

IS POWER LISTENING TO SCIENCE? THE CASE OF ICCAT AND THE EASTERN BLUEFIN TUNA (2004-2014)¹

LEANDRA REGINA GONÇALVES²

1. Introduction

One of the biggest challenges in the governance of the contemporary global environment, is the future of marine ecosystems in the Anthropocene (STEFFEN et al., 2015). Many planet boundaries are emerging and the increases in waste disposal, pollution, climate related acidification, and overfishing are threatening species and their habitats (ROCKSTROM et al, 2009).

In order to address the overfishing problem, the Regional Fisheries Management Organizations (RFMOs) were created. The RFMOs are international organizations formed by countries with fishing interests in specific areas. The International Commission for the Conservation of Atlantic Tunas (ICCAT) is an RFMO responsible for the management of tunas and tuna-like species in the Atlantic Ocean and adjacent seas. ICCAT was signed in Rio de Janeiro, Brazil, in 1966, and it is responsible for fisheries management, acting directly by regulating fishing activity through two basic processes: (1) allocating the fish among users (countries) and (2) determining the allowable harvests; both activities are dependent on the skills and knowledge from multiple sectors.

It is well known and established in theory, that a fundamental principle underlying modern fisheries management is that management decisions need to be based on scientific information. This principle is embedded in the United Nations Convention on the Law of the Sea (UNCLOS), which mandates that the determination of allowable catches and other conservation measures for living resources in the high seas are based on the “best scientific information available to the States concerned”. The need for scientific advice as the basis for management decisions and the establishment of RFMOs was further affirmed in the United Nation Fish Stock Agreement (UNFSA). However, in practice, science is not very often listened to when political decisions are made.

Facing difficulties generated by the increasing demand for sea products and particularly, the increased pressure exerted on the stocks of tuna species, worldwide concern

1. Acknowledgements: The author is deeply grateful to Dr. Peter M. Haas and Dr. José Eli da Veiga for their constructive comments on the previous version of the paper. The author also would like to thank all the interviewees for the information provided for this research. This work was done as part of a PhD in International Relations at University of São Paulo, with support of CAPES/Fulbright scholarship.

2. Leandra Regina Gonçalves, Biologist, Phd in International Relations (IRI-USP). Postdoctoral fellow at Oceanographic Institute (IO-USP). Orcid - <https://orcid.org/0000-0003-1182-418X>

raised a call upon all RFMOs, and ICCAT decided at its annual meeting in 2007 to carry out the first review of its performance (ICCAT, 2008), which was concluded in 2008. After the first performance review (ICCAT, 2008), the management of Eastern Bluefin Tuna was identified as crucial for the future of ICCAT, and it is within this context that this paper argues that, under the widely-publicized crisis about the international tuna fishery management in 2009, an epistemic community emerged under ICCAT and employed collective efforts to deal with these shared problems. In that sense the analytical question was generated: when and why does power listen to science?; and further, does it result in more effective agreements and the recovery of the fish populations?

This paper analyzes the role and influence of the scientific and epistemic communities in the ICCAT Eastern Bluefin Tuna (EBFT) political decisions from 2004 to 2014. First by outlining the role of ICCAT and RFMO and then through interview processes with those involved to subsequently examine the ICCAT architectural dimensions and the impact of the epistemic community with regards to the EBFT. It is hoped that the ICCAT case presented here will help to reinvigorate the discussion on the effectiveness of international environmental agreements and the role of epistemic communities.

2. Theory and methodology approach

This paper utilized Peter M. Haas's theory³ and the empirical approach of epistemic communities, to analyze their role and potential influence regarding international environmental agreements, according to Haas (2004a):

“Knowledge can speak volumes to power. Current research from comparative politics, international relations, policy studies, and democratic theory suggests that science remains influential if its expertise and claims are developed behind a politically insulated wall. Epistemic communities are the transmission belts by which new knowledge is developed and transmitted to decision-makers. Knowledge must also possess the substantive characteristics of usable knowledge: credibility, legitimacy, and saliency”. (HAAS, 2004a: 587pp)

Through a combination of elite interviews, process tracing (BEACH & PEDERSEN, 2013), research on peer-reviewed papers, and meetings reports, this paper analyzes the role and the influence of scientific and epistemic communities with regards to the ICCAT Eastern Bluefin Tuna political decisions from 2004 to 2014, and evaluates if they have improved the effectiveness of agreements, in terms of the recovery of the EBFT stocks. The meeting reports were analyzed to compare how distant or close the political decisions over the EBFT were, from the scientific advice provided. Further, the participant lists were manually reviewed to identify who would be the first key stakeholders to be interviewed and who were the main institutions that were part of ICCAT during the period of study.

The individuals interviewed were selected using a snowball selection technique and questioned with a semi-structured interview methodology. The interviewees were

3. Peter M. Haas has been applying the concept of Epistemic Community in diverse cases along his academic life, such as Mediterranean Action Plan (HAAS, 1992). Also, in 1992, the topic deserved a Special Issue with contributions from diverse authors.

divided into groups, such as scientists, members from NGOs, and government representatives. Some individuals had attended the ICCAT meetings in different years representing different groups, so they were requested to answer the questions based on their main roles during the research period (2004-2014). The interviews were conducted remotely or personally between 2013 and 2014 and were registered by voice and notes. Further, we have opted not to quote the interviewees here, but to use the information as facts to support the documented information.

3. Results

3.1 ICCAT institutional architecture and its importance for international fishing

The main ambition of this research was to contribute to the debate on the global governance of the oceans. Even though there are many agreements in place to control the increasing pressures on the environment, a high rate of marine environment degradation is still observed, both within and beyond areas of national jurisdiction, and this raises questions about the effectiveness of the regulatory frameworks in place.

The United Nations Convention on the Law of the Sea (UNCLOS) was signed in 1982. This very significant document, known as the “Constitution of the Oceans,” is the broadest and most complex text negotiated, to date, on this subject. UNCLOS has subsequently become a very important regulatory framework that generates diverse agreements towards more specific topics, such as international fisheries, pollution, maritime traffic, or even agreements between specific countries, like the regional seas agreements.

For many years the oceans were ruled based on the “*mare liberum*” (GROTIUS, 1604) doctrine, with the main argument being that the sea was free to all, and that nobody had the right to deny others access to it. The freedom of the seas was originally considered paramount for communication and trade between people and nations and no country was given control of the oceans, given their immensity and lack of limits. It was deemed that the oceans should not be owned by any State and that they should be free for fishing and navigation. However, the natural resources of the oceans have since been exploited, as if they were inexhaustible.

With the intensification of fishing activities, some fish stocks have shown signs of exhaustion. The evolution of technology has made fishing vessels faster, able to stay out at sea longer, and by traveling further every day, greatly increase their catches. Most of these fisheries are considered international, meaning that they involve highly migratory species, which move across international waters and different exclusive economic zones. Individual countries cannot effectively regulate and manage such fisheries.

These fisheries are often referred to as common-pool resources and effective management of international fisheries requires effective coordination through cooperative agreements. This scenario motivated countries to face the problem and to look to solve management matters collectively. The RFMOs emerged and included the major world powers to play a central role in their attempts to solve the international fishery crisis, on

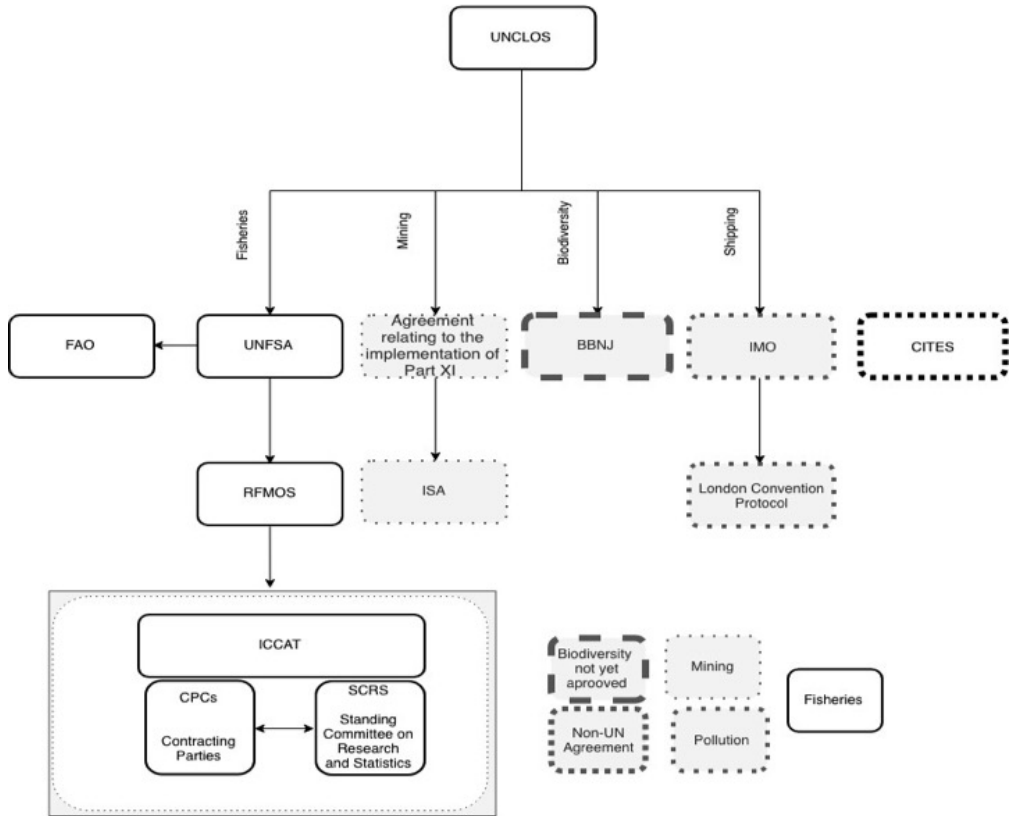
the assumption that they provide a forum where member states may agree and discuss binding rules for the conservation and management of fish stocks within their geographical area of responsibility.

ICCAT, is one of the 18 existing RFMOS and was created with the sole purpose of managing the fish stocks under its mandate and to maintain their populations at levels compatible with the maximum sustainable yield, as provisioned by UNCLOS (See Figure 1 to understand the ocean governance structure). Currently, ICCAT has 50 contracting parties (CPCs), and a convention area that covers the entire Atlantic Ocean and the Mediterranean Sea. ICCAT's mandate requires the collection and analysis of statistical information relative to current fishing conditions and population trends carried out by the standing committee on research and statistics (SCRS).

According to the ICCAT convention, it is the SCRS' task to ensure that the Commission has available at all times, the most complete and current statistics concerning fishing activities in the convention area as well as biological information on the stocks that are fished and advises the Commission on the need for specific conservation and management measures.

Besides the bureaucratic and formal roles of the chairman described in the Rules of Procedure 7 (ICCAT, 2007, p14), he/she has access and the political influence to advocate for certain topics with other countries representatives and stakeholders when it is needed and considering his expertise and powers of duty.

Figure 1: The ocean governance structure with ICCAT in detail, and the description of the acronyms used in this paper.



Acronym	Organization
UNCLOS	The United Nations Conventions on the Law of the Sea
FAO	Food and Agriculture Organization of the United Nations
UNFSA	United Nations Fish Stock Agreement
RFMOS	Regional Fisheries Management Organization
ICCAT	International Commission for the Conservation of Atlantic Tunas
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora
BBNJ	On-going discussion on Biodiversity Beyond National Jurisdiction
IMO	International Maritime Organization
ISA	International Seabed Authority

The decade from 2004 to 2014 saw a large number of changes in ICCAT, focused on improving conservation, management, compliance, and enforcement, including the request and delivery of its first performance review (ICCAT, 2008). Not a small accomplishment considering the number of countries and parties interested. All of the interviewees in this investigation, no matter what group they were representing, recognized the improvements in ICCAT over this period.

A very emblematic and widely discussed case under ICCAT management is that of Eastern Bluefin Tuna (EBFT). The topic is considered so important that in the first performance review it was stated, “The judgment of the international community will be based largely on how ICCAT manages fisheries on EBFT” (ICCAT, 2008). Bluefin tuna is an iconic species, with a high economic importance for many countries. In January 2017, a single fish, weighing 212 kilograms, sold in a Japanese fish market for a staggering £517,000, however, EBFT stocks have declined in recent years (Guardian, 2017). This scenario got the scientific communities attention, and involved many stakeholders campaigning for its recovery. Due to its importance, the EBFT was chosen to be the case study of this paper.

3.2 Eastern Bluefin Tuna Case

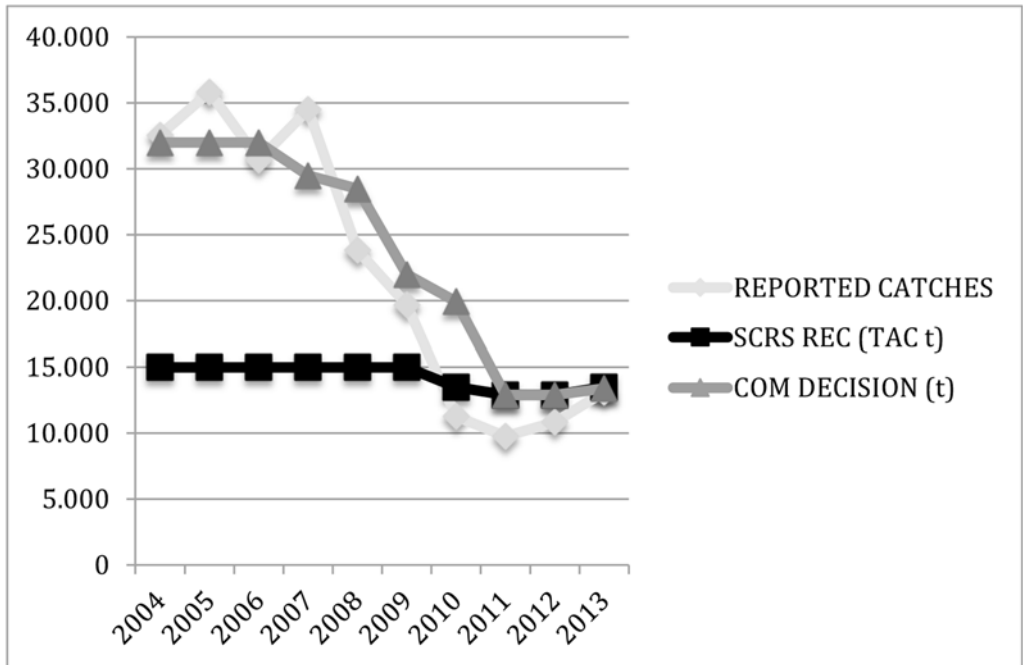
In its recent past, ICCAT consistently set the quotas for EBFT much higher than the levels recommended by its scientists (see Fig 2). Furthermore, compliance and enforcement associated with those quotas were weak, which led to a huge mismanagement problem (MACKENZIE et al, 2009, SUMAILA & HUANG, 2012).

From 2007 to 2009, a series of events gave prominence and attention to the crisis of the Bluefin tuna and exposed the lack of political action and management of the fish stocks. The ICCAT contracting parties (CPCs, hereafter) felt the pressure and the need to change how decisions were made at ICCAT to avoid the Bluefin tuna crisis. Not only due to environmental concerns, or the threat of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) listing the species, but also because pressure was coming from various sectors and stakeholders.

A great turning point, when the fishery crisis became even more evident was in 2009 when the SCRS report warned of the serious risk of EBFT collapse and the high level of uncertainty still in place due to the under-reported catches, and stated: “ICCAT must not be complacent since concerns about bluefin tuna increase year after year and the Commission seeks advice from the SCRS on how to remedy this situation. This work is important if ICCAT is to maintain its good reputation” (ICCAT-SCRS, 2009, p45).

Under that context, a crisis was declared, warning that due to overexploitation and mismanagement, the EBFT population may collapse. States then recognized that they had to deal with the problem, delegating the task of research and providing information to the experts. Crises and new developments not only accelerate the diffusion process but also lend urgency to the task of reevaluating current policies and coming up with alternatives. Crises and uncertainty triggered a search for expertise illustrating the exact situation where social learning may occur (ADLER & HAAS, 1992).

Figure 2: Reported catches and the standing committee on research and statistics (SCRS) recommended total admissible catches (TAC) and the Commission decision



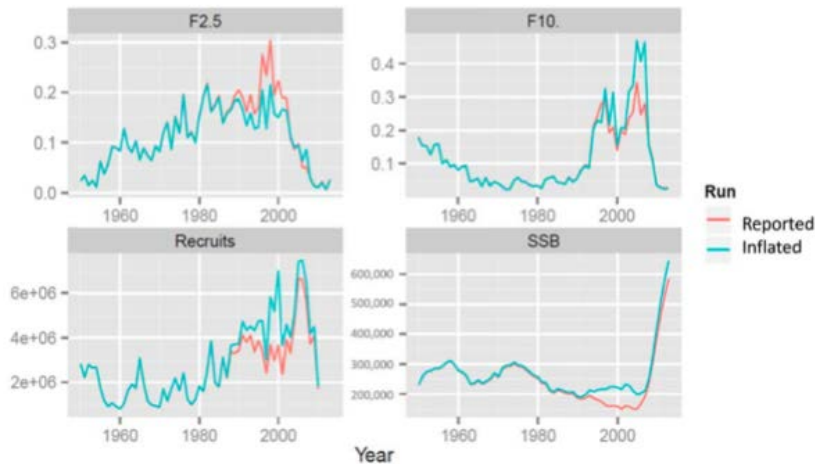
Thus, bearing this entire background context, ICCAT started to cut the TAC (Total Admissible Catch) substantially (Fig 2). The warning sent from the SCRS in 2009 pointed to the fishery crisis and triggered the actions (SCRS, 2009, p45). However, the acceptance of the SCRS recommendation did not mean that the problems were solved. ICCAT was still failing on compliance and enforcement and countries were and currently are failing to provide accurate fishery data, which results in poor and underreported fishery information. Therefore, at that time, to recognize, demand, and accept the scientific advice was a big step.

In 2014, the SCRS report showed that “the implementation of recent regulations has clearly resulted in reductions in the catch and fishing mortality rates. All CPUE⁴ indices showed increasing trends in the most recent years” (ICCAT SCRS, 2014). Moreover, the 2015 report of the standing committee on research and statistics (ICCAT SCRS, 2015), showed that the decisions taken clearly caused a drastic reduction in fishing mortality (F 2.5 and F10.), and the strong recovery of the spawning stock (SSB) (Fig. 3).

4. In fisheries and conservation biology, the catch per unit effort (CPUE) is an indirect measure of the abundance of a target species. Changes in the catch per unit effort are inferred to signify.

Figure 3: Fishing mortality for Eastern Blue Fin Tuna (ages 2 to 5 and 10+), spawning stock biomass (in metric tons), and recruitment (in number of fish) estimates. Red line: reported catch; blue line: inflated catch (from 1998 to 2007).

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Source ICCAT SCRS 2015, page 108.

The EBFT case highlights that the roles played by the different actors on behalf of science, and in this specific context, forming an epistemic community, containing scientists from different groups, influencing policy decisions at ICCAT. Some were scientists that represented the contracting parties, others were scientists from specific NGOs and also the chairman from the SCRS and the Commission, as they were all part of the network of professionals that possessed the necessary expertise, similarly interpreted the information and data, and were willing to persuade others based on their knowledge.

According to Croos (2015), they matched the epistemic community criteria, as they go beyond the formal expectations as a group. As the attendees list shows, they also met annually, holding the same positions at various times, developing *esprit de corps*, and they shared distinctive culture and professional norms, as they spent more time on technical issues than formal bureaucracies. Adding to that, with the snowball technique for interviews, it was highlighted that it was easy for the members of SRCS to identify their pairs, the ones with whom they shared the same beliefs, independently from the role or the organization they were representing at that moment, as these could vary.

The differential for this epistemic community is that, as it was constituted by different stakeholders, it was able to influence the decision makers from different angles, providing a greater transmission of knowledge. The advantage of its diverse constitution was that they had similar professional academic backgrounds and many different open channels to persuade decision-makers, as each of them had their own strategies and their own areas of influence.

The SCRS has a mandate to provide information and advice for the management of tunas, but not all scientists are comfortable persuading decision makers regarding the need to accept scientific recommendations as policy decisions. Therefore, as a strong epistemic community, it sought to go beyond their formal professional role as a group, and it was often able to persuade contracting parties to fundamentally change the policy decisions. In this case, the epistemic community influenced the decision-makers, but also transmitted knowledge through NGOs and international organizations, like the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES).

3.3 The emergence of an epistemic community in the case of EBFT

Under the widely publicized crisis about the international tuna fishery management an epistemic community emerged under ICCAT to provide new causal arguments that enabled the contracting parties to make sense of the situation, and to employ collective efforts to deal with the shared problems. In this EBFT case, the committee listened to knowledge produced by science, and the EBFT tuna populations started to show signs of recovery.

To be considered as part of this knowledge community (Haas, 2014 and 2015), the individuals had to have the expertise necessary to understand the issues at stake, to interpret the information similarly, and then to share the same goals about what should be done. The group's policy aims have to reflect their expert knowledge—and not some other motivation—otherwise they lose authority and legitimacy with their target audience, which in the area of international fishing are usually the contracting parties representatives. In other words, epistemic communities must have an authoritative claim on knowledge to impact policy outcomes.

For the ICCAT EBFT case, an epistemic community emerged under the SCRS, and consisted of the ICCAT chairman at the time (2009), some NGO specific members, and some national scientists. Not all national scientists, and not all the NGO members would qualify as epistemic community members. It was possible through the answers from the interviews to find some specific individuals ($N = 38$) that would respect the criteria established by HAAS (2004a,b) to be members of its epistemic community.

Those national scientists were stretching their boundaries by providing advice to the Commission, and some of them also mentioned in their answers, that persuading decision-makers to follow their knowledge was something that they should not do, or that it was not part of their formal role. The general factors that influence the likelihood that decision makers will apply scientific knowledge are credibility, legitimacy, and saliency (Schroeder et al 2008). The decision makers interviewed for this research acknowledged the results presented were clear and bold. Even independent scientists agreed that the information was correct and that the main problem was political due to the non-acceptance of the scientific advice (MACKENZIE et al, 2009; SUMAILA & HUANG, 2012).

The epistemic community group, in this specific case, was constituted by high-level scientists, and most had PhDs or were from research areas focused on fishery science or fishery management. In the period from 2004 to 2013, of the 331 scientists that attended

the SCRS meetings; about 62 were present in more than 50 % of the meetings, which guaranteed that, with time, the SCRS could count on a larger number of scientists trained and able in fishery methods and analysis. According to the interviewees, the information presented by the SCRS was the most accurate estimate they could have from the data available.

By rule of procedure, the SCRS annually reviews all information provided by the contracting parties, and methods are improved every year. The knowledge has saliency since it is discussed one month before the Commissions plenary meeting, when it is then presented to the political discussion. A very comprehensible chart is also circulated as information for decision-makers prior to each meeting.

Scientific consensus can inform policy, when groups responsible for articulating the consensus have stable access and legitimacy towards the decision-makers as they had with the ICCAT EBFT case. Typically, this happens when the scientists have a reputation for expertise, when the knowledge was generated beyond suspicion of policy bias by sponsors, and when the information is transmitted to governments through personal networks (Haas, 2001)

3.3.1 Non-Governmental Organizations (NGO's)

There are many types of organizations that could be considered or thought of as NGOs, like international NGOs, environmental NGOs, groups representing business and industry interests, grassroots organizations, community based organizations and/or transnational or advocacy networks (BETSILL & CORELL, 2001). Here, the term "NGOs" is used to refer to all these types of organizations, as long as they are involved on the Eastern Bluefin Tuna debate at ICCAT.

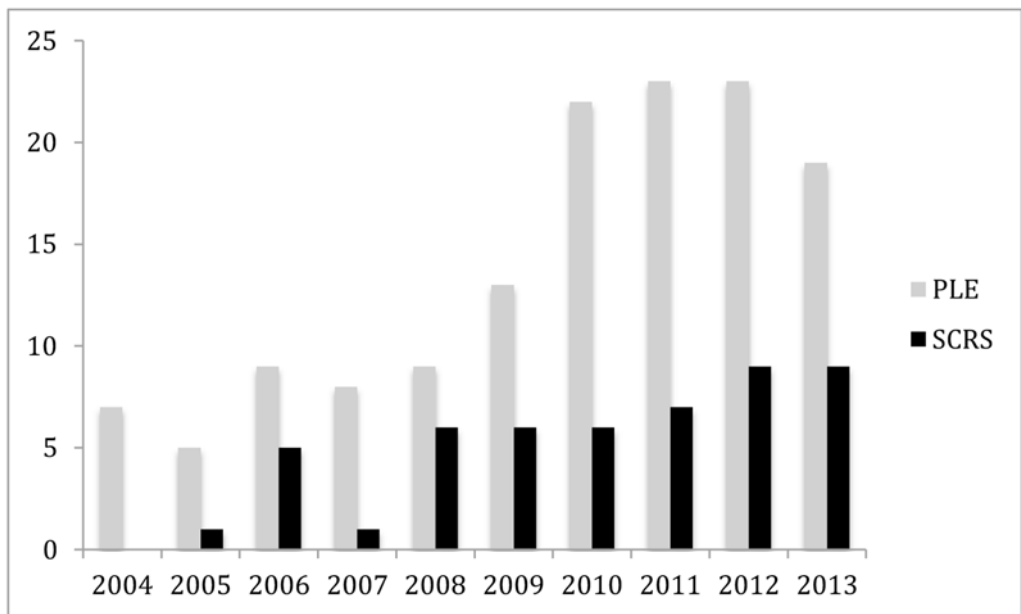
NGOs participate in global environmental politics in a number of ways: (1) they try to raise public awareness of environmental issues; (2) they lobby state decision-makers hoping to affect domestic and foreign policies related to the environment; (3) they coordinate boycotts in efforts to alter corporate practices harmful to nature; (4) they participate in international environmental negotiations; and (5) they help monitor and implement international agreements (BETSILL & CORELL, 2001). At ICCAT, they not only do all of the above, but since some of their staff are willing to contribute to the scientific debate, as scientists, they also qualify to be part of the epistemic community.

From 2004-2014, the period of this research, there were 51 NGOs attending ICCAT, the plenary, or SCRS, including international environmental organizations and associations that advocate for fisheries and fishermen. It was noticeable that most NGOs attended the commission meeting, indicating a strong advocacy purpose (Fig 4).

The profiles of the NGOs that also attended the SCRS meetings as observers, differed from the those that normally only attended the plenary. Their representations were made by skilled workers, with an academic background in science that would enable them to contribute to the fishery science debate. They were not policy professionals that were there to advocate for a target agenda, and this could be noticed by their contributions in the meeting reports, from their interviews, and also from their professional profiles.

Those specific individuals were frequently named by the national scientists, decision-makers, and by their peers in the interviews with respect, credibility, and recognition of their contribution to the scientific debate. Further, they were always remembered by their names, and not by the institutions they represented. For all of those reasons, they were included in the epistemic group for the EBFT, who shared the same beliefs, shared causal beliefs, or professional judgments with other scientists, and also as they possessed common notions of validity and common policy enterprise in terms of the subject.

Figure 4: Number of NGOs attending commission meetings and the standard committee on research and statistics (SCRS) meetings during the study period (2004-2013).



Non-governmental organizations are a key group at ICCAT and with time they have gained more space and larger voices in the negotiations. International NGOs and transnational advocacy networks have specific policy goals that are based on shared causal beliefs about what actions will result in the achievement of their aims. However, they are different from the epistemic community described above.

In this EBFT case, most of NGOs would not be considered as part of the epistemic community, as they were not necessarily acting on behalf of knowledge, however, they have supported the epistemic community to build a more consensual knowledge base and to disseminate it to civil society and the media, helping to enhance the awareness and the importance of decision-makers listening to science (GREENPEACE, 2009).

From 2009 to 2013, in most of their opening statements and in their media interviews and press releases (WWF, 2012; PEW, 2012) NGOs mentioned the need to follow the SCRS advice and to use the “best scientific information available”. Their participation

at the commission meeting and their involvement in the ICCAT EBFT debate helped to bring attention to the topic and to put pressure on the contracting parties for them to listen to science, according to some NGO members interviews. They were acting on behalf of science, backing up the epistemic communities knowledge.

It was also noticeable that the years from 2009 to 2013, when the contracting parties reduced the total admissible catch for EBFT, were also the years when the larger number of NGOs attended the ICCAT meetings (Fig 5), which suggests that the topic was gaining greater media coverage and also a better understanding by the public, two key reasons that the interest of NGOs should be attracted.

Most of the stakeholders interviewed assumed that the NGOs pressure helped to expose the ICCAT Eastern Bluefin tuna mismanagement and created an international embarrassment that contracting parties wanted to avoid.

The relationship between the NGOs and SCRS was not always one based on collaboration. During the interviews, NGOs, like Greenpeace, blamed the SCRS for the high interference of politics on science and called for a peer-review of their results. However, even with the criticism, from 2009 to 2013, most of them were speaking in a unified voice for ICCAT to follow the SCRS advice and reduce the EBFT total admissible catch. They even welcomed the Convention on International Trade in Endangered Species of Wild Fauna and Flora threat to list EBFT (GREENPEACE, 2009). This created higher pressure on the contracting parties and helped the decision makers to accept the science. Another factor that helped was that since 2004 the number of NGOs attending the SCRS meeting increased from zero to nine, bringing more legitimacy, transparency, and reliability between the civil society and the epistemic community. This increase also shows that the topic was becoming more relevant globally.

The NGOs that attended the SCRS meetings, and were considered as part of the epistemic community, played a key role in the process as they contributed scientific information and advocated and sponsored the science that had been done by the SCRS. By speaking in a unique voice, they transmitted consensual and usable knowledge to the decision makers and also to civil society. All of this together created an environment of persuasion that was felt by the decision makers, as it was also mentioned by the interviewed stakeholders.

As some NGOs were involved in SCRS meetings and also in commission meetings, they played an important role in creating a bridge between the SCRS and NGOs in disseminating knowledge. Normally, in international relations the science-politics interface has been framed primarily as a matter for scientists and decision makers. Scientists inform policy-makers and policy-makers turn to science for knowledge and technical assistance. This case, and as argued by *Bäckstrand* (2013), suggests a triangular interaction between scientific experts, policy-makers, and citizens, where citizens are involved and aware of the problem through the information disseminated by the NGOs and media. Thus, the citizens were not just a recipient of policy but also an actor in the science- policy nexus, influencing and exercising pressure at the domestic level.

3.3.4 The role of Chairman at ICCAT

Another point that must be noted is that, according to ICCAT rules of procedure, the scientists that are part of SCRS, may also attend the plenary meeting, if indicated by their country as a member of their delegation. In these cases, which normally occur, the scientists have open-access to decision-makers, NGOs, and other stakeholders.

During the period of this research, a member of SCRS, that used to be invited by the government of Brazil to be part of their delegation, was elected as a Commission Chairman, and he acted in this position, for two mandates from 2007-2011. The Chairman's leadership needs to be considered as part of the epistemic community, as it was mentioned in the interviews. Independent of which group the interviewee was a part of, they all recognized that the chairman played a prominent role leading to the acceptance of scientific advice. As a PhD fishery scientist himself, and knowing all of the work that the SCRS had done, most of his opening political statements were supporting the science-based decisions. For instance, according to the opening statement in 2009 (p 36) "he insisted that ICCAT should fully abide by the scientific advice and stated that sanctions and penalties should be applied in case on non-compliance."

Over the years, the Chairman also created a strong alliance with key and very active researchers from the United States and Europe, who were also interviewed for this investigation. Their shared causal beliefs and professional judgments may have contributed in persuading the contracting parties to make their decisions based on scientific evidence. From those interviews, it was noted that they agreed on the strategy and acknowledged the success, as essential, when policy listened to science.

Over the Chairman's second mandate in 2009, he stated clearly: "let's not fool ourselves: there will be no future for ICCAT if we do not fully respect and abide by the scientific advice. If we do not follow the instructions science is giving us, our credibility will be irreversibly jeopardized and the mandate to manage tuna stocks will be surely taken out of our hands" (ICCAT 2009, p72).

As has been identified, 2009 was definitely not only a turning point, but it was the moment where science started to guide the actions related to EBFT. As mentioned by the Chairman in the opening statement of 2010, "differently from the previous two years, this year I feel that I no longer have to emphasize the need for ICCAT to follow the scientific advice, not because this is not important anymore, but, on the contrary, because in my view the obligation to respect science has finally become firmly entrenched in the work of this Commission" (ICCAT, 2010, p41).

Particularly in 2009, but also mentioned by the interviews for the years following, the Chairman worked as a leader. When he took this position, it granted him access to the decision-makers, so that he could persuade key member parties using the recommendations from SCRS as a guide. He also used the strategy of creating an alliance between key and powerful countries, such as the United States, Canada, and Brazil to persuade Japan and the European Union to follow the scientific advice from the SCRS – which was ultimately a very successful strategy.

3.4 The Threat of CITES

The proposal to include the Bluefin tuna into the Appendix 1 of the Washington Convention (better known as CITES) was promoted by the Government of Monaco in July 2009 and subsequently endorsed by various countries. The 2009/2010 proposal was mostly based on science attributes, like the low levels of the Bluefin tuna population, the unsustainable levels of fishing, the outputs of the assessment provided by the SCRS with the following low recovery figure of the population in the wild and the mismanagement of this fish resource by ICCAT and all countries concerned. The proposed text refers mostly to SCRS documents and WWF reports, showing clearly an influence of the epistemic community members on the construction of the Monaco proposal (CITES, 2010).

During the 2009 ICCAT meeting, the possibility of bluefin tuna be listed in the CITES Appendix 1 was so great that most countries, during their opening statements, mentioned the fact and their desire to work to improve the performance of ICCAT in order to continue to be the only organization responsible for the BEFT management. The impact of CITES was powerful and the threat was felt by the contracting parties, inclusive of Japan, according to the interviews.

A strong example was the statement made by Brazil, who was a key player in 2009 as a host for the meeting: "ICCAT is now facing the risk of losing the mandate to manage the bluefin tuna stock, mainly because it has failed to abide by the scientific advice. It is needless to say how such a development could jeopardize the future of this Commission. In light of that, we reiterate the plea we made last year for all contracting parties to embrace the cause of leaving the meeting in Brazil with all measures adopted by the Commission in full conformity with scientific advice, not only in relation to bluefin tuna, but to all species under the mandate of the Commission" (ICCAT, 2009, p74).

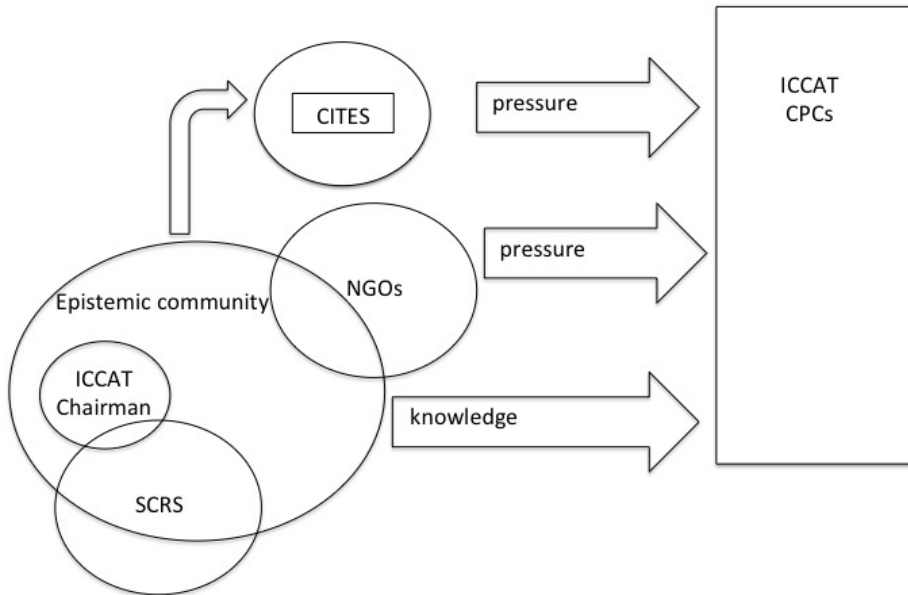
Japan was concerned about the Convention on International Trade in Endangered Species of Wild Fauna and Flora, and voted against the proposal at the meeting, and also made a commitment in 2009 "to work out at this meeting conservation programs consistent with SCRS advice for not only bluefin tuna but all major species" (ICCAT, 2009, p77).

The Monaco proposal at CITES was not approved in 2010, but, as stated by many interviewed stakeholders, the pressure was felt by the contracting parties. Some of them would say that during this ten year period, the serious attitude and strong will of ICCAT to improve its conservation effort for this stock outweighed this CITES challenge and that ICCAT had started its work to rectify the situation of Eastern Bluefin tuna well before CITES took up this issue (WEBSTER, 2011).

Based on the interviews with key stakeholders and meeting reports, this paper states that CITES played an essential role in creating pressure on the contracting parties and exposing the crisis within ICCAT management. However, the contracting parties did not accept the lower quotas due to the threat of CITES, since ICCAT started to rectify the situation well before CITES took up this issue. An important sign of this was when the Commission asked for advice from the SCRS (ICCAT-SCRS, 2009, p45) and established a recovery plan. The 2010 total admissible catch was revised to 13,500 t by [Rec. 09-06], which also established a framework to set the future (2011 and beyond)

total admissible catches to levels sufficient to rebuild the stock to BMSY by 2022, with at least 60 % probability.

FIGURE 5: Epistemic community formed by the International Commission for the Conservation of Atlantic Tunas (ICCAT) chairman, including standing committee on research and statistics (SCRS) national scientists and NGOs. They were consistently providing knowledge to ICCAT contracting parties, while CITES and NGOs created the sense of urgency.



The ICCAT listened to the epistemic communities arguments regarding the EBFT because of the nature of the way the science was organized, their usable knowledge based on real information, and the reliable relations built between them enhancing their legitimacy and credibility. Even CITES was influenced by the epistemic communities knowledge when it made the proposal for listing the bluefin tuna (CITES, 2010) (Fig 5).

However, this paper is not reducing the role of NGOs or CITES as merely megaphones of scientific information generated by the epistemic community, as Toke (1999) could argue. On the contrary, NGOs and CITES were protagonists, backing up the science and the epistemic community knowledge and advocating in a unique and consensual voice to maintain momentum and the need for a change. Sponsoring the science did not mean that the NGOs did not have their own agenda. It meant that the agents were acting on behalf of legitimate knowledge, provided by an epistemic community, to shape policy decisions to reach joint solutions. It was a combination of knowledge and pressure that made a difference on the decision makers.

Conclusion

It is beyond the scope of this paper to guarantee that the involvement of scientific and epistemic communities will ensure effectiveness for every agreement, but it can ensure that an epistemic community will likely contribute to influence policy as one actor and the discussion of this topic reflects an understanding of the determinants of success in this realm.

The Eastern Bluefin tuna case, from 2004-2014, demonstrated that when power listened to science, and implemented their advice under a social learning process, the fish stocks recovered, and thus the main goal of the Commission was achieved, conferring more effectiveness on the international agreement. As it shows here empirically, the power of listening to science was one of the first steps to improve the effectiveness of ICCAT. However, contracting parties still need to improve the quality of data provided to the SCRS and ICCAT still needs to address the lack of compliance and enforcement, which are reducing the chances of proper management.

The epistemic community was formed by a group with a high level of professionalism, that emerged from the SCRS and included scientists from NGOs, contracting parties, and the ICCAT chairman, a scientist himself, producing usable knowledge, coherent, legitimate, and solid enough to influence strategically, in many dimensions of power. The knowledge produced about the state of the Eastern Bluefin tuna populations was sound enough to have other key stakeholders support the epistemic communities claims.

The EBFT case illustrates a situation where a fishery crisis was in place, in an environment full of uncertainty, and a transnational network of NGOs and CITES helped to enhance the pressure on the decision-makers for action. By the time, epistemic community likely contributed to the change as a group ready to provide a usable knowledge to the contracting parties.

This paper contributes knowledge and opens a path toward a clearer understanding of how social learning changes policy decisions at RFMOs. The history of Eastern Bluefin tuna management at ICCAT is a very emblematic case in international cooperation, where an epistemic community spoke loud to power, and power listened to them. However, this influence only worked due to the specific context and to the fact that the NGOs and CITES widely publicized the emergent fishery crisis that could damage ICCATs reputation. Moreover, they created pressure on ICCAT by sponsoring the epistemic communities knowledge.

As a final note, a focus on epistemic communities and their science and policy interplays are worth observing when discussing the effectiveness of international environmental regimes. In today's world, if you do not consider the non-state actors and the role of knowledge, then you only have a partial picture of the international system, and this might result in an incomplete understanding of world politics.

References

- Adler, E. & Haas, P. M. (1992). Conclusion: epistemic communities, world order, and the creation of a reflective research program. *International organization*, 46(1), 367-390.
- Bäckstrand, K. (2003). Civic science for sustainability: reframing the role of experts, policy-makers and citizens in environmental governance. *Global Environmental Politics*, 3(4), 24-41.
- Beach, D. & Pedersen, R. B. (2013). *Process-tracing methods: Foundations and guidelines*. University of Michigan Press.
- Betsill, M. M. & Corell, E. (2001). NGO influence in international environmental negotiations: a framework for analysis. *Global Environmental Politics*, 1(4), 65-85.
- CITES (2010). Interpretation and implementation of the Convention Species trade and conservation. ATLANTIC BLUEFIN TUNA. Fifteenth meeting of the Conference of the Parties. Doha (Qatar), 13-25 March 2010. Available at - <https://cites.org/sites/default/files/eng/cop/15/doc/E15-52.pdf> Accessed: November, 2017.
- Cross, M. K. D. (2013). Rethinking epistemic communities twenty years later. *Review of International Studies*, 39, pp 137-160.
- Cross, M. K. D. (2015). The Limits of Epistemic Communities: EU Security Agencies. *Politics and Governance*, 3(1), 90-100.
- Fromentin, J. M., & Ravier, C. (2005). The East Atlantic and Mediterranean bluefin tuna stock: looking for sustainability in a context of large uncertainties and strong political pressures. *Bulletin of Marine Science*, 76(2), 353-362.
- Greenpeace (2009). Greenpeace: CITES is last chance to save bluefin tuna from commercial extinction. Available at: <http://www.greenpeace.org/international/en/press/releases/2009/greenpeace-cites-is-last-chan/> Accessed in November, 2017.
- McCurry, J. (2017). Bluefin tuna sells for £500,000 at Japan auction amid overfishing concerns. In *The Guardian*. Available at: <https://www.theguardian.com/world/2017/jan/05/bluefin-tuna-sells-for-500000-at-japan-auction-amid-overfishing-concerns> Accessed: December, 2017.
- Haas, P. M. (1992). Introduction: Epistemic communities and international-policy coordination-introduction. *International Organization* 46(1). Special Edition. 1-35pp.
- Haas, P. M. (2001). Epistemic Communities and Policy Knowledge. In *International Encyclopedia of Social and Behavioral Sciences*, ed. N. J. Smelser, James Wright, and P. B. Baltes, 11578–11586. New York: Elsevier. 158 Peter M. Haas and Casey Stevens
- Haas, P. M. (2004a). When Does Power Listen to Truth? A Constructivist Approach to the Policy Process. *Journal of European Public Policy* 11 (4): 569–592.
- Haas, P. M. (2004b). Science Policy for Multilateral Environmental Governance. In

Emerging Forces in Environmental Governance, ed. Norichika Kanie and Peter M. Haas, 115–136. Tokyo: United Nations University Press.

Haas, P. M. (2014). Reconstructing Epistemic Communities. Prepared for delivery at the 2014 Annual Meeting of the American Political Science Association, August 28-31, 2014.

Haas, P. M. (2015). *Epistemic Communities, Constructivism, and International Environmental Politics*. 398pp. Routledge.

Haas, P. M. & Stevens, C. (2011). Organized science, usable knowledge and multilateral environmental governance. *IN: Governing the Air: The Dynamics of Science, Policy, and Citizen Interaction*, 125.

ICCAT (2007). Basic Texts. Revision 2007. Available at: <https://www.iccat.int/Documents/Commission/BasicTexts.pdf> Accessed: November, 2017.

ICCAT (2008). Performance Review Panel. Available online at- <http://www.iccat.int/Documents/Meetings/Docs/Comm/PLE-106-ENG.pdf> Accessed at Dec 2014.

ICCAT (2009). Commission report for biennial period, 2009-10. Part I (2009) - Vol. 1 English version.

ICCAT (2009). Standing Committee on Research and Statistics (SCRS) report for biennial period, 2008-09 PART II (2009) - Vol. 2 English version.

ICCAT (2010). Commission report for biennial period, 2010-11. Part I (2010) - Vol. 1 English version.

ICCAT (2014). Standing Committee on Research and Statistics (SCRS) report for biennial period, 2013-14 PART II (2014) - Vol. 2 English version.

ICCAT (2015). Standing Committee on Research and Statistics (SCRS) report for biennial period, 2014-15. Madrid, Spain, 28 September to 2 October 2015 - English version.

ICCAT (2016). Second Performance Review Panel. Available online at- https://www.iccat.int/Documents/Other/0-2nd_PERFORMANCE_REVIEW_TRI.pdf Accessed: November, 2017.

Keck, M. E. & Sikkink, K. (1998). *Activists beyond borders: Advocacy networks in international politics* (Vol. 6). Ithaca, NY: Cornell University Press.

Mackenzie, B. R., Mosegaard, H., & Rosenberg, A. A. (2009). Impending collapse of bluefin tuna in the northeast Atlantic and Mediterranean. *Conservation Letters*, 2(1), 26-35.

OECD (2009). *Strengthening Regional Fisheries Management Organisations*. 129pp.

PEW (2012). ICCAT Follows Scientific Advice on Atlantic Bluefin Tuna, Makes Some Progress on Sharks, Efforts to Combat Illegal Fishing. Available at: <http://www.pewtrusts.org/en/about/news-room/press-releases/2012/11/19/iccat-follows-scientific-advice-on-atlantic-bluefin-tuna-makes-some-progress-on-sharks-efforts-to-combat-illegal-fishing> Accessed November, 2017.

Schroeder, H. et al. (2008). Contributing to the Science–Policy Interface: Policy Relevance of Findings on the Institutional Dimensions of Global Environmental Change. *In: Institutions and Environmental Change: Principal Findings, Applications, and Research Frontiers*, ed. Oran Young, Leslie A. King, and Heike Schroeder, 261–275. Cambridge, MA: MIT Press.

Sumaila, U. R. & Huang, L. (2012). Managing bluefin tuna in the Mediterranean Sea. *Marine Policy*, 36(2), 502-511.

Toke, D. (1999). Epistemic communities and environmental groups. *Politics*, 19(2), 97-102.

Webster, D. G. (2009). *Adaptive governance: The dynamics of Atlantic fisheries management*. MIT Press.

Webster, D. G. (2011). The irony and the exclusivity of Atlantic bluefin tuna management. *Marine Policy*, 35(2), 249-251.

WWF (2012). Decision on Eastern Atlantic and Mediterranean bluefin tuna follows scientific advice: WWF applauds. Available at: <http://wwf.panda.org/?206761/Decisions-on-Eastern-Atlantic-and-Mediterranean-bluefin-tuna-follows-scientific-advice> Accessed in November, 2017.

Submitted on: 08/12/2017

Accepted on: 21/03/2019

<http://dx.doi.org/10.1590/1809-4422asoc20170261r1vu2019L2AO>

2019;22:e02611

Original Article

IS POWER LISTENING TO SCIENCE? THE CASE OF ICCAT AND THE EASTERN BLUEFIN TUNA (2004-2014)

Abstract: During the international tuna fishery management crisis in 2009, an epistemic community emerged at the International Commission for the Conservation of Atlantic Tunas (ICCAT) that employed collective efforts to deal with shared problems and improved the effectiveness of agreements, in terms of the recovery of Eastern Blue Fin Tuna (EBFT) stocks. This event resulted in the question: when and why does power listen to science? Through a combination of elite interviews and process tracing, this investigation analyzed the roles and influences of science and epistemic communities in the ICCAT EBFT political decisions, from 2004 to 2014. We have concluded that the EBFT case illustrates a situation where effective agreements to handle a fishery crisis in an uncertain environment were enhanced, when a transnational network of non-governmental organizations (NGOs) and the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), helped to pressure the decision-makers.

Keywords: ICCAT, Epistemic Communities, Eastern Bluefin Tuna, Global Fishery Governance

Resumo: Este artigo conclui que, diante da crise internacional da gestão da pesca do atum em 2009, uma comunidade epistêmica emergiu na ICCAT e empregou esforços coletivos para lidar com problemas compartilhados e isso melhorou a eficácia do acordo em termos de recuperação dos estoques pesqueiros do atum azul. Nesse sentido, a principal questão a ser respondida foi: quando o poder ouve ciência e por quê? Através de uma combinação de entrevistas com atores-chave e *process tracing*, este trabalho analisou o papel e a influência da ciência e das comunidades epistêmicas nas decisões políticas na ICCAT para o manejo do atum azul do atlântico de 2004 a 2014 e concluiu que o caso do atum azul ilustra uma situação em que em um contexto de crise e em um ambiente cheio de incertezas, os tomadores de decisão recorreram aos cientistas, e aceitando seu aconselhamento, o manejo da pesca foi mais eficaz.

Palavras-chave: ICCAT, Comunidades Epistêmicas, Atum Azul, Governança pesqueira

Resumen: Este artículo concluye que una comunidad epistémica surgió en la CICA y empleó esfuerzos colectivos para hacer frente a problemas compartidos y esto mejoró la eficacia del acuerdo para la recuperación de los stocks pesqueros atún azul. En ese sentido, la principal cuestión a ser respondida fue: cuando el poder oye ciencia y por qué? A través

de una combinación de entrevistas con actores clave y *process tracing*, este trabajo analizó el papel y la influencia de la ciencia y de las comunidades epistémicas en las decisiones políticas en la CICAA para el manejo del atún azul del atlántico de 2004 a 2014 y concluyó que el caso el atún azul ilustra una situación en que en un contexto de crisis y en un ambiente lleno de incertidumbres los tomadores de decisión recurrieron a los científicos, y aceptando su asesoramiento, el manejo de la pesca fue más eficaz.

Palabras clave: ICCAT, Comunidades Epistémicas, Atún Azul, Gobernanza Pesquera
