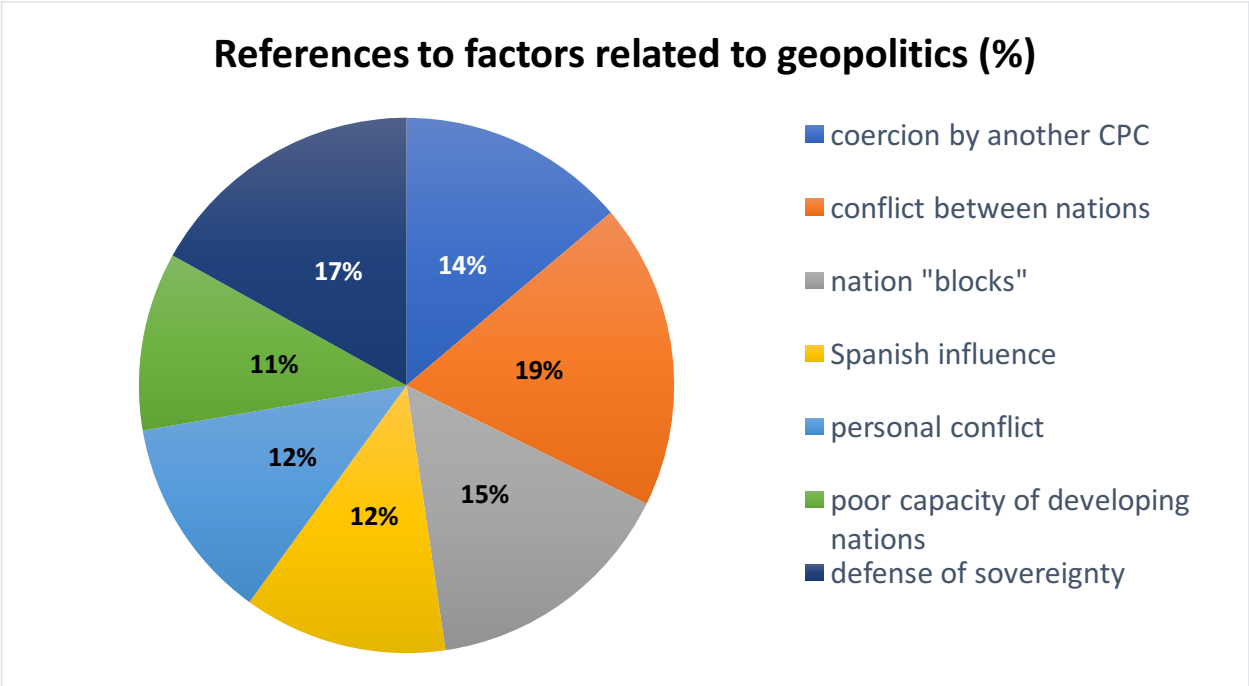


Figure 12. Pie chart displaying proportion of references made relating to issues/factors identified under the geopolitical subcategory.

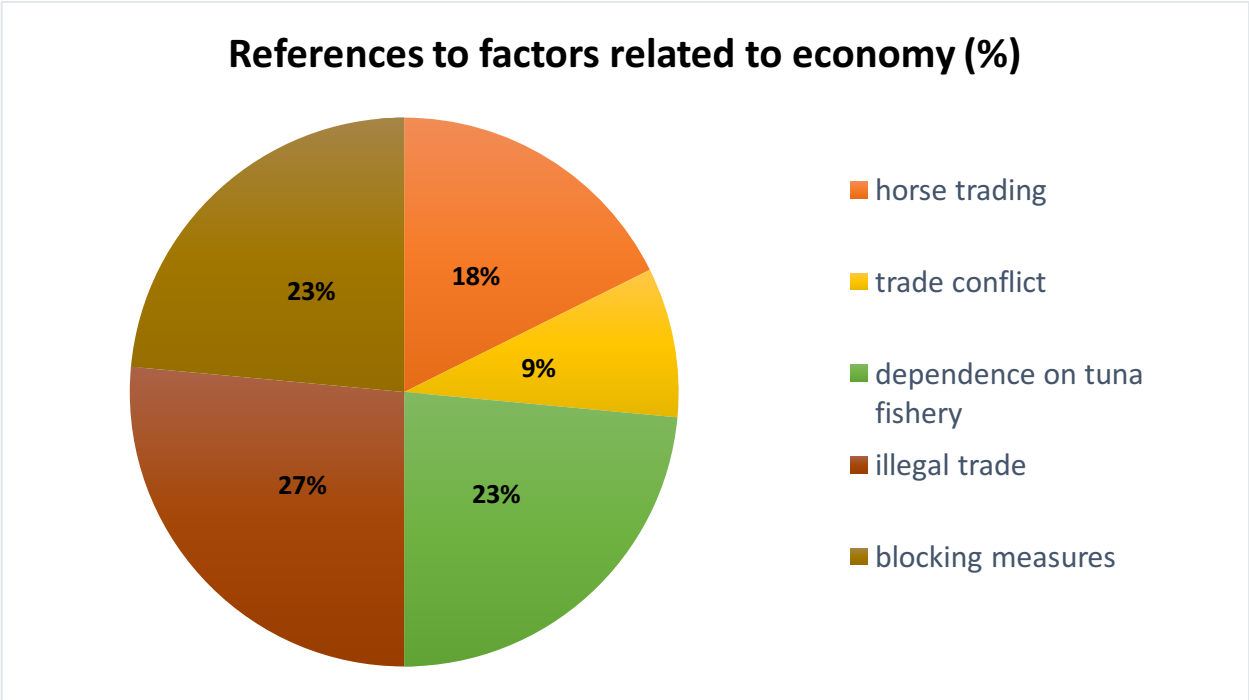


Figure 13. Pie chart displaying proportion of references made relating to issues/factors identified under the economy subcategory.

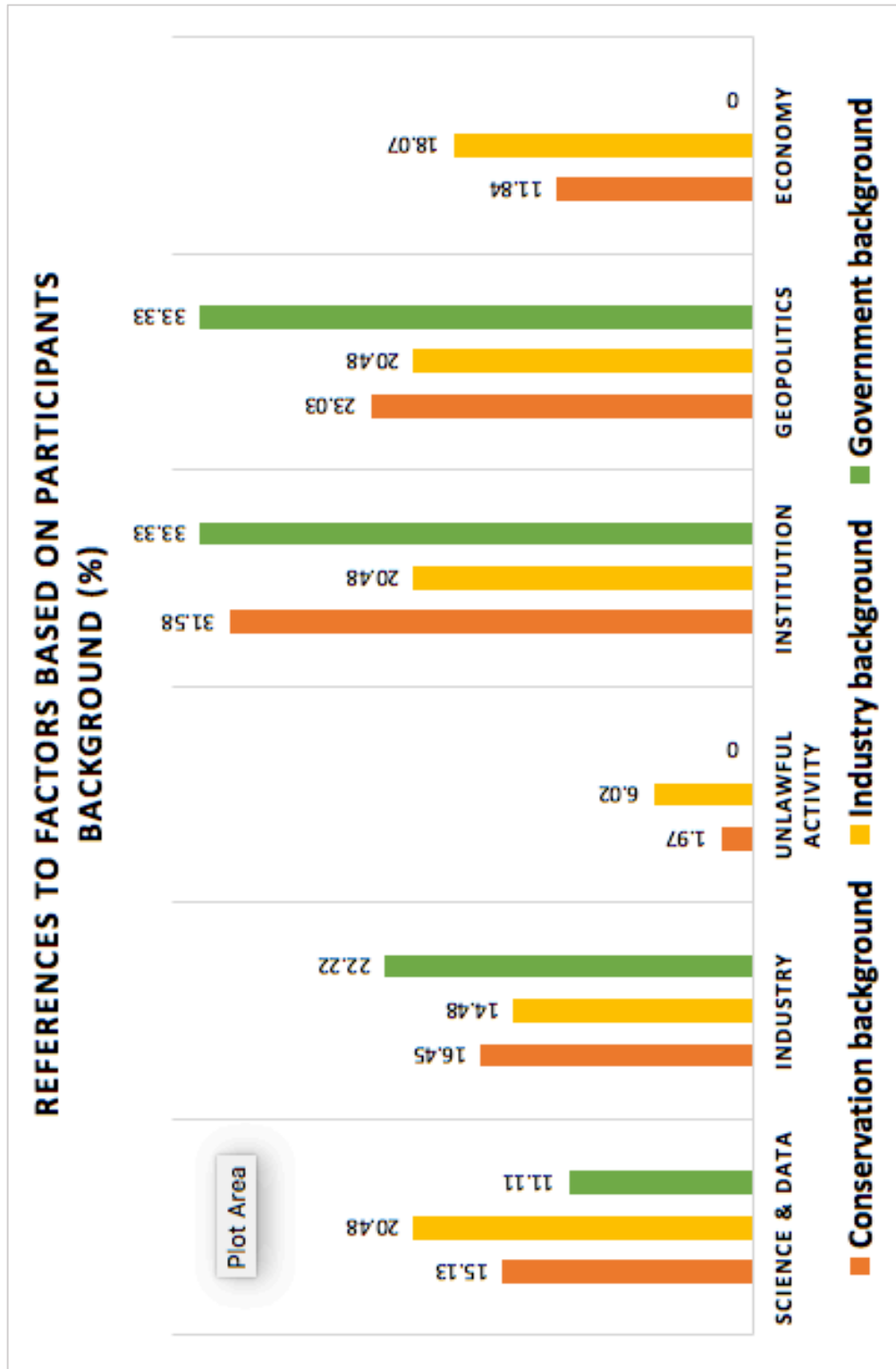


Figure 14. Bar chart displaying the proportion of references made for each issue/factor based on the background of participants. Participants were placed into one of three background categories, including conservation (orange), industry (yellow) or government (green).

CHAPTER FOUR

Discussion & conclusion

Initially, the purpose of this research, and conducting interviews with individuals involved with ICCAT, was to determine the extent to which geopolitics and geopolitical relationships operating at ICCAT were affecting management decisions coming out of the regime. And interviews did identify geopolitical factors as playing a role in undermining the effectiveness of ICCAT's management (Figure 12). However, interviews also identified a number of other key influential issues and factors which contribute to ineffective decision-making for many fish stocks under the authority of ICCAT. These issues thus highlight the areas of ICCAT which require improvement, as well as which issues should be prioritized moving forward in RFMOs and other international fisheries fora.

Thoughts on challenging priority areas

A major challenge for ICCAT, according to the results of this study, is not in relation to fisheries-based issues, but rather the limitations within the institution itself. More specifically, challenges and limitations imposed by the institution can largely be attributed to the increasing complexity of ICCAT, as more nations seek membership to gain access to international trade that the Commission makes accessible (Epstein et al., 2014).

As more nations seek access to some of the world's most lucrative fisheries (Telesca, 2015), the complexity of interests from these nations with regard to not just fisheries-related activity, but all activity in general, within the Convention area has increased. With the most CPCs of any other RFMO, it is no surprise that this is a major challenge for the regime, especially considering their preference to reaching consensus in negotiations (Telesca, 2015; NOAA, 2017). With voting considered a last resort by the status quo at ICCAT, this leaves room for measures to be watered down, and can predisposition nations with limited political sway or capacity to implement management, such as developing nations, at a disadvantage in negotiations (Telesca, 2015). By relying on consensus as the quintessential element of decision-making without taking into consideration the overwhelming diversity of nations participating in negotiations for those decisions, the effectiveness of management measures becomes questionable. Nations with limited capacity are left unable to implement recommendations properly or in a way that is meaningful, while rich or rogue countries use this form of consensus

as a way to further agendas (Telesca, 2015). Current methods for reaching consensus at ICCAT appear to be producing less-than-desirable results when it comes to the management outcomes that are agreed upon, and this has been observed both by those who study the ICCAT regime (Telesca, 2015), as well as those who observe ICCAT negotiations, for example, those individuals interviewed in this study.

Along similar lines to the challenges posed by the complex diversity of interests at ICCAT is their inability to keep up with institutional inertia. Institutional inertia refers to the idea that management gets harder as more people, or in this case more countries, get involved (Rosenschold et al., 2014). With 52 member states involved in the management of ICCAT fisheries, being able to adapt management in response to this inertia will be imperative to the successful management of ICCAT, and other international institutions, as both pressure and demand for resources increase in the future (Rosenschold et al., 2014). By prioritizing the challenges posed by the complexity of the institution and adapting the processes and procedures used to reach agreements, ICCAT can begin moving toward management which acknowledges this diversity while capitalizing on the mass buy-in already in place at ICCAT, and thus allowing CPCs to work more collaboratively and effectively as a unit with a shared vision.

Although their methods of reaching agreement on measures are reported to have been less effective in the past, observers and ICCAT attendees seem hopeful that the movement toward MSE and an ecosystem-based approach could make the vision of ICCAT management more clear, and thus making it harder for nations to both take advantage of, as well as be taken advantage of by this bureaucratically important mode of agreement. If effectively implemented into the ICCAT management convention, MSE could allow ICCAT scientists to simulate fisheries systems to determine whether a potential harvest strategy or management measure will achieve the desired outcome (Pew Environmental Group, 2016; Punt et al., 2016). Using these strategies while recognizing the importance of buy-in across CPCs could provide the Commission as a whole with clear and predictable objectives, making it harder for nations to block sound recommendations, and easier for them to see the potential benefits in implementing them. This move toward MSE could also help address some of the other issues identified in interviews, specifically as they pertain to the use of scientific advice in decision-making, as it can offer an explicit link between scientific advice, management actions, and economic and ecological outcomes.

In addition to institutional challenges and limitations, decision-making influenced primarily by economic and industry interests was another area identified as having an impact on the effectiveness of ICCAT management. Although the ICCAT mandate aims to preserve the markets and fisheries within their convention area (ICCAT, n.d.), prioritizing economic gains and industry's drive to exploit without due consideration for sustainability could leave the stocks these markets rely on at risk of depletion. These issues shed light on a challenge that extends beyond just ICCAT, but to management of natural resources as a whole, and that is that there is a paradoxical relationship between our drive as society to preserve natural resources and the pressure to exploit in order to meet growing demand for those same resources. This paradox, described by Weinstein & Reed (2005) as a "dual mandate" in integrative management of coastal regions, can also apply to the management of shared resources on the high seas. The dual mandate however, is not a bad thing, and when acknowledged, can present opportunities to developing more holistic management strategies that can produce benefits for both natural systems and society (Weinstein & Reed, 2005).

Finally, it appears that the Atlantic shortfin mako, along with other pelagic shark species, continue to be a lesser priority in negotiations and management overall, with very little significant action taken toward conserving these stocks (WWF, 2010). Part of the reason for this could relate to the organization of species at ICCAT Commission meetings, which places pelagic sharks together in the final panel for discussion, panel 4. Participants in this study identified this organization of species as a main driver to the lack of consideration and time pelagic sharks are given in negotiations. This however, could change as ICCAT prepares for upcoming amendments to their convention, which are expected to include more explicit direction for prioritizing and managing bycatch species, like pelagic sharks, while incorporate MSE and harvest control rules into management best practices (Pew Environmental Group, 2016). This would not only allow ICCAT to consider the many ecosystems of the high seas in a broader way, but could also help them to better fulfill their dual mandate of preserving their markets while protecting the species they rely on in a way that is sustainable.

Linking geopolitics and effectiveness at ICCAT

Results indicate that geopolitics, among other factors, continue to infiltrate the ICCAT arena. Furthermore, interviews uncovered that in some instances, geopolitics are influencing the

management outcomes for the regime. Conflict between nations that are involved in ICCAT management was reported often in interviews as explicitly motivating the negotiating stances of CPCs at annual Commission meetings (e.g., China and Taiwan example). In a forum where the predominant mode of decision-making is consensus (Telesca, 2015), having these sour relations between nations no doubt hinders consensus in some instances. Even though conflict between nations is known to infiltrate negotiations at ICCAT, they are not well-documented in ICCAT reports or literature. For example, a thorough review of the history between China and Taiwan at ICCAT indicated missing information regarding how the conflict was resolved, stating there to be “no record” to explain much of the resolution process (Chen, 2014).

Expecting any international forum, especially one as large and complex as ICCAT, to not be impacted by the relationships and goings-on in the international community would be unrealistic. However, there appears to be a serious lack of consideration for the extent to which these geopolitics are influencing the management outcomes, both by ICCAT themselves and in accessible literature. As a result, the impact geopolitics are having on the effectiveness of the ICCAT regime and their decision-making overall is difficult to discern. What is clear however, is that there is much more than just simply fisheries being considered at ICCAT, and the further motivations for decision-making get from addressing matters pertaining to the fisheries themselves, the less likely ICCAT will be able to manage those fisheries effectively and responsibly.

Next steps for research & conclusion

Interviews uncovered a number of interesting issues infiltrating ICCAT meetings and management, and these should be investigated further for their overall influence on management outcomes. Furthermore, conducting additional interviews with individuals from both the industry and government backgrounds, which were underrepresented in this study, could help to create a more holistic view of how the experiences of these observers differ based on their background, as well as what they perceive as major challenges for ICCAT moving forward. What is clear from this study is that effective fisheries management continues to stall, often as a result of institutional, geopolitical, and economic reasons not linked to fisheries themselves. For example, illegal activities, which are often bolstered by modern conflict and global inequity, remain a threat to fisheries sustainability, yet, ICCAT is not currently set up to tackle these global issues.

The link between the ecologically safe operating space in fisheries, and the socially just space, vis a vis Raworth's donut (Raworth, 2012) needs to be made explicit, and brought into the open in fisheries negotiations.

Overall, ICCAT appears to be a complicated space, with endless tension and multi-faceted challenges to understand and overcome. One thing was clear in interviews, and that was that ICCAT plays an important role in the management of shared marine resources in the Atlantic, and those common resources are better off with their oversight than without. This is not to say the regime is the only hope for the future of our oceans however, as sustainable management in the future will need to be more collaborative and precautionary if stocks are going to begin recovering and remain healthy. This will require that CPCs and industry acknowledge the trade-offs that will need to be internalized for those improvements to be a reality. Furthermore, it appears ICCAT is in desperate need of an institutional overhaul to address the issues presented by the institutional inertia that plagues the regime. As an aging institution, it could be the time for this overhaul to allow it to reorganize for contemporary fisheries management. With appropriate amendments to the ICCAT Convention that promote holistic, ecosystem-based decision-making, as well as acknowledgement of some of these major issues, specifically those unrelated to fisheries management, ICCAT could get back on track to preserving those shared resources society so desperately depends on in a more sustainable and effective way. This type of successful and mindful management will be integral to maintaining food security and overall ocean health as we face the changing geopolitical and climate reality of the 21st century.

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Appendices

Appendix A. Semi-structured interview used to guide discussion with interview participants.

ICCAT Observer Interviews – First Draft of Questions

Date: _____

Recording ID: _____

Background and experience

In what capacity and for what length of time have you been attending ICCAT meetings? How many meetings (Convention and supplemental) have you attended?

Are you still an active observer at ICCAT?

What kinds of activities do you engage in while at ICCAT meetings?

ICCAT priorities

ICCAT has a publically stated mandate. How do you interpret their conservation mandate?

During your time as an observer, did you feel that conservation mandate of ICCAT was being met? (i.e., did you feel as though the management decisions being made at ICCAT were or were not conservation-minded)? **Why or why not?**

In the meetings that you have attended, what were some key ICCAT priorities you identified that had been tabled? **Why do you think those are priorities at ICCAT?** How did those discussions go in plenary?

In the meetings you have attended, what do you see as key pieces of potential conservation measures that were not adopted? **Why do you think they were not adopted?** Which countries were responsible for measures not getting adopted? What do you think their rationale is/was?

Do you think that these rationales are counter to the mandate of ICCAT? **Why?**

2017 Meeting

Were you present for the most recent ICCAT meeting held in Marrakech, Morocco? If “yes”, did you observe any negotiations on the issue of increasing/improving scientific observer coverage on industrial tuna fishing vessels? If “yes” to previous question, can you describe those negotiations? Which countries seemed especially supportive of, or opposed to, the idea of increasing/improving observer coverage on all industrial tuna fishing vessels? If you did not observe the negotiations, did you discuss them with other people, and do you have an opinion you’d like to share about those discussions?

How would you describe the negotiating stances of Spain, Portugal & Morocco on the issue of increasing/improving observer coverage on tuna fishing vessels?

Do you have an opinion on **why** Spain, Portugal and Morocco may not be supportive of increased/improved observer coverage?

These countries all border the Strait of Gibraltar, which we know is a major passage for human migrants from North Africa into Europe. In your opinion, do you think there is any connection between the issue of migrant passage in this area and the negotiating stances of these countries at ICCAT?

How would you rate/describe the management decisions made regarding shortfin mako stocks at ICCAT at the 2017 meeting in Marrakech? In your opinion, has ICCAT management been effective at conserving stocks in a sustainable way? Why or why not?

During your time as an observer, did you ever suspect some member states to be working together toward an unknown common goal (be that for or against conservation measures)? If so, when, with what issue, and with which member states?

In your experience, would you say there are factors beyond simply the management of a species that play into the decisions being made at ICCAT? How much of an influence do you think these factors have in the decisions that are made at ICCAT?

Do you think ICCAT has been successful at conserving the species of sharks they manage? If no, what are the factors that you think contribute to that?

ICCAT Effectiveness

During your time as an observer, did you feel, in general, that ICCAT was effective at managing shared fish stocks in a way that was sustainable? Why or why not?

Do you have any recommendations on how ICCAT could improve/enhance their management strategies for shared fish stocks?

Contacts

Do you know of any individuals you feel would be interested in participating in an interview? If so, are you comfortable sharing their contact information for recruitment?