# Governance Innovation Networks for Sustainable Tuna


Alice M.M. Miller

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# Governance Innovation Networks for Sustainable Tuna

Alice M.M. Miller

**Thesis**

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## List of Abbreviations

| | |
|---|---|
| CCSBT | Commission for the Conservation of Southern Bluefin Tuna |
| CFP | Common Fisheries Policy |
| CFTS | Consumer facing traceability system |
| CMM | Conservation and Management Measures |
| DG MARE | Directorate-General for Maritime Affairs and Fisheries |
| DWFN | Distant Water Fishing Nations |
| EEZ | Exclusive Economic Zone |
| EII | Earth Island Institute |
| EPA | Economic Partnership Agreement |
| EU | European Union |
| EUROTHON | Comité européen interprofessionnel du Thon Tropical |
| FAD | Fish Aggregating Device |
| FAO | Food and Agriculture Organisation of the United Nations |
| FCC | Forum Fisheries Committee |
| FFA | Pacific Islands Forum Fisheries Agency |
| FIP | Fisheries Improvement Project |
| FPA | Fisheries Partnership Agreement |
| FSM | Federated States of Micronesia |
| GDP | Gross Domestic Product |

| | |
|---|---|
| GPN | Global Production Network |
| GSB-EBA | Generalised System of Preference – Everything But Arms |
| GSP | Generalised System of Preferences |
| IATTC | Inter-American Tropical Tuna Commission |
| ICCAT | International Commission for the Conservation of Bluefin Tuna |
| ICT | Information and Communication Technology |
| iEPA | Interim Economic Partnership Agreement |
| IOTC | Indian Ocean Tuna Commission |
| ISSF | International Sustainable Seafood Foundation |
| IUU | Illegal, Unreported, Unregulated fishing |
| LDC | Least Developed Country |
| LME | Large Marine Ecosystem |
| MSC | Marine Stewardship Council |
| MSG | Melanesian Spearhead Group |
| NGO | Non-governmental Organisation |
| OPAGAC | Organizacion de Productores Asociados de Grandes Atuneros Congeladores |
| PhD | Doctor of Philosophy (also, Thesis) |
| PNA | Parties to the Nauru Agreement |
| PNG | Papua New Guinea |
| RFMO | Regional Fisheries Management Organisation |

| | |
|---|---|
| TVM | Te Vaka Moana |
| UNCLOS | United Nations Convention on the Law of the Sea |
| UNFSA | United Nations Fish Stocks Agreement |
| US | United States |
| USA | United States of America |
| VDS | Vessel Day Scheme |
| WCPFC | Western and Central Pacific Fisheries Commission |
| WCPO | Western and Central Pacific Ocean |
| WWF | Worldwide Fund for Nature |

# Chapter 1. Introduction

## 1.1 Tuna: A Rising Star

Tuna is emerging as a key feature in dialogue around sustainable fisheries and sustainable seafood. Historically, fish have struggled to garner the same amount of attention and public empathy as more mediagenic animals like pandas, gorillas and rhinoceroses. While these animals do deserve attention, NGO campaigns are concurrently trying to boost the profile of fish like tuna. WWF for example have produced a campaign where tuna are shown wearing panda, rhino and gorilla masks, with questions like "Would you care more if I was a panda?" (Figure 1.1). While public consciousness around sustainability in relation to tuna has focused on the interaction between tuna and dolphins during the 'Dolphin Safe', 'Dolphin Friendly' campaigns initiated in the 1980s, a shift is occurring and tuna is emerging as a 'headline' fish in the sustainable seafood movement.


*Figure 1.1 WWF "Would you care more if I was a…" campaign (Macleod 2011)*

In their report on the State of Aquaculture and Fisheries, the FAO (2012) found that in 2009, among the principal tuna species, one-third were estimated to be overexploited, 37.5 per cent were fully exploited, and only 29 per cent non-fully exploited. The current extent of overfishing (legal and illegal) and bycatch associated primarily with purse seine and longline fishing mean sustainable management is imperative. However, calls for restraint in the expansion of fishing effort and measures for bycatch mitigation in both longline and purse seine fisheries have largely gone unheard (e.g. Langley, Wright et al. 2009). Thus, in the long term the status of tuna stocks (and consequently catches) and

bycatch species may further deteriorate unless there are significant improvements in their management. This will require strong governance frameworks.

Traditionally, fisheries governance was the domain of state actors but often they failed to live up to expectations, leading scholars as well as other stakeholders to question their governance capacity (e.g. Allison 2001; Cole 2003). With states deemed unreliable actors in fisheries governance, other actors have moved forward into prominent positions (e.g. Kooiman 2005). This has resulted in new, innovative governance arrangements emerging that include and engage state, market and NGO actors.

The purpose of this thesis is to analyse and understand the capacity of governance innovations to shape practices of production and consumption for tuna sustainability. The analysis is based on the understanding that governance innovations take as their starting point innovative instruments, which governance actors are designing and using for enhancing the sustainability of tuna production and consumption. Governance innovation should therefore be understood as the combinations of actors and instruments that are developed, taken up and implemented in aiming for sustainability.

This introductory chapter is structured as follows. In the next section, I will provide a background to global tuna fisheries and detail sustainability issues that have emerged with the globalisation of the tuna industry. Section 3 introduces the concept of a tuna global production network. Section 4 examines the theory behind governance innovations by introducing four dimensions of the governance innovation concept: sustainability framing, innovative instruments, the governance actors (state, market and civil society), and power dynamics. Based on this, Section 5 formulates the research objective of this thesis, followed by the thesis methodology, which also provides a discussion of the different cases chosen for analysis. The final section outlines the overall structure of the thesis.

## 1.2 Tuna

In trying to understand governance innovations concerning tuna production and consumption, it is essential to first understand the background to tuna fisheries, key sustainability issues and fisheries governance.

### 1.2.1 Tuna Fisheries

Tuna are highly migratory fish caught in both temperate and tropical waters throughout the world's oceans. The principal market species of tuna are skipjack tuna (*Katsuwonus pelamis*), albacore tuna (*Thunnus alalunga*), yellowfin tuna (*T. albacares*), southern bluefin tuna (*T. maccoyii*), bigeye tuna (*T. obesus*), Pacific bluefin tuna (*T. orientalis*), and Atlantic bluefin tuna (*T. thynnus*). Industrial scale fishing of these fish started in the 1940s. Japanese long line and US pole and line fleets were operating throughout the Pacific Ocean and by the late 1950s the European and Japanese fleets were also fishing in the Atlantic ocean, in particular off the coast of Africa (Bayliff, de Leiva Moreno et al. 2005). These fishing operations continued to expand and by the 1960s, industrial exploitation of tuna fisheries was occurring worldwide engaging additional countries like Republic of Korea, Taiwan, Philippines, Indonesia and Venezuela (Miyake, Guillotreau et al. 2010). At the end of the 1960s, exploitation of tuna fisheries expanded further through the introduction of purse seine vessels, which replaced many of the US and European pole and line vessels and now account for 62 per cent of world production (Van Zwieten 2013). By the 1980s, fishing activities had spread to the western Indian Ocean (WIO) and the western and central Pacific Ocean (WCPO). Currently more than 80 nations have vessels engaged in tuna fishing (Joseph 2009).

The expansion of tuna fisheries has seen an enormous increase in fish catch. Between 1940 and the mid-1960s, the annual world catch of the principal market species of tuna rose from about 300,000 tonnes to about 1 million tonnes. Since then it has continued to rise to more than 4 million tonnes annually in 2009 (Joseph 2009), with a peak of 6.5 million tonnes in 2007 (FAO 2010). Of these catches, 68 per cent are from the Pacific Ocean, 22 per cent from the Indian Ocean and the remaining 10 per cent from the Atlantic Ocean and Mediterranean Sea (Joseph 2009).

This increase in catch has been to meet rising consumer demand. In the fresh/frozen tuna market, annual tuna supply to the global sashimi market is around 500,000 mt; more than 80 per cent of which supplies the Japanese market. The fresh/frozen tuna market is also gaining in importance in EU and US markets. In the EU, the current estimated retail value of this tuna is US$1 billion. In the US, the import value of such tuna is US$200 million

(Hamilton, Lewis et al. 2011). However, canned tuna remains the largest of the tuna markets by volume. Annually, at least 2.5 million metric tonnes of the global tuna catch is destined for canning; the majority of which is caught by purse seine vessels (Ibid). Presently, the EU is the largest market for canned tuna, followed by the US (Figure 1.2). With expansion of the canned tuna processing industry from the US mainland, EU and Japan in the 1970s and 1980s to Southeast Asia and Central/Latin America and the Indian Ocean more recently, it is now a globalised industry. Fish are being caught, processed and delivered via large supermarket chains to consumers and as a result, fish processing companies, trade firms and retailers have replaced fishermen as the central agents in the supply chain (Oosterveer 2007).

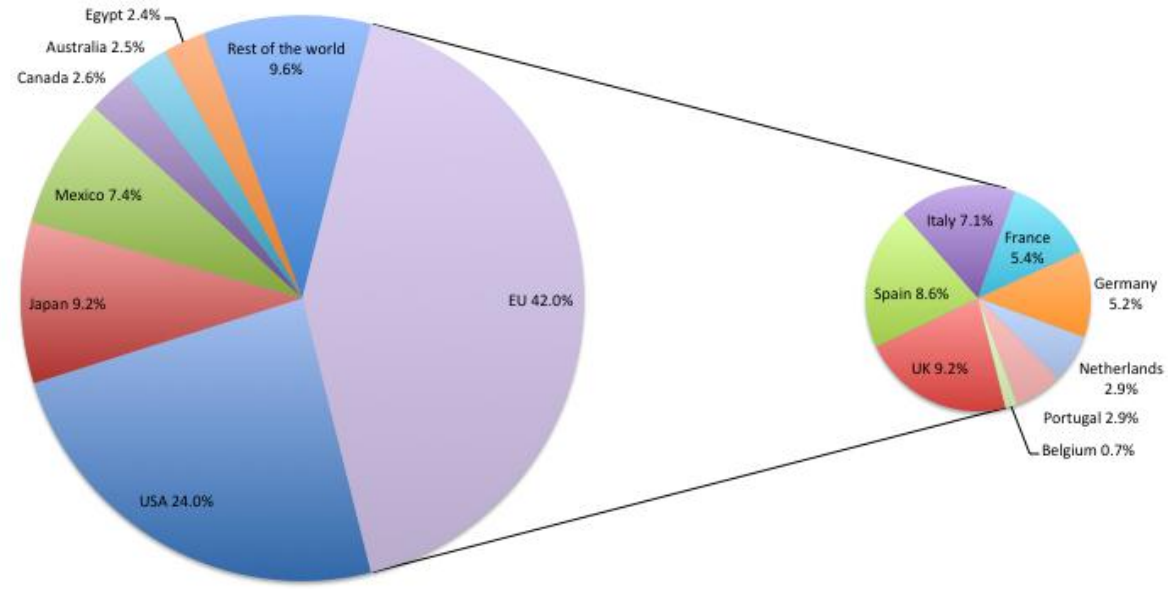



*Figure 1.2 Global canned tuna consumption (Source: PEW 2012)*

### 1.2.2 Sustainability

Before looking at governance for sustainability, it is important to understand what sustainability issues are arising around the production and consumption of tuna. This section will provide an overview of three key sustainability issues that are pertinent to the research in this thesis. The first concerns over-capacity of tuna fisheries. The second, issues associated with bycatch and the third, legality and the problem of illegal, unreported and unregulated (IUU) fishing activity.

The FAO has reported that the rate of increase in the world's marine capture fisheries has slowed and is now approaching zero. Over the last decades, tuna fleets and their catches have been growing to the extent that some stocks are overexploited or are at risk of being overexploited (Levy 2011). The FAO (2012) reported that in 2009, among the principal tuna species, one-third were estimated to be overexploited, 37.5 per cent were fully exploited, and only 29 per cent non-fully exploited. Therefore, current levels of production will not be sustainable indefinitely.

About 60 per cent of tuna catches are taken by purse seine vessels, 15 per cent by pole and line, 15 per cent by longline vessels and the remainder by a variety of other gear types (Allen, Joseph et al. 2010). Therefore, managing fleet capacity and fishing effort is on the agenda of every tuna RFMO, with a primary focus on two methods: purse seine fishing and longline fishing.

Purse seines fisheries present sustainability concerns both because of their catch efficiency and thus risk to over-exploitation, and because of problems associated with bycatch, the second sustainability concern of relevance to this thesis. In terms of efficiency, when looking at the volume of fish caught per set,[*] while economically beneficial this also contributes to high exploitation rates of target stocks. Purse seine fisheries primarily target skipjack tuna, which currently are not in an overfished state. However, at the moment, it is not possible to sustainably increase catches of these 'non-fully exploited' stocks without increasing the bycatch of other tuna species, including small bigeye and yellowfin tunas, and non-tuna organisms (Gilman 2011). The high level of bycatch associated with purse seining relates to the use of fish aggregating devices (FADs). Tuna, in particular smaller tuna like skipjack or juvenile yellowfin and bigeye show a tendency to associate with floating objects (e.g. logs), for reasons as yet unknown. Fishers throughout the world's tropical and subtropical seas exploit this behaviour by deploying artificial floating objects – FADs – which they can subsequently fish around once a sufficient number have aggregated under them (Figure 1.3). FAD fishing is

[*] A purse seine set refers to the whole process of a fishing vessel dropping its net vertically in the water to encircle a school of tuna or a fish aggregating device (FAD). When the school is encircled, the end of the net is closed using a wire cable and the bottom is 'pursed' (this process of "pursing" is so named because it is similar to pulling the draw string of an old-fashioned purse). The net is then pulled aboard the purse seiner, completing one set.

increasingly efficient through rapid technological advances in their design. These advances have included the use of satellite beacons to enable fast location, and sonar to monitor the presence and size of tuna aggregations beneath them. One of the problems with the efficiency of FAD fisheries however is that approximately 10 per cent of the catch from a purse seine FAD set are non-target species (compared to 1-2 per cent on non-FAD (free-school) sets). These non-target, bycatch species include both undersized tuna and a wide variety of pelagic non-tuna species (Bromhead 2003).

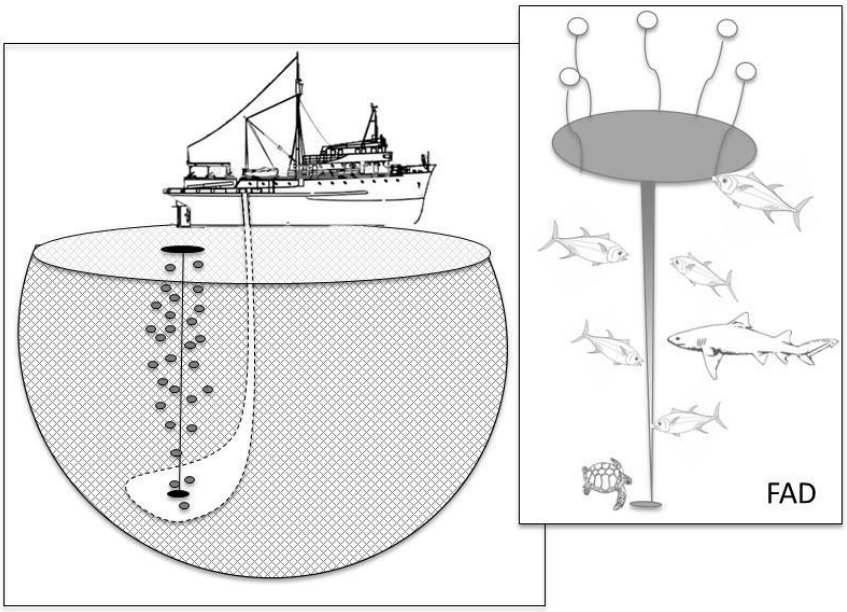



*Figure 1.3 Graphic representation of purse seine fishing on a FAD, with an enlarged representation of the FAD with marine organisms aggregating under it.*

Longline fisheries have also generated bycatch concerns. While not dependent on FADs like purse seine fisheries, longline fisheries use baited hooks (Figure 1.4) that attract non-target organisms like sharks, swordfish, turtles and seabirds. With between 2500 and 3000 hooks set over a total distance of about 100 km on industrial longliners (FAO 2003), the potential for catching non-target organisms is high. This is particularly the case when hook rates for target species are low. In Indonesia for example, industrial longliners have reported the tuna hook rate has declined from 0.05 in 2006 to about 0.027 in 2011, meaning that only 2 or 3 in 100 hooks will be hauled with tuna. The other 98 hooks are hauled either empty, or with non-target species (Bailey Forthcoming).

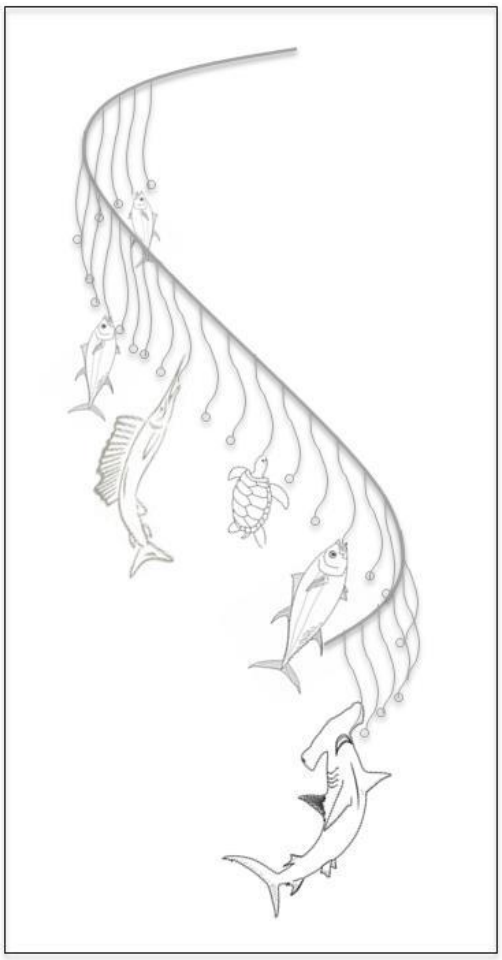


*Figure 1.4 Tuna longline with associated bycatch*

The third issue for the sustainability of tuna stocks comes from widespread IUU fishing. Globally, the economic value of IUU fishing activities has been estimated to be between US$10-23.5 billion each year (Agnew, Pearce et al. 2009). In the WCPO, the largest tuna fisheries in the world, the loss from IUU fishing has been estimated to be in the vicinity of 21-46 per cent of reported catch and is valued at US$0.7-1.5 billion (Havice 2010). As 45 per cent of the total catch is from the exclusive economic zones of Pacific Island countries, the value of IUU fish from these countries is between US$300-700 million, representing a considerable loss of foreign earnings (Havice and Campling 2010).

Illegal fishing takes place where vessels operate in violation of the laws of a fishery. This can apply to fisheries that are under the jurisdiction of a coastal state or to high seas fisheries regulated by regional fisheries management organisations (RFMOs). Unreported

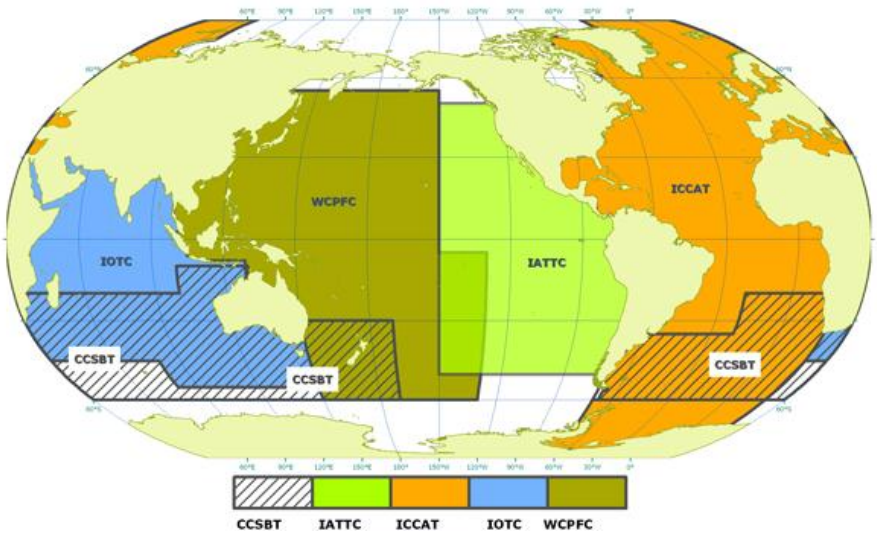
fishing is fishing that has been unreported or misreported to the relevant national authority or regional organisation, contravening applicable laws and regulations. Unregulated fishing generally refers to fishing by vessels without nationality or vessels flying the flag of a country that is not party to the regional organisation governing that fishing area or species, known as flying 'flags of convenience'. The FAO estimates that 17 per cent of the world's fishing vessels use flags of convenience. IUU fishing affects fisheries within the jurisdiction of coastal states (particularly developing coastal states), within the areas of responsibility of regional fisheries bodies, and on the high seas, and has serious consequences. It not only leads to depletion of fishing stocks, but it also deprives often poor communities of their livelihoods and can cost governments millions of dollars in lost revenues.

### 1.2.3 Tuna Fisheries Governance

The global regulatory framework developed to tackle these sustainability issues comes from the United Nations Convention on the Law of the Sea (UNCLOS). Formalised in 1982, it is the strongest and most comprehensive global agreement, setting forth the rights and obligations of states regarding the use of the oceans, their resources, and the protection of the marine and coastal environment. Perhaps the most significant portion of the UNCLOS agreement is the formalisation of a 200-mile exclusive economic zone (EEZ). This granted coastal states rights to the natural resources located in a zone extending 200 nautical miles from their coastal baseline. The introduction of the EEZ brought an end to open access to the global marine commons by giving coastal states the legal authority to exclude fishing vessels and thus manage their fishery resources for their own economic benefit.

Due to the industrialisation and expansion of fishing activities, many commercially valuable fisheries are found in waters beyond states' EEZs that were previously impossible or uneconomic to reach. These include shared stocks, which can be fished within the jurisdiction of two or more countries; straddling stocks, which move into international waters; and highly migratory species, which are primarily in international waters (Asche and Smith 2010). To regulate fisheries like tuna that fit into these categories, UNCLOS developed the Agreement on Straddling Fish Stocks and Highly

Migratory Fish Stocks in 1995 (also known as the UN Fish Stocks Agreement (UNFSA)). Under the UNFSA, RFMOs are the primary mechanism through which states interact to achieve resource conservation and management of stocks. There are currently five tuna RFMOs (see Figure 1.5) in place. Other regional configurations in place for governance of transboundary fisheries like tuna include large marine ecosystems (LMEs) supported by the Global Environmental Facility and, at a more functional level the EU Common Fisheries Policy and treaty based agreements such as the Palau Agreement in the Pacific.




CCSBT: Commission for the Conservation of Southern Bluefin Tuna

IATTC: Inter-American Tropical Tuna Commission

ICCAT: International Commission for the Conservation of Bluefin Tuna

IOTC: Indian Ocean Tuna Commission

WCPFC: West and Central Pacific Tuna Commission

*Figure 1.5 Global tuna RFMOs (Source: Majkowski 2010)*

The implementation of regulatory frameworks to devise tuna conservation and management measures presents the foundation of state-centred fisheries governance. However, more recently sustainability governance of tuna shows the involvement of an increasing number of non-state actors, both related to the market and related to civil society, applying other governance strategies and instruments. To examine this we turn to the concept of global production networks (GPNs) and the idea of governance innovations within the tuna GPN.

## 1.3 Tuna Global Production Network

The globalisation of the tuna industry has meant a wide variety of actors across different sectors are involved in the organisation and governance of tuna production and consumption processes. The GPN approach has its theoretical grounding in the global

commodity chain and global value chain frameworks. The global commodity chain framework focus on the dynamics of firms generating market power and consists of "sets of interorganisational networks clustered around one commodity or product, linking households, enterprises, and states to one another within the world-economy" (Gereffi, Korzeniewicz et al. 1994: 2). Through the global commodity chain framework, buyers are recognised as key drivers in the formation of globalised production and distribution paths. While acknowledging interorganisational networks as a central aspect of analysis, the global commodity chain framework has been criticised for not adequately identifying the variety of network forms that have been subsequently identified as critical to governance (Feenstra 1998; Gereffi, Humphrey et al. 2005).

Developed from the global commodity chain framework, global value chain analysis focuses in general terms on the relationship between vertical coordination and firm strategies for 'upgrading' products or the production process that enhance rewards and/or reduces exposure to risks for a chain actor (Gibbon, Bair et al. 2008; Bolwig, Ponte et al. 2010). The focus of this approach on upgrading has incorporated the role of non-firm actors into global value chain analysis. However, while acknowledging the "multitude of factors that affect the evolution of the global economy" (Gereffi, Humphrey et al. 2005: 99), the focus of the GVC framework is deliberately confined to firms and their transactional relationships within the value chain. Global value chain researchers recognise that other actors are involved but they mostly are viewed as external forces. Although there may be some justification for this in terms of its theoretical simplicity and practical application, global value chain analysis has also been criticised for becoming too narrow a focus (Bair 2005). Criticism of both global commodity chain and global value chain approaches led to calls for a reinvigoration of research more central to global commodity chain analysis but taking into account wider political-economic relations of production and consumption. GPN analysis emerged as a way of including these wider relations by focusing on the complex network structures that influence production, distribution and consumption (Henderson, Dicken et al. 2002; Coe and Hess 2007; Coe, Dicken et al. 2008; Hughes, Wrigley et al. 2008; Levy 2008). The network metaphor is used to capture the multi-stranded connections between firms and extra-firm groups of actors. And the term production is adopted in preference to commodity, to make explicit

that analysis will incorporate social processes and interaction between network actors, and not just follow the flow of the product (Henderson, Dicken et al. 2002).

Before examining governance within the tuna GPN, it is important to get a brief overview of the tuna production chain or network. Figure 1.6 illustrates a basic production chain for tuna fisheries, which forms the core of the tuna GPN. In its simplest sense, tuna production involves capture of raw materials from the different fisheries (longline, pole and line and purse seine), coordinating transhipment of catches into carriers to be taken to ports for sale and delivery to tuna processors. For fresh tuna, tuna is either kept whole or cut into loins and chilled or frozen depending on the market it is going to. For canning-grade tuna, the tuna is loined, cooked and canned. The processed tuna is exported via traders, importers/wholesalers and distributors to the target market, which may be supermarkets or the food service industry. In terms of canned tuna, supermarkets dominate retail sales globally, with an increasing volume of canned tuna products being produced by processors under direct contract to retailers and sold under supermarkets' own labels (i.e. private labels) (Hamilton, Lewis et al. 2011).

Therefore, the production chain side of GPNs comprise diverse types of organisations, often in quite different industries and institutions including tuna producers (fishers), multinational processors, traders active in futures and options markets, and large-scale retailers. Collectively these are referred to as firm actors. In the GPN literature, the focus is often on the role 'lead firms' play in the governance of the production network. These are the firms that undertake the branding and marketing of a product and often its design. In the case of tuna, this role can fall on a number of firms within a tuna GPN and could include: a branded company, like John West; a larger 'parent' company like Tri Marine, providing tuna for its subsidiary companies; or a supermarket controlling supply of own-brand tuna.

However, GPNs are not only comprised of firm actors but also non-firm actors like state and civil society organisations. When it comes to sustainability governance innovations, these actors have an integral role to play. Not only are these external, non-firm actors 'out there' affecting the broader societal, economic and cultural environments in which firms operate, they also interact with firms and production systems directly in ways that affect

and influence how governance takes place throughout a supply chain (Raj-Reichert 2012). The following section will look at sustainability governance innovations in the context of GPNs. It will first introduce the concept of governance within GPNs and then move on to looking specifically at the concept and dimensions of governance innovations.

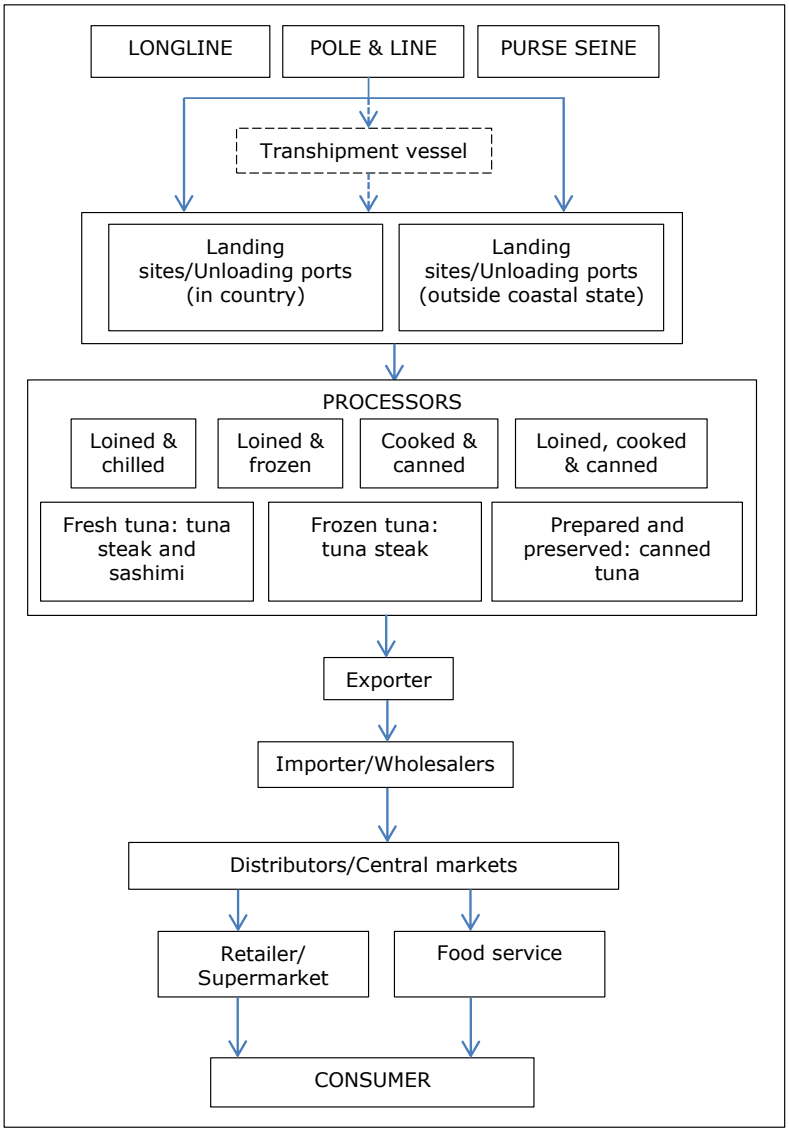



*Figure 1.6 Basic representation of global tuna production chain (Adapted from SFP 2010)*

## 1.4 Analysing Global Production Network Governance

Academic literature and policy circles have examined governance extensively since the 1990s, when it emerged as a buzzword following the World Bank introduction of the concept of 'good governance'. Traditionally it was synonymous with government. However, following from people questioning the hegemony of state actors and command and control styles of governing, the term has acquired a new meaning. In their analysis of 'new' policy instruments, Jordon and colleagues described governance as having now achieved a "paradigmatic orthodoxy" in (British) political science (2005: 1). While according to Kooiman "[w]e are still in a period of creative disorder concerning governance" (2003: 5), as there is no universally accepted definition, there is overall agreement that it refers to the development of governing styles in which boundaries between and within public and private sectors have become blurred (Stoker 1998). This blurring has broadened governance research from its previous focus on government-centric decision making, to stress the important role that other non-state actors are playing in steering processes of decision making and, in the case of this thesis, practices of production and consumption (Kooiman and Bavinck 2005).

### 1.4.1 Governance and Global Production Networks

Despite differences in terminology, as well as in focus between different researchers, there is a growing consensus around the idea that one of the most useful keys to understanding sustainability governance is the concept of the network. A wide literature has emerged on theories and empirical studies of network governance (e.g. Kooiman 2005; Young 2006; Biermann and Pattberg 2008; Gibbs 2008; Mahon, McConney et al. 2008; Eden 2009). This thesis uses the framework of global production networks to analyse and understand sustainability governance of global tuna production and consumption. When it comes to understanding how governance of a globalised industry like tuna is affected by broader interactions than those immediately concerned with production and consumption, the global commodity chain and global value chain frameworks are limited. Their focus is on inter-firm coordination and relationships, and actors like NGOs and states remain analytically an external influence. Capturing the central roles these groups are playing has moved the analysis beyond what are

"essentially vertical and linear" hierarchical relations between firms connected within global commodity chain. Through the GPN approach, the interactions between producers, traders, retailers, consumers, as well as non-firm actors like state bodies and NGOs, are explicit and open to critical investigation.

The literature on GPNs has at its theoretical core analyses of firm-state relations (Henderson, Dicken et al. 2002; Coe, Dicken et al. 2008). Central to this is the assumption that every element in a GPN is both tangibly grounded to specific locations (through fixed assets of production) and grounded in less tangible ways (e.g. through the localised social relationships and distinctive institutions and cultural practices) (Coe, Dicken et al. 2008). In the GPN literature, this grounding of parts of the production process has led to a substantial focus on the idea of embeddedness, in particular that all GPNs are embedded within multi-scalar state regulatory systems. Therefore, the recognition that all the elements in GPNs are regulated within some kind of state structure means that analysis of governance in GPNs necessarily must encompass state-led regulations.

Other non-firm actors like NGOs are also recognised in the literature, with Coe and his colleagues stating that "(i)n some GPNs, of course, notably agro-food industries, natural resources, energy, clothing and textiles, they [NGOs] are extremely prominent and have a significant influence on corporate behaviour" (2008: 287). However, the role and influence of NGOs in GPN governance and market practices is not sufficiently well integrated into GPN research. Where NGOs have begun to play a role and get recognition in the GPN literature is in analyses of ethical aspects of consumption and production. This is apparent in an accumulating body of literature addressing labour organisation and ethical consumption (e.g. Barrientos and Smith 2007a; Hughes, Wrigley et al. 2008; Barrientos, Gereffi et al. 2011). However, while some of this research touches up on sustainability, sustainability governance in the context not only of NGOs but also of firm and non-firm state actors remains an under-researched aspect of GPN research.

The research in this thesis takes the overarching framework of GPN governance to look explicitly at sustainability governance and the governance innovations that firm and non-firm actors engage with. Taking the GPN approach to look at sustainability governance

and governance innovations will complement the sizable literature on environmental network governance and international and global governance (e.g. Kooiman 2005; Young 2006; Biermann and Pattberg 2008; Gibbs 2008; Mahon, McConney et al. 2008; Eden 2009). In the context of GPNs, this broader concept of network governance allows us to look at governance innovations through examining how different groups of firm and non-firm (NGO and state) actors are engaging with sustainability, the instruments they are producing and how they interact to steer toward transformative change. In the GPN literature, innovation has been considered in the context of product innovation and technological upgrading (e.g. Ernst 2002), but hardly from an environmental and sustainability standpoint. The following section will first introduce the concept of a governance innovation, before looking at the analytical dimensions of governance innovations being developed to target sustainability in the tuna GPN.

### 1.4.2 Dimensions of Governance Innovations

The concept of innovation in the context of sustainability, also called 'eco-innovation', has been treated in the literature largely from a technical standpoint, with research focussing on technical transitions and on particular instruments of innovation (Hellström 2007; Ekins 2010). For instance, Rennings (1998) described eco-innovations as being either technical, organisational, social or institutional. The innovations correspond to: 'curative and preventative' technologies; management instruments like eco-audits; changing social practices, such as consumer consumption patterns; and improving environmental decision-making. What each of the types of innovation has in common is that they are targeting change through producing new technological or regulatory instruments.

However, in this thesis innovation is broader than just the instruments themselves and encompasses the new constellations of actors engaging in the production and uptake of the new instruments. Therefore in the context of tuna, governance innovations for sustainability are the combinations of instruments *and* actors working to incorporate sustainability into processes of production and consumption. To examine governance innovation, four key components have been distinguished: (1) the different framings of sustainability that actors use to justify the instruments used; (2) the governance

instruments themselves; (3) the governance actor constellations, emerging through combinations of state, market and NGO actors; and (4) the power dynamics between the groups of actors that shape production and uptake of the governance innovations.

### 1.4.3 Framing Sustainability

Section 1.2.2 explained the sustainability issues in tuna fisheries and the tuna industry. In describing the problems of over-exploitation of fisheries, bycatch and IUU fishing, sustainability becomes an issue that is both social and ecological. The vulnerability of fisheries to international markets also means sustainability is an economic issue. Therefore, fisheries governance for sustainability has moved on from being something dealt with simply in terms of the biology of stock assessments, to incorporate broader social and economic dimensions. The combined ecological, social and economic dimensions of sustainability are widely acknowledged. However, in spite of this economic importance, the GPN approach has not dealt with sustainability of natural resources to a great extent. It has been touched upon in Murphy's (2009) analysis of market internationalisation in Bolivia's wood products sector and in Bridge's (2008) exploration of the oil GPN but no recognition has been given to the importance of framing. Nonetheless, how governance actors choose to frame sustainability is a critical aspect of GPN sustainability governance strategies.

On the one hand, state-based approaches to governance have framed sustainability as a management issue, taking a science-based approach to formulate and introduce laws and regulations to manage fisheries exploitation. On the other hand, market-based approaches are framing sustainability around encouraging industry actors to conduct sustainable practice and consumers to make sustainable market choices. In some cases, like certification and ecolabelling, this centres on principles of sustainability that specific labels promote. For instance, the MSC promotes ecological sustainability, emphasising harvest strategies, habitat protection and producing fish within their maximum sustainable yield. In other cases, specific sustainability concerns, like IUU fishing, are the point of entry and NGOs engage with state and industry actors through lobbying for monitoring, control and surveillance systems and traceability systems.

### 1.4.4 Instruments

As indicated, innovative instruments are at the core of governance innovation. In GPN theory instruments have not been given attention explicitly. However, when looking at tackling governance for sustainability, instruments become a fundamental dimension. Examination of instruments for environmental regulation have been viewed from both the perspective of coming from state actors or coming from non-state actors (e.g. Hobbs, Bailey et al. 2005; Jordan, Wurzel et al. 2005). Hemmelskamp (2005) looks explicitly at state policy instruments, distinguishing between market and non-market instruments. He describes non-market instruments as commands/bans that differentiate between admissible and non-admissible use of the environment. Conversely, when describing market instruments like access agreements, levies and privatisation of environmental resources, he notes that they indirectly control environmental processes through the market. Jordan et al.'s (2005) explanation of 'new environmental policy instruments' shifted beyond the assumption that instruments are purely the domain of state actors by introducing a typology of instruments (Table 1.1).

*Table 1.1 Typology of new environmental policy instruments in relation to fisheries (adapted from Jordan, Wurzel et al. 2005: 483)*

| | **The State Specifies the Goal to be Achieved** | **The State Does Not Specify the Goals to be Achieved** |
|---|---|---|
| **The state specifies how the goal is to be achieved** | Regulation (for example catch limits associated with a particular fishing gear type); fiscal incentives (for example, subsidising less destructive fishing activities) | Technology based on regulatory standards (for example, best available technology) |
| **Non-state actors specify how the goal is to be achieved** | Most negotiated voluntary agreements between state and public bodies; some market-based instruments (for example privatisation of resources); some regulations (for example, environmental quality objectives) | Most negotiated environmental management systems; market-based instruments; eco-labels |

In fisheries governance, innovative instruments are those that target production and consumption practices and come through both state- and market-led strategies. For instance, state-led innovations can have both regulatory and technical dimensions. Regulatory innovations come through the implementation of new regulatory instruments that tackle issues of fisheries sustainability. New regulations for sustainable fisheries management are generating novel ways of allocating and monitoring resource use. For instance, in some fisheries, rights-based fisheries management is used to limit access and create use rights to portions of the available resources. Placing controls on input, output or spatial access and in some cases privatising resources by granting property rights through allocation of resources and days at sea (e.g. Charles 2002; Grafton, Arnason et al. 2006). Incorporated into regulatory innovations are technical innovations for fisheries management, such as instruments to increase capacity for monitoring, control and surveillance of fishery resources. This is particularly the case in management aimed at tackling the problem of IUU fishing.

When the state does not set the goals or how the goals are to be achieved, different instruments are applied for ameliorating sustainability issues. For instance, Environmental Management Systems (EMS) are used to develop a plan for tackling issues that are not covered by fisheries legislation. Within the plan are targets and details of the management actions that will be taken to achieve the targets (ISO 2000). Private standards, certification and ecolabelling are widely used for auditing environmental performance to produce improvement in production and in some cases fisheries management practices. Through the consumer-facing ecolabel, the aim is also to produce social innovation by generating consumer demand for certified seafood. The popularity of private standards for sustainability has invoked competition among the different certification systems. In some cases, this competition has been viewed in a positive light as leading to ratcheting up of standards (Cashore, Auld et al. 2007). In other cases however, research has pointed to the use of private standards for ‘green-washing’, with companies adopting progressively less stringent standards, leading to a ‘race to the bottom’ (Bitzer, Francken et al. 2008). Beyond certification and ecolabelling, other market-based instruments are also produced and include seafood guides and more recently, consumer-facing traceability systems. The aim of these is to exert pressure on

upstream actors to implement more sustainable practices and, thus, reduce fishery over-exploitation (Konefal 2013).

However, the use of market-based instruments has raised questions in the literature around legitimacy, accountability and transparency of these market-based instruments (e.g. Cashore 2002; Auld and Gulbrandsen 2010). With no formal rules on what private standards need to cover, these systems rely on transparency and third party auditing to verify credibility. While the pitfalls and challenges of market-based instruments are a point of discussion, they also facilitate interaction between new constellations of actors and represents the 'governance innovation'.

### 1.4.5 Actors

The production focus of the GPN approach classifies actors as being either firm or non-firm. Under this, non-firm can include state and NGO actors. Therefore, governance within GPNs is the domain of all of state, market and civil society actors. As we saw when looking at innovative instruments, combinations of actors are a core aspect of governance innovations.

While conventional modes of governance, where the nation state is the dominant actor, are increasingly less adequate on their own (Van Tatenhove and Leroy 2003; Oosterveer 2005), states remain important for developing and implementing national and international rules and regulations. In terms of tuna governance, RFMOs are the most visible state regulatory bodies. The RFMO that holds most relevance to this thesis is the Western and Central Pacific Fisheries Commission (WCPFC). Additional to this RFMO, however, are the activities of sub-regional state governance bodies like the Parties to the Nauru Agreement (PNA) and Pacific Islands Forum Fisheries Agency (FFA). The model of state-led tuna fisheries governance in the WCPO is therefore characterised by institutions at different scales of multilateralism, working both independently and interacting with one another to design and implement conservation and management measures for transboundary tuna fisheries within the region. The interaction between the regional and sub-regional governance bodies is a novel aspect of state-led governance in the region.

In spite of new models of state-led governance emerging, there continue to be criticism of state and RFMO-level governance failure. This has centred largely on the problems associated with state actors prioritising resource exploitation over sustainability of the stocks (Cullis-Suzuki and Pauly 2010). Because of this criticism, greater attention is being paid to the role non-state actors can play in fisheries governance. The potential for firm and NGO actors to use market-based strategies has become apparent through increasing reference to the sustainable seafood movement (Iles 2007; Thrane, Ziegler et al. 2009; Parkes, Young et al. 2010). A key feature of the sustainable seafood movement has been the shifting role of NGOs. They have changed from predominantly lobbying state parties and serving as an adversary to the industry, toward taking on an advisory role and forming partnerships with industrial actors. The opportunity for this shift came about through the consolidation and concentration in the retail sector, the shift toward competition on quality standards, and the increasing use of market-based instruments. This all has raised the prominence of these actors in generating governance innovations (Mol 2006). Employing market-based governance strategies therefore, represents a shift towards new relationships between fish consumers and producers beyond simple market exchange (Bush 2010). Less constrained by the statutory limitations of states, both NGOs and companies are able to innovate governance in terms of the instruments they use, how they use them and for what purpose.

### 1.4.6 Power

New constellations of actors seeking to transform practices of production and consumption through governance innovations inevitably introduce power dynamics in the tuna GPN. The GPN literature has paid a lot of attention to power and the social relations of production and consumption. In particular through looking at the relations between industrial and developing countries as fundamentally exploitative and conditioned on unequal terms of trade (Levy 2008). This follows along the lines of World Systems theory, where powerful and wealthy ‘core’ societies dominate and exploit weak and poor peripheral societies, creating a power hierarchy (Martínez-Vela 2001).

The commodification of global tuna resources has made tuna an interesting case for examining these sorts of network tensions. European and North American markets source

much of their tuna from the waters of developing countries and/or small-island developing states. This therefore sets up these 'unequal terms of trade'. Research by Bonanno and Constance (Bonanno and Constance 1996) on the post-Fordist global processes of tuna production in the context the tuna dolphin controversy of the 1980s, provides a bridge to understanding the power dynamics associated with the GPN approach and tuna. In their analysis, the authors focus their attention on: the role of transnational corporations in the restructuring of the tuna fishing industry; the role of labour issues associated with the globalisation of tuna production; and the embeddedness of supply network dynamics in different places of production and processing. All of these themes resonate with the exposure of power dynamics in the GPN literature.

This thesis takes our understanding of power relations in the tuna GPN forward through providing an updated examination of the ways in which sustainability innovations influence GPN governance and thus the power relations within the tuna GPN. Through the sustainable seafood movement, we see that governance of GPNs is not just about economic issues but increasingly also about sustainability. With sustainability moving to the centre of the tuna GPN, it is likely that different power relations and dynamics will evolve through the different constellations of actors that produce innovations for sustainability.

Through the cases in this thesis I will examine whether the sustainability innovations support the GPN literature's understanding of power dynamics and the inherent inequality that characterises GPNs where resource bases are mostly in poor countries while many of the main players (or lead firms) have their roots in developed countries. Or, do governance innovations around sustainability produce different power configurations in the tuna GPN, empowering countries holding the rights to accessing tuna fisheries and other non-firm actors to play the key role in articulating sustainability?

## 1.5 Research Objective

This thesis will examine governance innovations to understand what groups of actors are producing innovative instruments for sustainability and how these actor-instrument constellations impact the dynamics of the tuna GPN. Hence, the central research question

is: How do different market- and state-led governance innovations advance the governance of sustainable tuna?

To respond to this question, the research will investigate governance innovations for sustainability in tuna fisheries in the WCPO, targeting European and North American markets. More specifically, the thesis examines state-led governance innovations in the WCPO both through regional/sub-regional bodies and through the interaction between the EU and the Pacific Islands countries. And it examines market-led innovations through looking at the implementation of private standards for certifying tuna fisheries and the firm-NGO development and implementation of consumer-facing traceability systems (CFTS).

In answering the primary research question, the thesis will be able to advance the GPN literature in three ways. First, it is empirically novel, providing the first in-depth analysis of GPN governance in the context of both seafood production more generally and specifically the tuna GPN. As tuna is a transboundary common pool resource, bounded by international jurisdiction, it faces different regulatory pressures compared to manufactured goods. This presents interesting governance challenges that have not been examined in the context of the GPN literature and requires analyses of the activities of firms but also of states parties. Additionally, the strength of the sustainable seafood movement requires full consideration of NGO and consumer activities as well. Therefore, this thesis examines the interactions between these different actors and their points of conflict and cooperation to understand their influence on governance innovations within the tuna GPN. Second, this is the first study of governance innovation for sustainability. Recent analyses of GPNs have started to look at innovating new technologies and products (e.g. Ernst 2002; Nathan and Sarkar 2013), but not at innovation in terms of sustainability governance strategies. Third, to provide in-depth understanding of different innovations, the GPN approach will be supplemented with literature on: regionalism, to understand the degree of multilateralism involved in Western and Central Pacific Ocean (WCPO) tuna governance; EU external regulation, to understand how the EU is seeking to influence regulatory practice in the WCPO; and informational governance, to understand the steering role that information might play in transforming processes of production and consumption practices across the tuna GPN.

## 1.6 Methodology

### 1.6.1 Research Strategy and Design: Case Study Research

To answer the core research question, the research employs a case study research strategy. Four case studies were chosen to explore innovative governance strategies for sustainability in tuna fisheries. Using case studies for research provides an opportunity to explore or describe a phenomenon in real-life context using a variety of data sources. Case study research allows a more balanced account of 'real-life' events and to explore issues from the perspective of multiple actors (Yin 1998; Baxter and Jack 2008).

The cases in this thesis are examples of governance innovations. Multiple sources of evidence were used in each of the cases (triangulation) to ensure that the conclusions drawn were based on the explanation that is most in keeping with the facts as they stand (Yin 1981, 1998). An advantage of case study research is that as it requires close collaboration between the researcher and the participants, it enables participants to tell their stories and describe their views of reality allowing the researcher to better understand and interpret their actions (Baxter and Jack 2008).

Case study research can take a single or multiple case study approach. This PhD takes a multiple case study approach to explain different aspects of governance innovations for sustainability of tuna fisheries. In themselves, these cases only offered a partial understanding of governance innovations. Therefore, each of the cases is used to build overall insight on how state- and market-led governance innovations function. The combination of these four case studies will be used answer the core research question of how different market- and state-led governance innovations advance the governance of sustainable tuna. This analysis examined the cases in the context of each of the dimensions of governance innovations and through that, the overarching picture of governance innovations at the GPN systems level.

### 1.6.2 Case Study Selection

Four case studies have been selected that together represent a spectrum of state-/market-led governance innovations (Figure 1.7). In addition to this, cases were selected according

to the following criteria: accessibility of data and information; degree of governance innovation; diversity in terms of instruments; relevance for global production networks.

The first case looks at state-led governance innovations in the WCPO. These innovations are arising through new configurations of multilateral governance within the region. Therefore, the first case study centres this multilateral governance, paying particular attention to the interactions between the different levels of regional and sub-regional multilateralism, through the WCPFC and the PNA respectively. In looking at this state-led governance innovation, this case examines what instruments are emerging to provide the regulatory landscape of the tuna GPN. It also gives voice to the position of Pacific Island countries, thus addressing how governance innovations for sustainability shape the position of Pacific Island countries within the overall tuna GPN.

In examining both the WCPFC and the PNA, the role that distant water fishing nations play in the region is crucial for shaping the governance landscape. One of the primary examples of this is the position of the EU in the WCPO region. The EU is a critical actor in tuna fisheries globally, as a producer, regulator and consumer. It plays an important role in GPN governance, as it will influence both the WCPO regulatory landscape and the activities of firm and non-firm actors wishing to engage with the EU market. Therefore, the second case looks at the implications that the implementation of the EU's IUU fishing regulation has for the WCPO region. The case examines the extent to which the EU is using an innovative instrument that responds to a key sustainability issue to diffuse their regulatory footprint beyond Europe and in turn, whether Pacific island countries are responsive to this form of external regulation.

Through using the first two cases to understand state-led governance in the WCPO region, the thesis then examines two more market-led sustainability strategies. Firstly, this comes through looking at the certification of the PNA skipjack FAD-free tuna fishery. Through this case study, we see the use of ecolabelling to respond to sustainability concerns around the use of FADs in purse seine skipjack fisheries. Beyond the instrument, this case provides an interesting example of the new constellations of actors that are engaging in tuna governance innovation. It is an example of a hybrid form of governance where the PNA, a state actor, is leading the application of a market strategy to

promote sustainability therefore, interacting in the tuna GPN as both a firm and non-firm actor. This case study therefore also contributes to understanding state-and market-led governance innovations. Additionally, the case provides the opportunity to engage with debates on sustainability instruments and the credibility and authority of ecolabelling and certification through looking at the interaction between ecolabels, the Earth Island Institute's Dolphin Safe label and the MSC.

The final case study explores the market's response to traceability in the tuna GPN and the implementation of consumer-facing traceability systems (CFTS). In the context of tuna, this case examines the consumer-turn in traceability for responding to rising sustainability and legality concerns in tuna fisheries and growing NGO demands for information disclosure beyond food safety. The case investigates the various tuna CFTS that have been developed for consumers in Northern America and Europe, currently the primary markets for these types of systems. Through this research, we look explicitly at the interaction of firm and non-firm (NGO) actors to understand what has driven the development and implementation of these systems and the implications of this interaction on the role of NGOs in GPN governance.

Reflecting on these four case studies in the context of the broader thesis, Figure 1.7 illustrates where each of the cases falls on the spectrum of state-led and market-led governance.

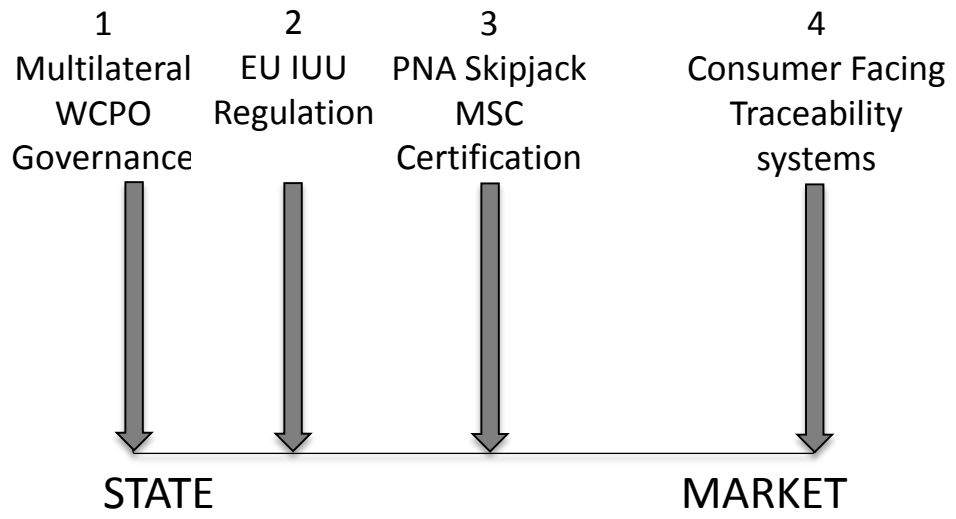



*Figure 1.7 Illustration of the thesis case studies on a state-led market-led spectrum*

### 1.6.3 Data Collection Methods

Typically case study research uses a variety of data from different sources, such as documents, interviews and observations (Rowley 2002). In this thesis, the choice of semi-structured interviews, participant observation, direct observation and analysis of documents was guided by research sub-questions generated for each of the cases. This occurred in combination with the accessibility of primary sources and the available resources.

#### Semi-Structured Interviews

In qualitative research, interviews are a key tool for collecting data. While providing a source of expertise, qualitative interviews also allow the interviewer to understand interviewees, or informants' opinions, attitudes, interpretations of events, experiences, and feelings. Longhurst (2003: 103) describes that through these interviews, a "self-conscious, orderly and partially structured interaction" is created. The flexibility of the interaction associated with semi-structured interviews provides opportunity for interviewees to 'speak their minds', and may in turn lead to shifts in focus that might not have been anticipated or facilitated in more structured settings. They are therefore a very

appropriate method for research seeking to gain in-depth insight into issues that are not necessarily widely documented or written about.

In this research, topic lists were used to address issues to be covered in each interview. The topic lists contained general, broader questions and points to ensure overall consistency in the interview approach. They also contained some questions more tailored to the informant because each one has specific and often different positions and expertise I wanted to learn about. The length of the interview varied according to the topics being covered and the level of each of the respondents' engagement. Normally however, they lasted for one to one-and-a-half hours. Mostly I recorded the interviews and produced a rough transcript of each interview after. In some instances, respondents asked to see these transcripts for verification.

In total, 45 interviews were conducted, in 10 countries over four years (September 2009 - February 2014). The majority of informants have a direct relationship with the tuna production network, mainly either as representatives of different firms, as officials involved in regulation at the national, regional or international level, or as representatives of environmental NGOs and certification bodies. The global perspective of this thesis was feasible in part due to the interviews conducted. Through benefiting from being in the 'information age', a number of interviews with people in the United States, Australia and remote Pacific Island countries were made possible through Skype. A full list of interviewees is provided at the end of the thesis (Appendix 1). Because of the relative interconnectedness of the tuna global production network, the identity of interviewees was kept anonymous. Therefore, the list of interviews have been given a code according to the sector within which they work (e.g. Industry, Government, NGO, Fisheries Specialist). Three of the interviews were conducted with more than one respondent at the same time. They have been categorised collectively however, because individuals were almost always were in agreement during the interview.

### Participant Observation

Throughout the research, I participated in conferences and meetings relevant to the subject. For example the 2011 and 2013 European Tuna Conference, and the 2012 and

2013 Chatham House Forum on Illegal, Unregulated and Unreported Fishing. At most of these meetings I attended as a regular participant, conducting observations as the meetings unfolded and using personal networks to gain more in-depth understanding of specific issues as they emerged. However, there were two exceptions to this. Firstly, I attended the FAO Committee of Fisheries, 2012, as a reporter. Secondly, I was invited to be a member of the Secretariat at the 9th Regular Session of the Western and Central Pacific Fisheries Commission. In this role, I helped the Chair of the Commission throughout the 5-day meeting. The WCPFC meeting provided a unique opportunity for insight into the Commission, with extended opportunity to observe the activities of the Secretariat, as well as the other meeting participants. This fieldwork was particularly relevant for the case study on regionalism in the WCPO but also provided a source of information and contacts for the study on the implementation of the EU's IUU Regulation, as well as the study of EII and MSC certification of PNA skipjack tuna. I took notes during every meeting to provide as a record of both the formal processes and the interactions 'back stage' and 'in the corridors'.

#### Literature and Document Analysis

I analysed documents (official governmental documents, NGO publications and white papers, newspaper articles) and interview transcripts throughout the research process. This was extremely important for corroborating and augmenting evidence from other sources (Yin 1998). The analysis reflected and interpreted the findings in relation to the research questions, reviews of literature and new insights gained by the data collection and analysis process. The analysis did not engage with qualitative content analysis. I did this to avoid "plucking chunks" of text out of the context within which they appeared. This has been a criticism of quantitative content analysis technique, as it can have a tendency to disrupt the narrative flow of what was discussed in interviews or produced in the documentation (Bryman 2012: 578).

### 1.6.4 Research Validity

I developed the case study strategy to ensure the quality of the case study research design, and ensure internal and external validity. Internal validity involves constructing a

plausible causal argument that is sufficient to defend the research conclusions. Therefore, the initial step in the research strategy was to construct a clear research framework that was both informed by the literature and allowed for comparison between the literature and patterns observed from the research. This is described as pattern matching (Yin 2002). I used the data obtained through observation and literature to check informants' narratives, so I could compare it with previous research. Conducting interviews with multiple stakeholders meant I could view the same process or event from different perspectives. The range of qualitative methodologies I used facilitated a deep understanding of the actors and processes in the networks I was studying and contributed to the validity of the study. To maximise both my understanding of the different cases and the internal validity of the research, I triangulated the data. Triangulation is a way of satisfying a fact in a case study that involved the use of multiple sources of evidence. As a method, it comes from the rationale that a robust fact may be considered to have been established if three (or more) different sources all coincide (Yin 1998). This was done through interpreting the findings of the different cases in the context of different theoretical lenses and bodies of literature (Gibbert and Ruigrok 2010).

Taking the interpretation of external validity to be the ability to ensure the theories derived from the research are generalisable and not only in the setting of this thesis (Ibid), I must recognise a limitation of this study. As the cases chosen for analysis are not the only examples of governance innovation in the tuna GPN, there is no certainty the conclusions of this thesis would also be valid if other case studies were included, research was conducted in other regions, or a different seafood GPN was examined. Nonetheless, some external validity can be achieved through the process of connecting the empirical observations to theory.

When considering validity and analysing case study data, a final point of consideration is subjectivity and my interpretation of case study findings. As a researcher, my perspective is subjective, since I have a degree of pre-existing knowledge before engaging with interviewees or as a participant observer. This means that while participating in creating the research results, I must remain cognizant that my personal characteristics affect (and are affected by) the research. To minimise researcher bias that can arise because of this, I presented the preliminary research findings to scientific audiences (within the department

and externally at conferences and workshops) for peer debriefing and feedback. Also the peer review of respected academic journal of three of the four empirical chapters contributed to this.

## 1.7 Thesis Outline

The thesis is presented in a publication-based format in which four empirical chapters are written as scientific articles, to be embedded in this introduction and a final chapter that synthesises the findings from the previous chapter to draw general conclusions. Hence, the thesis has six chapters. The topic and background of this thesis, as well as the objective, research question and methodology have been addressed in this introduction. The next chapter examines innovations in multilateral governance by looking at the interaction between regional and sub-regional governance platforms in the WCPO. Chapter 3 studies the external regulatory strategies of the EU by looking at the implementation and uptake of their IUU Regulation in the WCPO. Chapter 4 examines the interaction between the EII Dolphin Safe Certification and the MSC's certification of the PNA skipjack fishery to understand how interactions among certification schemes impact the uptake of the two ecolabels operating in the same GPN. Chapter 5 analyses consumer-facing traceability systems in the tuna GPN to understand what their potential is for transforming the production practices of tuna firms in a manner that reflects commitments to responsible practice. The final chapter reflects on these case study chapters, draws conclusions related to each of the sub-questions and the core question of the thesis. It concludes by formulating policy recommendations around governance innovations for sustainability and recommendations for further research in this area.

# Chapter 2. (Sub-)Regionalisation of Tuna Fisheries Governance: The Case of the Western and Central Pacific Ocean[*]

## 2.1 Abstract

Shifting political alliances and new environmental challenges are prompting debate over processes of sub-regionalisation and whether the interplay between multiple scales of governance leads to positive synergistic outcomes or negative institutional disruption. Regional management of tuna fisheries in the Western and Central Pacific Ocean is an example where a web of treaties, conventions and institutional frameworks underlie international cooperation. Through examining the interplay between the regional Western and Central Pacific Fisheries Commission (WCPFC) and sub-regional Parties to the Nauru Agreement (PNA), this paper explores the extent to which the PNA and WCPFC interact in the management of regional transboundary tuna fisheries. The results demonstrate that for contested marine resources such as fisheries, international sub-regions can go beyond functional units to also present wider opportunities to shift power relations in the favour of small island states. Additionally, the presence of sub-regional groups like the PNA has served to challenge the performance of the WCPFC, stimulating greater debate and progress within the regional body. The paper concludes that the combined work of the PNA and the WCPFC puts them ahead on many issues and may represent a testing ground for a functional multilateralism based on shared resources and utilising both regional and sub-regional governance platforms.

## 2.2 Introduction

The perceived crisis in the effectiveness of multilateral institutions has led to a new round of debate over the form and function of environmental international regimes, especially around complex environmental problems (Young 2011; Biermann, Abbott et al. 2012; Conca 2012). While some have gone so far as to suggest a complete disbandment of international regimes, others have focused on processes of sub-regionalisation in response to shifting political alliances, and new environmental challenges (Balsiger and VanDeveer 2010; Balsiger and

[*] This chapter has been submitted to *Maritime Studies* as Miller, A.M.M., Bush, S.R., and Van Zwieten, P.A.M. (Sub-)regionalisation of tuna fisheries governance: the case of the Western and Central Pacific Ocean.

VanDeveer 2012). Questions are being raised as to what the most appropriate region or 'scale' of governance is, defined not only by a functional spatial extent of a resource or an ecosystem, but also by the social relations which produce and reproduce cooperation and ultimately governance (Paasi 2004). The process of sub-regionalisation is demanding new questions of how multiple scales of governance interplay with each other leading to positive synergistic outcomes or negative institutional disruption (Young 2006; Oberthür and Stokke 2011; Van Leeuwen and Kern 2013), which in turn determines the extent to which conformity or conflict of interests can be resolved and lead to governance innovation (Young 2006).

Regional management of tuna fisheries in the Western and Central Pacific Ocean (WCPO) is made up of a web of treaties, conventions and institutional frameworks that underlie regional cooperation (see Tsamenyi 1999; Tutangata and Power 2002; Wright, Stacey et al. 2006). The main regional fisheries management organisation (RFMO) is the Western and Central Pacific Fisheries Commission (WCPFC), formed under the United Nations Convention on the Law of the Sea (UNCLOS). Additionally, two treaty-defined sub-regional bodies that pre-date the WCPFC, the Parties to the Nauru Agreement (PNA) and Pacific Islands Forum Fisheries Agency (FFA), are also involved in tuna fisheries management (see Figure 2.1). However, unlike regional architectures in other environmental governance regimes, such as the climate governance regime (Biermann, Pattberg et al. 2009), these two sub-regional bodies supported the formation of the regional WCPFC. The complex set of governance and institutional arrangements that manage tuna fisheries in the WCPO have been referred to as some of the most sophisticated sets of cooperative tools in the world (Hanich, Teo et al. 2010), providing a variety of normative structures from which a range of international and domestic conservation and development policies emerge.

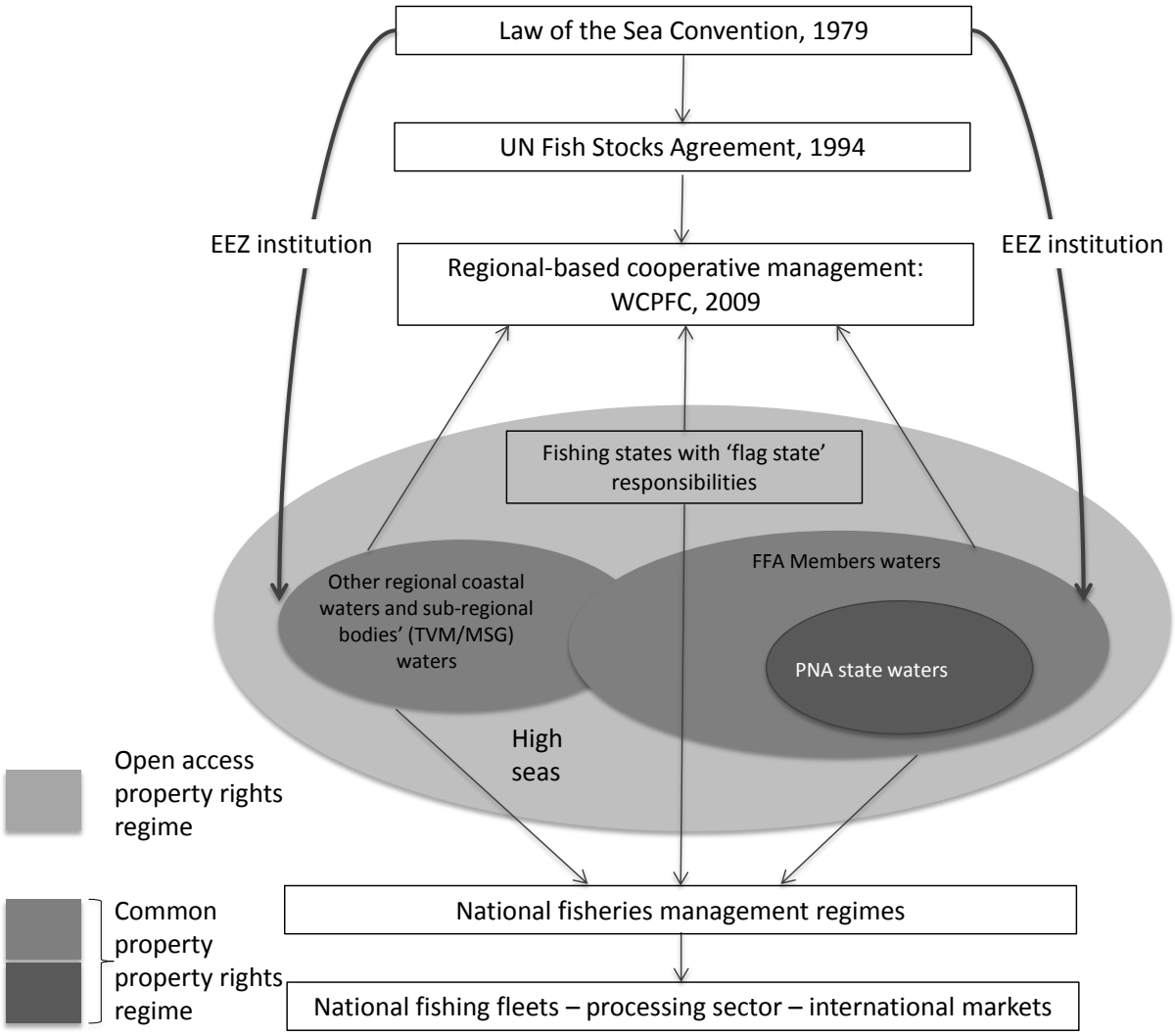



*Figure 2.1 Institutional map of the regional and sub-regional governance regimes in the Western and Central Pacific Ocean (Adapted from Parris 2010) (Glossary: EEZ – exclusive economic zone; FFA: Pacific Islands Forum Fisheires Agency; MSG – Melanesian Spearhead Group; PNA – Parties to the Nauru Agreement; TVM – Te Vaka Moana; WCPF – West and Central Fisheries Commission)*

Despite being the youngest of the seven RFMOs, the WCPFC has been described, with various qualifications, as one of the most successful in terms of regulating oceanic tuna and billfish species (Cullis-Suzuki and Pauly 2010; Aranda, Murua et al. 2012). However, its critics maintain that many of the conservation and management measures (CMMs) the RFMO has generated are insufficient, and that the institutional practices of the WCPFC lack transparency (Parris 2010; Gilman and Kingma 2013). Amidst such debate over the effectiveness of the WCPFC, the PNA (made up of Federated States of Micronesia, Kiribati,

Marshall Islands, Nauru, Palau, Papua New Guinea, Solomon Islands and Tuvalu), has received conspicuous support from academics and NGOs alike for their recent successes in agreeing on and implementing conservation and management measures (CMMs), new access arrangements around a vessel day scheme (VDS), and the successful Marine Stewardship Certification (MSC) certification of free-school purse seine skipjack tuna fishery in 2012. Some WCPFC members like the EU have criticised the PNA however, on the basis that the emergence of the PNA as a competing sub-regional fisheries management body is limiting wider regional coherence.

Most analysis of governance strategies for tuna fisheries in the region have focused on the trade-offs and complementarities between multi-lateral cooperation vs. domestic strategies in terms of management and economic development (Parris and Grafton 2006; Barclay and Cartwright 2007; Parris 2010). Other questions have focused on models of Pacific regionalism that enable cooperation and capacity for effective engagement in the "global ocean community" (Tutangata and Power 2002: 883). Less attention has been given to a better understanding of the roles of the PNA and WCPFC, how they interact and what influence each has over the governance of tuna in the region. If the goal is to create management systems that are sensitive to the spatio-temporal complexity of fishery resources (Wilson 2006), then can the interplay between regional and sub-regional management platforms lead to innovative management outcomes? What is the relationship between regional and sub-regional bodies? Do sub-regional groupings like the PNA present a means of stimulating innovation and change towards greater effectiveness at the RFMO level, do they make them less effective, or is there a combination of both?

We explore how the PNA, as a sub-regional body, has been able to be more experimental in developing tuna fisheries CMMs, how durable the outcomes of this experimentation are in terms of providing long-term change, and ultimately the extent to which the PNA and WCPFC interact in the management of regional transboundary tuna fisheries. The interplay between these different scales of environmental governance in the Western and Central Pacific tuna fisheries offers a relevant and timely lens to understanding how these two scales of governance interact and what influence they have over each other in terms of creating innovative and effective management outcomes. More specifically, we ask what implications

a shift toward sub-regional governance for decision-making power over management issues might hold for both governance bodies.

The research is based on attendance at the 9th WCPFC Meeting 2012 where one of the authors participated through volunteering with the Secretariat, a review of recent documentation used at the WCPFC and a series of key informant interviews with actors active in the WCPO tuna fisheries. The paper begins with an introduction of key questions asked around regional environmental governance. We then turn to a discussion of the emergence of (sub-)regional governance of fisheries and the relevance of spatial and functional fragmentation in the context of trans-boundary tuna fisheries before going into a detailed description of the multi-level architecture of fisheries governance in the WCPO. Our analysis then focuses on the tensions that exist between the WCPFC and PNA in setting fishing reference points, administering CMMs and balancing the interests of their respective members. Finally, we return to the implications of sub-regionalism in the WCPO and what implication it holds for governance regimes such as RFMOs aimed at innovative governance for the long-term sustainability of trans-boundary and high seas tuna fisheries.

## 2.3 Fisheries Regionalism

### 2.3.1 Emergence in Fisheries Governance

In resource governance terms, regionalisation is often referred to a politico-administrative process of establishing spatially defined scales of management that devolve decision-making and create more responsive and adaptive management decisions (Symes 2005; Balsiger and VanDeveer 2012). Although there is often an aspiration to base the scale of a region on the geography of a resource, they remain social constructs. The definition of a region can therefore either be associated with a moving ‘down and out’ through decentralisation of administrative functions and devolution of decision making as for instance in co-management arrangements. Or it can be associated with moving ‘up and in’ through centralisation and concentration to an aggregate scale as for instance the EU or an RFMO (Oberthür and Stokke 2011). In contrast, regionalism refers specifically to a political motivation behind regionalisation and has long been associated with the creation of new political territories (Symes 2012). Examining fisheries regionalism therefore opens up questions about the

political and economic rationale for creating functional and geographic scales of management on the basis, for example, of resource use sustainability. In the case of fisheries, the strength of regionalisation and regionalism vary in how the geography of fishery resources and political scales are brought together.

The realisation of regional cooperation over marine resources began with the lead up to the formulation and ratification of UNCLOS, under which 'global' trans-boundary fisheries, defined by their ecological extent spanning exclusive economic zones (EEZs) and the high seas, were divided into functionally defined RFMOs (Valencia 1978; Morgan 1989). Since then functional approaches to marine regionalisation and governance have based themselves on a mix of treaty based agreements, such as the EU Common Fisheries Policy (CFP) and the Palau Agreement in the Pacific (Tsamenyi 1999; Symes 2005), and alternative ecosystem-based regional configurations, such as large marine ecosystems (LMEs). LMEs, for instance, are an attempt to combine geographical scales of the marine environment with functional administrative scales of management (Vallega 2001; Fanning, Mahon et al. 2007).

The 2012 reforms to the EU-CFP raised a heated round of debate about the role of regionalisation within European seas. Paralleling discussions of multi-level governance, regionalisation in the EU is seen as a process of 'moving down', thereby enabling lower level authorities to take control of tailor-made management for particular spatial areas, and 'moving out', referring to the increased involvement of private actors in fisheries management (Raakjaer and Hegland 2012). The exact institutional design of regional fisheries management in the EU is still under debate, with proposals ranging from sub-EU RFMOs (as distinct from UNCLOS defined RFMOs) to nationalisation (Hegland, Ounanian et al. 2012). Ultimately this represents a wider double-movement; the creation of common pool management by centralising management at the EU level through the CFP and a political process that decentralises control to formal (geographical) and functional (administrative) sub-regions (Symes 2012).

In the Western and Central Pacific, the potential for political sub-regionalisation has been proposed by Hanich et al. (2010). Under this model the administrative burden imposed on Pacific Island Countries by the various supra-national treaties, such as the PNA and WCPFC, would be mitigated through joint management by sub-regional groupings of three or four

Pacific Island countries. This is nowhere more relevant than in the WCPO where 40 (WCPFC) member and non-member states make up a mix of states with sovereign interests over the resources in their EEZs and states with distant water licences to fish in these EEZs. There are also joint interests of all states over the four WCPO high sea pockets, international waters enclosed by EEZ's (see Figure 2.2) (Tsamenyi 1999; Hanich 2009). These interactions have led to a complex multi-level interaction, with scientific input from the FFA and Secretariat of the Pacific Community (SPC), of treaties and measures such as the Harmonised Minimum Terms and Conditions of Access for Foreign Fishing Vessels, the VDS, the FFA Vessel Monitoring Scheme and the Niue Treaty to manage trans-boundary stocks (see Hanich, Teo et al. 2010 for detail). Hanich and colleagues argue that a collective (sub-)regional strategy would require states to "pursue their own national interests within their vision of a collective strategy" under a sub-regional collective management authority (p. 89) that would act on behalf of sovereign states to administer licencing or access arrangements in their EEZs.

These different models emphasise the importance being given to regionalisation and regionalism in marine environments, which, as noted by Symes (2005), is made all the more complex as the "shifting distribution of fish populations and the dynamic nature of ecosystems mean that natural boundaries are both permeable and unstable" (p. 87). And, he goes on to argue, "In a maritime context, therefore, regions are bound to be socially constructed rather than naturally occurring and their boundaries inevitably reflect a compromise between overlapping sets of distributions and ecosystems" (p. 87). This very contestation opens up questions on the performance and interplay between different regional scales of management.

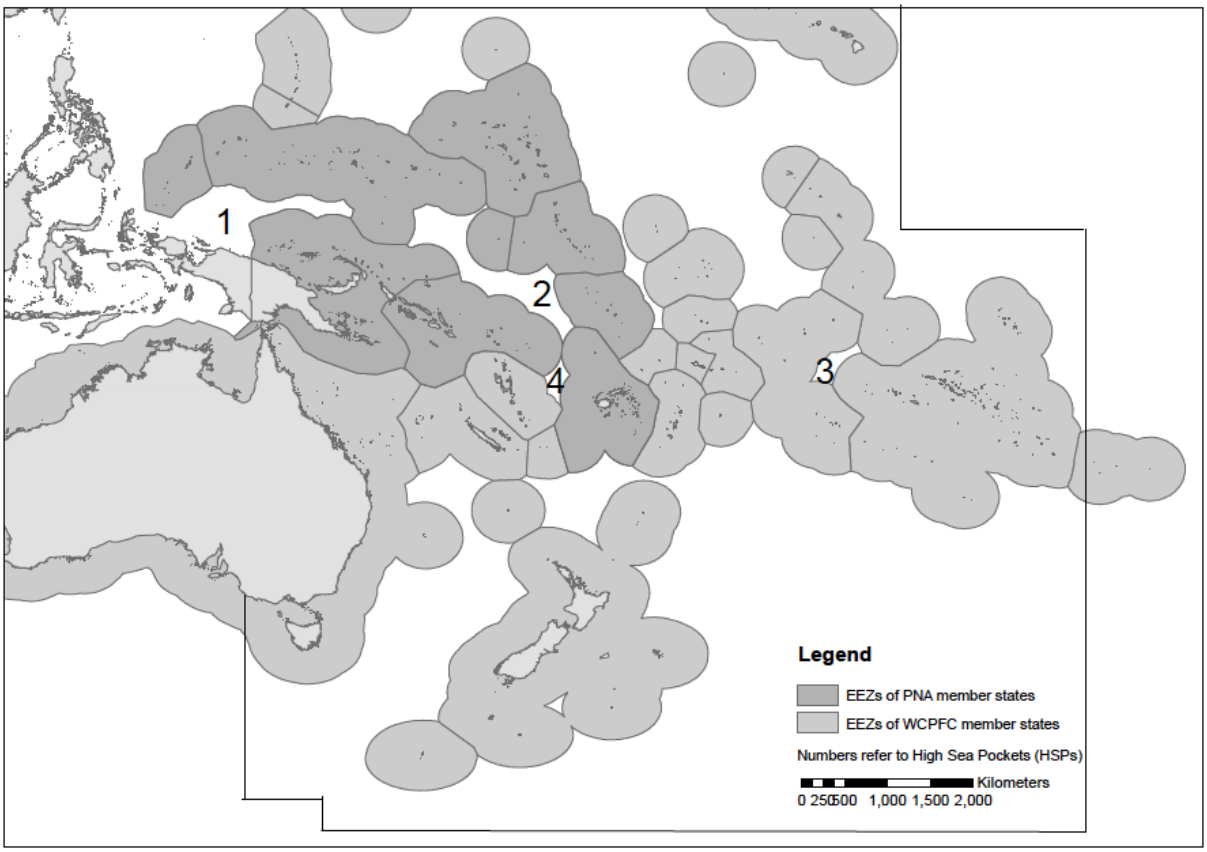



*Figure 2.2 WCPFC Area with EEZs. The areas numbered 1, 2, 3 and 4 are the high seas pockets. Pockets 1 and 2 are closed to purse seine fishing from 2010 under the WCPFC. Pockets 1-4 are closed to all purse seine vessels licensed to fish in the EEZs of the PNA*

### 2.3.2 Evaluating Regionalisation

The proposals of both the EU and the governing bodies in the WCPO provide a set of (explicit and implicit) normative goals for (sub-)regionalisation: subsidiarity provides more adaptive management; decentralisation and participation leads to more effective decisions and improved implementation can meet sustainability and development goals of nation states. But while (sub-)regionalisation has the potential to create geographically, ecologically and administratively effective platforms, there is nothing to say that smaller regional groupings would always facilitate improved control of fishery resources or create adequate incentives for meaningful cooperation that would lead to more sustainable outcomes. We have identified four interrelated factors that can be used to evaluate the specific outcomes of the process of (sub-)regionalisation and the interplay between regional levels: scale, the creation of

normative structures, conformity vs. divergence of interests, and incentives for cooperation (see Table 2.1).

Scale refers broadly to the spatially and temporally bounded extents at which a natural or social phenomenon is observable (Cash and Moser 2000). In resource management terms it also refers to the spatial and temporal extent at which institutions are set and socially or politically organised (e.g. local, national, global) – as such they are social constructs open to politicisation (e.g. Meadowcroft 2002; Swyngedouw 2004). For example, it helps to identify ideological motivation for the definition of a 'region': a social and political construct created to include and exclude actors from a resource or decision making process through the mobilisation of biophysical, political-administrative, socio-economic, or cultural-symbolic dimensions (Balsiger and VanDeveer 2010). Scale therefore presents an institutional design challenge – ensuring that management institutions and the organisations tasked with their oversight are set at levels that are concordant with the social, political and ecological extents they govern (Cash, Adger et al. 2006). Following Young (2006), one key strategy for ensuring concordance, especially when there are multiple scales or regions of governance, is institutional interplay, i.e. where governing functions are distributed among regimes located at higher and lower levels on the jurisdictional scale (see also Cash, Adger et al. 2006). This institutional interplay also covers the potential of upward or downward transfer of governing innovations between levels.

Underscoring the creation of normative structures that govern control over trans-boundary fishery resources by states and fishers alike are tensions between resource access, sovereignty and economic development. Although functionally specific regional bodies may have a higher degree of legitimacy than non-specific bodies, participation and control remain centrally political issues – especially when dealing with perceptions of equity and justice (Lebel, Garden et al. 2005). The challenge for these regional bodies is therefore to maintain a degree of inclusiveness and cooperation while effectively reducing the complexity of addressing multiple interests.

The complexity of regional-level governance requires a balance of multiple state and non-state parties' interests. In models of sub-regionalism that move down in scale and out to include a wider range of actors, subsidiarity and democratisation of decision-making are core

principles (Raakjaer and Hegland 2012). But in many other contexts sub(-national) regions may not be feasible or politically desirable, and increased participation may exacerbate existing (political) complexity in rule making and implementation. Instead, sub-regionalism may also involve a shift of power to a smaller group of actors that reduce participation of other parties in order to capture control over fishery resources. Returning to Young (2006), it is again the interplay between governing regions or levels that determines the extent to which the conformity or divergence in the interests of different actors can be resolved.

Finally, the distribution of costs and benefits of conservation influence the degree of and incentives for cooperation within and between particular regions. The common assumption is that fisheries (sub-)regionalism is underscored by adequate incentives for cooperation. However, as Bailey et al. (2012) note, the theoretical evidence for cooperative governance arrangements of fisheries, including tuna fisheries, is in stark contrast to their successful implementation. The voluminous literature on cooperation around tuna fisheries in the WCPO focuses on how 'resource rent rivalry' has been driven by a combination of competition for access by distant water fishing nations (DWFNs), the dependency of many Pacific Island countries on tuna for national income, and aspirations for domestic social and economic development (Campbell 1989; Barclay and Cartwright 2007; Havice 2010; Parris 2010; Havice and Reed 2012; Gagern and van den Bergh In Press). Incentives for cooperation around tuna, like many other marine fishery regions around the world, are therefore underlined by the need for generating domestic wealth from shared resources – which under pressure from divisive treaties and aid relations represents an archetypal prisoner's dilemma. The degree to which regional management bodies can establish (re)distribution mechanisms of this wealth, and the strength of these mechanisms in the face of strong external pressure provides an indicator for on-going cooperation.

The balance between regional and sub-regional governance in WCPO tuna fisheries opens up a discussion on the architecture of effective arrangements through the interplay between these different scales of governance. The rest of the paper explores this interplay between the WCPFC and the PNA as two regional fisheries governance arrangements, their effectiveness in responding to complex fishing practices that operate at different ecological and political scales, and the potential of regionalism to act as a driver for innovation in regional and sub-regional sustainable fisheries governance.

*Table 2.1 Criteria for analysing (sub-)regionalisation in the WCPO*

| **Criteria** | **Explanatory variables** |
|---|---|
| 1. Scale | • Ideological motivation for 'region' formation (regionalism)<br>• Mobilisation of biophysical, political-administrative, socio-economic, or cultural-symbolic dimensions to include/exclude actors<br>• Upward or downward transfer of governing innovation between levels |
| 2. Creation of normative structures | • Equity, justice, and (perceived) legitimacy<br>• Creation of inclusive, cooperative arrangements that reduce complexity of multiple interests<br>• Interplay of normative structures between jurisdictional levels |
| 3. Conformity vs. divergence of interests | • Diversity of functional areas<br>• Degree of institutional-ecological concordance<br>• Power relations and discourse |
| 4. Distribution of costs and benefits of conservation | • Incentives for cooperation<br>• Degree of cooperation around conservation<br>• Creation of mechanisms for (re)distribution of benefits |

## 2.4 Regionalism in the WCPO

The WCPFC was established in 2004 after the Convention for the Conservation and Management of Highly Migratory Fish Stocks in the WCPO was ratified by 17 member states. The WCPFC is based on an international fisheries agreement that aims to foster the long-term conservation and sustainable use of highly migratory fish stocks in the WCPO. Reflecting the complexity of multi-lateral platforms, the Commission holds the potential to represent the interests of 65 states (as listed in Annex A of the Convention), but until now has been limited to 25 members, seven participating territories, five cooperating non-members and observers. In addition the WCPFC has three technical subsidiary bodies that meet annually, before the full session of the Commission: the Scientific Committee, the Technical and Compliance Committee, and the Northern Committee. Unlike all other oceans and tuna RFMOs that predominantly cover fisheries in the high seas, WCPFC covers both coastal states' EEZs and the high seas. This places those states whose EEZs fall in the Convention area in a position of power regarding decision-making at the WCPFC but adds further to the complexity of this governing body.

Three sub-regional groups, that preceded and were responsible for creating the WCPFC, are the SPC, the FFA, and the PNA. All three bodies closely coordinate their activities through joint participation in regional meetings involving their members and more formal annual consultations between the Secretariats. While the SPC plays a more neutral role by providing independent scientific stock appraisal information and advice to SC members, the FFA and PNA are multi-lateral sub-regional governance bodies that over time have developed different levels of advisory and regulatory authority.

The FFA was established in 1979 in response to changes resulting from the third Law of the Sea Conference (see Tsamenyi 1999). The main role of the FFA is as an advisory and support body to 17 Pacific Island countries – who are also members of the of the Forum Fisheries Committee (FFC) in the WCPFC – targeting sustainable management of fish stocks in their states' EEZs while also maximizing their social and economic benefits. The FFA does not have any authority to enforce the decisions of its governing council: all member states maintain sovereign control over fisheries in their EEZs and archipelagic waters. Instead, the FFA provides support to Pacific Island countries by facilitating capacity building and regional cooperation through providing technical and policy advice to its members participating in international forums like the PNA and WCPFC (Langley, Wright et al. 2009). The PNA came into force in 1982 with the objective of member countries controlling the terms and conditions of allowing foreign fishing vessels in their EEZs (Nauru Agreement 1982). Their role strengthened in 1992 under the Palau agreement, which set arrangements for regular management meetings for tuna stocks and established the role and responsibilities of the PNA office. Since its establishment, the PNA has produced a series of measures that have reinforced their control over tuna fisheries throughout their EEZs. As summarised by Havice (2010), this was first seen in 1994 when the PNA countries reduced foreign purse seine licences by 10 per cent and reallocated them to domestic/locally based vessels. In 1995, they then developed the FSM (Federated States of Micronesia) Arrangement for Regional Fisheries Access, which gave vessels from PNA countries discounted fishing licences and reciprocal access to all PNA waters. After the WCPFC was established, the PNA has continued to create its own access arrangements and management systems. In 2010, PNA members signed the Koror declaration underlined by the PNA Implementation Arrangements, which confirmed support for a range of far reaching fisheries management measures. These were: the purse

seine Vessel Day Scheme (VDS), which allocates days to member countries who then distribute them to distant water fishing nations (DWFNs) based on their licencing agreements; high sea pocket closures as part of EEZ licensing arrangements (see Figure 2.2); establishment of Minimum Terms and Conditions for foreign vessels; seasonal closures of the use of fish aggregating devices (FAD) (Palau Arrangement 1992); catch retention measures; and a regional observer programme for purse seine vessels (Shanks 2010; Havice 2013). The PNA also created an independent secretariat to administer control over the Implementation Arrangements, most notably the purse seine VDS, and the MSC certification of the free-school (non-FAD) skipjack tuna fishery that was obtained in 2011. This strengthening of the PNA's regulatory capacity responded in part to the perceived increased power of the DWFNs under the WCPFC Convention.

Until the formation of the WCPFC, the FFA was arguably the dominant sub-regional grouping in the WCPO. However, perceived issues of transparency among members regarding management strategies for fisheries in the high seas pockets (Figure 2.2) saw the PNA increase their independence from the FFA. According to one regional expert, it also meant that the PNA emerged in a stronger position to engender change than the FFA. While the FFA continues to provide a critical advisory role, focus has shifted to look at the relationship between the PNA and WCPFC or DWFNs.

The PNA is therefore a functionally important sub-region in the WCPO, with a clear mandate for management aimed at both domestic economic development and at the sustainability of their tuna resources. However, demonstrating a case of upward transfer of governing innovations, the PNA is promoting the uptake of innovative management measures at the WCPFC level with the aim of increasing the functional scale of governance across all tuna in the Western and Central Pacific. Given the unique experience of RFMO formation in the WCPO, and the persistence of sub-regional groupings like the PNA, we now turn to a comparison of these two scales of governance, exploring the relative success each has had in tuna management and their influence on each other's overall performance.

## 2.5 Comparison of WCPFC and PNA Performance

The interaction of the WCPFC and the PNA on specific points of fisheries governance is illustrative of the tensions, both creative and constraining, between the two regional bodies. The following section examines three examples where they have influenced each other's performance in terms of establishing reference points; designing and implementing CMMs and the distribution of the conservation burden; and defining spatial jurisdiction through changing access arrangements to high seas pockets.

### 2.5.1 Reference Points: the Precautionary Approach

In fisheries, taking a precautionary approach involves management policies and strategies that account for the inherent risks of overexploitation and uncertainties in the assessment of states and pressures. Guidance on the application of the precautionary management of highly migratory and straddling fish stocks was introduced in Annex II of the United Nations Fish Stocks Agreement (UNFSA) in 1995. Fundamental to this approach is setting and employing two reference points for fisheries management: a limit reference point aimed at constraining catch within safe biological limits; and a target reference point aimed at meeting management objectives, such as desired biological, social, and economic outcomes.

The WCPFC provides for the application of the precautionary approach. The Commission is currently developing reference points to inform the development of operational objectives and performance measures for longer-term management strategies. At the 9$^{th}$ Regular Meeting of the WCPFC, members agreed upon limit reference points, according to recommendations from the SPC. Special mention was also given to the WCPFC prior to the meeting on their application of the precautionary approach in the WCPFC Performance Review, which stated "The Commission and Scientific Committee are to be commended on progress made in developing limit reference points, particularly for bigeye, skipjack and yellowfin" (WCPFC, 2012: 157). The WCPFC is ahead of most other tuna RFMOs on this, the Inter-American Tropical Tuna Commission (IATTC) is the only other RFMO that makes explicit reference to the application of the precautionary approach and the use of reference points (de Bruyn, Murua et al. 2013). Therefore, compared to most other RFMOs the WCPFC is among the leaders in advancing the development of a formalised precautionary approach framework.

In spite of the WCPFC's comparative progress, the PNA are also looking to take the lead toward setting both limit *and* target reference points, should the WCPFC fail to make progress with target reference points. The PNA's concern about the WCPFC's potential for implementing these reference points was highlighted during the MSC certification of the PNA free-school skipjack tuna fishery in 2011. One of the conditions of the certification pertained specifically to setting both limit and target reference points for skipjack stocks in PNA waters within five years of the certification. Initially, there was pressure from non-PNA actors engaged with the certification procedure for WCPFC to be responsible for setting these limits. However, one PNA official described how they fought this because, "if it became a Commission initiative and had to be decided under consensus, all it would take would be for one party to block it and we would lose the certification". Instead, the PNA negotiated that either "PNA *and/or* WCPFC" could take the initiative on setting the reference points. The official argued that the PNA would go ahead with setting both reference points, while maintaining an option for deferring overall responsibility to the Commission, should they fail to reach an agreement.

The position the PNA takes on this issue is telling for a number of reasons. Firstly, it provides evidence of the difficulties they have faced in negotiating regional measures through the WCPFC, particularly in terms the conflicts that arise from consensus voting. Secondly, it demonstrates a degree of PNA dependency on the WCPFC, should they fail to agree among themselves on applying limits to their shared fishing resources. Finally, the condition for setting both target and limit reference points came from the MSC certification procedure and illustrates the extent to which external market-defined sustainability concepts can steer state-based decision-making.

### 2.5.2 Conservation Burden

Under the WCPFC, the primary CMM concerning bigeye and yellowfin tuna was agreed on in 2008 (CMM-2008-01). Broadly speaking, it covers purse seine effort limits both within the EEZs of coastal states and in high seas pockets, longline effort limits and seasonal FAD closures. However, under Article 30 of the Convention, it underlines "the need to ensure that such measures do not result in transferring, directly or indirectly, a disproportionate burden of conservation action onto developing States Parties, and territories and possessions" (WCPFC

2000: 19). This is reiterated in Paragraph 6 of the CMM where, "Unless otherwise stated, nothing in this measure shall prejudice the legitimate rights and obligations of those small island developing state members and participating territories in the Convention Area seeking to develop their own domestic fisheries" (WCPFC 2008: 3). These clauses attempt to accommodate what Hanich (2012) has labelled the 'conservation burden' associated with small island developing states' implementation of CMMs.

Acknowledging the different status of Pacific Island countries concerning the implementation of CMMs has been accomplished through the incorporation of a number of exemptions, including: 1) no limits on bigeye catch by domestic longline fleets; and 2) exclusion of archipelagic waters from CMMs (Parris 2010). These exemption clauses could be problematic from a sustainability perspective because they could mean a substantial portion of the tuna industry may remain unregulated under the WCPFC and therefore undermine the effectiveness of the CMMs. Thus far, the so-called 'exemptions'-based management approach, has not led to measurable improvements in the fishery. In fact, the PNA rapidly increased their fishing mortality above their 2004 levels for the years 2005–2007 (Parris 2010). Concern has specifically been raised around the access of foreign (Philippine) vessels to Papua New Guinea's EEZ, as part of licence agreements that are aiming to develop processing capacity, and the poor regulation of domestic fishing activities within their archipelagic waters (Hamilton et al. 2012).

In spite of indications that the PNA fails to act in a way consistent with the sustainable management of fish stocks when it comes to the implementation of WCPFC CMMs, outside the Commission it is providing a platform for developing and implementing innovative management measures for its purse seine fisheries. These include the purse seine VDS, seasonal FAD closures and high seas pocket closures. As evidence of PNA's leadership in this regard, the Commission has since adopted both PNA closure measures.

The result is a trade-off between Pacific Island countries calling for special consideration under Article 30, reflecting their conservation burden, while at the same time developing some of the most innovative CMMs some of which have been taken up by the WCPFC. At the 9$^{th}$ Regular Meeting of the WCPFC 2012, continued reference was made to Article 30 when negotiating the terms of new CMMs. An example of this was during discussions about

expanding the length of seasonal FAD closures for the purse seine fishery. There was firm resistance from some of the smallest Pacific Island countries on the basis that this discriminated against the purse seine fisheries, which provide their primary source of income. They argued that longer closures than those already in place would be economically devastating, owing to national dependence on revenue from the sale of purse seine vessel days. Citing Article 30 and the conservation burden, they explained the revenue lost from the 800mt of tuna 'saved' through the closures by not being caught, meant they would need compensation for additional closures and/or evidence that longliners, that were not included in the CMM, were also having effort restrictions placed on them.

The economic advantage the PNA states currently hold through revenue from the purse seine fishery operating in their EEZs provides an incentive to support measures that distribute much of the conservation burden onto longline fleets (Hanich 2012). As longline fleets fish primarily on the high seas, PNA states do not stand to benefit significantly from their activities and therefore, want emphasis to also be placed on managing their effort. This also encourages them to oppose conservation measures that do not distinguish between high seas and EEZs, or apply new measures over their EEZs. Therefore, on the one hand, the PNA is 'feeding' measures they have developed up to the commission level but on the other hand, under Article 30 there is also the option to retain control over the implementation of these measures to ensure the conservation burden is not transferred back to them. This reinforces the strong negotiating position of the PNA.

However, there has also been resistance among some WCPFC members over the PNA's role as leader in the sustainable exploitation of its tuna stocks within the WCPFC. This is most evident when looking at the VDS. Some DWFNs like the EU have been reticent to fully endorse the scheme, on the basis that the PNA is insufficiently transparent about how they are allocating vessel days and of evidence that PNA members were overspending their allocation of days (Havice 2013). In spite of this, the WCPFC Science Committee has indicated that the VDS has had positive impacts on data quality by improving log-sheet data and requiring 100 per cent observer coverage that has enabled the Committee to improve on its stock assessments. This indicates that sub-regional management measures can have indirect benefits to regional-level governance.

### 2.5.3 Contested Spatial Jurisdictions

To date, the legal role of WCPFC is undefined given it has "no legal authority to allocate rights to fish in any manner that undermines the sovereign rights or sovereignty of coastal states" (WCPFC 2012a: 82). This has created a major tension in connection with wider issues of allocation of tuna between Pacific Island countries wishing to develop their domestic fishing capacity within their EEZs and the WCPFC, which is also responsible for management of fish stocks in the high seas (Langley, Wright et al. 2009). DWFNs want the measures agreed to and set out by the WCPFC to apply equally across both the high seas and EEZs. They also want to see effort reduction measures in place that would counter any expansion of domestic fleets. The PNA have indicated they are amenable to these reductions but, as one official stated, "on our terms".

Tensions between the PNA and the WCPFC over control of the high seas areas are illustrative of an underlying conflict between *de facto* and *de jure* definitions of spatial jurisdiction. The Convention provides the WCPFC with the remit to manage transboundary stocks across their full extent, including both high seas and EEZs in the convention area. In their 2012 CMM for bigeye, yellowfin and skipjack tuna, the WCPFC made it clear that "This Measure applies to all areas of high seas and EEZs in the Convention Area except where otherwise stated in the Measure" (WCPFC 2012b: 5). The PNA maintains ownership over the resources in their EEZs, but not in the high seas. However, the PNA is extending control over the practices of distant water fleets, from states that are members of the WCPFC, in two distinct ways. Firstly, they control these fleets by setting the adherence to CMMs for fishing in their EEZs. Secondly, the PNA countries have closed high seas fishing to DWFN vessels that have licences to fish in their EEZs, representing a *de facto* extension of their control beyond their spatial jurisdiction. This represents a spatio-legal challenge by the PNA to the *de jure* control exercised by the WCPFC under UNCLOS.

Under the 3rd Implementing Arrangement of the Nauru Agreement, the PNA agreed to close two high seas pockets to purse seining. The WCPFC subsequently adopted the closures through the CMM 2008-01, coming into force from January 1, 2010. Explaining "the serious impact on the bigeye stock from fishing by distant water longliners and purse seiners in the high seas and that the high seas continues to provide a safe haven for IUU fishing" (PNA

2010: 2), PNA leaders agreed to the closure of two additional high seas pockets to all purse seine vessels licensed to fish in the EEZs of the PNA in 2011 (Figure 2.2). Any licence granted to a DWFN to fish in the EEZs of a PNA member means the vessel cannot fish in these high seas pockets. On the basis that high seas pocket closures have shown no demonstrable decrease in fishing effort, and that in fact effort has been transferred to other areas (SPC-OFP 2012), Japan, the Philippines, Indonesia and the EU have opposed this conservation and management measure. Thus, when at the 7th Regular Session of the WCPFC in 2010, the PNA sought support from WCPFC to mandate the additional closures, it was rejected (Ride 2010).

Further, in the 8th regular session of the WCPFC in March 2012, the Philippines negotiated access for 36 boats to Pocket 1 (see Figure 2.2). The position of the Philippines has been that the closures have put undue stress on their domestic fisheries and that the decision has led to increased fishing effort in its national waters, which is believed to be a spawning ground for various tuna species. In exchange, for the Philippine fishing access, the Philippine government are supposed to report its domestic and international tuna catch. Filipino vessels must also apply for international fishing permits before entering High Seas Pocket 1 and must allow 100 per cent regional observer coverage on board their vessels. Although there are indications from a Greenpeace patrol that not all Philippine vessels are complying with this (Greenpeace 2013a).

As the body responsible for introducing the closures, the PNA vehemently opposed this re-opening, insisting that the high seas pockets should remain closed permanently or at least until the Commission decides otherwise. However, the permission granted to the Filipino vessels still remains largely under the control of the PNA who have affirmed they will only licence distant water fishing nation vessels to fish in PNA waters if they voluntarily forego fishing on the high seas. Therefore, fishing will only take place by Filipino vessels and maybe a few other vessels that do not need access to PNA waters. This means, in spite of the WCPFC ruling, fishing access remains primarily under the control of the PNA countries. This illustrates the contrast between PNA and WCPFC levels of decision-making and demonstrates the resilience of measures implemented and controlled at the sub-regional (PNA) level, especially when leverage over fishing access is involved.

## 2.6 Emerging Regionalism in the WCPO

Whether and how innovation is occurring in the WCPO needs to be understood in the context of the on-going interaction between the WCPFC with the PNA and, although not our particular focus, the FFA. The WCPFC is different to other RFMOs because of the existence of these sub-regional groups, which provide an additional, meso-level of governance. We now turn to a discussion of the main factors that are affecting the emergence of (sub-)regional fisheries management in the WCPO and the effect emerging regionalism has on the innovation of conservation and management measures over trans-boundary fishery resources.

### 2.6.1 Not by Scale Alone

The powerful position the PNA has secured has meant that, unlike many global governance regimes, sub-regionalisation enables a process of feeding tested policy strategies upwards for regional implementation. The uptake of PNA policies at the WCPFC level indicates that, instead of representing a crisis point for multilateralism (Conca 2012), strong sub-regional governance has acted in part as a catalyst for regional policy convergence. It also appears to demonstrate a degree of scalar concordance; indicating that decisions over management measures are being distributed over levels most effective at dealing with the diverse interests of the actors involved (Cash, Adger et al. 2006). Additionally, through this convergence, the perceived legitimacy of PNA policies is further scrutinised by the wider global community associated with the WCPFC. The interplay between the PNA and WCPFC has therefore led to positive creative tension, as well as a greater degree of transparency and openness than would otherwise have been the case had governance remained at the more exclusive sub-regional PNA level.

The results also indicate that the PNA's high degree of functional control over the fishery has been translated into a political process of fishery regionalisation. Reflecting findings in other resource sectors (e.g. Balsiger and VanDeveer 2010), regionalisation has enabled the PNA to exclude some groups from decision making over resource access by mobilising biophysical, socio-economic and cultural symbolic dimensions of sustainable Pacific Island tuna fisheries. This is evident by their success in reinforcing the functional extent of the fishery with a perceived pro-active concern in the purse seine fishery (Hanich 2012), strategically using the

institutional backing of the WCPFC Article 30, and reinforcing their legitimacy through the MSC certification of the PNA free-school skipjack fishery. The result has been the convergence of both normative and functional leverage (Symes 2012) of the PNA as a negotiating body within the WCPFC. However, it also raises questions about whether these arrangements are replicable at similar sub-regional scales within the WCPO and in other RFMOs, or if they are specific to the context of the PNA.

Indeed, the power of cooperation through the PNA's current position to act as a coherent and notably powerful unit when interacting regionally through the WCPFC has not been lost on other Pacific Island countries. Two additional sub-regional groupings in the Pacific, the Melanesian Spearhead Group Fisheries Technical Advisory Group and the Te Vaka Moana arrangement between certain Polynesian states, and a group of countries in Indian Ocean have shown interest in replicating the PNA model. The emergence of these new groupings points to the value that can be gained from fishery sub-regionalisation, bringing together a single functional area and natural phenomena (Symes 2012). However, such groups within the WCPO are unlikely to achieve the same kind of leverage with the WCPFC because of the smaller proportion of fish under their control and in the Indian Ocean due to the more open geography of their EEZs. As we now go on to argue, creating concordance between functional, jurisdictional and natural scales can facilitate a process of sub-regionalisation but will not automatically lead to successful political and functional integration into larger multilateral institutions.

### 2.6.2 Mutually Reinforcing Normative Structures

Although fundamentally different in aim and legal set-up, the normative structures of the WCPFC and the PNA have produced a creative interplay for tuna management. The RFMO structure is legislated through UNCLOS, which mandates the inclusion of DWFNs. The explicit governance objective at this level is therefore not about furthering the interests of member states but fulfilling the broader conservation and resource management requirements. The RFMO system is therefore designed to create an up and out 'double movement' which manages the interests of historical fishing rights of port and flag states, rather than a down and out movement designed to stimulate functional subsidiarity (cf. Hegland, Ounanian et al.

2012). At this level, no project exists to decentralise formal and functional control to sub-regions because there is no political will of the member countries at the WCPFC level.

In contrast the PNA has created an opposite 'double movement' akin to that seen in the last round of the EU CFP reforms (Raakjaer and Hegland 2012); a reduction in the number of states involved in the decision making and the promotion of conservation and management measures up to the WCPFC. As such, the PNA is structured as an exclusive bottom up coalition excluding external actors from governance decisions. Again reflecting a process of sub-regionalisation, and in contrast to the WCPFC, the PNA is explicitly working to further the interests of its members in the face of pressure of DWFNs seeking access to their historically gained rights to tuna resources; and through that capture development benefits, equity and justice for members by promoting sustainable tuna fishing. This is illustrated by the exclusion of Filipino vessels to the high seas pockets now controlled by the PNA, despite the Philippines being a WCPFC member with mandated access. Moreover, allowing countries to pursue their own national interests within their vision of a collective strategy of market-driven sustainability through the MSC certification, provides further evidence of the PNA fostering a process of fishery regionalism (cf. Hanich, Teo et al. 2010).

This strategy of the PNA to have their free school skipjack fishery certified therefore plays an important role in supporting its internal normative structures. While the recognition of the PNA's capacity for producing innovative conservation and management strategies can be evidenced by the uptake of these measures at the WCPFC level, gaining MSC certification also adds further recognition to the powerful position PNA holds globally and increases the legitimacy of its governance (See for example Gulbrandsen 2013). Strategically, the certification also adds market value to the PNA skipjack tuna, connecting the PNA to powerful external markets like the EU and the US, further ensuring member countries' economic stronghold over this part of the tuna resource. This illustrates that as both a market actor and sub-regional governance body, the PNA now plays a strong functional role in the WCPO governance architecture.

In spite of the different structures and objectives, both governance bodies focus on multilateral engagement to produce cooperative arrangements that reduce the complexity of negotiations over and between multiple interests in tuna fisheries. The interplay of these

normative structures between levels greatly influences both the (sub-)regionalisation of fisheries management and the political regionalism of the PNA and WCPFC. On the one hand, the PNA are feeding innovative management measures from the bottom up, where shared socioeconomic interests allow the body to 'speak in one voice'. On the other hand, scrutiny of these measures within the WCPFC provides top down oversight and legitimacy. Therefore, while these bodies are fulfilling different roles one could not replace the other. They reinforce a creative tension through their interplay that would not be possible should only one level exist and are as such mutually dependent on each other for management innovation.

### 2.6.3 Balancing Diversity of Interests and the Conservation Burden

As a region characterised by small island developing states, the process of sub-regionalisation allows for collective authority and strategic capacity to be generated among countries whose individual capacity in strategic analysis and strategy development is otherwise limited both nationally and when negotiating under a wider regional regime (Hanich 2010). This strategic capacity, representing a form of fisheries regionalism, serves to strengthen their position in negotiating a more equitable distribution of the conservation burden in international fora like the WPCFC.

In spite of playing an instrumental role in the creation of the WCPFC, its presence as the highest governing body within the region has seen the Pacific Island countries consolidate their position as a sub-regional group, which is less open to outside, country by country, negotiation over access. As opposed to the partnership-oriented approach intended by RFMO level governance, the PNA have placed more of a focus on internally controlled implementation, treating DWFNs increasingly as licensees. The proactive role of the PNA in searching for innovative ways to control the WCPO tuna fishery also provides an indication of underlying regional political tensions. As outlined by Aqorau (2009), the PNA's response is a direct challenge to DWFNs that are seen as "intent on vitiating the gains the PNA have made through the VDS" (Aqorau 2009: 599). This, in combination with the PNA's move away from the FFA can be seen as an on-going exercise in capturing control over tuna fisheries that was lost in previous attempts to reduce licence numbers under the Palau agreement and increased power of the DWFNs under the WCPFC Convention. This is

illustrated by the PNA's shift from imposing a cap on vessel numbers to fishing days just after the WCPFC emerged, thereby strengthening their management and control over access agreements (Havice 2010). Although criticised for its lack of transparency in allocating vessel days, and for consistently exceeding the number of days apportioned, the control the PNA nations exercise over fishing effort within limits consistent with resource sustainability both put in place a stronger identity of the PNA as a management region, while also putting the associated countries in a powerful position to secure control over DWFNs represented at the WCPFC.

The PNA's success in shaping these broader governance processes is still, however, a relatively new aspect of the overall WCPO governance architecture. While the PNA itself has been around for a long time, it has only really presented a demonstrable challenge to the status quo of regional-level governance since 2008. Therefore, the longevity of this kind of governance interplay is unknown. While strategic interactions between the different levels illustrate the value of sub-regionalisation in the WCPO tuna fisheries governance, it is dependent on the PNA retaining their position as a unified group or face fragmentation. For instance, this is being challenged by Kiribati's negotiations with the EU over their fisheries partnership agreement. In these negotiations, the EU has insisted that the three year protocol granting access to 10 EU fishing vessels (four purse seiners and six longliners), does not incorporate the VDS (EU Committee on Fisheries 2013). This agreement would see Kiribati essentially defecting from the conditions set out by the VDS. Additionally, by insisting on remaining outside the VDS, the EU is maintaining a relatively low access fee that distorts the regional market for access to the tuna fishery. This case demonstrates both the strength and weakness of fishery regionalism in the PNA, as well as the change in strategy required by DWFN members of the WCPFC that have been marginalised through the PNA management measures.

Lessons learned from the reported rift between the PNA and the FFA shows that sub-regionalism only works when there is cooperation and transparency amongst members. Therefore, given the additional importance of DWFNs' fishing interests, the WCPFC provides a critical venue for enforced cooperation amongst its member. This makes governance at the regional level far from redundant. The complex mosaic of jurisdictions in the region means that the challenges that the FFA, PNA and the WCPFC have faced so far will be compounded

over the coming years as they come under increasing pressure to respond to over-fishing and over-capacity concerns (Hanich 2010) as well as the rise of other emerging regional groupings staking their own claims.

## 2.7 Conclusion

The performance of tuna fisheries governance in the WCPO is increasingly determined by the interplay between regional and sub-regional bodies responsible for designing and implementing conservation and management measures. Sub-regionalisation appears to be a means for overcoming the limitations of large international environmental regimes. However, distributing management functions over geographical scales is only likely to be effective if there is a mix of political will and multilateralism that can create cooperation for sustainable management and reduce competition. In the case of the WCPO, the sub-regional PNA supported higher levels of governance through the creation of the WCPFC, but have since started to reassert themselves and their governance capacity. The case illustrates that for contested marine resources such as fisheries, international sub-regions can go beyond functional units to also present wider opportunities to shift power relations in the favour of small island states.

The PNA has emerged in a strong position to innovate management measures that would not otherwise be possible at the more inclusive WCPFC level. This strength has led some to describe the PNA as a "tuna cartel" with the WCPO becoming the "Saudi Arabia of Tuna" (Brian Jeffries quoted in Aqorau 2009: 581). The skipjack fishery most clearly demonstrates this 'cartel': it illustrates how functional regionalisation can lead to a wider regionalism of fisheries management, which in turn can lead to positive interplay between levels of governance. MSC certification of the PNA free school tuna fishery provides an added layer of legitimacy to the PNA management measures and indirectly the PNA as a fishery region. Additionally, the case shows that the functional scale at which the PNA operates, representing in its combined EEZ 70 per cent of the tuna stock (PNA 2014), also made MSC certification possible.

Far from complicating the process of governance and decision-making, the presence of sub-regional groups like the PNA have served to challenge the performance of the WCPFC,

stimulating greater debate and progress within the regional body. Few countries and even fewer regions have managed to implement successful management measures that can take into account the complex interactions of multiple species, gears, boat classes and stakeholders to promote sustainable fisheries. The combined work of the PNA and the WCPFC therefore puts them ahead on many issues and may represent a testing ground for a functional multilateralism based on shared resources and utilising both regional and sub-regional governance platforms.

# Chapter 3. Power Europe: EU and the Illegal, Unreported and Unregulated Tuna Fisheries Regulation in the Western and Central Pacific Ocean[*]

## 3.1 Abstract

Illegal, unreported and unregulated (IUU) fishing activities are widely considered a main cause of unsustainable fisheries across the globe. The EU has taken a leading role in the fight against IUU fishing, using both its market and normative power to advance its EU IUU Regulation (No. 1005/2008) and wider fisheries sustainability agenda outside its territory. This paper examines how successful the EU has been in using its market and normative power to influence regulatory strategies and frameworks governing tuna fisheries in the Pacific Islands region of the Western Pacific Ocean. The results indicate that while the market power of the EU remains an influential factor, the diminishing normative power of the EU in WCPO is weakening any attempts to implement its IUU fishing regulation and Pacific Island nations have promoted their own regulatory agenda. We conclude that the changing asymmetries between market and normative power has led to a differentiated geography of regulatory uptake, and while market power will remain a dominant strategy for the EU, normative power, when exercised should focus on cooperation rather than 'teaching' the benefits of an EU regulatory approach.

## 3.2 Introduction

The European Union (EU) is the world's largest and most lucrative market for fish (Asche and Smith 2010). Whilst domestic fish stocks are in a poor state, with 88 per cent currently being overfished (European Commission 2009a), fish consumption throughout Europe remains high. The EU has been able to maintain and even expand its levels of consumption by sourcing and importing fish from other regions around the globe (NEF 2011). The sheer size of the EU market and its history of negotiating international trade agreements has made it one

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*NB Following publication the authors were contacted by a regional expert informing of minor factual inaccuracies, these have been corrected for this thesis*

of the most powerful seafood trading blocs in the world. The implication of this strong trading position is that market access acts as a powerful incentive in affecting so called 'third country' production and trade policies (Meunier and Nicolaidis 2006). With the EU now being a net importer of seafood, it is imperative in the interests of EU food security that it maintains global market presence.

The Western and Central Pacific Ocean (WCPO) is home to the largest and most valuable tuna fishery in the world, making it strategically important to the EU. Building on wider concerns over the state of global fish stocks (Pauly, Watson et al. 2005; FAO 2010), the sustainability of tuna stocks in the WCPO has come under increased scrutiny by governments and civil society groups alike (Langley, Wright et al. 2009; Thüllen, Tolvanen et al. 2009). The impact of illegal, unreported and unregulated (IUU) fishing on the sustainability of tuna and other species (Schmidt 2004; Metuzals, Baird et al. 2010) has been taken up by the EU as a key issue in both domestic and external fisheries governance. IUU fishing also represents an economic imperative for the EU with losses estimated to be between US$10-23.5 billion globally each year (Agnew, Pearce et al. 2009). In the WCPO, the loss from IUU fishing has been estimated to be in the vicinity of 21-46 per cent of reported catch and is valued at US$0.8-1.7 billion (Agnew, Pearce et al. 2008). As 57 per cent of the total WCPO catch is from the exclusive economic zones of Pacific Island countries (Hanich, Parris et al. 2010), the value of IUU fish from these countries is between US$300-700 million, representing a considerable loss of foreign earnings (Havice and Campling 2010). IUU fishing has clear environmental and economic ramifications and is therefore illustrative of the nexus between trade and sustainability interests.

Despite considerable critique over its Common Fisheries Policy (CFP) (Bretherton and Vogler 2008; Khalilian, Froese et al. 2010), the EU has also sought to address global threats to sustainable fisheries beyond their waters. As part of their commitment to sustainable fisheries beyond Europe, the EU ratified its IUU Regulation in 2010 through the Directorate General of Maritime Affairs and Fisheries (DG MARE, EC Reg No. 1005/2008), with the intention of preventing and deterring the import of IUU fish into the European market, and to eliminate IUU fishing activities by EU operators and third countries. The global consensus around the need to prevent, deter and eliminate IUU fishing could lead to the assumption that uptake of the EU's regulation, the world's first official regulation designed specifically to deal with

IUU fishing, would be ubiquitous. However, to date, that appears not to be the case. Instead, IUU fishing regulation is being implemented on a country-by-country basis.

This paper investigates how successful the EU has been in promoting its IUU regulatory agenda to influence regulatory strategies and frameworks in the Pacific Islands region of the WCPO. This is done by addressing: 1) how the EU employs its IUU Regulation in the Pacific Islands region; 2) what variation is observed in EU influence over the regulatory strategies of Pacific Island countries; and 3) whether (and how) power relations between the EU and Pacific Island countries might explain differentiation in uptake of the EU's IUU Regulation.

The research follows a case study approach to gain an in depth understanding of a contemporary phenomenon within a real life context (Yin 2009). The implementation and uptake of the EU's IUU Regulation in the Pacific Islands region functions as a case study for the wider phenomenon of EU external regulation. Fieldwork consisted of: document analysis; literature review; 12 key informant interviews with EU officials from DG MARE, DG Trade, European Parliament and European Council, regional experts, European industry representatives and NGOs. Additionally, observations of negotiations and political debate were made during the 9th Western and Central Pacific Fisheries Commission (WCPFC) Meeting in December 2012, the Chatham House IUU Fishing Forums in 2012 and 2013, and the 2011 and 2013 European Tuna Conference, where many themes related to the EU's IUU Regulation were discussed.

The following section formulates the research framework adopted, introducing the idea of European external regulation and the EU as a market and/or normative power. The extent to which the EU IUU Regulation and its implementation in the Pacific Islands region has led to regulatory and institutional changes in the region (as a whole and in its constituent countries) is then examined. The paper concludes with an analysis of what the case of the EU's IUU Regulation teaches us about the EU's regulatory influence and power beyond Europe.

## 3.3 Power asymmetries in European external regulation

To understand European external regulation, or the power of the EU to influence domestic policies and institutions in third countries beyond the EU borders, two main schools can be distinguished, shortly summarised as 'Market Power' Europe (Damro 2012) and 'Normative

Power' Europe (Manners 2002). The analytical framework is built on these two sources of executing EU power on domestic regulatory developments in third countries.

The power of the EU's market, or Market Power Europe as aptly referred to by Damro (2012), means that external actors interested in participating in the European market need to follow EU rules to remain active and competitive, or risk facing the (opportunity) costs associated with ignoring or violating these market conditions (Bauer, Knill et al. 2007). Although a recent term, Market Power Europe builds directly on a broader body of literature that stresses the EU's strategy of governing through its market.

With increasing integration of global markets, the international mobility of resources, and the major significance of the European market for third country exporters, there is pressure on external countries to re-design domestic (market) regulations to avoid regulatory burdens as put forth by the EU (Knill and Tosun 2009). As argued by Lavenex (2011), in market related policies such as competition and environmental or industrial product standards, the EU can capitalise on its market power. By providing positive and negative incentives associated with sanctions and rewards, the EU aims to manipulate the economic utility of trade by third parties, thereby inducing them to adopt their policies, institutions and ideas. This works on the basis that if the cost-benefit balance falls in favour of continued interaction with the EU, the EU regulations will be upheld and influence domestic practices and institutions in third parties. Therefore, external actors relying on EU markets to obtain rewards and avoid sanctions, such as the suspension or termination of formal agreements and market access, are 'forced' to apply the EU's own systems and rules of governance (Schimmelfennig 2012a).

Damro's Market Power Europe is a response and counter-argument to a growing body of literature on 'Normative Power Europe'; used to communicate how the EU shapes the world order through its ideas and values (Manners 2002). Authors writing on this mode of influence argue that power is constructed on a normative basis, which in turn predisposes the EU to base its engagement in world politics on the transfer of norms and values (Manners 2002). Indeed, the strong presence of the EU in multilateral fora and the leadership role they have assumed on global environmental matters appears to support the argument that global interests and universal values are at the heart of European foreign policy (Falkner 2007). The

notion of the EU as a normative power has informed research on the EU's role in international environmental politics but is yet to be discussed in the context of fisheries governance.

With respect to IUU fishing, the EU uses its extensive global political networks to actively promote rules, norms and practices in line with its IUU Regulation outside its territory. In exerting normative power, the EU employs the mechanism of socialisation to 'teach' third countries the ideas and norms behind the EU's regulatory strategies and thus persuade them to internalise these norms in the belief that they are valid and legitimate (Jetschke and Murray 2012). Socialisation is one of the key mechanisms through which EU principles are promoted externally and thus normative power established (Manners 2011). Whereas strategies based on Europe as market power focus on producing defined (economic) incentives and market sanctions, normative power Europe works through political/policy networks. The EU engages in these networks with political dialogue and co-decision making practices. EU 'socialisation influence' comes through creating joint or similar regulatory structures with external parties (Lavenex 2008); largely through the EU's presence and role as a key negotiator in global and regional multilateral fora, giving the EU voice in external regulatory processes.

Although Damro (2012: 697) argues that the EU's identity is "not a particular set of collective norms but rather a comparatively large regulated market with institutional features and interest group contestation", he acknowledges that Europe's external power is not derived solely from its market but also through political/normative interaction. Hence, in the empirical context of the EU's IUU Regulation, it could be expected that both market power and normative power at work in third countries.

When analysing market and normative power there is a danger of over-emphasising the role of the EU as the main power broker and sole agent of (institutional) change outside its territory. But power is always relational and never uni-directional; the external power of the EU therefore depends also on third parties. Although it is acknowledged that the geography of European external regulatory influence is highly variable with respect to regions, countries, organisations, and policies, much research to date is based on the assumption that the influence of the EU gradually diminishes with distance from Europe. As summarised by Börzel and Risse (2012: 8), the argument is that "the further we move away from Europe, the fewer incentives the EU has to offer to promote its policies and institutions and the more it

has to rely on mechanisms of persuasion and of communication to make its case". However, this assigns a passive role to third countries and does not sufficiently take into account the diversity of power asymmetries the EU faces in different parts of the world, nor the global nature of trade. Countries at the receiving end of EU regulations and institutions are not simply passive recipients of EU policies, norms and power. They actively influence the uptake of EU regulations and engaged in "processes of interpretation [and] incorporation of new norms and rules into existing institutions, [as well as] resistance to particular rules and regulations" (Börzel and Risse 2012: 8).

It therefore follows that different power asymmetries between the EU and third countries may exist that outweigh assumptions of distance alone. These asymmetries with the EU might be larger or smaller depending on whether they are regions or countries, what resources they have and their competitive advantage relative to Europe. The degree of asymmetry influences how new norms and rules are interpreted and incorporated into existing institutions, as well as the level of resistance against particular rules and regulations. Exploring the ensuing geographies of which third countries and regions take up and resist EU power and influence, by who and with what effect, provides insights about the changing role of EU normative and/or market power beyond Europe (on IUU fishing in our case; see Figure 3.1).

The rest of the paper analyses these changing power asymmetries using the case of EU IUU Regulation in the WCPO; a region that covers approximately 30,569,000km² and accounts for 56 per cent of world tuna catches (WCPFC 2012c). Approximately 57 per cent of these WCPO catches are taken from the Pacific Island countries' exclusive economic zones, the remainder from high seas and other coastal states (Hanich, Parris et al. 2010). The region holds great economic importance to Europe and the EU has made its presence felt as a market and port state, a flag state and a member of the regional fisheries management organisation (RFMO), the WCPFC. Through these multiple roles, the EU has been able to diffuse its IUU Regulation, making use of its market and normative powers.

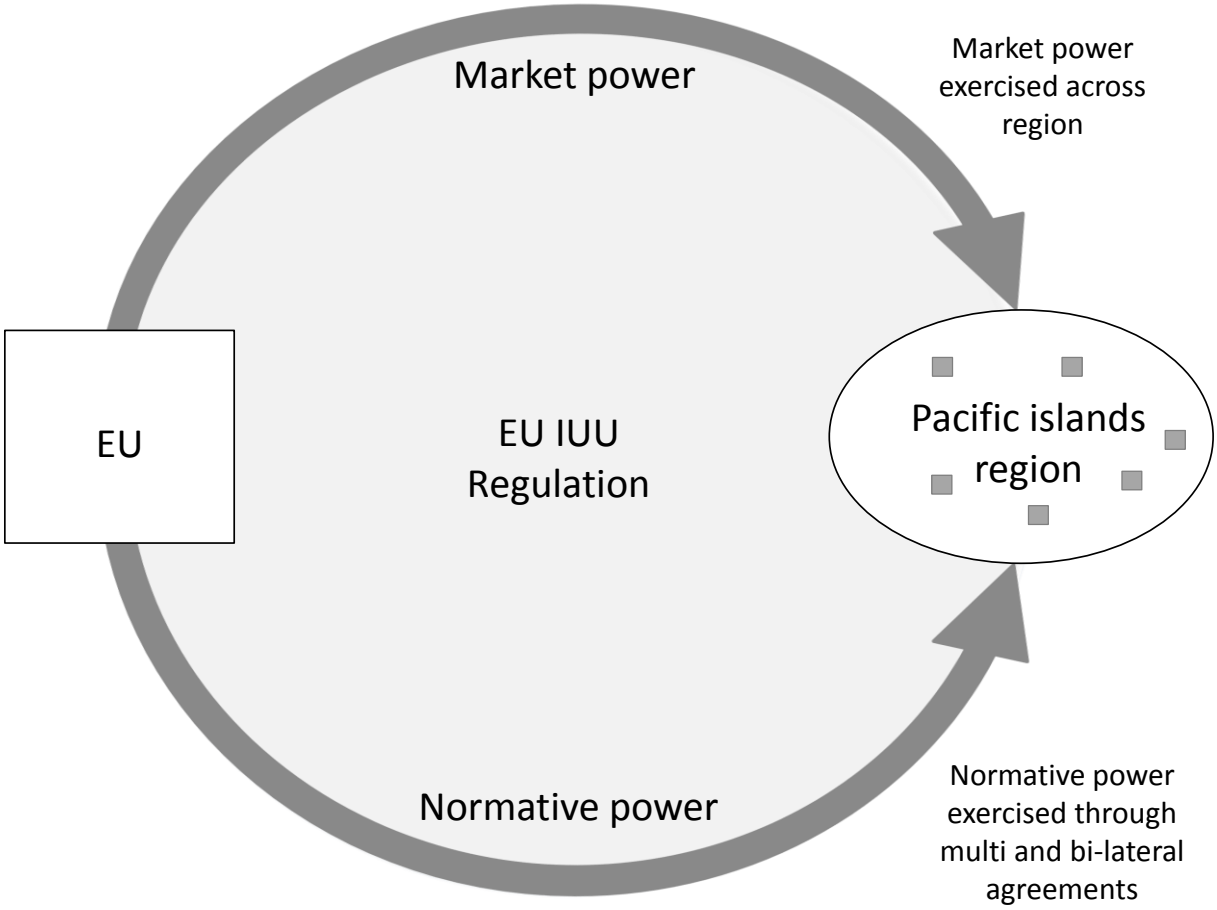



*Figure 3.1 EU external regulatory influence through market and normative power: EU IUU and the Pacific Islands region*

## 3.4 EU IUU Regulation

The 2010 IUU Regulation (EC Regulation No. 1005/2008) expanded the regulatory capacity of the EU, and DG MARE in particular, over fisheries well beyond their own waters. In recognition of the global nature of IUU fishing the Regulation is in place to prevent the continued import of IUU fish into the EU market, and eliminate IUU fishing activities by EU operators and third countries. Under this Regulation, IUU fish are classified as all fishery products caught by IUU fishing vessels operating within the jurisdiction of EU Member States, in addition to activities carried out by vessels on the high seas or in the waters under the jurisdiction of a third (non-EU) countries (European Commission 2009b).

The IUU Regulation states that coastal, flag, and port states are expected to satisfy three main requirements. First, the EU has introduced a catch certification scheme for ensuring that all flag states can certify compliance with coastal state conservation and management measures. Under it, flag states must certify that its vessel's catch is legitimate, and if fish is landed, transshipped or processed onshore, then coastal states from which the fish originates will also be involved. This is particularly pertinent to the canned tuna industry, where the majority of fish is landed for processing outside the EU. A fundamental part of complying with this element of the IUU Regulation is that third countries need to assign and notify a domestic competent authority, empowered to attest to the veracity of the information contained in catch certificates to DG MARE of the European Commission. To receive verification, competent authorities have to demonstrate they can manage the registration of vessels under their flag; deliver, suspend or withdraw fishing licenses; verify compliance by their vessels with conservation and management rules; and validate and verify catch certificates (European Commission 2009b). Second, the EU has its own list for vessels that are known to have engaged in IUU fishing activities. Finally, the EU has an additional list for non-cooperating third countries, under which the IUU Regulation prohibits the importation into the EU of fish caught by vessels flying their flag and will also not accept catch certificates that accompany these fish (European Commission 2009b; Tsamenyi, Palma et al. 2009).

The EU sees itself as frontrunner in global IUU regulation and has described its Regulation to be a "ground-breaking instrument" (Lövin 2009). However, evidence from Sierra Leone and Turkey shows that the EU IUU Regulation contains some serious weaknesses. Most notably, despite assurances that an electronic system would be in place in 2008, and further reiterated at the 2012 International Commission for the Conservation of Atlantic Tuna, dummy catch certificates remain in global trade because EU member states do not issue originals to third country factories and instead rely on a decentralised system of photocopies (Hosch 2012). Public assertions that the IUU Regulation "has offered us the tool to follow the traceability of fish products" (Mitolidis 2013) also appear problematic, with one fisheries expert stating that the (lack of) traceability is one of the major flaws in the system (Pers. Comm., February, 2013). Additionally, requirements for third countries to establish competent authorities leave the standards for fishery control completely up to the flag state, meaning there are no universal (EU) standards to audit country compliance against.

Fisheries Commissioner Maria Damanaki stated at the Chatham House meeting on IUU fishing in 2013 that the EU did not realise the difficulties it would face in implementing this piece of Regulation and observers should not consider the EU as the sole international actor in fighting IUU fishing. Nevertheless, the EU has established itself as a global frontrunner in regulating IUU fishing and the IUU Regulation remains one of the most influential pieces of European policy on the governance of global fisheries, also in third countries and regions.

## 3.5 Market power

From a trade perspective, the EU is able to use its power as a market state to make the requirements of its IUU Regulation a pre-condition for any trade agreements. This is of great importance in the Pacific Islands region, as European countries the United Kingdom, Germany, Italy, Spain, Belgium, France and the Netherlands are the key markets for canned tuna, consuming over 40,000mt of tuna; some or all of which comes from the WCPO (Hanich 2011). There are three main categories of trade agreements in place in the WCPO: the economic partnership agreement (EPA), which has been signed on an interim basis by Papua New Guinea (PNG) and Fiji (an interim EPA, iEPA); the Generalised System of Preference (GSP) with *non*-least developed countries (*non*-LDCs) (Cook Islands, Federated States of Micronesia (FSM), Nauru, Niue, Palau, Marshall Islands and Tonga); and the GSP Everything but Arms (GSP-EBA) regulation with the LDCs (Kiribati, Samoa, Solomon Islands, Tuvalu and Vanuatu, and Timor-Leste) (Campling, Havice et al. 2007; Tindall 2010, Hoebink 2011).

In order for products to qualify for duty free access associated with the GSP and GSP-EBA agreements, however, they must meet Rules of Origin requirements. Tuna must be caught within the exporting country's territorial seas (12 mile zone), or by a fishing vessel owned by the exporting country or the EU fleet (Campling, Havice et al. 2007; Tindall 2010). Notably, PNG and Fiji were able to seek exemptions from the stringent Rules of Origin requirements through their negotiations on the iEPA.

The addition of compliance with the IUU Regulation to these trade agreements does not directly curtail access to the EU market. It does, however, provide the EU with control over who is able to trade on their market. This is particularly the case with EU verification of a third country's competent authority, without which access to the EU market is denied. In the

Pacific Islands region only PNG, Fiji and the Solomon Islands have had their competent authorities verified. Several of the others (e.g. FSM, Vanuatu, Marshall Islands) have presented the Commission's DG MARE with the necessary documentation, but are apparently experiencing difficulties meeting the necessary requirements, in particular their responsibility as flag states (Hamilton et al., 2011). For a summary of what agreements the EU have in place in the Pacific Islands region, see Table 3.1 and where they are located geographically, see Figure 3.2.

*Table 3.1 EU Trade and access agreements with Pacific Island countries*

| **EU Agreement** | **Terms of agreement** | **Pacific island countries** |
|---|---|---|
| Interim Economic Partnership Agreement (Trade) | • Duty free access for canned tuna<br>• Derogation to the rules of origin<br>• Compliance with IUU Regulation | PNG*<br>Fiji* |
| Globalised system of preference (Trade) | • Duty free access for canned tuna<br>• Compliance with Rules of Origin for all fish<br>• Compliance with IUU Regulation | Cook Islands<br>Nauru<br>Niue<br>Palau<br>Marshall Islands |
| Globalised system of preference – Everything but arms (Trade) | • Duty free access for canned tuna<br>• Compliance with Rules of Origin for all fish<br>• Compliance with IUU Regulation | Kiribati<br>Samoa<br>Solomon Islands*<br>Tuvalu<br>Vanuatu<br>Timor-Leste |
| Fisheries Partnership Agreement (Access) | • Compliance with IUU Regulation | Kiribati |

* Companies who have also got a verified Competent Authority for implementing the EU IUU Regulation

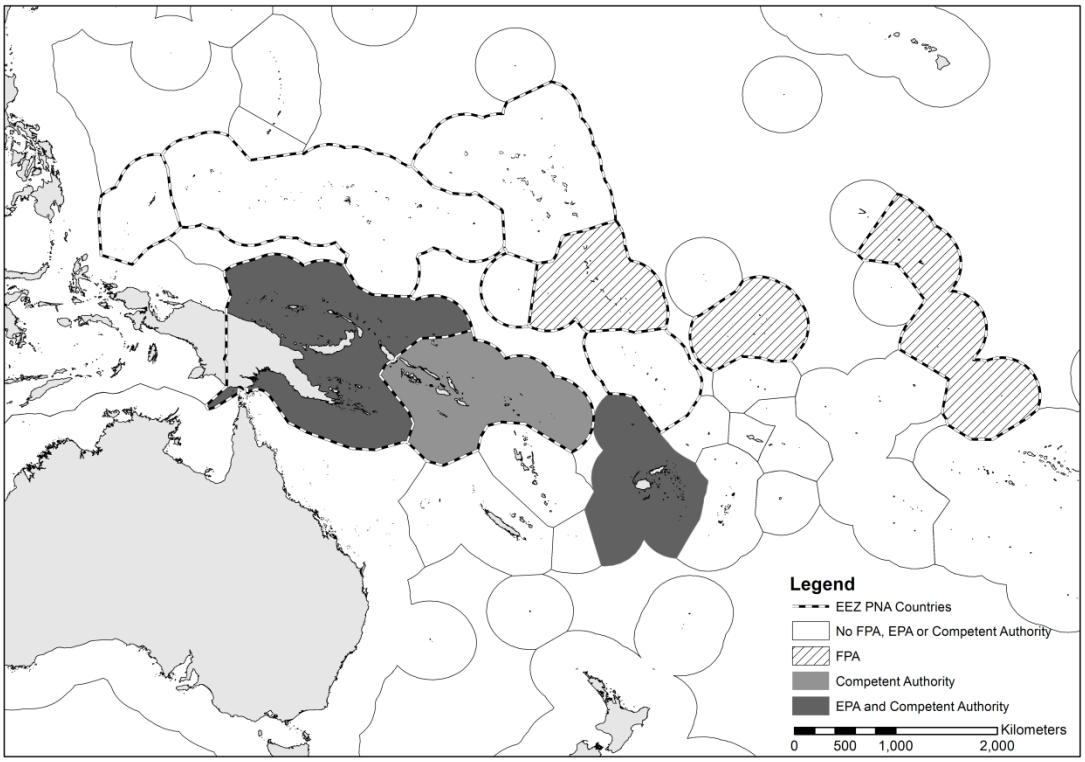



*Figure 3.2 Distribution of trade and access agreements in place in the Pacific Islands region*

Applying market-based mechanisms is one of the EU's strongest strategies for regulating practices in third countries because the benefits of compliance with EU regulations largely outweigh the cost of exclusion from the market. The duty free access to the EU market, which is offered in the trade agreements between the EU and Pacific Island countries within the region (albeit conditional on meeting Rules of Origin requirements in the case of the GSP and GSP-EBA arrangements), provides the EU with the leverage needed for using incentive based regulation. The EU IUU Regulation establishes a system of conditional access, using potential sanctions attached to their trade agreements as an incentive to ensure that states with vested interests in trading their tuna on the EU market are compliant. Those states that have signed trade agreements with the EU must comply with the Regulation.

In the case of the iEPA, Fiji provides an example of how applying market conditions through their trade agreements can alter domestic policy making. In November 2012, Fiji was one of eight countries notified by the EU as being a possible 'non-compliant third country' (European Commission 2012). The threat of this listing and the access sanctions that are implied catalysed the Fijian Attorney General to authorise a new National Plan of Action that

they had been working on. One aim of this National Plan of Action was fulfilling EU requirements that came out during missions to Fiji. Therefore it is an example of the direct, domestic impact the EU IUU Regulation has had on a country tied to the terms of an EU trade agreement. Using conditionality through their trade agreements ensures access to the market can be controlled before any tuna has even been caught.

Another market-based mechanism associated with the EU IUU Regulation is the requirement of catch certificates. This requirement is for all countries seeking to import to Europe, not only for those engaged in beneficial trade agreements. Since the Regulation came into force, Commissioner Damanaki reported that 90 of the EU's trading partners have implemented the catch certification scheme (Damanaki 2011). However, only three of these were Pacific Island countries – Fiji, Solomon Islands and PNG (those with competent authorities). While the Regulation is a voluntary agreement and only countries wishing to trade on the EU market need compliance, the EU is using the power of its market to exercise ultimate oversight and control over the activities of third countries. This was emphasised by a statement made by the Commission, stating that their IUU Regulation is about "making them [third countries] understand" that abiding by EU regulatory measures is in their own interest (Mitolidis 2012). This threat of exclusion shows how tightly connected the external IUU Regulation is to its market.

However, in spite of criticism being levelled from the region at the EU that catch certification presents a huge administrative burden (Damanaki 2013) – something that has been acknowledged by the Commission – it is not an unwelcome regulatory device in the region. Instead, meeting the EU's demands for a competent authority is proving more difficult, with only three countries having succeeded thus far. This is in spite of the fact that the requirements competent authorities need to fulfil – such as vessel registration and licensing, compliance with conservation and management rules and validating/verifying catch certificates – are things that a number of unverified Pacific Island countries are already doing. Yet, the EU is still able to condition that third country authorities meet EU-defined standards should they wish to benefit from market access. And the importance of market access for Pacific Island countries disciplines them to strive for EU verification of their competent authorities.

## 3.6 Normative power

In addition to using trade agreements to introduce IUU regulation, the EU has further advanced their regulatory role through membership of the WCPFC. Their membership came about as a result of their participation in the series of Multilateral High Level Conferences, convened to draft the Convention. In the WCPFC, the EU is one of the distant water fishing nations (others include USA, Japan, Taiwan, Korea, EU). However, while the EU distant water tuna fleet has a strong global presence, access to tuna in the exclusive economic zone of Pacific Islands countries, granted under Fisheries Partnership Agreements (FPAs) has been limited. Over time, the EU has had agreements with Solomon Islands, FSM and Kiribati. Currently though, they only have an agreement with Kiribati and are in the processes of negotiating one with the Cook Islands (See Figure 3.2). In spite of this limited fishing capacity in the Pacific Islands region, fisheries officials in DG MARE have described RFMO membership as being "politically very important" because they offer a primary way for the EU to engage in the implementation of conservation and management measures within the region.

The EU has been described as an "active and regular participant in the work of the [WCPF] Commission" (Hamilton, Lewis et al. 2011: 93). While the WCPFC is not the venue for the EU to push for implementation of their own IUU Regulation, it does provide an arena in which the prevention, deterrence and elimination of IUU can be emphasised normatively. This has been the case in the implementation of port state measures in particular. Pacific Island countries have responded during WCPFC meetings that capacity and resource constraints negatively impact the effective implementation of port state measures. The EU's reaction to this was to recommend at the WCPFC meeting in 2010 that the WCPFC use their existing funds, bilateral programs and co-operation of developed members and cooperating non-members to "assist SIDS [small island developing states] in meeting the requirements of port state measures, including in terms of technology for electronic-based data collection and reporting" (WCPFC 2010a). As one regional expert explained, while Pacific Island countries welcome moves for electronic data collection (Pers. Comm., February, 2013), the EU proposal was contingent on allowing inspections of both unlicensed and a proportion of licensed foreign fishing vessels in ports. This ran counter to the expressed wishes of the region's Forum Fisheries Agency (FFA) that "any port state measure adopted by the

Commission should not apply to foreign fishing vessels that are already licensed by the relevant port state" (WCPFC 2010b) and thus formed the grounds to reject the EU proposal (WCPFC 2011). In spite of the rejection of this proposal, the EU continues to stress the importance of port state measures, openly lamenting during the 9th WCPFC meeting, the lack of progress that has been made on it thus far under the WCPFC.

Membership to the WCPFC therefore enables the EU to promote its own regulatory agenda and to influence decisions on conservation and management strategies in the region that impact both EU's own fleets and those fleets wishing to export to the EU. However, one regional expert expressed concern that the EU's dominance and 'obstruction to progress' observed in other RFMOs, is now being used as a strategy in the WCPFC. The EU has also been criticised for using the WCPFC as a venue to serve its own interests above all else.

The normative power of the EU is also questioned on three other levels. Firstly, through the EU's refusal to recognise the management measure of the Parties to the Nauru Agreement (PNA) – a sub-regional grouping of eight Pacific Island countries – like their high seas pocket closures and the Vessel Day Scheme (VDS) (for more information see Hanich, Parris et al. 2010). There are signs that the position of the EU towards the VDS is shifting, as was evidenced in the European Parliament's "Comprehensive European Fisheries Strategy In the Pacific Region", which cited that fisheries access "should be based on the VDS as an alternative to the current system [of limiting vessel numbers with an indicative reference tonnage]." However, the Parliament's Strategy paper pointed out that presently the VDS "suffers from a lack of transparency and poor results in terms of meeting objectives, with reductions always being significantly overshot" (European Parliament Fisheries Committee 2013: 14). From this, they added the caveat that accepting the use of the VDS was on the proviso that "measures are adopted to ensure the transparency of the VDS, improve its effectiveness, its implementation by all relevant parties and its compliance with the best available scientific advice" (European Parliament Fisheries Committee 2013: 7). The Pacific Island countries responded to this by criticising that the Parliament's Strategy had been developed without consultation with any of the Pacific Island countries and their critique of the VDS system was "based on inaccurate data" (Atuna 2013a).

The second basis for questioning the normative power of the EU comes from the fact that regulations are already in place in the WCPO for preventing, deterring and eliminating IUU fishing. For example, the FFA has a long established monitoring, control and surveillance framework. This includes Port State measures implemented through the FFA 'Harmonised Minimum Terms and Conditions' and therefore casts doubts over the EU's insistence to implement their own Port State Measures through the WCPFC, where they have a regulatory voice. Additional to the FFA's work within the region, the WCPFC and the PNA have well defined monitoring, control and surveillance programmes, which include requirements for full observer coverage on all purse seine vessels and for all vessels to be equipped with vessel monitoring systems. The WCPFC also already has a register of vessels presumed to have conducted IUU fishing activities. With systems already in place for regulating against IUU fishing, complying with the EU IUU Regulation is therefore not about adopting EU regulatory philosophy, but doing what needs to be done to continue trading on the EU market.

Finally, the EU's ability to take a normative stance within the region is met with resistance owing to the poor reputation of the EU fishing fleet. This was exemplified when the EU's own IUU fishing activities within the region were brought to light. In October, 2013, the Nauru District Court fined a European Union fishing vessel – the Spanish flagged Albacora Uno – US$1 million for illegally fishing in Nauru waters (Atuna 2013b). This fine directly undermines the normative influence of the EU in regard to IUU fishing measures. Indeed, there is open animosity and resistance to the EU at the regional and sub-regional meetings when EU delegates promote a normative agenda in the face of a perceived hypocrisy stemming from such events. The outcome is a weakening of the capacity for EU regional cooperation strategies.

In spite of these criticisms and concerns, the WCPFC is a key venue for the EU to forge alliances with other members of the Commission, especially other distant water fishing nations like the USA and Japan. In a region with strong domestic governance structures, these alliances are politically important for the EU to consolidate their regulatory presence. They also serve the broader ambitions of the EU for its Regulation to be replicated globally. In 2012 the EU signed agreements with Japan and the USA for coordinated action against IUU fishing. This could be indicative of the EU's regulatory leadership as well as its socialising role at the WCPFC. As a senior official in DG MARE argued on two separate occasions, the

intention of the EU is "making everyone in the world aware of preventing IUU" (Mitolidis 2012) and the EU perceives itself as the global authority on IUU regulation: "the EU is more advanced than RFMOs, we want to be more advanced than RFMOs, because we want to drive the agenda quite frankly" (Mitolidis 2013). Hence, within international fisheries governance regimes, the EU encourages third countries to either follow EU regulations or produce their own regulation that replicate the EU model.

The EU is actively positioning itself in an external regulatory leadership role on IUU fishing. However, the degree to which this leadership has been welcomed and accepted is mixed, weakening the EU's capacity for socialisation in the Pacific Islands region through intergovernmental networks on an issue like IUU fishing. To date, the EU has not successfully persuaded all Pacific Island countries to make the EU IUU Regulation the basis of the regional IUU fishing regulatory agenda. Instead uptake has been partial and spatially dispersed.

## 3.7 Geography of EU Influence

What does the EU promotion of its IUU Regulation, using its market and normative power, teach us about EU's regulatory influence beyond Europe? Overall, what we observe is the emergence of a complex geography of influence and resistance emerging from the power asymmetries between the EU and Pacific Island countries. It is a reasonable observation that with increased distance from Europe, especially when moving from candidate and neighbourhood to third countries, the power of the EU to directly transpose its policies diminishes (Börzel and Risse 2012; Schimmelfennig 2012b). However, our analysis demonstrates that even in one of the most distant regions from the EU, the WCPO, there is selective and unequal uptake of EU policy, reflecting a mosaic rather than ubiquitous exercise of European power.

The external regulatory strength of the EU is mostly clearly demonstrated by its market power. The EU has been able to exploit its position as the largest tuna market in the world, creating power asymmetries in their favour and thus pressuring compliance from market dependent suppliers. Faced with exclusion from EU markets, there has been acceptance of the catch certification scheme in the WCPO, as demonstrated by those Pacific Island countries

seeking (and in some instances gaining) verification of domestic competent authority. But this is not a static condition. First, while Europe is the most important tuna market by volume in the world at present, it is considered to be a mature market with a stabilising per capita consumption of canned tuna (Hamilton, Lewis et al. 2011). Should the EU lose its market dominance, its market leverage to directly influence fisheries regulation in the region will greatly diminish.

Secondly, while the EU remains one of the most important markets for WCPO tuna, the influence of exclusionary power is not ubiquitous. The complex web of trade flows throughout the region appears to offer alternative markets for tuna and therefore undermines the EU's power to operationalise market exclusion. This raises questions about the future of the European IUU fishing regulatory influence through market power in the region. But from the perspective of Pacific nations this does not necessarily reduce external dominance: strategic partnerships between the EU and USA or Japan to combat IUU fishing regulation are starting to emerge, and may have greater combined influence over Pacific Island fisheries, resulting in a more global and thus influential approach to regulating IUU fishing.

Thirdly, EU influence through its market power does not work out equally among all Pacific Island countries, as becomes clear when analysing (the effect of) trade agreements. Trade agreements allow Pacific Island countries to benefit from duty free EU market access for certain tuna products, but also enable the EU to enforce conditionality (including on IUU fishing) in their trade. However, because the current Rules of Origin requirements only benefit countries with processing capacity, and not those wishing to export fresh and frozen tuna, an intra-regional divide has emerged. Only PNG and Fiji, as signatories of the iEPA under which the derogation to the Rules of Origin is offered, have the requisite incentive to comply with EU IUU Regulation. Market power through conditionality in trade agreements is therefore a strong mechanism for exerting European regulatory influence over third countries, but the 'reach' of such a strategy varies from island state to island state.

The EU's ability to promote IUU fishing regulation on a more normative basis through the WCPFC and at the sub-regional PNA level also shapes the intra-regional geography of EU influence. The EU's active membership of the WCPFC is an opportunity to extend its regulatory reach at the regional level and thereby encourage domestic uptake by Pacific

Islands countries. However, in practice this form of socialisation has been undermined by EU's poor reputation in the region as a result of: evidence of IUU fishing by the EU (Spanish) fleet; the insistence on interfering with fisheries management measures like the VDS; and the lack of recognition given to existing regional IUU fishing regulatory platforms. Regional negotiations have therefore not led Pacific Island countries to fully endorse EU defined regulatory strategies within their waters. The efforts of the EU have been further undermined by the strength of sub-regional governance bodies in the region, most notably the PNA. Unlike the WCPFC, the PNA has excluded formal policy participation of distant water fishing nations like the EU and has proved more effective in establishing management agreements than the WCPFC (Hanich, Parris et al. 2010; Havice 2010). Evidence shows that these negotiation fora are not simply a conduit for EU normative power, as both the WCPFC and PNA have generally proved to be resistant to EU influence. Other distant water fishing nations have similar experiences; the USA has faced significant resistance from PNA countries during the renegotiation of their Multilateral Treaty on Fisheries in 2013.

The result of this differentiated influence of Europe through their market and normative power has contributed to partial and geographically uneven uptake of the EU IUU Regulation. This in turn builds on a basic understanding that EU influence diminishes with distance from Europe, by emphasising how differing power asymmetries between the EU and third countries shape the impact of EU policy. Take up or resistance of European influence therefore lies as much with external (Pacific island) nations and the intra-regional WCPO dynamics, as it does with the EU. As illustrated in Figure 3.3, this is particularly relevant in understanding the impact of EU IUU Regulation because the global nature of fish markets and trade means that influence is more dependent on market access and dependency than it is on distance alone.

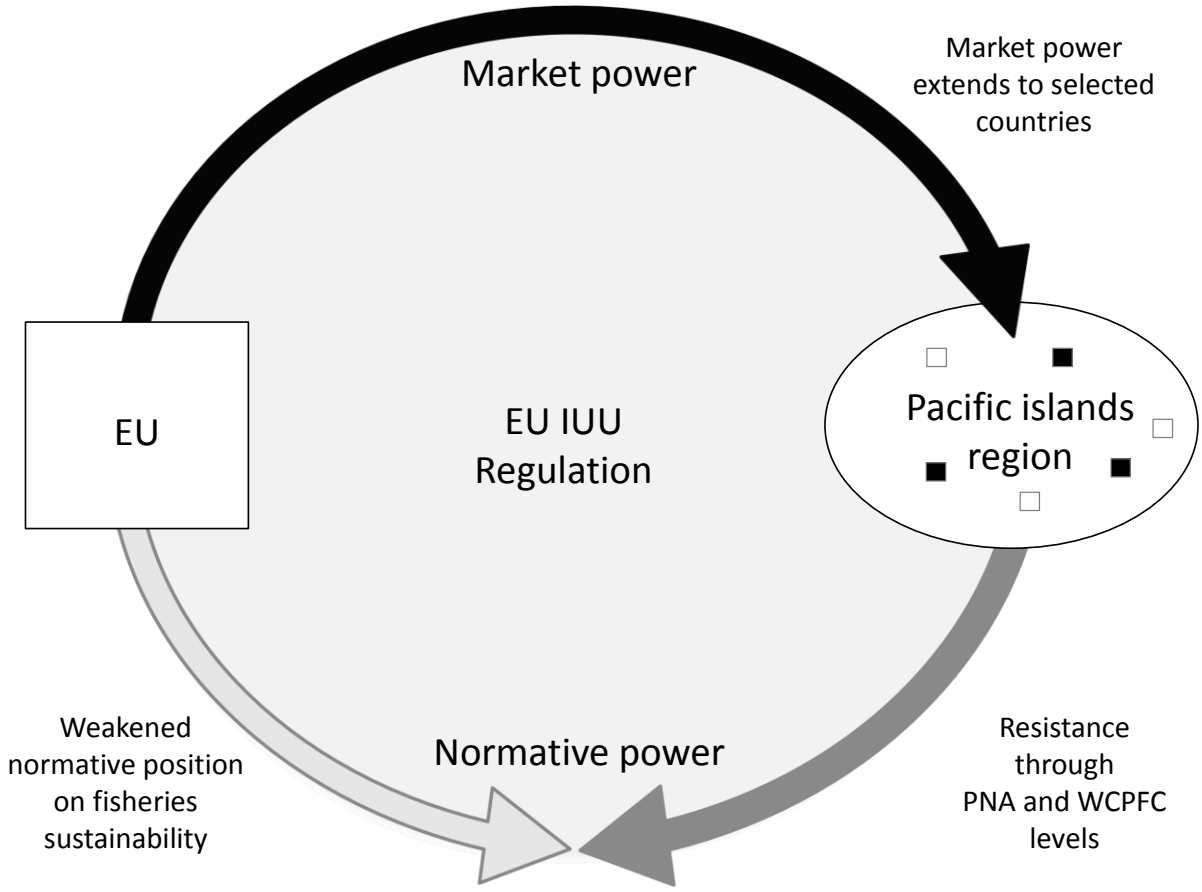



*Figure 3.3 Partial and geographically uneven uptake of EU IUU Regulation through market and normative power. Market power influences uptake of EU IUU regulation on a country-by-country basis. Normative power meets resistance (push-back) from Pacific Island countries through interaction with regional governance bodies like WCPFC and PNA.*

It is also important to realise that the EU is not operating alone in addressing the challenges of IUU fishing. While the EU was the first to formalise a regulation for the prevention, deterrence and elimination of IUU fishing, it is now one among a multitude of bodies, generating a global regulatory effort. IUU fishing is now covered under *inter alia* the UN Convention on the Law of the Sea, within the FAO, and in RFMOs. In addition, regional and domestic regulation against IUU fishing is present in the Pacific, like the FFA monitoring, control and surveillance strategy, the WCPFC vessel register and the requirements for observer coverage and VMS on all purse seine vessels fishing in the region. This highlights that the EU is competing with other global and national actors to be seen as regulatory leaders.

The competing regulatory frames both from within the region and from other external actors could further shift power in favour of Pacific Island countries and change the 'mode' of EU influence. For instance, the emergence of the PNA as leaders in conservation and management means that the EU's normative socialisation power may have to rely more on 'horizontal' cooperation than on 'hierarchical' teaching and leadership. Such developments may not be immediately welcomed by the EU, but over the long term promoting IUU regulation might be more successful through cooperative regional partnerships and agreements with other distant water fishing nations like Japan and the USA, than by solitary EU leadership.

## 3.8 Conclusion

Like any other world power the EU is aiming to extend its regulatory reach beyond its territory. Utilising its position as the world's largest tuna market the EU has been able to exert regulatory authority by attaching compliance with their IUU Regulation to their trade agreements and conditions of market access. 'Market Power Europe' is the main basis for the power asymmetry between the EU and Pacific Island countries in EU IUU Regulation uptake. The result has been that where market access has been crucial for these external countries, they have sought to comply with the EU's rules, albeit with varying degrees of success.

In addition to market power the EU has also diffused the implementation of their IUU Regulation through normative power, for instance through interactions in the WCPFC. Exerting normative power to promote their external regulatory agenda has been less successful for the EU and met with considerable, but differentiated, resistance by Pacific Island countries. The negative perception of the EU's sustainable fisheries track record in the region and their self-interest based socialisation strategies has weakened the EU's capacity to take a normative stance over sovereign resources of third countries. The EU's external regulatory strategy for fisheries has therefore 'muddied the waters' because the EU's perceived behaviour undermines moral superiority it claims over the countries targeted by their IUU Regulation. In addition, in a region with strong sub-regional governance structures like the PNA, Pacific Island countries have been able to exploit their position in the WCPFC as a collective of resource owners, to openly criticise the EU's normative stance and to 'push back' against EU demands. This has altered the power asymmetry in their favour. Pacific

Island countries, which lack ‘traditional’ market power, have been able to promote their own regulatory agenda against traditionally more powerful bodies like the EU.

These dynamic and differentiated power asymmetries generate in turn a differentiated geography of regulatory uptake. The power of the EU lies in its position as a market actor; one faced with minimal resistance in pushing its regulatory agenda. With a near global consensus on strong IUU fishing regulation, it appears any added value for the EU in investing in their normative power over the already resistant sovereign owners of fishery resources, is diminishing. While the strategic importance of interacting in multilateral fora such as the WCPFC will continue to remain important for the EU, exercising normative power on IUU regulation appears better reserved for an increasingly sparse group of countries and regions not dependent on the EU export market; and when exercised, should focus on cooperation rather than ‘teaching’.

# Chapter 4. Authority without credibility? Competition and conflict between ecolabels in tuna fisheries[*]

## 4.1 Abstract

Certification is widely seen as an innovative strategy for dealing with environmental problems in supply chains. As the number of labels available in the fisheries sector has increased, each with its own framing of sustainability, questions are being asked about their credibility. In tuna fisheries, contrasting approaches have led to conflict over, among other things, the credibility of competing labels. This paper investigates one such conflict between the Dolphin Safe and the Marine Stewardship Council certification schemes in the Western and Central Pacific. It looks at how key practices like scientific rigour, inclusiveness, transparency/openness, impartiality/independence and impact contribute to label credibility and explains the importance of authority in understanding how certification schemes maintain influence within global production networks. The results demonstrate that despite substantially different levels of credibility within these networks, the application of an environmental standard is more connected to the authority of the standard setter than the credibility of the label. The paper concludes that understanding the more nuanced role of authority, both with and without credibility, offers new insights into the wider dynamics that shape environmental regulation in global production networks.

## 4.2 Introduction

Certification is widely seen as an innovative strategy for dealing with sustainability issues in supply chains by setting and regulating standards for ecological and social interactions in the production process (Mutersbaugh and Klooster 2005; Bratt, Hallstedt et al. 2011). The final certificate and/or ecolabel is symbolic of the credibility of the standards they represent, the organisation of how these standards (and claims) are defined, codified and verified, and ultimately their environmental and social impact (Cashore, Auld et al. 2004; Hatanaka, Bain et al. 2005). However, different certification systems make different claims about sustainability, depending on their interpretation of sustainable practices. Once in the market, it is assumed

[*] This chapter has been accepted and is in press as: A.M.M. Miller, Bush, S.R. (in press) Authority without Credibility? Competition and Conflict Between Ecolabels In Tuna Fisheries. *Journal of Cleaner Production.*

that the credibility of certification systems, and the claims they make, grant them the requisite level of authority to govern those involved in the process of production and trade. But what happens when the perceived credibility of the labels differ? And what happens if the authority granted to a certification system is uncoupled from its credibility?

In this paper we focus on this relationship between credibility and authority of certification systems. Credibility, defined as "the perception and assumption that the operations of an actor or agent are trustworthy, responsible, desirable and appropriate" (Boström 2006a: 351), is a centrally important factor structuring the inclusion of actors in non-state voluntary governance arrangements such as ecolabelling. Authority is related to credibility, in that once a label is deemed credible by those-to-be-governed, the standards and institutions used to verify compliance to them can exercise power through exclusion (Cashore, Auld et al. 2004). The link between authority and credibility is however, not always straightforward. Certification systems are positioned within global production networks (GPNs) (Henderson, Dicken et al. 2002; Coe, Dicken et al. 2008), constituted by economic and political actors that struggle over the construction of economic relationships, governance structures, institutional rules and norms, and discursive frames that organise translational economic activity (Levy 2008). Credibility is derived from social relationships in these networks and is thought to lead directly to authority (Boström 2006a; Schepers 2010; Gulbrandsen 2013). The presumption of a credibility-authority axis may therefore be challenged if we investigate how different, and even competing certification systems impact upon each other's regulatory capacity, and in turn, influence production and consumption processes.

We explore the relationship between the credibility and authority of certification systems by comparing the conflict between the Earth Island Institute's (EII) Dolphin Safe and Marine Stewardship Council (MSC) certifications in the Western and Central Pacific Ocean (WCPO) skipjack tuna fishery. The MSC, widely regarded as the highly credible 'gold standard' in sustainable fisheries certification (Sutton and Wimpee 2008; Gulbrandsen 2013), certified skipjack tuna fisheries in the waters of the Parties to the Nauru Agreement (PNA) that employ a 'free-school' purse seining technique: meaning that nets are set around schools of tuna not associated with released floating objects called fish attraction devices (FADs) that lead to bycatch rates of non-target species and juvenile tuna 8-9 per cent higher than in purse seine sets not associated with FADs (Bromhead, Foster et al. 2003). 'Free school' or 'FAD-free'

fishing came to represent a new definition of sustainable purse seining. It was innovative because it provided an opportunity for a portion of the WCPO fishery to catch, trade and therefore create a new market for sustainably certified purse seine tuna – an industry first. However, it has also proven controversial because a return to free school sets contravenes the standards of the Earth Island Institute Dolphin Safe ecolabel. This came about due to controversy in the Eastern Pacific Ocean in the 1990s, which saw a ban on the use of free school sets because of the risk of associated mass dolphin mortality (Francis, Awbrey et al. 1992; Baird and Quastel 2011). But while the Dolphin Safe ecolabel is now ubiquitous in the industry, with over 450 members including fishing companies and value chain actors (EII 2007; EII 2011), its relevance in parts of the ocean other than the Eastern Pacific and a lack of transparency in decision making and certification is openly questioned (Baird and Quastel 2011). Despite this, it has emerged as a threat to the credibility and authority of the MSC's certification of free school tuna.

We examine this case by asking what happens if two labels regulating the same fishery, with differing perceived levels of credibility, make conflicting sustainability claims? We do this by analysing how the two programmes interact; do they work cooperatively, recognising they have different definitions of appropriate that may be usefully complementary, or do they compete? Finally, we reflect on what the wider implications inter-label interactions hold for the effectiveness of private, voluntary forms of environmental governance such as certification.

The research is based on a case study approach to gain an in-depth understanding of contemporary phenomenon within a real-life context (Yin 2009). The case we have chosen is in many ways exceptional; the kind of interaction between the incumbent Dolphin Safe ecolabel in tuna fisheries, and the challenges it presents to the MSC certification in the PNA. But it does offer an example that challenges existing understandings of a specific phenomenon, in this case interactions between certification schemes analysed through a defined framework of credibility (outlined in the following two sections), and may therefore be considered a valid focus of research (Gibbert, Ruigrok et al. 2008). Fieldwork consisted of document analysis and key informant interviews, conducted in person or via Skype/telephone, with 11 respondents, including the MSC actors engaged in the certification, EII, regional experts, industry representatives and NGOs. Additionally, observations were made during the

9th Western and Central Pacific Fisheries Commission Meeting in December 2012 and the European Tuna Conference in 2011 and 2013 where many themes related to MSC certification of the PNA were discussed. The results are analysed on two levels. The paper first takes a broader look at the wider political economic relations of competition between ecolabels, focusing on the discursive and material flows in the tuna GPN. It then moves on to look at the finer scale to analyse the operational modes of Dolphin Safe and MSC ecolabels exploring the extent to which ecolabelling strategies can maintain label credibility.

## 4.3 Sustainability standards in global production networks

The broader relevance of examining the interaction of standards is best understood in the context of global production networks. Analysis at the network level helps in understanding how the activities of firms are affected by 'networked' international trade regulations and normative standards (Henderson, Dicken et al. 2002: 5). It also extends to the activities of extra-firm networks, encompassing a wide range of non-firm actors like NGOs, government agencies, and international organisations. In taking these to be constituent parts of the overall production system, the GPN framework provides a means of identifying how firm and/or non-firm actors interact and sites of contestation and collaboration (Henderson, Dicken et al. 2002; Coe, Dicken et al. 2008). In the context of this research, the GPN framework provides a conceptual basis for examining the interaction between two different certification programmes, while also recognising that the regulatory practices of each are linked to a wider network of firm and non-firm actors.

Adopting a networked approach builds on other research that has investigated interactions between certification schemes. Although relatively sparse, one key focus of this literature has been whether competition between standards leads to a 'ratcheting up' of sustainability standards, or conversely a 'race-to-the-bottom' (e.g. Hatanaka, Bain et al. 2005; Cashore, Auld et al. 2007; Ponte, Gibbon et al. 2011). Some researchers have criticised certification and labelling programmes for working off progressively weak compliance criteria, thus lowering the bar and allowing companies to 'greenwash' their image (Raynolds, Murray et al. 2007). Others, such as Bitzer et al. (2008) have argued that the proliferation and resulting competition among coffee standards creates a danger of older, more stringent sustainability standards like Fair Trade and the organic coffee certification being supplanted by newer, less stringent ones.

Offering a more positive perspective, Auld (2007) and Guldbrandsen (2010) both describe how new initiatives might complement existing programmes and therefore, help broaden the scope of issues addressed, as well as the inclusiveness of certification schemes. Overdevest (2005), for example, suggests that the co-existence Forest Stewardship Council and Sustainable Forestry Initiative schemes in the United States, has seen them "compete to be the 'high-road' scheme" (p. 9).

The explicit focus of this literature on the interaction between different certification programmes and the influence of external, firm and non-firm actors on network dynamics offers a useful complement to the GPN framework. As argued by Rosenau (2003), it is within these same networks that relational attributes of regulation, such as credibility and authority are constantly reproduced. Focusing on the relative positions of and relationships between different certification systems, we now define attributes for assessing credibility.

## 4.4 Credibility and authority

Standards require constant reaffirmation of their credibility in order to legitimise them and ultimately gain and maintain authority to govern the structure and function of production and consumption practices in GPNs. As a relational attribute, credibility is actively produced and reproduced, making it the core business of any certification scheme. The key practices for building credibility, drawn from a growing literature, include scientific rigour, inclusiveness, transparency/openness, impartiality/independence and impact (see Table 4.1) (e.g. Boström 2006b; Eden 2009; Bush, Toonen et al. 2013). These practices can also be used as indicators for assessing credibility.

The scientific basis of defining principles, standards and assessment criteria are seen as fundamental to the credibility of voluntary certification schemes. The incorporation of expert scientific knowledge in the definition of principles and standards create what Eden (2009) refers to as a 'credibility alliance' between science and certification systems; legitimating their content as well as the process through which they are created. Scientific knowledge is also used by certification systems when principles and standards are operationalised into verifiable indicators, and also as technical expertise in the verification or auditing process (Hatanaka and Busch 2008). At each step credibility is built and backstopped by the wider scientific

institutions of peer review, on which the knowledge about the issues being standardised is based, and the presumed independence of scientists and their organisations. As argued by Auld and Bull (2003), in the absence of science as an institutionalised part of the standards-setting process, 'technical advice' is seen as a vehicle for groups to "further their own normative perspective on what management practices are best" (p. 48).

The risk of over-subscribing scientific or expert input is equally a risk to the credibility of a certification system. The inclusion of non-scientific actors is also necessary so that controversy is met with critical engagement rather than defection, which in turn undermines whatever authority is conveyed by these schemes (Boström 2006a). In practice inclusiveness is a deliberate strategy by certification systems seeking to incorporate the range of diverse interests in a formal structure of deliberation. And once a network is built, the certification system can secure credibility by advertising these formalised attempts to create consensus over the content and governance in the system (Eden 2009). However, inclusiveness also has its risks, especially when creating an open process of innovation undermines a requisite level of *agreed* environmental stringency (Cashore, Auld et al. 2004). The consequence is that any changes in the content and procedures of a certification system, in order to respond to new problems or recognise the need for further improvement, can bring into question the credibility of the certification system.

Features like transparency/openness and impartiality/independence concern the internal governance of the labelling programme, and contribute to what Boström (2006) refers to 'input' legitimacy. They enable the programme to continually demonstrate a capacity to practice the ideals that are embodied in their principles and standards. The degree of transparency a certification system adopts, and the more accountable it makes itself to external scrutiny, the more credibility and legitimacy they are presumed to command (Auld and Gulbrandsen 2010). Two types of transparency are commonly recognised. 'Procedural' transparency, related to the openness of decision making or adjudication processes and 'outcome' transparency, concerning the accessibility of information needed to determine whether and how regulation is effective in meeting its goals (Fung, Graham et al. 2007; Vermeulen 2007). Impartiality/independence is largely demonstrated by the organisation of information and how transparent it is, but also determined by the clear separation of the standards, conformity assessment bodies (auditors) and those being certified (Hatanaka, Bain

et al. 2005; Mutersbaugh 2005). Both tasks are particularly important for private actors if the issues are controversial and/or there is mistrust among the groups involved.

Credibility is also derived from evidence that the rhetorical goals set by certification standards are reflected by material changes in the process of production. Termed ‘output legitimacy’ by Boström (2006), measurable impact as a result of compliance provides feedback on the salience and precision of the standards, as well as the credibility of those who defined them. Impact is also defined in more dynamic terms, such as the capacity of a certification system to foster ‘continual improvement’. These may be either operational or day to day improvements, as well as long-term ‘strategic’ improvements to the production process, above a specified baseline (Ammenberg and Hjelm 2002; Tlusty 2012; Bush, Toonen et al. 2013). For fisheries this may relate to stopping fish stock decline by moving fishing pressure from above to below maximum sustainable yield, or additional environmental gains related to ecosystem function. Credibility is then a function of how well a certification system fosters innovation toward meeting sustainability goals over the longer term.

*Table 4.1 Summary of practices used to assess credibility of certification schemes*

| **Credibility practices** | **Description** |
|---|---|
| Scientific rigour | • Incorporation of scientific knowledge into definition of principles and standards<br>• Transparent and independent scientific process underlies standard creation and verification |
| Inclusiveness | • Incorporation of diverse interests in a formal structure of deliberation<br>• Facilitation of critical engagement rather than defection of with expert and non-expert groups |
| Transparency/openness | • Continual demonstration of capacity to practice the ideals that are embodied in their principles and standards<br>• Degree of openness of decision making or adjudication (procedural transparency)<br>• Accessibility of information needed to determine whether and how regulation is effective in meeting its goals (outcome transparency) |
| Impartiality/independence | • Organisation of information and degree of transparency<br>• Separation of the standards and those verifying standards |
| Impact | • Measurable impact based on compliance provides feedback on the salience and precision of standards<br>• Organisational capacity certification system to both long-term strategic and short-term operational improvements |

While these indicators for assessing credibility bear considerable relevance to sustainability standards, certification systems also demonstrate authority when decision-making or exclusionary power is exercised. Credibility is directly related but different to authority which implies a vertical relationship of compliance and subordination (Boström 2006b). Once market demand has been created, 'vertical' authority can be exercised to leverage cooperation among network actors that continue to support a dominant claim around sustainability associated with an iconic image or principle in a global production network, through fear of market exclusion should they not do so (Hatanaka, Bain et al. 2005; Ponte, Gibbon et al. 2011). While we agree that authority is directly related to credibility, the potential for dominant network actors to use the threat of market exclusion can play a fundamental role in taking up a particular certification system and can override the relational, dynamic characteristic of credibility. A

caveat here is that while some literatures have focussed on how specific 'audiences' within networks perceive credibility and authority (Cashore 2002), the attributes described here provide a broader overview for understanding credibility at the network level.

## 4.5 Credibility and the PNA tuna fishery certification

### 4.5.1 The Marine Stewardship Council

The certification of the free-school, FAD-free purse seine fishery in the waters of the PNA is the first MSC certification of an industrial purse seine tuna fishery, described by one key actor involved in the certification as the "biggest assessment in MSC history". The certification was stimulated by a partnership between the PNA Secretariat and the Netherlands-based company Sustunable BV, which led to the creation of the Pacifical brand. This actor explained their decision for choosing MSC over any other certification system was because it "is by far the highest standard and it's ecosystem based". Their open support reflects their perceived credibility of the MSC in what Ponte (2013) labels the wider 'market for sustainability certifications'.

The credibility of the MSC also comes through its governance structure and the scientific basis of its assessment. Its governance structure is comprised of a Board of Trustees, a Technical Advisory Board and Stakeholder Council, which facilitates top-down control while maintaining expertise on fishery management, marketing, processing and chain of custody (Gulbrandsen 2009; Ponte 2012). Third-party certification also lends both credibility and authority to the MSC with independent auditors in charge of assessing compliance of fisheries. In addition, the assessment process has an in-built objections procedure open to any parties involved in the fishery assessment process, and provides an opportunity for concerns about certification decisions to be formally lodged, reviewed and resolved by an independent adjudicator (MSC 2012a).

The scientific credibility of the MSC is constituted of three levels: principles, criteria and performance indicators (see Ward 2008; MSC 2010). The three principles of the MSC cover the status of the stock, the environmental impact and the management of the fishery. Each of the principles is further broken down into 31 performance indicators, which represent the sustainability of a fishery under assessment and are therefore the fundamental determinants of

credibility. Performance indicators are based on three 'scoring guideposts': an 'ideal' fishery would score 100; a 'best practice' fishery would score 80; and the conditional level of entry into the MSC certification procedure is 60. To become certified, the weighted average of all performance indicators must achieve a score of 80 or more for each of the principles.

Under the PNA assessment, the free-school tuna purse seine fishery gained scores in the 80s for each of the three principles of MSC. However, there was considerable opposition from a number of organisations, notably the International Sustainable Seafood Foundation (ISSF) – a global partnership among the tuna industry, scientists and WWF, the European tuna consortia Organizacion de Productores Asociados de Grandes Atuneros Congeladores (OPAGAC) and Comité européen interprofessionnel du Thon Tropical (EUROTON). Objections were raised on the grounds that the assessment contained serious procedural irregularities and errors along with arbitrary and unreasonable scoring (ISSF 2010). This led to an objections hearing in 2011, the outcome of which upheld the certifying body's recommendation for certification. Through their system of performance indicators, the MSC has an inbuilt framework, which requires improvements that need to be made in order to maintain the certificate over subsequent reviews. As suggested by reviews conducted by MSC scientists (Agnew, Grieve et al. 2006; Cambridge, Martin et al. 2011), meeting the conditions for certification has motivated the biggest operational changes in fisheries under assessment – measured in terms of institutional development, instances of new knowledge, and operational changes and also shows evidence of making environmental gains.

Following the outcome of the hearing, no further objections were raised. In fact, some even altered their positions, expressing their support for the certification, with the ISSF stating that the certification "demonstrates how stakeholder engagement in the MSC process can result in strengthened conditions that better ensure a fishery meets its sustainability objectives" (Jackson cited in ISSF 2012). While it would be unlikely that ISSF would have continued to oppose this certification, their endorsement lends weight to the objections procedure, in part by allowing grievances to be publically aired and reviewed. Additionally, the use of an independent adjudicator further adds to the credibility of the certification, underscoring the objectivity and transparency of the procedure.

One aspect of credibility that the MSC has been deemed to fall short on is inclusiveness

(Jacquet and Pauly 2008; Ponte 2012; Bush, Toonen et al. 2013). The cost of certification in addition to the high demands placed on a fishery seeking to meet certification requirements has excluded many developing country fisheries from this process. This is reflected by the fact that developing country fisheries only account for seven per cent of their certifications to date (MSC 2013a). The case of the PNA tuna certification is therefore, a significant step as it represents not only the first major certification of a large, transboundary fishery, but one that is under the jurisdiction of developing countries. The access fees paid to PNA countries by fleets wishing to fish in their waters constitute an important source of revenue. For example, access fees make up between 20 to 50 per cent of the national income or GDP of the member countries Federated States of Micronesia, Kiribati, Marshall Islands, Nauru and Tuvalu (Deiye 2007). Therefore, this certification could hold key financial rewards for the PNA countries.

When considering the PNA MSC certification from the perspective of its credibility, it appears that the MSC has established a credible case for the certification of skipjack tuna that is based on a fundamental shift away from the sustainability claims for industrial tuna fisheries embodied in the EII Dolphin Safe ecolabel. It would therefore stand to reason that in European and North American markets, demand would drive the trade of MSC-certified skipjack tuna. However, according to an industry actor, it has taken the first certified products almost two years to reach the market after the certificate was awarded. Following the certification of the fishery itself, the final requirement of the MSC before their tuna products can be traded under the MSC logo, is that the whole chain of custody must be certified, from boats to retailers. This is in place to ensure full traceability of fish caught in purse seine nets set on free-schools of tuna and therefore, an assurance that the final product does not contain a mix of certified and non-certified tuna. Gaining the chain of custody certification requires only one company under the PNA certification to agree to put in place the systems that effectively separates MSC from non-MSC fish. This additional layer of certification further increases the credibility of the standard, by ensuring chain-level compliance with FAD-free fishing standards. However, it has posed a considerable challenge to the PNA and their Pacifical brand. Broadening the focus to the production network level indicates that conflicts have surfaced between the PNA MSC certification and the EII and are playing a significant role in the hold up of certified fish to reach the market.

### 4.5.2 Earth Island Institute Dolphin Safe

While remaining silent during the certification procedure for the Pacifical skipjack free-school fishery, the US-based NGO Earth Island Institute (EII) expressed their concerns that the MSC-certified tuna has not been certified Dolphin Safe. The EII Dolphin Safe label came about in the 1980s when attention was drawn to the practice of setting purse seine nets on dolphins, which, in the Eastern Tropical Pacific Ocean, are known to associate with tuna. In the 1970s and 1980s there were hundreds of thousands of dolphin deaths associated with this fishing practice (Hall and Boyer 1986; Baird and Quastel 2011). In response, the environmental NGO EII launched negative publicity campaigns and created consumer momentum and a global awareness of their Dolphin Safe label. Although the dolphin controversy was rooted in the USA, the EII expanded their network to include environmental groups around the world. Further downstream, major retailers were also displaying logos ensuring tuna was 'dolphin safe' or 'dolphin friendly' (Brown 2005). This meant the certification had gone beyond the canned tuna product to encompass the entire supply chain providing EII with a high degree of network power. To date, over 450 companies are certified dolphin-safe, which accounts for 90 per cent of the market and covers 65 nations (EII 2007; EII 2011). Relative to the MSC, the Dolphin Safe label is therefore a highly inclusive standard for fisheries in both developed and developing countries.

The market dominance of the Dolphin Safe label indicates it has become institutionalised within the tuna production network. EII first made enormous consumer-based headway with their negative publicity campaigns in the 1980s and 1990s, about global industrial fishing practices, forcing the industry to engage with their Dolphin Safe labelling programme. This started when, in response to the negative publicity they were receiving, StarKist, Bumble Bee and Chicken of the Sea – the world's largest tuna canners at the time – pledged to stop sourcing tuna caught in association with dolphins and to put the Dolphin Safe label on their cans (Shabecoff 1990). From an industry perspective, the ease with which they could replace dolphin unsafe tuna with dolphin safe tuna caught primarily in the Western Pacific and Indian Oceans, which together account for more than 30 per cent of total canned tuna on the world market, meant they were able to minimise costs associated with meeting EII standards. The result was that the tuna production network was transformed, or at least appeared to be, in accordance with the standard of Dolphin Safe as defined by EII (Baird and Quastel 2011).

This made the dolphin safe label a mainstream industry standard in tuna production networks, described by one industry representative as "settled law" and providing EII with enormous symbolic power.

When the dolphin issue was at its peak in the 1980s and 1990s, research on the dolphin-tuna interaction and the impact of tuna fisheries (Hall and Boyer 1986; Hall 1998) provided a credible basis from which the Dolphin Safe ecolabel was developed. However, with ecolabels like the MSC that assess fisheries based on environmental sustainability at the ecosystem-level, the necessity of the Dolphin Safe label has come under question. This, coupled with the lack of a coherent and consistent system of standards and criteria for what the assessment procedure is for gaining Dolphin Safe certification has undermined the overall credibility of this label (Ward 2008). The process by which a tuna fisher, processor, or canner can become certified "Dolphin Safe" is also not entirely clear, raising questions about the transparency of the certification procedure. On their website, EII provides their Dolphin Safe tuna policy signed by each company, which defines that Dolphin Safe means: 1) no intentional chasing, netting or encirclement of dolphins during an entire tuna fishing trip; 2) no use of drift gill nets to catch tuna; 3) no accidental killing or serious injury to any dolphins during net sets; 4) no mixing of dolphin-safe and dolphin-deadly tuna in individual boat wells (for accidental kill of dolphins), or in processing or storage facilities; and 5) each trip in the Eastern Tropical Pacific Ocean (ETP) by vessels 400 gross tons and above must have an independent observer on board to attest to compliance with the standards (EII 2012a). Since their inception, these criteria have been updated and also include a ban on illegal, unreported and unregulated vessels and that companies "should not engage in shark finning" (EII 2011: 5). While providing a classification of what constitutes Dolphin Safe, no procedural information on the certification process itself is given.

Once a company has signed up to become Dolphin Safe certified it falls under the surveillance of EII's International Monitoring Program. This employs twelve staff members in seven countries around the world to "regularly inspect tuna in canneries, at dockside, and aboard fishing vessels in order to assure consumers that the tuna they buy is truly dolphin safe" (EII 2012b). The details of what information is collected under this monitoring programme and the extent to which it covers a representative sample of the 300 companies which they currently certify remains unclear. Additionally, their credibility has been brought further into question

with one environmental NGO stating that EII's main strategy for monitoring is through "self-reporting skippers". This was supported by EII who explained that certified companies are requested to produce monthly procurement reports and evidence to show a vessel has not been setting nets on dolphins. The lack of transparency under which certifications are made, mean it is difficult to see what certification itself entails, how decisions are made within the EII, and whether the facility for contesting a certification can be made. This in turn leads to questions of accountability to consumers as well as the tuna industry.

Because there is little reference to or continued monitoring of specific performance indicators, the Dolphin Safe certification also appears to engender limited innovation towards improvement within the fishery as a whole. In fact, it could be argued that in terms of sustainability, it is a victim of its own success. As the most widely recognised ecolabel in fisheries to date, many companies have adopted the Dolphin Safe standard as a sufficient indication of sustainability. For reasons unknown to scientists, the dolphin-yellowfin tuna association, exploited by purse seine fisheries, primarily occurs primarily in the Eastern Tropical Pacific Ocean. It is therefore much less of an issue for companies sourcing tuna from other regions of the world (Hall 1998; Constance and Bonanno 1999). One industry certification expert stressed this stating "in the Western and Central Pacific and Indian Oceans they just don't catch dolphins with tuna, it just doesn't happen, it's a non-issue". In addition to this, much of the world's canned tuna is skipjack tuna, which has shown to only rarely associate with dolphins (Hall 1998; Fréon and Dagorn 2000; Brown 2005). Therefore, complying with the Dolphin Safe standard represents the lowest common denominator of sustainability and does not require a company to make any improvements to their practices to achieve certification. This creates what Mueller and colleagues (2009) term a 'legitimacy front' and requires no real changes in practice. While the expansion of the EII Dolphin Standard criteria to include a prohibition on shark finning and IUU fishing inclusion does reflect an adjustment of the over-arching environmental ambitions, the inclusion of these issues is a relatively *ad hoc* improvement to the Dolphin Safe label. According to more than one respondent from the industry, this is regarded as a strategic move to underline the on-going relevance of EII rather than a clear strategy for promoting sustainable tuna fisheries.

### 4.5.3 Label Authority

In spite of the limitations of the Dolphin Safe standard with regards to credibility and improvement toward sustainability goals, its inclusiveness and network power has allowed EII to become an ecolabelling authority within the tuna GPN. This can be seen in the role they have played in the MSC PNA certification. Following the assertions by the certifiers that under MSC Principal 2 the fishery has "negligible interaction with dolphins" (MSC 2012b), Pacifical elected not to submit to EII's Dolphin Safe label in addition to MSC. This is a significant departure from practice in other tuna fisheries, which despite not engaging in purse seine fisheries have applied for both certifications. For example, the American Albacore Fishing Association have had both their north and south Pacific albacore tuna fisheries MSC certified but are still paying to retain their Dolphin Safe status as well. This, in spite of the fact that albacore rarely associate with dolphins and pole and line fisheries have no dolphin bycatch (Gilman 2011). However, for EII to keep their Dolphin Safe label as the industry standard, they need to retain this authority despite the more credible claims made by the PNA MSC certification.

Following Pacifical's decision not to go for both certifications, *EII* issued a reminder to the tuna companies in their extensive network that Pacifical "is not part of Earth Island's Dolphin Safe program, and cooperating tuna companies should not consider products from Pacifical or its affiliates as Dolphin Safe" going on to say that "Under terms of the Dolphin Safe Policy, companies should purchase tuna products only from companies that are approved and monitored Dolphin Safe companies on the list" (EII 2012c). This approach implies that blacklisting companies that affiliate with Pacifical and with 90 per cent of the market covered by the Dolphin Safe label poses a serious threat to Pacifical getting their chain of custody certified. For the certification to be made, tuna that has been caught in compliance with the certification standard has to have passed through each stage of the supply chain. Therefore, until a processor and retailer signs up to buying and selling this tuna, it will remain uncertified.

One retailer that has experienced the negative campaigning style of EII and has been mentioned as a potential Pacifical tuna retailer is German supermarket EDEKA. In 2011, EDEKA were targeted for selling yellowfin tuna quoted to be 'dolphin-deadly' by the German counterpart to EII, Gesellschaft zur Rettung der Delphine (GRD) (GRD 2012). They were

targeted on multiple levels through the German television and online campaigns and included celebrity endorsement, with Rick Barry, director of film The Cove, on dolphin slaughter, posting a video on YouTube and on the EII website condemning EDEKA and urging a consumer boycott (BuzzMedia Network 2012). By adopting a mediagenic online campaign strategy, GRD was able to push the issue beyond German consumers. As a result, in 2012 this supermarket changed their buying policy to stop sourcing any yellowfin tuna to avoid further dolphin-deadly claims. The symbolic power of the Dolphin Safe label, has afforded EII a position of authority within tuna networks, which appears in turn to have conferred legitimacy on their labelling programme, as industry and consumers continue to support it. With the threat of EII exposing Pacifical as dolphin deadly, there would be understandable reticence from companies like EDEKA, who have experienced the full impact of negative campaigning on the dolphin issue, to commit to buying Pacifical tuna. One industry specialist explained that this threat has contributed to putting up blockages to the chain of custody certification and demonstrates the influence EII has on a chain that they are not directly involved with. While EII stated that they are not "fighting against MSC" adding that it is feasible to gain both MSC certification and sign up to the Dolphin Safe, they have also come out questioning MSC credibility in relation to the Pacifical certification, stating that "MSC doesn't have a dolphin policy, they don't have standards for dolphin safe" (Palmer, cited in ABC Radio Australia 2012). This negative publicity they are drawing to the MSC certification reflects their efforts to remain active within tuna the production network and retain their position of authority when faced with more 'credible' forms of certification.

For there to be a fundamental shift toward more robust labelling like MSC throughout the tuna GPN, EII would have to lose their position of authority. This would require wider network actors to move away from their current position of accepting the Dolphin Safe label as "settled law" and act on the questions that are being raised around credibility of the label. The reluctance of companies to reject Dolphin Safe stems from the threat of negative publicity, but also from a reluctance to change the status quo from which they benefit. The narrow framing of sustainability, and widespread redundancy of 'Dolphin Safe' in most part of the globe means that the cost of remaining 'ecolabelled' is minimal as companies do not have to alter their fishing practices in order to meet EII standards. In contrast, the broader, ecosystem-level requirements of the MSC certification has prompted innovation on the part of the PNA, to

shift away from the common practice of FAD fishing and back to setting on free schools of tuna. However, the merits of the broader definition of sustainability under MSC is constrained by the reputational risk to companies not additionally supporting EII.

## 4.6 Discussion: the 'innovation stalemate'

The MSC certification of PNA's skipjack tuna stands as a landmark case, legitimising FAD-free fishing in an industrial tuna fishery. Clear differences in the credibility of the MSC and EII Dolphin safe standards can be observed when analysed in terms of inclusiveness, transparency/openness, scientific rigour, and impartiality/independence (see Table 4.2). The MSC is deemed credible because: 1) it has a transparent system of assessment and a well-defined internal governance structure; 2) promotes traceability of fishing operations through the chain of custody certification; and 3) certification is awarded based on rigorous scientific assessments from third party, independent auditors. While more broadly, the MSC remains problematic in terms of inclusiveness for developing world fisheries, the PNA certification has seen the inclusion of small island developing countries. In contrast, EII has demonstrated that their Dolphin Safe label is more inclusive, but is widely questioned for: 1) its weak scientific basis when applied outside the context of the Eastern Tropical Pacific Ocean; 2) the lack of transparency over and impartiality of the certification assessment and monitoring procedure; and 3) the transparency of EII's internal governance structure; and 4) for promoting limited innovation for broader sustainability practices. The MSC certification of FAD-free fisheries in the PNA could therefore pose a serious threat to the EII Dolphin Safe label, leading to rapid uptake of the MSC-labelled fish within the production network. However, this has not immediately eventuated and EII appears to maintain the greater level of authority within the tuna production network.

*Table 4.2 Summarising the differences between MSC and EII Dolphin Safe*

| **Criteria** | **Marine Stewardship Council** | **EII Dolphin Safe** |
|---|---|---|
| Scientific rigour | • Three level of analysis: principles, criteria and performance indicators | • Lack of coherent and consistent system of standards and criteria for assessment |
| Inclusiveness | • The high cost of certification and developing country fisheries only 7 percent of certified fisheries | • More than 450 companies certified Dolphin Safe |
| Transparency/ openness | • Certification methodology made public<br>• Open public objections procedure<br>• Chain of custody certification for product traceability | • Poor communication about assessment methodology<br>• No opportunity for objection |
| Impartiality/ independence | • Third party certification with independent auditors | • 'Self-certifying skippers' monitoring conducted internally |
| Impact | • Promote innovation and improvement | • High market impact<br>• Do not promote improvement or innovation |

Analysing certification systems in terms of credibility alone, fails to draw out the importance that the authority of standard setters plays in promoting the uptake of different sustainability certification systems. The competition and discursive conflict among these standard setters, and the strategic ambitions of other actors in the tuna GPN, such as fishing and processing firms, indicates that authority is the dominant quality behind the application of environmental standards, and can be maintained independent of credibility. The implication is that while private or market-based forms of regulation such as certification draws upon the credibility of the content and organisation of their standards, they are ultimately granted authority by those with a vested interest in the supply chains they govern. Credibility does not therefore always translate into authority if there are fundamental conflicts with the interests of those being governed. As Kalfagianni and Pattberg (2013) argue, a certification system like the MSC may rank well on most credibility criteria, but can continue to struggle in mainstreaming their success in relevant markets. If a certification system is unable to appease the interests of a wide group of actors, and therefore gain a requisite level of market coverage, they remain vulnerable to existing dominant claims. Alternatively, standards can be deemed to have low

credibility, but are able to retain a high degree of network power and control if they maintain sufficient authority.

In support of Boström (2006), the case also highlights that credibility is both relational and dynamic. The organisation of the MSC certification procedure, with its public formal objections procedure continually seeks approval from a broad audience – including NGOs, academics, governments and consultants. However, while there is ongoing debate over the effectiveness of this procedure (Christian, Ainley et al. 2013; Gutierrez and Agnew 2013), it is dominated by actors with non-commercial interests. Credibility is therefore generated in a general sense, but does not necessarily help to extend authority of the MSC label over the industry as a whole. In contrast, EII's Dolphin Safe certification illustrates that authority can be maintained independently of credibility in production networks if the interests of commercial actors, ultimately those-to-be-governed, are of primary concern. This happens if a combination of the following occurs. First, those involved in the production network must maintain some benefit from being certified. Cited benefits for changing behaviour include improved market access or a price premium (Roheim, Asche et al. 2011). But as illustrated in this paper, benefits can also include extending narrow claims such as 'Dolphin Safe' to the overall sustainability of their fishing practices; allowing a continuation of existing practices rather than change towards sustainability. Second, there no inclusive alternative scheme that allows them to meet or maintain their commercial interests. As a result, commercial actors who have invested in the narrative and organisation of a label with poor credibility may still grant authority through their commercial strategy. Third, there may be a short-term incentive to cooperate with the label, and therefore reinforce the authority of schemes with weak credibility, outweighing the long-term benefits of defecting to an alternative label and therefore retracting authority.

The results also provide insights on how certification schemes operating within a defined GPN interact with each other, as well as the outcomes of that interaction. Previous observations of either a race-to-the-bottom, mutually cooperation, or ratcheting up associated with competing certification schemes do not appear to hold in this case. For instance, Bitzer et al.'s (2008) findings that newer coffee standards were less stringent but more pervasive than the original Fair Trade and organic standards does not hold in this case. The interaction between the MSC and EII has not seen a case of weakening a previously stringent standard to achieve greater

market share. Instead, the market is already dominated by the weaker, less credible EII Dolphin Safe standard. It has also not been a complementary interaction, with EII benefiting from the new(er) MSC certification standards to broaden the scope of issues they address and lead to what Gulbrandsen (2010) calls "organizational homogeneity in the certification field" (p.176). Finally, it has not led to a positive competitive environment, with both standards-setting bodies competing for the 'high road' and fostering an improvement of standards (Cashore, Auld et al. 2007). Instead, this case illustrates a different interaction, whereby the less credible, yet incumbent certification system is resisting relinquishing their authority to a more credible 'competitor'. The outcome of this interaction is an active restriction on innovation towards more sustainable fishing practices in the wider tuna GPN, leading to what can labelled as an innovation stalemate. By retaining authority from a position of weak credibility, EII are in effect preventing firms from promoting non-'Dolphin Safe' sustainable certified tuna products in the market, and ultimately inhibiting any wider impact certification can have in tuna fisheries. Without a network-level change, that would see industry actors remove or substantially modify the scope of EII's authority, the impact of more credible labels that foster innovation such as the MSC may remain limited for tuna.

The limitations for overcoming the authority of EII stem in part from the position they hold within the tuna GPN as an environmental NGO, as well as Dolphin Safe certifier. As an NGO, EII has the capacity to lobby and campaign, while at the same time, promote their certification scheme. Whereas, the MSC is a standard setting body that regulates the wider global fisheries production network, it does not engage directly in advocacy. In the interests of maintaining their credibility, the MSC has instead tended to focus indirectly on scientific channels, such as submitting papers and responses to peer-reviewed journals. When challenged by Dolphin Safe, MSC is faced with a credibility 'Catch-22': they maintain their credibility by keeping a distance from the debate, but continue to be undermined if they remain silent. In more direct terms, their remit is to promote sustainable fishing practice and ultimately encourage the certification of other tuna fisheries, but they are not in a position to advocate directly in response to the criticism received in the PNA beyond defending the robustness of their standard. They are therefore reliant on other actors within the tuna GPN invested in the promotion of sustainable practice – including NGOs, media and companies – to advocate on their behalf and thus put an end to the innovation stalemate.

Understanding this more nuanced role of authority, both with and without credibility, offers new insights into the wider dynamics that shape environmental regulation in GPNs. In the context of sustainability standards, this opens up an understanding of how, through differences in the extent to which actors hold authority and legitimacy, non-firm, non-chain actors can influence how these standards are accepted and taken up. Following Levy (2008) and others, the results also emphasise that GPNs are not simply arenas for market competition or chains of value-adding activities, but rather comprise complex political-economic systems in which competition and conflict amongst actors are playing a critical role in distributing authority and legitimacy. Literature on GPNs has covered the impacts of standards on network practices but this has been in the context of the implementation of social standards, for example labour standards and gender, where the focus has been on the role of women in production networks (Barrientos and Smith 2007b; Levy 2008; Barrientos 2012). To date, there has been a paucity of studies that have looked at sustainability standards in GPNs, let alone the interaction between them. Understanding the interaction between firm and/or non-firm actors engaged in production and consumption flows, provides a lens through which the interaction between standards might influence, both positively and negatively, innovation aiming at more sustainable practises. An interesting avenue for further exploration of sustainability standards in GPNs, would be to expand into wider analyses how watchdog NGOs, like Greenpeace that produce rankings of canned tuna, would compare the performance of certifications like the MSC and EII. This would provide another layer to our understanding of non-firm, NGO interactions and their impacts on GPNs.

Despite in many ways being an exceptional case, the MSC-EII interaction in the Western Pacific illustrates how the credibility of certification schemes is not only an internal process, nor a two-way competition, but rather dependent on actors throughout the whole tuna GPN. In this particular case, failure to reconcile the interaction between these two schemes has led to what we label an innovation stalemate. While the stalemate appears to be in the advantage of the EII Dolphin Safe label, the MSC face a difficult task in its resolution; they have to maintain the credibility of their standards, continue their independence, while at the same time remaining beholden to other actors in the tuna GPN to challenge the authority of the EII. Highlighting and resolving this stalemate places needed attention on how the governance of standards are a critical part of understanding, and ultimately measuring, the impact of private

certification schemes. Understanding impact should therefore not only focus on the material improvement sustainability standards aim to achieve, but also how interactions and conflicts over the definition and implementation of standards hinders innovation towards sustainability.

# Chapter 5. Consumer-Facing Traceability: a New Turn in Tuna Governance[*]

## 5.1 Abstract

Information disclosure, be it voluntary or mandatory, is playing an increasingly central role in global production. The success of traceability in food safety has led to an extension to the traceability of other product 'qualities', including sustainability and provenance. This has seen a shift not only in the information disclosed, but also the audience traceability systems are targeting. This is most obvious in the emergence of so-called consumer-facing traceability systems (CFTS), operating through a code or a label to provide consumers with access to traceable information. Through examining the consumer turn in traceability, this paper investigates various tuna CFTS that have been developed for consumers of tuna in Northern America and Europe, currently the primary markets for these types of systems. By taking a cross-section of tuna-related CFTS, we examine the diversity of CFTS, their drivers and the potential of these systems to change the sustainability performance of tuna production. The results show that while consumer-facing traceability is for the most part a nascent approach, CFTS are being used across the tuna industry, driven by pressure from NGOs, through the sustainable seafood movement. The paper concludes that while this approach to traceability is producing varied degrees of transformation inside the supply chain, instruments like CFTS are bringing new constellations of actors together to tackle issues of sustainable production and consumption.

## 5.2 Introduction

Information disclosure, be it voluntary or mandatory, is playing an increasingly central role in global production. In food production, this disclosure originally concerned information that could provide food safety assurance. Traceability first became commonplace in food systems in general, following crises in the food sector like the appearance of BSE (bovine spongiform encephalopathy) in Europe in the mid-1990s and other outbreaks of meat contamination with Salmonella or *E. coli*, which led to rising public concern about food safety, quality and origins

[*] This chapter is an article in preparation by A.M.M. Miller, S.R. Bush and A.P.J. Mol.

(Jensen and Hayes 2006). The idea of food traceability – i.e. the ability to track or trace food – deals with the growing complexity of a food chain based on mass production and global distribution and consumption.

While there is presently no one definition of traceability, the International Standards Organisation (ISO) 9000:2000 guidelines define it as the "ability to trace the history, application or location of that which is under consideration" (ISO 2000). This definition indicates that for a supply chain to be deemed traceable, firms and other actors at each link in the supply chain, record product attributes and process-related activities and allow access to these recordings at a future date and in a distant place. Therefore, traceability is not the production and processing of information itself, but a tool that makes it possible to recall this information on demand (Donnelly and Olsen 2012)

The success of traceability in food safety, which is now largely a 'back-of-house', pre-competitive aspect of the global agri-food system (Marsden, Lee et al. 2010), has led to an extension to the traceability of other product 'qualities', including sustainability and provenance. The innovation and developments in information and communication technology (ICT), the rise of civil society as a legitimate actor in decision-making, and the growing demands of society at large to 'know' more about how resources are being (sustainably) produced and consumed all enable and catalyse this shift (Mol 2008; Eden 2009; Fuchs, Kalfagianni et al. 2011). Traceability is therefore argued to present new possibilities for transparency and accountability around production and trade, as demanded by regulatory authorities, civil society, and consumers (Mol 2013). It is therefore not only the information disclosed that is changing in traceability systems but also the audience traceability systems are targeting. This is most obvious in the emergence of so-called consumer-facing traceability systems (CFTS), operating through a code or a label to provide consumers with access to traceable information.

The shift to consumer facing traceability has been particularly vigorous in the seafood industry, which has come under increasing pressure to demonstrate the sustainability of fishing and aquaculture practices (Pauly, Christensen et al. 2002; Jacquet and Pauly 2007; FAO 2012). One of the most dynamic sub-sectors in the seafood industry is tuna, which has been the subject of widespread concerns regarding issues of sustainability and the

overexploitation of tuna stocks; illegal, unregulated and unreported (IUU) fishing (Agnew, Pearce et al. 2009; Tsamenyi, Palma et al. 2009); and fraud through intentional mislabelling of tuna species (Warner, Timme et al. 2013). In light of these issues in the tuna industry, networked information systems operating both in and beyond states are playing an ever-important role in generating a global informational infrastructure around tuna resources to advance increased transparency of production activities and accountability of industry actors. However, this also presents companies with the challenge of how to organise information systems with capacity to track and trace raw material throughout the supply chain, in order to ensure that species and sustainability attributes are communicated to the customer accurately (Boyle 2012). Responding to this challenge, and to the demands of regulatory and civil society actors for improving the disclosure of information, firm and non-firm actors have been activated in the tuna industry to further develop and implement consumer-facing ICT-based traceability systems, with the explicit intention to enable consumers to follow purchased tuna from 'fish to dish' or 'boat to throat'.

This paper investigates various tuna CFTS that have been developed for consumers of tuna in Northern America and Europe, currently the primary markets for these types of systems. By taking a cross-section of tuna-related CFTS, we aim to understand what characterises the different systems and what kind of changes in information flows and consumer behaviours they promote. The research seeks to answer three questions: 1) what diversity of CFTS are currently available; 2) what drives these new CFTS; and 3) what is the potential of these systems to change the sustainability performance of tuna production?

In order to answer these questions, current CFTS in Europe and North America will be analysed in terms of the characteristics and design of the systems, the internal and external drivers that motivated their development, and their (potential) performance in transforming tuna production toward more sustainable practices. The paper has the following structure. The next section provides a background to traceability in tuna fisheries, moving on to look at the evolution of CFTS. Following this, an explanation of the methodology for selecting the CFTS, and the criteria for their analysis. Next, the results section analyses the differences and similarities between the different systems. The paper concludes by looking at traceability systems in the context of information disclosure and the capacity of CFTS to transform systems of production and consumption.

## 5.3 The Progression Toward Consumer-Facing Traceability

Coff et al. (2008: 6) explain that the consumer turn in traceability in food production systems, remains an "aspiration that would facilitate consumers' understanding of food production practices". In what we have taken to be the evolution of this aspiration, Coff et al. provide a description of the different stages of ethical traceability in the food sector and the objectives of each stage (Table 5.1). These objectives help to classify and evaluate the goals, infrastructure and outcome of traceability as it moves from an instrument for dealing primarily with risk management and food safety to a system used to exchange information and communication with the consumer. Each of the stages and their objectives represents a progression in the traceability systems.

The first three stages of traceability system development are primarily concerned with non-competitive or 'back-of-house' issues like food safety, surveillance and supply chain efficiency, which can be made available when called upon but not immediately visible to consumers. The objectives of the fourth stage illustrate a progression from these back-of-house systems toward the use of traceability in sustainability standards and labelling, therefore supporting a degree of consumer-driven demand for tracing information on processes of production. During this transition, NGOs take on a greater role in driving companies to provide information regarding provenance and quality assurance and in challenging the reputational capital of companies. NGOs are therefore, serving as both watchdog and partner to ensure that supply chain actors are keeping with sustainability targets.

The final stage of traceability systems in the Coff et al. framework interprets traceability as an explicit, external quality of production, on which consumers can base purchasing decisions. Reflecting the wider turn to the disclosure of information through supply chains, this stage is based on the assumption that consumer demand drives technological and organisational innovations necessary to extend information beyond producers, retailers and food authorities (Coff et al. 2008). According to Coff and colleagues "Used imaginatively, it [stage five traceability systems] could also provide an opportunity for two-way communication along food chains, allowing the views of consumer-citizens to be taken into account along the length of the chain" (2008: v).

In the tuna industry, we are seeing at the moment signs of the shift toward a consumer turn in traceability, with the emergence of a number of companies implementing CFTS. These systems are intended to communicate information to tuna consumers, to allow them to base purchasing decision on more complex issues associated with ethical sourcing. In some instances, they also allow consumers to communicate with upstream actors in the tuna supply chain. Therefore, these systems seem to reflect the stage five objectives listed in the Coff et al. framework. To understand currently existing CFTS themselves, we first need to look at their characteristics, the different drivers behind their implementation and how they are performing. The analysis of performance will then be used to understand whether current CFTS fulfil the objectives of this final 'consumer-facing' stage as described above. The following section will outline the analytical framework that we generated in order to examine these procedural and performance aspects the CFTS.

*Table 5.1 Key functions of traceability in the seafood sector (adapted from Coff et al. 2008)*

| | **Objective of traceability in food** |
|---|---|
| **Stage 1** | **Risk management and food safety**<br>- Risk assessment<br>- Public health recall systems |
| **Stage 2** | **Control and verification**<br>- Surveillance and auditing of producer and retailer activities |
| **Stage 3** | **Supply chain management**<br>- Cost-effective management of the supply chain<br>- Computerised stock inventory and ordering systems linked to point of sale<br>- Just-in-time delivery systems<br>- Efficient use of resources (cost minimisation) |
| **Stage 4** | **Provenance and quality assurance of products**<br>- Marketing of health, ethical and other claims<br>- Authenticity: identity of the product and the producer<br>- Quality assurance of standards at different stages of production and/or processing (eg environmental protocols for production)<br>- Final product quality assurance |
| **Stage 5** | **Information communication to the consumer**<br>- Transparency of the production history<br>- Facilitation of informed food choice through transparency and the ability to compare different products<br>- Recognition of specific consumers concerns and information demands – where such concerns and demands are not static and may evolve<br>- Public participation – customer services, companies' 'care lines' consultation to obtain consumer feedback |

## 5.4 Analysing CFTS

Recognising the many different types of traceability system, the research first looked to define criteria for identifying the essential features of the traceability systems. To do this, we drew on two frameworks that have been developed to examine traceability systems in the food industry. The first was Gampl's (2003) typology for describing the purpose, component parts and the inner and outer environment in which traceability systems operate. The second framework was developed by van der Voorst (2004) and moved beyond the descriptive characteristics of traceability systems to providing insight into analysing the performance of systems in multiple sectors of the food industry. Drawing on the descriptive elements of

Gampl's (2003) framework and the analytical, performance-related elements of van der Voorst's (2004) framework, we developed the conceptual model depicted in Figure 5.1. The model proposes that to understand the CFTS we need first to look at (1) the descriptive characteristics of the systems to both identify the systems and be able to see the broad similarities and difference between them; and (2) the drivers behind their implementation, so we could understand both what was motivating companies to implement CFTS and to see if there are external actors driving the consumer turn in traceability. We then analysed their performance to understand the extent to which the systems meet the objectives of the final stage in Coff et al's (2008) framework. The following explains the indicators that we used in each of these parts of the conceptual model (summarised in Figure 5.1).

As CFTS are socio-technical systems, the descriptive characteristics of the traceability systems were defined by their social and technical (ICT) dimensions. The social dimension of CFTS systems are characterised by: the year the system was introduced; the scale and reach of the system; and the organisation of the supply chain i.e. the degree of coordination between the stages in the supply chain. The technical dimension focused on vessel-level instruments like vessel monitoring systems (VMS), and the consumer-facing instruments behind the CFTS, i.e. the use of physical tags that contain identifier data, such as bar codes or radio frequency identification tags (RFIDs) that can be scanned, and the information stored. These ICT systems then feed into the 'front of house' consumer-facing platforms, including another layer of socio-technical tools such as can coding, bar coding, ecolabelling, and\or websites.

Based on the literature, we determined that the drivers for the development and implementation of CFTS can be either internally or externally motivated. Internal drivers include the motivation of a company and organisation responsible for developing the CFTS to introduce such a system for consumer-facing traceability. Specific indicators of internal driveness include: the potential competitive advantage and/or market differentiation that such a system could offer; whether CFTS can provide an opportunity to mitigate against the exposure of risk; whether the systems are able to demonstrate to consumers a companies' engagement with sustainabiltiy strategies, including committements to certification; and whether they facilitate enhanced communication of traceable information along the supply chain. External drivers concern the influence of actors who are not responsible for producing CFTS systems, but instead provide motivation for their 'internal' development and

organsiation. These are classified into different actor groups like NGOs, state regulators, retailers, and consumers. The final driver is the goal of the CFTS, which is the aspect of responsible production and consumption that companies were looking to ameliorate. Indicators for this include: sustianability; provenance; a counter measure to IUU fishing; and fraud.

The second part of the analysis concerns the performance level of the traceability system. Performance here is characterised by verification, depth, responsiveness and scale. To analyse the performance of the CFTS, the performance criteria were attributed a qualitative assessment and classification rated red, amber, green. The red rating was used to signify that the CFTS had obtained the lowest performance for that indicator. The amber rating was used for systems that are working toward a measurable positive change under the performance indicator. The green rating was used to signify the highest performance level regarding the indicator (see Table 5.2).

First, verification concerns how the information about the supply chain traceability presented to consumers is checked and monitored. The more indepenence those verifying information in the CFTS have the greater the crediblity it is expected the system will have (Boström 2006b) . Therefore, if the information is internally checked it is deemed to have weak verification and rated red. Conversely if the supply chain is subject to external third party auditing, it is deemed to have higher crediblility and rated green. An amber rating would be a company moving toward third party auditing. The process is being developed/contracts arranged but the supply chain has not been audited at point of enquiry.

Second, we analysed the depth of information flowing to the consumers i.e. the how many different levels of information are available to the consumer. This is important because the level of detail within a traceability system provides an indication of how engaged the company is in supplying the consumer with traceability information and thus, the extent to which they are adapting their production processes to accommodate the CFTS and the responsible practice they are attributed to. If the ICT platform provides only one webpage, that gives consumers all available information, this is rated red. If the web platform presents the consumer with multiple links to different webpages containing many ‘layers’ of

information this is rated as green. Those systems that take consumers to a single webpage but have additional information available but only on request, are rated amber.

The third indicator is the interactivity of the system and its responsiveness to consumers. This is qualified by the degree of mutual interaction between the consumer and the producers that are part of the CFTS; the greater the interaction between chain actors, and the greater the opportunity for exchange, the more interactive the system (Bush 2010). If the information flow in the system is mono-directional, providing the consumer with information but no opportunity for interaction with upstream actors, the CFTS is rated red. If there is opportunity for interaction and feedback between the different levels of the value chain and therefore information flows in both directions then it is rated either amber or green. Amber if the interaction is with the direct upstream actors (e.g. retailers) and/or brands and green if the system enables consumers to interact directly with the fishers.

The final indicator deals with the scale of market impact of the system. In the absence of financial and production volume information, market impacts are assessed according to three criteria: whether the systems operate through one-to-one clientele relationship or through global sales agreements; what type of fishing practices are employed (pole and line, longline or purse seine); and what the final product is (canned, steak, sashimi). Through these three criteria, a qualitative judgement is made on whether the reach of the market is niche (and rated red), mid-level (rated amber), or mainstream (rated green).

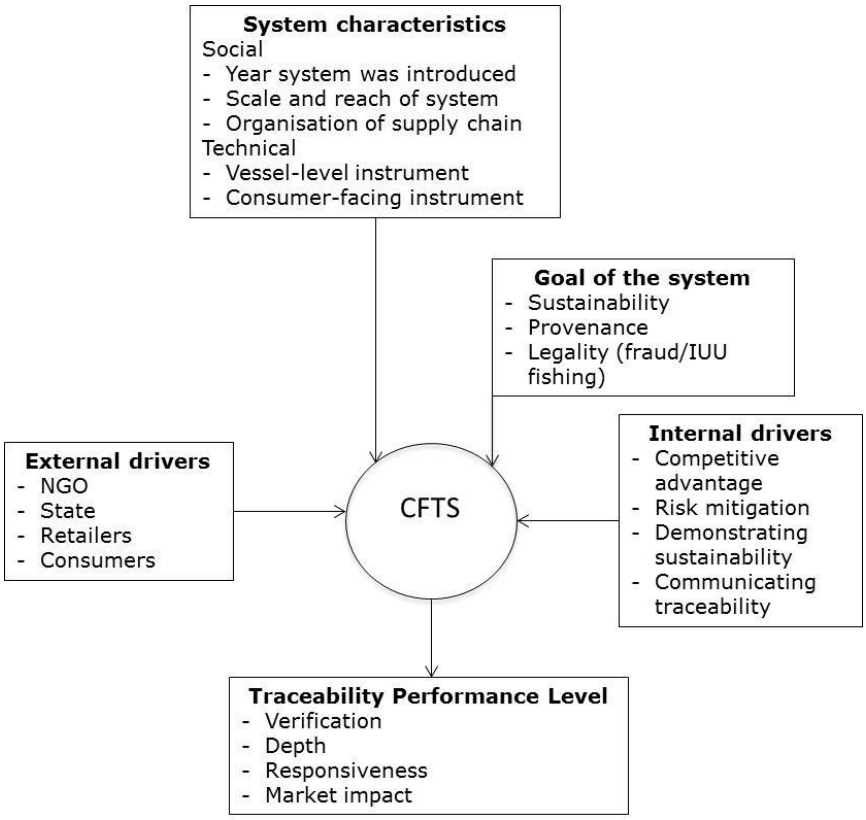



*Figure 5.1 Conceptual model to evaluate traceability systems with indicators for analysis*

*Table 5.2 Indicators for analysing performance of the CFTS*

| **Indicator** | **Red** | **Amber** | **Green** |
|---|---|---|---|
| Verification | Self-audit | Starting third party auditing | Third party |
| Depth | One level | Two-three levels | Four or more levels |
| Interactivity | One way | Interaction between upstream actors producing the systems and the consumer | Communication of consumers with producer |
| Market impact | Micro/niche | Meso/mid-level | Macro/mainstream |

## 5.5 Case Selection and Data Collection

Cases were selected through a combination of searches in the public domain (internet) and scoping interviews with nine representatives from retailers, trade and industry associations, and NGOs. This initial phase of the study aimed to identify the most distinct cases of CFTS in tuna. In this initial phase, systems were deemed to be 'consumer-facing' if they had an electronic component to them allowing data to be managed and accessed by consumers at distance. The electronic traceability systems were either web-based and accessible over the internet, or module-based, with specialised software and occasionally hardware that is installed in computer networks at various points along the supply chain (Magera and Beaton 2009).

Cases were then selected according to the scale of production, with the aim of a representative cross-section of the different types of systems that engage with ICT to produce a consumer-facing platform. In addition, product diversity was a criteria, including canned tuna products and fresh/frozen tuna, sold either as loins, steaks or for the sushi/sashimi market. At the market end, cases were selected targeting North America (USA and Canada) and Europe, as these are the regions where the majority of CFTS were operational.

Using these criteria six consumer-facing systems were selected: John West can coded tuna, Ocean naturals can coded tuna, Pacifical can coded, MSC certified tuna, Norpac Fisheries Export bar coded tuna, Solander longline MSC certified tuna and ThisFish bar coded tuna. On first inspection, these systems communicate what species of tuna are consumed, where the tuna was caught, by whom, and through which method. In the case of canned tuna, multiple systems are available. With so much similarity between the proprietary canned tuna systems, these were selected as examples of North American and European companies that have developed CFTS. At the start of the research, the intention was to also include the Harney Sushi restaurant chain that has placed QR codes on their sushi products to provide diners with information about the tuna they were consuming. However, as the analysis progressed this case proved not to meet the criteria of a CFTS, it was more of an information platform than traceability instrument and was therefore not included in the analysis.

In order to make a detailed qualitative comparison between the six CFTS, we developed an interview topic list based on the indicators that we developed for analysing CFTS system features, drivers and performance (Figure 5.1). Using this list, 14 semi-structured (primarily telephone/Skype) interviews were conducted with actors responsible for implementing the traceability systems. For the most part, this included the supply chain manager but in some instances, third parties were responsible for implementing the system and were therefore also called upon. To supplement the interviews, we investigated the online component of the CFTS, using the criteria as the basis for analysis.

## 5.6 Results

### 5.6.1 Traceability System Characteristics

In order to have a picture of the different systems, their differences and similarities, the first stage of the analysis was to describe the socio-technical dimensions of the traceability systems. On the social level, we looked at when the systems were created, the scale, structure and reach of the companies or organisations implementing them and on a technical level, we examined the technology behind the CFTS, at the level of the vessel and the consumer-facing element (Table 5.2).

#### Social Dimensions

In all cases, consumer-facing traceability proved to be a recent development in the tuna industry for demonstrating 'responsible' tuna production. With the exception of Norpac, each of the systems has been in place for less than five years. This indicates that traceability for providing assurance of good practice is a recent addition to the sustainability discourse. Yet, if we look at the diversity of companies in this analysis, it is gaining in momentum and importance.

Following form this, when looking at the scale and reach of the systems, the results clearly show that tuna CFTS are not the domain on particular type of supply chain. For instance, two out of six systems are implemented by brands – Ocean Naturals and John West – that are owned by Tri Marine and Thai Union respectively. Both of these holding companies are global companies trading tuna through a number of different brands. The traceability systems

are not being used on all of their brands however, which highlights that CFTS are not indicative of company-wide traceability but are instead almost a 'niche' product among a wider, more opaque production system. In contrast, Norpac and Pacifical are 'primary systems', meaning that the company managing the traceability system was not a subsidiary of a larger organisation but the sole manager of the system. These traceability systems are therefore more representative of company-wide practice. Through their CFTS, these companies can assure that all tuna they produce fit their system of traceability. The Solander system provides an alternative model whereby the supply chain is wholly owned by Solander but the CFTS has come about through interaction with the Pacific Islands Forum Fisheries Agency (FFA) and is a subsidiary to their other fish trade operations. This state-industry interaction is a pilot programme and provides an example of the convergence of state and market strategies over a common issue like traceability.

Four of these companies, John West, Ocean Naturals, Norpac and Solander – all large-scale industrial operators – are vertically integrated; they are responsible for their own fleets, processing and exporting. The others are not vertically integrated, sourcing tuna from different companies and fishers. The fact that the actors operating on the largest scale are vertically integrated could indicate a limitation of CFTS, as tracing tuna through the supply chain of one company is more straightforward than for a company that is sourcing, processing and trading tuna through different channels.

In looking at the social dimensions of the system, the outlier is the ThisFish CFTS. ThisFish is an NGO that is facilitating the consumer-facing platform for selling fish and is therefore not recognised as a company per se and thus is not classified as a primary/subsidiary system or as vertically integrated or not. This model of CFTS provides an example of a non-proprietary system that has greater freedom of operation, but which is also dependent on and limited by buy-in from companies to continue operation.

Finally, variation also exists in terms of the scale and market reach of the operations of the organisations. Four of the systems trade internationally and operate on a large scale; one operates locally – ThisFish – and work on a micro scale. Ocean Naturals operates solely within the US but works on a large scale, selling to Wal-Mart, among other large retailers and

its parent company, Tri Marine, is a global company. This variation shows the extent to which traceability is being used to capture good practice within the industry.

### Technical Dimensions

At the vessel level, VMS are in place on all boats apart from ThisFish associated vessels. Although, through work with EcoTrust, ThisFish vessels are equipped with a specific 'smart box' which provides similar information to that captured under the VMS and a hydraulics-stimulated camera system to serve as an electronic observer. Additionally, vessels operating under Pacifical and Ocean Naturals (Tri Marine) also have 100 per cent on-board observer coverage. This is a legal requirement for purse seine vessels fishing in waters of countries that are signatories to the Western and Central Pacific Fisheries Commission, which is where both companies source their tuna. Observers also operate on a small proportion of John West and Solander vessels. On some Norpac vessels, RFID systems are being trialled for individual fish/batch identification but this is not standard practice yet. The results indicate that while the technology exists and the value of on-board observers for verifying catch information is known, there is no consistency in the approach to assuring this very first stage of traceability.

For the consumer-facing element of the systems, three of the companies – John West, Pacifical and Ocean Naturals – produce canned tuna with lot codes on the can. Consumers can enter these codes into the companies' websites to get information about the tuna they are eating. For all three companies this includes information on vessel and vessel captain and for John West the batch in which the fish was caught. Pacifical tuna, which is not traded as a branded product but under the private label of retailers, is also MSC certified and therefore provides an additional layer of traceability that assures customers that the product they are consuming has full chain of custody certification. In the other cases, tuna is traded unprocessed, or as loins, and different ICT is used, providing different information about the tuna. ThisFish offers each consumer who purchase individual fish, a scannable bar code informing them who caught the fish, when, where and how. Additionally, ThisFish has an online platform through which consumers can connect to and 'chat' with the fishers whose fish they have purchased. Norpac also provides bar coded tuna, which informs on the species of tuna, the vessel and where the fish was caught. At present however, this information is only available at the retailer level. While the capacity exists within Norpac to extend the

traceability system to shop floor consumers, retailers have elected not to put it on their packaging. Finally, Solander sells their tuna to Anova, a global seafood company selling in US and Europe. The 'traceable' tuna they sell is currently MSC certified and thus sold with the ecolabel that ensures a certified chain of custody. Solander fish will also soon be sold with a bar code that will provide additional traceability information through a company called Traceall (independent of the MSC certification) and will inform consumers of the vessel, vessel captain, trip, boat, and potentially date of catch or date of landing (at the discretion of the retailer).

The diversity of these consumer-facing elements illustrates two things. On the hand, it shows that the CFTS market is complex. There is no one system that stands out as the most popular strategy for consumer-facing traceability. However, on the other hand, the diversity shows a positive trend toward innovation for demonstrating commitments to responsible production. The market response to demonstrating sustainable practice has to date primarily occurred through certification and ecolabelling. The CFTS illustrate there is room for new instruments to be incorporated into production and consumption processes.

### 5.6.2 Drivers

#### Goals of the Systems

Sustainability featured in all cases as a key goal for developing CFTS (Table 5.2), although Norpac – the oldest of the systems – was developed initially with the primary goal of improving business management, rather than demonstrating responsible fishing practices. The fact that sustainability was not seen as a main driver, illustrates that incorporating traceability in relation to sustainability of industrial practices was not a priority as recently as 2007. This is reiterated by the fact that since 2007, the Norpac system has become a model for advocating the potential value of traceability systems for responsible practice. Provenance also featured as an important goal behind CFTS. For instance, ThisFish placed emphasis on the value of their traceability system for provenance and getting consumers to "connect to the fisherman" who caught the fish they buy. For Pacifical provenance is key for promoting the Pacific Island countries where its tuna originates. Additionaly, companies considered responding to IUU fishing a main goal. Norpac states on its website that the "internally

developed Traceability System was in response to the industry's need to prevent IUU fishing". The FFA also mentioned IUU fishing as a key justification behind its partnership with Solander. The aim of the Traceall traceability project has been to contribute to FFA efforts to develop a region-wide catch documentation scheme. This has the knock-on effect of helping fisheries management operations more broadly. In spite of increased media and government attention, respondents did not mention seafood fraud as an issue they were aiming to deal with explicitly through these traceability systems.

### Internal Drivers

Competitive advantage is a common internal driver for all companies to develop CFTS (Table 5.2). The consumer-facing element of these systems provides a way for companies to convey to consumers that their tuna production practices are 'responsible'. In the case of smaller operations like ThisFish, selling fish that can be traced to a particular fisher is done with the expressed intention of "rewarding fishers" through product mark-up and providing them with market and value chain information to maximise the efficiency of their production. In the larger, branded canned tuna companies, respondents explained that CFTS offer a competitive advantage over other non-coded brands, but do not include a price premium on the 'traceable' cans.

Other internal drivers included certification, proof of good practice and risk mitigation. The relation of CFTS to certification was a key driver for both Pacifical and Solander tuna, which are now MSC certified. MSC certification is cited as a means for ensuring access to North American and European markets, where large supermarket and restaurant chains have committed to selling only certified sustainable seafood by 2015 (Bush, Belton et al. 2013). In the Solander case, MSC certification provides them with the means to trade with Anova Seafood and thus access the EU market. A number of respondents also explained that a driver behind their traceability system was to provide physical evidence to consumers of the validity of the broader practices of sustainable production of their companies. They explained that through their traceability systems, they could show that they caught fish using lower impact fishing methods, or from healthy stocks. Finally, the canned tuna companies cited risk mitigation as one of the primary internal drivers for their CFTS. With a number of respondents referring to recent Greenpeace canned tuna league-tables (e.g. Greenpeace 2011;

Greenpeace 2013b), CFTS has been described as a form of insurance against the threat of exposure by NGOs.

### External Drivers

The sustainable seafood movement has been increasingly playing a role in influencing processes of production and consumption (Iles 2007; Konefal 2013). The results support this, as canned tuna companies cited NGOs as one of the key external drivers behind their traceability system (Table 5.2). Beyond being solely concerned with risk mitigation, in North America especially and increasingly in Europe, NGOs are partnering with retailers and big brands. According to one industry actor, "In the US it's quite prevalent that all the major retailers that sell canned tuna have some form of NGO partner that advises them on their seafood procurement that includes tuna … There's typically a traceability element to that [partnership], if they are advising their partners on procurement."

In four cases companies also cited retailers as an external driver. In Northern Europe in particular and in North America, traceability is of growing concern. Scandals such as the European horse meat scandal have drawn attention to issues of traceability, leading to renewed efforts on the part of retailers to reassure consumers that products can be traceable. However, as one leading global retailer explained, in terms of traceability supermarkets are a "worst case scenario". The magnitude of products available and the complexity of their supply chains mean full product traceability is very difficult. Retailers have cited commitments to traceability on their websites and in their corporate social responsibility reports but due to this complexity, they do not promote in-house consumer-facing traceability, as is the case of Norpac. Instead, they place pressure on upstream actors to demonstrate traceability. Therefore, retailers might prefer a company that has an explicit consumer-facing traceability system in place as compared to a competitor without such a system.

In contrast to the rest of the CFTS, the 'external' driver behind the development of the ThisFish system was demand by fishers. A mixture of fluctuating prices, predicted increases in government regulation and the costs associated with complying with monitoring requirements drove fishers to initiate the programme with the Canadian NGO, Ecotrust. The aim was to "marry material traceability with social networking" and "get ahead of the curve"

in terms of government requirements, while branding themselves in a consumer-friendly way. Additionally, through the online platform fishers are able to gauge consumer interest, offering potential to adapt production practices if necessary.

None of the representatives of the systems cited consumers as a direct driver for the introduction of their CFTS. Consumers have not gone unnoticed as they provide the end-point for sale and are thus being used by NGOs for leverage, but they are not seen to drive CFTS. One environmental campaigning NGO exemplified this during an interview by stating, "We use consumers opportunistically to some extent. We are seeking to establish champions and a race to the top to demonstrate they [companies] will be left behind and losing easy market share or competitive advantage if they don't join in the race".

### 5.6.3 Traceability Performance

The previous section demonstrated that the diversity of the CFTS in terms of the scale, structure and reach of the companies and organisations implementing them, and in terms of the technical dimensions of the systems themselves. In order to look at their performance, we now go on to analyse each of the systems using the four CFTS performance indicators, and rating them according to red, amber and green colour code (Table 5.3 and Table 5.4).

#### Verifiability

The results show a variety of verification arrangements in place across the CFTS. At one end of the spectrum, the two MSC certified systems are audited under the MSC chain of custody certification programme. This is in place to ensure whole-chain traceability of fish caught from the certified fishery, to ensure that fishing practices are in accordance with the terms of the certification and thus that the final product does not contain a mix of certified and non-certified tuna. This led us to rate both Pacifical and Solander as green. In addition, the Solander albacore longline fishery will gain further independent verification through the Traceall system when it is operational. The Norpac system is also externally verified by the NGO FishWise.

Conversely, ThisFish conducts only an internal monitoring of the system. As a 'fisher driven' system, the decision for internal monitoring was made so as not to incur greater cost. The fact

that the system is implemented by an NGO gives greater legitimacy to fishers. However, not opting for third-party verification may lead to problems in the market because, while ThisFish are independent of the fishers themselves, they manage the CFTS and are therefore not an independent auditing body. John West describes that it runs "internal checks" on supply chains but the level of vigour behind these checks is not transparent. In light of these verification arrangements both systems received a red classification. Ocean Naturals received an orange classification because, while they have an internal chain of custody, they are working toward external chain of custody auditing.

### Depth and responsiveness

Looking at both the depth and responsiveness of these systems provides an understanding of the degree of information that is flowing to consumers and the extent to which the systems are responsive to consumers. This indicates whether or not companies and organisations responsible for the CFTS have to adapt their production practices to accommodate traceability demands.

Four of the systems only provide consumers with one level of information: when consumers scan their (bar/can) code they come to a page of information about the origins of their tuna product but that is where the information delivery stops. In contrast, with ThisFish there are multiple layers of information available which are gradually revealed based on the depth of knowledge desired by the consumer once they have filled in their tracing code on the website. This includes detailed catch information, such as date of landing, and the fishing and handling methods used, with opportunity to find out more about the fishery from which it came and the fisheries management for that fishery. There is also a link to the fisher, their logbook and a discussion board where consumers can connect directly with the fishery whose fish they have purchased. This feature makes the ThisFish system highly interactive and the only example of a green rated system.

Amber rated systems provide consumers with the opportunity of connecting with downstream actors responsible for implementing the CFTS. Ocean Naturals has a pop-up window on their website where the consumer can connect directly to the marketing manager. This option runs throughout the Ocean Naturals website, not just through their traceability platform and the

degree to which it is responsive to the questions of consumers is unclear. In the case of Pacifical and Solander, the MSC certification provides an additional, information stream providing detailed traceability information. However, this is only available to consumers should they seek it additionally. At the other, red end of the spectrum, the CFTS of John West are not directly responsive to consumers. The websites only offer a one-way downstream flow of information, with no capacity for upstream interaction. Norpac has not been evaluated with respect to responsiveness because the shop-floor consumer is not yet a part of the CFTS.

### Scale of Market Impact

The final element of the analysis of performance is market impact. Those systems classified green are mainstream companies like John West, Pacifical, and Ocean Naturals that are producing and selling tuna globally on a large scale. This is particularly the case for John West. They are also sourcing from an industrial fishery, using purse seines, which capture nearly 62 per cent of the 4.2 million tons of tuna caught globally every year (ISSF 2014). In contrast Solander and Norpac were rated amber because they are producing and selling fresh/frozen tuna globally and sourcing from industrial fisheries but using longlines which contribute to around 15 per cent of the global tuna catch (Allen, Joseph et al. 2010), considerably less than purse seines.

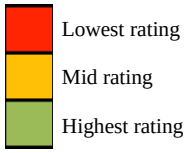
The only CFTS to be rated red was ThisFish because of the relatively limited scope the system currently has selling to restaurants and retailers However this does not say anything about their potential market penetration. The system can in principle be expanded to include a wider range of products and markets. There remains considerable potential to expand the impact of the ThisFish system, but it currently constitutes more niche North American market. This is particularly the case for tuna, which currently makes up a very small proportion of the fish that are traced through the ThisFish platform.

*Table 5.3 Summary of the CFTS features, the drivers behind their implementation and their performance*

| | | John West Europe | Norpac | Ocean Naturals | Pacifical | Solander | ThisFish |
|---|---|---|---|---|---|---|---|
| **Traceability system characteristics** | *Year system was founded* | 2011 | 2004 | 2013 | 2011 | 2012 | 2010 |
| | *Primary system/subsidiary* | Subsidiary | Primary system | Subsidiary | Primary system | Primary system | N/A |
| | *System manager* | Yes | Yes | Yes | Yes | Co-managed | Yes |
| | *Number of links that tuna can be traced to* | 5 - 6 (with cold storage) | 4 | 7 | 3 | 5+ | Depends |
| | *Vertically integrated* | Yes | Yes | Yes | No (but employing vertically integrated companies) | Yes | N/A |
| | *Scale (micro/macro)* | Macro | Macro | Macro | Macro | Meso | Micro |
| | *Market reach* | Global | Global | US | Global | Global | Canadian |
| | *Traceable unit (fisher or boat or fish)* | Batch, Vessel and fisher | Individual fish | Vessel and fisher | Vessel and fisher | Vessel under MSC, moving to individual fish under Traceall system | Individual fish |
| | *Tuna only?* | No | No | Yes | Yes | No | No |
| | *Product* | Branded Canned tuna | Fresh/frozen tuna | Branded Canned tuna | Private label canned tuna | Fresh/frozen tuna | Fresh/frozen tuna |
| | *Vessel level Instruments* | VMS, Paper log books, Working on batch-based bar-coding system, some observer coverage | VMS, RFID (not fleet-wide) | VMS, onboard observers | VMS, onboard observers | 7-8% observer coverage, VMS, log sheet data, full dockside landing recording | Boat 'smart boxes' |
| | *Consumer-facing instruments* | Can code, Some ecolabel | Bar code | Can code | Can code, Website platform, Ecolabel | Bar code | Website platform, Bar code |
| **Drivers** | *Goal of the system* | Sustainability | To start: Enhanced business management. Now: preventing IUU fishing | Sustainability | Sustainability and provenance. Soon to be SA800 certified for good labour practice | IUU fishing and sustainability | Provenance |
| | *External drivers/governance* | NGOs and as a result retailers | To start: None. Now: NGO and retailer commitments | NGOs and retailers | NGOs and retailers | Retailers and consumers | Government pressures, Fishers |
| | *Internal drivers/governance* | Competitive advantage, Risk mitigation, Documentation for sustainability commitments, Future certification | Competitive advantage, Chain of communication, Market differentiation | Competitive advantage, Risk mitigation, Documentation for sustainability commitments, Resource security | Competitive advantage, Risk mitigation, Certification, Documentation for sustainability commitment, Resource security, Tourism | Competitive advantage, Chain of communication, Certification | Competitive advantage, Chain of communication, Market differentiation |
| **Performance** | *Verification* | Internal checks | Audits by FishWise and MRAG | Internal auditing, working toward 3rd party | Third party verification of MSC | MSC chain of custody and Traceall will provide a traceability audit | Self-auditing |
| | *Levels/depth of information provided by ICT system* | One level | One level | One level | One level | One level | Four (or more) levels |
| | *Interactivity* | None - one way information flow | Retailers have a direct line to Norpac but shop-floor consumers are not yet involved in the traceability system | Pop-up window on site to connect to the marketing director | None - one way information flow | None - one way information flow | Interactive - information flow both ways through interactive message board facility |
| | *Scale of market impact* | Macro/mainstream | Meso/mid-level | Macro/mainstream | Macro/mainstream | Meso/mid-level | Micro/niche |

*Table 5.4 Performance of the CFTS according to their scaled categorisation of red, amber and green*

| | John West | Norpac | Ocean Naturals | Pacifical | Solander | ThisFish |
|---|---|---|---|---|---|---|
| Verification | | | | | | |
| Depth | | | | | | |
| Responsiveness | | N/A | | | | |
| Market Impact | | | | | | |




## 5.7 Discussion

This paper has provided an initial look into CFTS in North American and European markets. This is a very new development in the tuna market and reflects the attention being given to principles like transparency and accountability within the sustainable seafood movement (Iles 2007; Bush, Toonen et al. 2013). All of the CFTS investigated in this study have opened up facets of tuna production to consumers. In so doing, they have reached the fifth stage of traceability systems by providing 'Information communication to the consumer'. However, through compiling the different performance indicators for Table 5.4, it is clear that the systems approach this stage from very different development trajectories. This is demonstrated by the fact that each of the CFTS are preforming well in at least one category, but likewise are challenged in at least one area as well. None of the systems maintain a green rating across all indicators, neither are any rated red in every category. Therefore, each of the system is constrained in ways that are preventing them from meeting all of the objectives of the fifth stage of traceability systems.

According to Coff and colleagues (2008), a CFTS fulfilling the objectives of this stage demonstrate transparency of the production history of a product, which allows consumers to compare different products on production qualities. It must also respond to consumer concerns and information demands, demonstrating a capacity for public participation. With reference to these objectives, three bottlenecks emerge around transparency, public participation and market spread, that are hindering the tuna CFTS from meeting all of the objectives.

The first bottleneck relates to transparency, which Coff and his colleagues cite in two of their objectives for stage five traceability systems. But they do not elaborate what transparency means beyond 'production history' and 'informed consumer choice'. We argue that transparency can be elaborated in more detail based on what Mol (2013) has discerned as 'consumer transparency' and 'public transparency'. Consumer transparency is the disclosure of information to consumers to support claims around sustainability of production and articulated in information systems aimed at price premiums and niche market competitiveness. For the most part, tuna CFTS appear to provide this level of transparency and fulfil at least one of the aims of price premiums and/or niche market competitiveness. However, the John West CFTS has relatively weak transparency given verification remains internal, which – in conjunction with having only limited observer coverage on board their vessels – creates any substantive understanding of production processes highly problematic. Providing consumers with only one level of information and no possibility to respond to upstream chain actors about the information they receive further limits the degree of transparency evident in their CFTS. Therefore, while the system offers a degree of consumer transparency, it does not meet the Coff et al.'s objective of facilitating informed consumer choice.

Public transparency relates to the use of CFTS to mitigate the risk of public exposure by the media and NGOs. If we look at the drivers behind CFTS, the larger companies all cite risk mitigation as one major internal driver behind installing CFTS. However, as the John West case demonstrates, the existence of a CFTS does not mean full transparency. In fact, rather than mitigating risk, without reforming their internal structures these systems could leave companies vulnerable to further reputational risk, should the validity of their traceability claims be scrutinised. This creates a dilemma for these larger companies: in choosing traceability as an instrument for demonstrating their commitment to responsible sourcing they have also increased the expectation on transparency. Therefore, for these companies to live up to new, self-defined conditions of transparency they would have to change their modes of operation, through for example increased vessel-level reporting and monitoring and allowing external auditing of their CFTS.

With the exception of ThisFish, all systems analysed in this paper received a red or amber rating for their responsiveness and the depth of information provided to consumers. This indicates that public participation is another bottleneck. It therefore appears that CFTS offer a consumer-facing instrument and endorse the need for traceability of production processes, but offer little chance for public participation that would respond to consumer concerns. To meaningfully fulfil the objective of public participation, companies would have to use these systems to inform consumers about processes of tuna production and open themselves up to consumer engagement. However, in a highly competitive market like tuna, only a limited number of companies want details of their production practices being made publicly available. This raises the question whether CFTS are primarily a marketing tool or a system developed by companies to be accountable for practices of production. Through CFTS, companies have the means to endorse traceability, a core theme of the sustainable seafood movement, while demonstrating no discernible change in their production practices.

However, looked at in another way, the mainstream producers like John West and Ocean Natural have a large consumer base and therefore have the potential to engage a wider number of consumers and citizens with issues of fisheries sustainability. While ThisFish is an example of a responsive system able to provide both multiple layers of information and customer feedback, it is also a relatively small/niche system. This makes public participation easier compared with the globally trading companies like John West and Ocean Naturals. This indicates that while the ThisFish system has the potential to transform its own production practices to meet the requirements of their traceability system, the bottleneck they could face is that their transformative capacity remains limited to the niche market they cover. This indicates a trade-off between achieving greater public participation and reaching the mainstream market.

The final limitation CFTS are facing concerns the extent to which they are penetrating the global market. Coff and colleagues did not cite this explicitly as an objective of this final stage for ethical traceability system. However, one of their objectives is that CFTS provide the ability to compare different products (Coff et al. 2008). Therefore,

market spread can relate to both the global reach of a product as we have discussed previously and the degree to which different markets offer a range of tuna products with CFTS to give consumers choice.

This objective of providing consumers with the ability to compare different products remains a system-wide limitation. As a relatively new concept in tuna production and consumption, CFTS are yet to be widespread in the market. At present, the systems rarely overlap in the market. This means that while companies with a CFTS might have the competitive edge over a competitor with no CFTS, we have not reached the point where shop-floor/dockside comparisons between systems targeting the same (niche/mainstream, fresh/frozen/canned) market are possible.

These bottlenecks constrain CFTS in achieving all the objectives for providing information to consumers. Nonetheless, to varying extents, each of the traceability systems are moving towards Coff et al.'s 'stage five' of consumer facing traceability. However, what the framework does not draw out is that by tackling issues of sustainable production and consumption, traceability systems do not only facilitate the flow of information from producers to consumers in order for them to make more informed purchasing decisions. They also facilitate interaction between a wider range of actors in the production network, such as states (in the case of both Solander and Pacfical), retailers and critically, environmental NGOs. This supports results in the wider literature on informational governance that indicate that environmental decision making is being transformed by informational processes, technologies and institutions leading to multi-actor, and in the case of tuna, transnational forms of environmental governance (Mol 2006, 2008; Toonen 2013). Informational demands are therefore shaped through networked collaboration with a wide range of public and private actors.

In looking at consumer-facing traceability in the context of fisheries and sustainability, as a platform for broader, network-level interaction we see there is opportunity to extended Coff et al.'s framework beyond 'stage five'. This fifth stage does not really mention very strongly or explicitly the possibilities of consumers communicating back to upstream supply chain actors and with that influencing the

tuna production network. Hence, a potential stage six for ethical traceability could resemble how the two-way interactions that CFTS facilitate can contribute to the reshaping of global tuna consumption and production. This is not to say that stage six CFTS have or would lead to more informed consumers that would demand higher quality information from industry and seek to interact with supply chain actors. Our results indicate that this is in fact not what drives the development of these systems. What it does show however and is worth investigating further, is the potential these systems have for governance innovation; bringing previously disconnected constellations of actors together who can drive information disclosure through the development and implementation of CFTS, with the common goal of responding to issues around sustainability in tuna production.

Therefore, the next step for analysis goes beyond examining the bottlenecks for providing consumers with information, to look at how demands for information both within and external to the production chain are impacting global production dynamics. This 'governance by disclosure' sees information as central to how actors build strategic compromises and coalitions of actors seeking to transform production and consumption processes toward sustainability (Gupta 2010; Levy 2011). Inevitably, these interactions are influenced by the capacity of actors to meet information demands and could produce what Mol (2008) calls "informational peripheries." This refers to information-poor environments where information disclosure is constrained by economic, political, organisational and cultural factors. The lack of capacity for information disclosure in some parts of the world could mean this sort of governance innovation will present a barrier to poorer producers. Alternatively, should traceability through CFTS become more commonplace and information made more available to fishers in these 'peripheries', it could help to overcome such barriers by providing new flows of information leading to empowerment. Therefore, for tuna CFTS to transform production and consumption processes, innovative instruments that target sustainability need also to be accessible in these peripheries.

## 5.8 Conclusion

This paper is the first to address the diversity of CFTS, its drivers and the potential of these systems to change the sustainability performance of tuna production. Through the paper we can see diversity across the CFTS. In terms of their market, they exist for both fresh/frozen and canned tuna, spanning global and niche markets. Therefore, while they are not widely implemented, they do occur throughout the global tuna production network. Technologically there is more coherence, as information is presented in all systems as either a bar or can code. However, through the codes consumers are presented with information that is diverse in its detail and capacity for response.

In terms of the drivers behind CFTS, understanding that mitigating against reputational risk is a key internal driver and that NGOs are a key external driver, brings the central role the sustainable seafood movement into focus. Through responding to information demands from this movement, CFTS are providing a key point of interaction between different groups of actors engaging in sustainability of tuna production and consumption.

However, from the cases examined we can see that for the most part, the systems analysed illustrate that consumer-facing traceability is a nascent approach that is producing varied degrees of transformation inside the supply chain. On the one hand, there are those that are part of the globalised companies like John West and Ocean Naturals, responding to global pressures around traceability. On the other hand, there are systems like ThisFish that are more consumer-oriented. This leaves the door open for further expansion within the industry but with the caveat that such expansion does not automatically lead to more sustainable production practices.

Looking outside the tuna supply chain, the engagement of actors such as NGOs and retailers in traceability dialogues highlights a broader shift in the sustainable seafood movement toward the use of market-based approaches to fisheries governance. This illustrates how, through instruments like CFTS new constellations of actors can interact to tackle issues of sustainable production and consumption. Therefore, CFTS

should also be valued from the numbers of global actors and institutions engaging with producing, having access to and making use of information.

This paper focused on European and North-American markets, but the largest challenges for CFTS are of course to be found outside these market. What does the shift toward CFTS means in the context of increased demand from developed countries for sustainability standards in general (e.g. Ward and Phillips 2009; Lay 2013; Leadbitter and Benguerel 2013)? This would engage with potential 'North-South' divides that are emerging as developed country markets are expecting increasingly standardised and differentiated seafood products, which thus precludes some of the smaller scale, often developing country fishers from their markets. A phase shift in the North American and European markets for heightened information disclosure and the application of ICTs could present a further barrier to trade to developing country producers. On the other hand, it would be interesting to examine the potential for CFTS to present an opportunity in markets like Japan where assurance around legality is a key concern among consumers.

# Chapter 6. Conclusion

## 6.1 Introduction

The preceding chapters have looked at governance innovations for sustainability in tuna fisheries. Increased catch rates to meet rising consumer demand have resulted in an estimated one-third of global tuna stocks being classified as overexploited, 37.5 per cent fully exploited, leaving only 29 per cent non-fully exploited (FAO 2012). However, tuna fisheries are among the most highly capitalised and valuable fisheries in the world (Campling 2012) and their exploitation will continue for the foreseeable future. This means the sustainability of tuna stocks is a pressing global issue that has received attention from a wide range of societal actors.

Due to the highly mobile nature of tuna, as well as the international composition of the fishing fleets, management has occurred at an intergovernmental level through regional fisheries management organisations (RFMOs). However, there has been extensive criticism about the inability of these state-based institutions to govern fisheries sustainably. In their assessment of all RFMOs, Cullis-Susuki and Pauly reported widespread failure of RFMOs stating that "The priority of RFMOs – or at least of their member countries – has been first and foremost to guide the exploitation of fish stocks" (2010: 7).

The failure of states to govern tuna stocks has shifted attention to market-based sustainable tuna management, with certification and ecolabelling promoted as the leading strategy. However, there has also been criticism of market-based strategies like ecolabelling because *inter alia*: their limited market coverage and impact; their accountability only to market dynamics; and their selective coverage of sustainability issues. Therefore, the market also does not offer stand-alone solutions. Instead, strategies are needed that incorporate both state and market interests and those of the wider community involved in tuna conservation and management.

Through this thesis, I have examined some of the governance innovations that different groups of actors are producing in response to these problems. To understand

the interconnectivity of the different innovative strategies, the cases have been analysed in the broader context of the tuna global production network (GPN) of which they are a part. In returning to Coe et al.'s definition that GPNs are centred on "the nexus of interconnected functions, operations and transactions through which a specific product or service is produced, distributed and consumed" (2008: 274), we can see that the cases in this thesis involved different GPNs, and that the governance actors and innovations are not restricted to a single GPN. Therefore, as the cases are not being used comparatively, this conclusion makes general reference to 'the tuna GPN' to encompass all the actors and activities of tuna production and consumption. Within the tuna GPN sub-networks of actors involved in the production of tuna are linked with those involved in its governance. Each case combined these sub-networks of actors and analysed how they influenced each other and as a result, the wider architecture of the tuna industry. In addition, literature on regionalism, EU external regulation and informational governance provided specific analytical focus on governance themes drawn out through the empirical research, and supplemented the GPN framework.

The central research question of this thesis was: How do different market- and state-led governance innovations advance the governance of sustainable tuna? This final chapter answers this research question and formulates the conclusions of this thesis. In section two, I will focus on the individual case studies to answer the research question. Section three examines the dimensions of the governance innovations to answer the central research question. Building from this, section four will go beyond governance innovations to look at the wider role of sustainability governance in the tuna GPN and the contribution of this research to theory on GPN governance. Section five concludes with some policy recommendations and areas for future research.

## 6.2 Key Research Findings

### 6.2.1 State-Led Innovations for Sustainable Tuna Governance

As tuna is a transboundary and highly migratory fish stock, state-led governance demands go beyond individual nation states to regional and in the case of the Western

and Central Pacific Ocean (WCPO), sub-regional governance bodies. Additionally, the globalisation of the tuna industry, coupled with the introduction of regional fisheries management organisations (RFMOs) has seen distant water fishing nations, like the EU, playing a role in governance of external fisheries. This section will first consider the innovative governance arrangement emerging from the interaction of the West and Central Pacific Fisheries Commission (WCPFC) and the Parties to the Nauru Agreement (PNA) and second, look at the governance role the EU is playing in the region, through their Illegal, Unreported and Unregulated (IUU) fishing Regulation.

To understand governance arrangements within the WCPO, the analysis in Chapter 2 used the regionalism literature to examine the complex web of treaties, conventions and institutional frameworks operating in there (Tsamenyi, Palma et al. 2009). The results illustrate the driving role the PNA has adopted in developing and implementing innovative conservation and management measures in the WCPO. It has introduced measures explicitly targeting sustainability, mainly in purse seine fisheries, including: high seas pocket closures; new access arrangements around the purse seine vessel day scheme (VDS); and successful Marine Stewardship Council (MSC) certification of fish aggregating device (FAD)-free purse seine fisheries. Some of these measures have been adopted at the regional, WCPFC level. Through seeding the WCPFC with some of their management measures, the analysis shows that international sub-regions can go beyond functional units to provide opportunities for regionalism. Additionally, the PNA is using their involvement in the WCPFC to challenge the WCPFC's performance. This has stimulated greater debate and progress within the regional body. In return, PNA measures are subject to greater scrutiny from the wider WCPFC, which in turn holds the potential to make these measures more robust. While the sub-regional – regional dynamic is not entirely harmonious, the measures produced by an interaction between the PNA and the WCPFC are effectively an innovation to state-led models of sustainability governance.

Broadening the focus of state-led governance to actors beyond the WCPO, the thesis examined the EU's IUU Regulation in the WCPO. As the first official and legally binding IUU fishing regulation, this regulation stands as a landmark innovation in

state-led fisheries governance targeting a key sustainability issue. The examination of the implementation and uptake of this regulation in Chapter 3 used the concepts of 'Market Power Europe' and 'Normative Power Europe'. From the empirical work, our analysis shows that the EU is primarily using its position as the world's largest tuna market to ensure uptake of their IUU Regulation by attaching compliance with it to their trade agreements as a condition of market access. Therefore, in the case of the EU's IUU regulation, its position as a market actor – 'Market Power Europe' – gives the EU the power to make countries wishing to trade on their market follow their standards.

However, looking at market power alone assumes that the traditionally more powerful bodies like the EU will always win over the less powerful. It does not provide room for resistance and other forms of political negotiation. In contrast, this case demonstrated that strong sub-regional governance structures like the PNA can provide collective 'counter-power' to an economically strong actor like the EU. Pacific island countries have been able to exploit their position in the WCPFC as a collective of resource owners to criticise the EU's normative stance and to 'push back' against EU demands, thus resisting wholesale acceptance of a EU IUU regulatory agenda. Therefore, as opposed to the power afforded to the EU through its market, in the WCPO regional governance fora, the political power asymmetry falls in the Pacific Island countries' favour.

The implication of these dynamics for sustainability is not straightforward. On the one hand, the EU's IUU Regulation represents a much-needed response to the global problem of stock depletion through IUU fishing. However, as a tool that primarily serves their market interests, there will and has been resistance to it from countries with limited interest in the EU market. Therefore, the impact of the EU IUU Regulation as an innovative governance instrument will be limited in fostering regional sustainable production practices if uptake remains selective.

In the WCPO, state-led strategies are providing a vital source of governance innovation. Both the EU and actors in the WCPO are working independently and inter-dependently on innovations that are shaping the governance landscape within

the region. This confounds the claims that state-led strategies are failing and unable to stimulate innovations in governance. However, state-led governance innovations for sustainable tuna production and consumption are only part of the picture. At the GPN level it is necessary to also examine the contribution of non-state (firm and NGO) actors.

### 6.2.2 Market-Led Innovations for Sustainable Tuna Governance

The use of certification and standards for sustainability represents a significant development in the market-led governance of the tuna GPN. Certification is no longer considered a new tool for sustainability in fisheries. In fact, the certification landscape is becoming increasingly crowded with multiple certification bodies currently available (e.g. Jacquet and Pauly 2007; Parkes, Young et al. 2010). Therefore, the interaction between standards becomes an important aspect of this form of market-led governance. In Chapter 4, this interaction was analysed through looking at certification credibility and authority to understand which impacts the uptake of one ecolabel over another. Through examining the interaction between the Earth Island Institute (EII) and the MSC we found that over and above credibility, authority was the definitive factor in determining the uptake of one ecolabel over another by firm actors. By analysing the apparent tension between credibility and authority, Chapter 4 provided insights into the ways in which certification schemes operating within a GPN interact with each other and how this can promote or stifle governance innovation.

Understanding the more nuanced role of authority, both with and without credibility, in the context of sustainability standards opens up an understanding of how, in the case of MSC and EII, their interaction restricted governance innovation in the GPN towards more sustainable fishing practices. By retaining authority from a position of weak credibility, EII are in effect preventing firms from promoting non-'Dolphin Safe' sustainable certified tuna products in the market, and ultimately inhibiting any wider impact certification can have in tuna fisheries. We called this situation an 'innovation stalemate', whereby the less credible (yet incumbent) certification system is resisting relinquishing their authority to a more credible 'competitor'. This

understanding of authority presents a new dimension of power in GPNs. One in which environmental NGOs are no longer the more traditionally recognised underdog but a dominant actor influencing GPN governance.

The final case of market-led governance innovation in the tuna GPN examined in this thesis was the use of consumer facing traceability systems (CFTS) by tuna firms. The analysis in Chapter 5 showed that dominant GPN firms have started to incorporate CFTS into their production processes. This insinuates a consumer-turn in the tuna GPN, and a new phase in sustainable fisheries governance in which traceability goes beyond 'surveillance' to provide a tool for demonstrating responsible fishing production practices. From our analysis in Chapter 5, of six CFTS all have opened up facets of tuna production to consumers but from very different development trajectories. This is demonstrated by the fact that each of the CFTS are preforming well in some ways but challenged in others. The different systems face bottlenecks around the issues of transparency, public participation and market reach, which is limiting their transformative potential.

A central aspect of the study of CFTS was the role of information disclosure through CFTS. While information and communication technology (ICT) has been recognised in the GPN literature as playing a central role in shaping and transforming global networks, it has tended to be treated as an inherent aspect of GPNs. It underlies the development and maintenance of network connections, rather than providing systems with the potential to transform GPN governance. Chapter 5's exploration of CFTS demonstrated that through innovations in ICT, sustainability information generation, transmission and use within global tuna production is increasingly commonplace, with a greater number of network actors engaging in processes of information provision and information consumption.

In each of the cases of market-led governance, we can see NGOs playing a central role in governance innovation. In the case of certification, NGOs are producing the standards that firm actors and in the case of the PNA, state actors, are trying to fulfil. With the CFTS, the NGOs are engaging with lead firms either as a partner or watchdog, providing an external driver behind their CFTS. Therefore, market-led

governance innovations necessarily encompass NGO activity and not just firm actors. The incorporation of NGOs as driver behind a number of the governance innovations underscores the difficulty of categorising the governance innovation landscape is being state- or market-led.

### 6.2.3 Blurred Boundaries

GPN governance analyses have traditionally looked at governance as being either state-led or market/lead-firm-led. These have placed production at the core of their understanding of governance, looking to state-led governance to explain the socio-political context in which production is occurring (Levy 2008) and looking at market actors to understand intra-firm governance. However, the cases in this thesis indicate that this state- and market-led distinction is inadequate for understanding sustainability governance in the tuna GPN. Instead, the boundaries between actor groups are blurred. State, market and NGO actors are all demonstrating that their capacity for governance innovation is not derived from being state- or market-led, but is instead generated from their interactions with each other in the context of the tuna GPN.

The first instance of blurred boundaries is evident in the case of the WCPFC and PNA. Here state-led measures have direct ramifications on all producers fishing in the WCPO, as they must organise their production practices in line with WCPFC and/or PNA requirements. States remain a key actor in defining the production processes of firm actors, but the PNA MSC certification has drawn in non-state governance that has in turn led to innovation in the conservation and management measures being employed in the region. The Pacifical brand – the company that was MSC certified – is 50 per cent owned by the PNA. This makes the PNA a hybrid organisation, interacting within the tuna GPN as both a firm and non-firm actor. It is therefore evident that not only firms seek to legitimise their roles in GPNs through certification and NGO engagement, but also states; using the certification process as a key element of their overarching, in this case sub-regional, governance strategy.

The connection between state and market governance also comes through the EU IUU Regulation, which directly influences production practices within the tuna GPN. All companies trading with the EU have to comply with the Regulation's catch certification requirements and if processing the tuna, have to operate in countries with a verified competent authority. The regulation is therefore a state-led market regulation, influencing the practices of both state and market actors.

Finally, while CFTS are primarily being introduced by firm actors, and could therefore be classified as market-led, the direct and indirect pressure from NGOs provided the main impetus for their development. NGOs have both lobbied for firms to demonstrate increased traceability and have formed partnerships with firms to develop the traceability instruments themselves. They are therefore acting as both watchdog and advisor to drive their sustainability agenda through firm actors. This illustrates the role NGOs are playing in producing governance innovations. By benefiting from not being confined to the role of state nor market actor, NGOs are emerging as a key driver behind governance innovations.

Looking at the overlap between the different groups of actors at the system's level, it is apparent that none of these innovative arrangements is operating in isolation to the others. The boundaries are blurred between the different approaches, meaning it is not sufficient to look at whether governance is either market- or state-led, or even to look at what the different groups of actors are doing without understanding their connection to the other groups in the GPN. Therefore, for governance innovation to proliferate, actors should not be defined by the governance role they are assigned, but instead be considered as part of a governance innovation network, targeting sustainability in GPNs. The following section will focus on the concept of governance innovation networks, looking first at what the concept means and then at the dimensions that contribute to how they function.

## 6.3 Governance Innovation Networks

This thesis looked at governance innovations for sustainability of tuna in the tuna GPN. Innovations for sustainability, also called 'eco-innovations', have been

described as being either technical, organisational, social or institutional (Rennings 1998). Technical innovations focus on new 'curative and preventive' technologies, which in the context of this thesis could relate to the emergent CFTS. Organisational innovations relate to management instruments like eco-audits, such as the MSC certification process. Social innovations are those that target social practices for example changing consumer behaviour and in this thesis come out strongest when looking at the overarching activities of the sustainable seafood movement, like their drive for certification and traceability. Finally, institutional innovations concern improved decision-making through activities like new ways of conducting environmental monitoring, like the EU's IUU Regulation. This latter form of innovation touches upon governance but the innovation is still procedural and not relational. While each of the cases in this thesis illustrates innovations in line with this typology, what we have found is that looking at them individually does not provide an understanding of their capacity for galvanising greater innovation at the network level.

However, when expanding focus to the network level we are confronted with the perception that a myriad of different actors and instruments are working independently on producing sustainability strategies and that nothing is working (e.g. Jacquet and Pauly 2007; Cullis-Suzuki and Pauly 2010). This is because most research looking sustainability has tended to focus their attention on one instrument or type of instrument. Some examples of such analyses and critiques include: whether ecolabelling and certification has impacted sustainability; or whether a policy instrument like the PNA VDS holds potential to promote sustainable fisheries (e.g. Kaiser and Edwards-Jones 2006; Jacquet, Pauly et al. 2010; Christian, Ainley et al. 2013; Havice 2013). While such research provides valuable insight into such individual instruments, it does not provide any insight into broader governance processes associated with the development and implementation of a variety of innovative instruments on the tuna GPN. When looking at innovation for sustainability in tuna fisheries, in the end focusing on a single instrument is therefore not adequate to grasp governance innovation; the innovation is the constellation of

various interacting actors engaging in the implementation of different innovative instruments.

To theoretically understand governance innovations, we turn to Sywngedouw's (2005) work on innovation through 'new choreographies of governance'. While not in the context of sustainability, Swyngedouw provides useful insight for analysing and understanding the shift from either state-led or market-led governance, toward new combinations of "hierarchically nested and relationally articulated" actor networks (Swyngedouw 2005: 14). He emphasises the inclusion of 'new' actors, albeit those that "accept playing according to the rules set from within the leading elite networks" (Ibid). In the context of this thesis, the rising influence of the sustainable seafood movement is indicative of the role that such 'new' actors are taking on in relation to existing state and market institutions. In the context of tuna, governance innovations for sustainability have come from consolidating and enhancing the activities of actors introducing innovative instruments.

Therefore, in this thesis, governance innovations take as their starting point the innovative instruments that governance actors are designing and using for enhancing the sustainability of tuna production and consumption. The thesis looks at these innovations in the context of the tuna GPN from which they are emerging, to understand what new 'choreographies of governance' are converging around the implementation of these instruments.

Governance innovation should therefore be understood as the combinations of actors and instruments that are developed, implemented and taken up in aiming for sustainability. These combinations are not operating in isolation but interact in various ways, resulting in the reconfiguration of the network; together this is labelled the governance innovation network. Hence, in studying governance innovations for sustainable tuna, it is essential to examine the relational nature of actors-cum-instruments and how these combinations constitute a governance innovation network that is related to, but different from, the tuna GPN. We now turn to four key components that provide analytical clarity to the formation and persistence of governance innovation networks: (1) the different framings of sustainability that

actors use to justify the instruments used; (2) the instruments themselves; (3) the governance arrangements emerging through combinations of state, market and NGO actors; and (4) the power dynamics between the groups of actors that shape the governance innovation network. This section will look at how each of these dimensions of governance innovation provides the basis of understanding governance innovation networks.

### 6.3.1 Framing Sustainability

Over and above the production and consumption that characterises GPNs, sustainability provides the 'raison d'être' for the tuna governance innovation network. However, while there is broad acceptance of sustainability concerns around over-fishing and IUU fishing, it has become apparent through the analyses of each of the cases that different actors frame sustainability in highly variable ways. Sustainability is both widely used as a basis for governance and poorly understood. As Davison aptly puts it, "Many have lamented the slippery, shape-shifting nature of this concept and that it has accumulated an absurd number of definitions"(2008: 191). The failure of any organisation or institution to acquire a legitimate leadership role over sustainability has resulted in a plethora of actors offering their own sustainability definitions and metrics (Marshall and Toffel 2005). In production and consumption networks, 'sustainability' is constructed and contested by the actors involved as both a concept and as an objective (Boons and Mendoza 2010). As a result, governance innovation network actors have defined norms, regulations and standards that actors in the supply chain must adhere to in order to produce a sustainable product (Manning, Boons et al. 2012). In the tuna GPN, sustainability is therefore more than just an issue of over-fishing or IUU fishing; it is something used strategically to justify network actors' involvement. Therefore, it is important to understand the ways that specific sustainability themes are constructed, as they can both differ and overlap to shape network practices.

In addition to the strategies of coastal states, external interests also shape the governance of tuna fisheries within the WCPO. For the EU, their entry point to the network is both through the WCPFC and through their IUU Regulation. The

connection between IUU fishing and sustainability is widely accepted; IUU fishing is contributing to widespread but unquantifiable over-exploitation of fish stocks. Therefore, IUU fishing provides its own framing of sustainability and provides the basis of the normative power the EU is trying to exert in the WCPO. However, as the basis of the EU's regulation is also for protecting their market power, the Regulation sees sustainability coupled with maintaining economic, legal and geopolitical control as well.

Moving from the general framing of sustainability as the basis for management measures, the PNA has also constructed a specific framing of sustainability through the MSC certification of their FAD-free skipjack fishery. Using this certification to underscore the sustainability of FAD-free fishing reflects broader activities in sustainable seafood movement to frame sustainability around tuna fishing practices. This has seen groups advocating pole and line fishing, FAD-free fishing and even the potential of 'eco-FADs' that minimise bycatch (LDRAC 2012). Among debates around these practices, lies the conflict around Dolphin Safe tuna, which has been critiqued for framing sustainability around a single issue deemed no longer relevant. While the ecolabel landscape has since broadened how it frames sustainability, they have not escaped contestation. For instance, the MSC is criticised for interpreting sustainability based on ecological sustainability, at the cost of incorporating standards on the social aspects of fisheries management, particularly that of the needs of fish workers and small-scale fisheries in developing countries (Gulbrandsen 2009). Framing sustainability around NGO-defined criteria illustrates the power of the sustainable seafood movement for shaping production and consumption processes.

In the final case, CFTS reflects the growing emphasis placed on traceability in discussions around sustainability. Through CFTS, industry actors are constructing a new framing of sustainability that speaks to consumers and confers the message that sustainable practices cannot come without traceable practices. The traceability message fits with dialogues in the wider governance innovation network, as traceability underlies both the MSC chain of custody certification and IUU regulation. This illustrates that while different actors are producing different instruments that respond to an aspect of sustainability that they have decided to focus on, each of the

issues are interconnected. Therefore, through examining the different framings of sustainability, we are also seeing the foundations of the network beginning to form, with actors interacting around the different but connected aspects of sustainability.

### 6.3.2 Instruments

The governance innovation network centres on the instruments that network actors are introducing. Without instruments that have some bearing on tackling sustainability issues, the actors would remain as GPN actors but not part of the governance innovation network. For example, without the PNA feeding innovative management measures like the high seas pocket closures and the vessel day scheme up to the WCPFC, the innovative governance arrangement of sub-regional and regional interaction would not have happened. Equally, the EU's IUU Regulation is the first official instrument that deals with IUU fishing and through it; the EU has the opportunity to interact in the governance innovation network. In spite of criticism, this Regulation has facilitated interaction among actors throughout the network. Likewise, the PNA MSC certification and CFTS provide examples of how, through the production and implementation of instruments, new constellations of actors interact, which represent the 'governance innovation'.

Central to our understanding of instruments in the context of governance innovation networks is understanding how different instruments serve not only to respond to sustainability issues but also facilitating interactions between network actors. In the broader literature and policy domains, debate continues over which is the best instrument for achieving sustainability gains. Private standards like certification and ecolabelling have been widely reviewed and have drawn criticism over their capacity to produce sustainability gains (Gibbon, Bair et al. 2008; Christian, Ainley et al. 2013). Additionally, as we have already mentioned, state capacity for producing innovative instruments for sustainability regulation has also been criticised. However, these critiques have tended to focus on specific instruments in isolation, analysing their individual capacity for transforming production and consumption practices. When considered in the context of the governance innovation network they are part of, their capacity to innovate governance practices comes from the interconnections

they facilitate between the different actors that are both implementing them and benefitting from them. For example, taking the MSC certification as an instrument, the innovation it produces is not through the instrument itself, ecolabelling has been around for some time now, but through the way that the state (the PNA) is changing their role and function within the network as a result of using the MSC certification. This the same for the EU IUU Regulation, which is an innovative instrument but its capacity to promote interaction with Pacific Island countries to shape and change power relations within the network is its governance innovation.

This perspective also illustrates that through the governance innovation network the instruments themselves are feeding back to the network, defining the interests of the actors they are bringing together. This changes the assumption that producing and implementing innovative instruments is a one-way process. Instead, it is a two way process and instruments are not only defined, designed and implemented, they are also influencing how actors are coming together. This points to the wider impacts of the instruments. In the context of the tuna GPN, these instruments become more important for creating debate around issues of sustainability rather than whether or not a specific instrument has a positive or negative impact on the fishery itself. Through this debate, awareness of the problem and interaction among the wider community of governance actors occurs, forming the governance innovation network.

### 6.3.3 Actors

Through looking at both the framing of sustainability and the instruments being introduced, we can see new constellations of actors are emerging to form a governance innovation network. This governance innovation network is comprised of GPN actors that interact through the development and implementation of innovative instruments to respond to sustainability issues. State, market and NGO actors have all demonstrated that their capacity for governance innovation comes from their interactions with each other, making both state-led and market-led governance innovations a fundamental element of the network. On the one hand, state actors are producing strategies that depend on the market for their uptake. The EU's IUU Regulation for instance, is a market-based regulatory instrument, implemented by

state actors but having effect through the market. Furthermore, the MSC certification of the PNA skipjack fisheries represents one of the biggest governance innovations led by states – the PNA – using and co-opting market innovation for their own advancement. This takes it beyond a hybrid form of governance, which would insinuate a partnership arrangement between public and private actors, producing a joint strategy (Andonova 2010). Instead, in this case the PNA are not just cooperating with market actors, they have themselves become a hybrid state-market actor, engaging in the governance innovation network in both capacities.

On the other hand, there is also interconnectivity with the market-led governance innovations and the state. For example, some market-led certifications have conditions that are dependent on regulatory measures issued and enforced by RFMOs. In the MSC assessment process, certification is dependent on being able to demonstrate that fisheries are "subject to an effective management system that respects local, national and international laws and standards" (MSC 2008: 4). Therefore, those seeking to become certified also have to be able to show their source fishery is engaged in some form of state-led management system, like RFMOs. This has the benefit of providing firm actors along the production chain with an incentive to encourage state actors to engage in management that meets MSC sustainability criteria. While CFTS themselves do not provide such a clear state-market interaction, in Chapter 4 we saw both the PNA and Pacific Islands Forum Fisheries Agency (FFA) engaging in the process of developing the Pacifical can coded system and the Solander MSC certified, Traceall coded systems respectively. Moreover, underlying both the MSC and the various CFTS is the strong role NGOs are playing. Through the sustainable seafood movement, NGO partnership, campaigning and lobbying is providing the critical link between state and firm actors within the governance innovation network.

The interactions between governance actors in governance innovation networks therefore feeds into debates around public and private regulation. Traditionally, this debate has been viewed and framed as public versus private regulation, originating from the idea that states are failing in sustainability governance and that innovation (albeit highly criticised) has to come instead from private actors (firms and NGOs).

Bridging this divide is the literature on public-private partnership, which emphasizes the joint or hybrid governance arrangements of the two sectors (e.g. Gulbrandsen 2004; Andonova 2010). However, in governance innovation networks, the relationship does not appear to be public versus private regulation, nor public-private partnerships. Instead it illustrates the diversity in forms and modes of public and private mixing in (formal and less formal) governance arrangements. Through this is the continuous interaction and mutual influencing of these various sustainability governance arrangements, into a governance innovation network. While this might paint a picture of harmony and mutual strengthening, interaction among public and private governance actors in a variety of arrangements is also the source of contest and conflict, which exposes how the network is vulnerable to and shaped by the power dynamics between network actors.

### 6.3.4 Power

Power dynamics and the social relations of consumption and production are a critical aspect of the global governance innovation network and hence a necessary analytical focus. Within the wider literature, power relations concerning global production and consumption (often framed in global value chains and global production networks) have been analysed in relation to unequal development, often in terms of the 'North-South' divide and the core-periphery relations. Many of these analyses relate back to world systems theory. These conceptualisations view relations between industrial and developing countries, and within each of the two between core and peripheral actors, as fundamentally exploitative and conditioned on unequal terms of trade (Levy 2008). The idea is that powerful and wealthy 'core' societies and actors dominate and exploit weak and poor peripheral societies and sectors, creating a power hierarchy (Martínez-Vela 2001).

In one way, the sustainability governance innovations have reinforced some of these conventional power relations. For instance, the case of the EU's implementation of their IUU Regulation brings out these unequal power dynamics strongest. Regulating through the EU's market access for countries with weaker markets makes use of and simultaneously reinforces this North-South, core-periphery power imbalance. Perhaps

a more surprising area in which this is also visible is through the CFTSs. Following from discussions in the literature on neoliberal approaches to environmental governance (e.g. McCarthy 2004; Guthman 2007), the assumption is that approaches like the CFTSs would open up and change private relations in global production networks; and that traceability systems would reconfigure relations of production, changing conventional North-South, core-periphery network dynamics. However, the cost of implementing these traceability systems through, for example, access to and financing of technology, poses a major barrier to implementation in developing country fisheries. Should CFTSs become the norm in developed country markets like Europe and North America, they could prevent smaller scale, developing country producers from gaining market access and would therefore reinforce of the core-periphery power imbalance. This offers an understanding of how market-based systems like CFTS are feeding into existing power relations of what we understand in GPNs. And it also explains why developing countries can have major difficulties with – not to say fiercely oppose – market-based and market-led labelling, certification and traceability systems for sustainable production and consumption (Gibbon, Bair et al. 2008).

But this study also offers examples of sustainability governance innovation that challenge prevailing power relations within GPNs. The regionalisation of governance in the WCPO has reconfigured state relations at a sub-regional level and has led to greater control and innovation. In the case of the PNA, power asymmetries are bringing greater self-determination as well. There has been an underlying assumption within the literature that greater control for Pacific Island countries equates to better governance for the tuna (Barclay and Cartwright 2007; Hanich 2012). The thesis underscores the central role the PNA are playing in governance innovation in the WCPO. This has allowed for, stimulated and enabled the PNA to have greater control over their tuna resources, also vis-à-vis major external market and regulatory powers like the EU and US. Hence, here we witness how sustainability governance innovation in a GPN changes, rather than just reinforces, existing unequal power balances. However, the existing capacity of the EU to use its market power to instil

regulatory standards among some Pacific Islands countries means the power of PNA remains also vulnerable to wider network dynamics.

Finally, the dynamics between the EII and MSC offers a new perspective on network power. In classical power analyses on sustainability issues, NGOs play the role of underdog. In most studies the power of NGOs is conceptualised as indirect adversarial protest power: the power to articulate and raise societal protest against conventional production processes. However, our study has found examples of NGO power that goes far beyond adversarial protest power. The EII has gained network authority, which they use to fulfil their interests and influence GPN network dynamics to an extent that was previously more a characteristic of state or lead firm actors. This new aspect of power within the governance innovation networks brings us back to understanding how the framing of sustainability provides the justification for network actors like EII to constitute and retain their power position within the network. Therefore, framing sustainability in a way that captures public attention, brings with it network power. Hence, to further analyse power relations around sustainability governance innovation in contemporary global production networks we need a different conceptualisation of power. Conventional ideas of North-South divide or core-periphery relations are no longer sufficient to understand and analyse in-depth power inequalities and developments. This has been picked up in the Castellian (2009) ideas of power in networks, looking at networking power, networked power, network-making power and network-power. While beyond the scope of this thesis, there would be value in conceptualising and analysing the power dynamics within governance innovation networks in this way. The Castellian conceptualisation of network programmers and networks switchers would offer a promising way to understand how different actors use and acquire power around sustainability governance innovations, rather than ideas of core and periphery of more traditional GPN analyses. This would contribute to understanding how actors in these networks can take different roles to articulate such power.

### 6.3.5 Summary

Governance innovation networks open our understanding of the capacity of all interdependent governance arrangements over production and consumption in the tuna GPN, to steer and shape processes of sustainability innovation. The point of departure from analyses of governance in GPNs is that governance innovation networks do not start from the point of production and look incidentally at governance. Instead, the governance innovation network is the starting point and understanding the different dimensions of this network informs how production practices within GPNs will be shaped.

Figure 6.1 is a conceptualisation of governance innovation networks and illustrates that the GPN forms the 'base layer', the point from which the network emerges. Through different efforts to both frame and deal with issues surrounding sustainability in the tuna GPN, actors produce innovative instruments to influence production and consumption practices. These instruments interact with each other and with different actors to form actor-instrument arrangements. This interaction leads to a reclassification of actor roles away from their assignation as standard state, market and NGO. In turn, this reclassification presents us with the need to form different concepts of power. For instance, while traditional core-periphery dynamics frequently associated with GPNs are in some ways reinforced, new power dynamics are also emerging that open up the potential for developing states and NGOs to (re)shape GPN practices. Therefore, through governance innovation networks we can understand how the interaction between actors and instruments is reconfiguring GPNs when sustainability moves to the fore.

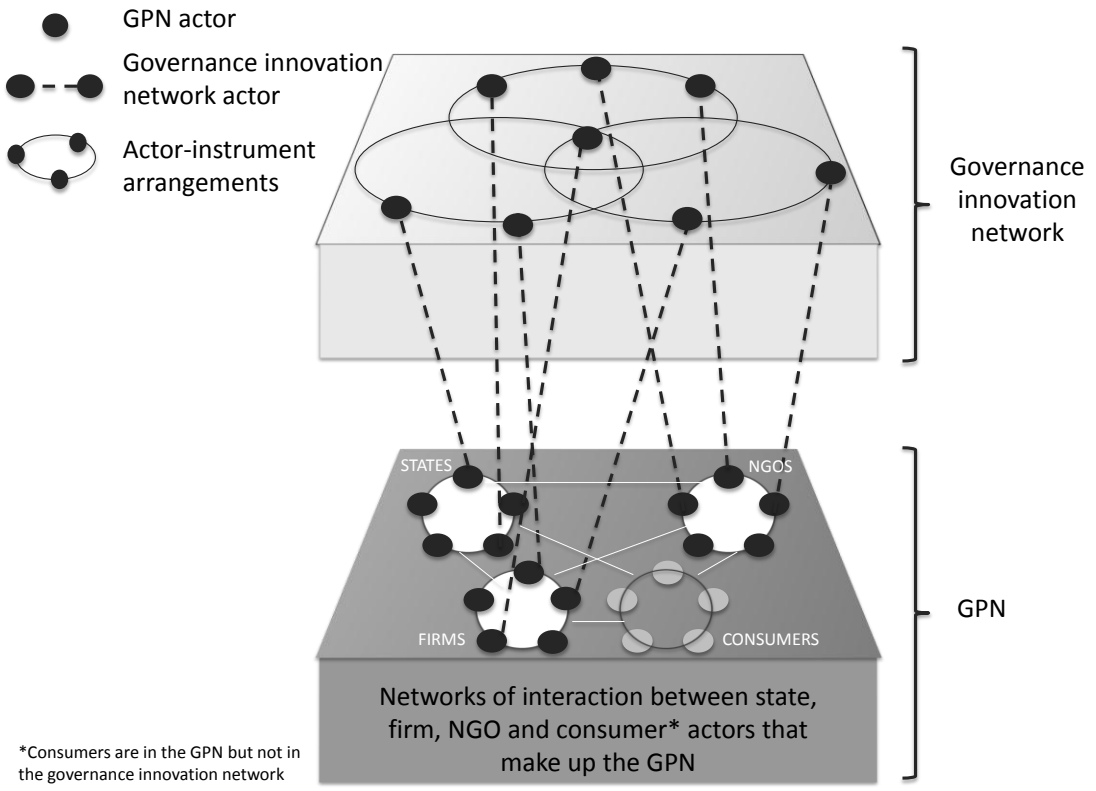



*Figure 6.1 A conceptualisation of a governance innovation network*

## 6.4 Reflections on theory

This thesis contributes to our understanding of GPN governance by providing the first in-depth analysis of how private standards as well as public regulation are producing innovative solutions for governance over sustainability in the tuna GPN. Bringing together the different cases, this research has provided insights into the emergence of a governance innovation network from a GPN. This advances the GPN literature and the broader governance literature in four ways.

First, while the literature on GPNs focuses on governance, this is the first examination of governance *innovation* in the context of GPNs. The GPN approach provides an excellent starting point for examining governance innovation, in that it explicitly acknowledges that governance of production and consumption processes goes beyond inter-firm governance to "encompass all relevant sets of actors and relationships" (Coe, Dicken et al. 2008: 271). Through introducing the concept of governance

innovation into the GPN framework, the analysis of innovation in GPNs moves beyond looking at the technical innovations in production processes (Ernst 2002). Further to this, it also provides a new analytical dimension to governance in GPNs. In particular, it draws attention to the importance of non-firm actors like the state and NGOs. The literature on GPNs has at its theoretical core analyses of firm-state relations (Henderson, Dicken et al. 2002; Coe, Dicken et al. 2008). Additionally, the role of NGOs is noted as important in the GPN literature, with Coe and his colleagues (2008: 287) stating that "(i)n some GPNs, of course, notably agro-food industries, natural resources, energy, clothing and textiles, they [NGOs] are extremely prominent and have a significant influence on corporate behaviour". This is reflected in an accumulating body of literature addressing labour organisation and ethical consumption (e.g. Barrientos and Smith 2007a; Hughes, Wrigley et al. 2008; Barrientos, Gereffi et al. 2011).

However, these analyses look specifically at firm-non-firm (state/NGO) interactions. Through incorporating the concept of governance innovation, this thesis examines the interactions between both firms and non-firms (state and NGO) *and* the interactions between different non-firm actors. In doing so, we are able to underscore the extent to which non-firm actors are moving to the core of GPN governance, creating a complex mosaic of governance approaches that in turn constitutes the governance innovation network.

The second contribution this thesis makes to GPN research is that it is empirically novel. To date, there has been no research on seafood production networks, let alone the tuna GPN. The majority of GPN research has looked at manufactured products, which are produced in fixed localities. Very little of the literature has examined natural resources from a GPN perspective. Murphy's (2012) analysis of Bolivia's wood products sector touches upon issues of natural resource management in the forestry sector and Bridge's (2008) application of the GPN approach for analysing the oil industry goes some way toward an analysis of a (non-renewable) natural resource. However, to my knowledge, this thesis provides the first analysis of a transboundary natural resource in the context of GPNs.

As well as being novel, tuna is an interesting case for GPN governance research. Geopolitically, state governance activities need to be understood (sub-)regionally and also the activities of tuna firms need to be understood in context of the politics between resource owning and resource exploiting countries. In addition to the geopolitics in the tuna GPN, however, tuna also proved interesting because central to understanding governance of production and consumption within the tuna GPN is sustainability, which is an under-researched aspect of the GPN literature (Coe 2012). In spite of mounting pressure for production practices to demonstrate sustainability credentials, GPN research on sustainability has been extremely limited and is only considered broadly in terms of issues like ethical consumption, global environmental standards and pollution mitigation (e.g. Angel and Rock 2005; Hughes, Wrigley et al. 2008; Dicken 2013). Therefore, identifying governance innovation networks presents a new understanding of sustainability governance within GPNs and a new component for consideration in future GPN research.

The third contribution relates to the notion of impact, in particular the impact of instruments designed for sustainability. The conventional understanding of impact has been to analyse how individual innovative instruments have an impact on pre-defined sustainability goals, such as stock stability, improved governance (RFMO) processes or market penetration. This feeds in to wider debates over measuring impact in the more technical literature on sustainable supply chain management (Hervani, Helms et al. 2005; Pagell and Wu 2009). MSC for example has generated its own impact framework that focuses on exactly these parameters (MSC 2013b). However, this thesis highlights how impact goes beyond the tangible goals set by the governance actor or along the supply chain, to look at how innovative instruments create discussion among a wider range of actors, and in doing so produce different ways of thinking about the sustainability issue at hand. This supports the literature on broader implications of market-based governance instruments. For instance, De Vos and Bush's (2011), analysis of the Dutch Viswijzer (Good Fish Guide) showed that instead of producing signification changes in consumption practices, the greatest impact of this market-based tool was facilitating interaction between policy actors who previously occupied different 'social spaces'. Another example comes from

Gulbrandsen's (2009) analysis of the effectiveness of the MSC certification. He concluded that certification alone will not bring an end to overfishing and that analysing impact needs to look at the intersection of private and public efforts to address overfishing and environmental harm resulting from fishing. The research of de Vos and Bush and of Gulbrandsen support the findings in this thesis that impact is not always the direct result of the instrument but can also come about through the interactions of actors engaging in their implementation or uptake.

The fourth contribution is to the broader literature on governance networks and the position of governance innovation networks within this literature. There is a sizable literature on environmental network governance as a new mode of governance that goes beyond conventional state governance, also with respect to international and global governance (e.g. Biermann and Pattberg 2008; Biermann, Pattberg et al. 2009). There are those that have focussed on institutional governance through environmental and resource regimes and pay particular attention to the ways that supranational governance systems steer human-environment relations (e.g. Young 2006, 2010). This supranational, jurisdictional framing of governance networks provides a narrow perspective of networks that does not fully account for the interplay between states and non-state actors, in particular market actors. Alternatively, there are literatures that deal explicitly with how state, market and civil society actors engage and interact in networks (e.g. Kooiman 2005; Mahon, McConney et al. 2008). In the context of fisheries, some have examined sustainability strategies by focusing on particular instruments, like the MSC, and their capacity for generating sustainable fisheries networks (Gibbs 2008). These networks are important but, as this thesis indicates feed into broader network structures. Through the concept of governance innovation networks, this thesis takes these theories and perspectives of network governance further. The concept of governance innovation networks advances our insights on how, when it comes to governance of a transboundary traded resource like tuna, interactions between different groups of governance actors, different scales of environmental regimes, and specific instruments for sustainability collectively influence global governance of production and consumption.

## 6.5 Policy and Research Recommendations

Having summarised and theoretically reflected on the main findings in this thesis, this section translates the results of the research first into policy recommendations for different groups of governance actors and second recommendations for further research.

### 6.5.1 Policy Recommendations

An overarching finding in this thesis is that all actors are converging on market-based strategies. This does mean that market actors are the only ones providing governance innovation but that each of the strategies engages the market. If we take for example the PNA, this provides an excellent example of non-market actors using market-based strategies for governance innovation. Through aligning their conservation discourse with a market-based approach and with that of the sustainable seafood movement, the PNA is in a good position to demonstrate to a global audience their capacity for (sub-) regional governance and garner widespread support. They have engaged collectively to increase their strength within the region and become a global governance actor. Through the MSC certification, the PNA, as Pacifical, is also seeing direct economic benefit associated with a market engagement. This means they are ensuring both greater control over their tuna resources and securing market access for their certified tuna product in some of the world's most competitive markets. However, the PNA's market approach is vulnerable to the market interests of powerful external states like the EU, US and Japan. For them to continue as a strong actor, it is important the PNA remain engaged as a coalition of Pacific Island countries with the WCPFC. Successful regional governance requires that PNA measures are co-opted at the regional level, where they are subject to further scrutiny and validation and implemented on the larger, regional scale. This scenario of interaction between WCPFC and PNA provides the best model for governance innovation in the WCPO and the means through which both the PNA and WCPFC can continue to be fundamental to the governance innovation network.

The market is also where the EU is able to generate the greatest regulatory impact. Compliance with the EU IUU Regulation is greatest when actors have an interest in trading on the EU market. Taking the lead on regulating against IUU fishing, one of the world's leading sustainability concerns, and tying it to their market interests secures the EU's continued role in global fisheries governance. In the interest of the wider governance innovation network's understanding of generating instruments for identifying the products of IUU fishing and excluding them from international trade, the EU should focus on strengthening this market measure internally, rather than seeking to "harmonise" currently very different national systems of IUU regulation with their own.

The thesis indicates widespread endorsement of governance through private standards across the tuna GPN, making them a central feature of GPN governance for sustainability. However, as the case of EII highlighted, this also means there are many competing interests behind this kind of governance innovation. At present, there are no legal requirements pertaining to fisheries certification procedures and there is limited consumer understanding of what each label means. Therefore, as a system of governance, ecolabelling and certification can endorse practices that are of minimal benefit to sustainability, as the case of the EII Dolphin Safe certification shows. Pushing for greater science-based certification procedures and certification systems with transparent internal governance structures and open and responsive auditing procedures, offers a model worth endorsing in wider GPNs. At present, the MSC process is the closest representation of this kind of best practice model but still has only limited presence in the tuna GPN. To raise the presence of MSC in the tuna GPN, the whole network needs to push for standards like it and in doing so, needs to engage with the certification process to ensure it continues to be a credible standard. This is already starting to happen, with calls in European supermarkets for certified seafood. This has come through NGOs working with supermarkets and pressuring them to increase their sales of certified seafood. Supermarkets are therefore demanding certified seafood, which is pushing producers to enter the certification process. In the case of MSC certification, it is necessary to demonstrate effective management, which for tuna relates to the activities of the relevant RMFO (part of

MSC Principle 3). In the PNA MSC certification, this aspect of the certification procedure saw commitments being made to setting precautionary reference points and harvest control rules at the sub-regional and/or regional level; a first at the time. Cycles of network interaction like this make certification a valuable strategy for sustainability governance.

Building on the now-widespread use of certification, CFTS present a critical new step in market-led governance strategies for fisheries sustainability. The attention given to traceability underscores the acknowledged need for disclosure and therefore openness in practices of tuna production. For the information provided through the CFTS to be of any use to both the producers and consumers of it, they should adapt in three ways. First, the systems need to be more responsive to consumers to allow a connection between the information they are providing and what they expect consumers to do with it. Like the ThisFish platform, best practice would see consumers have the opportunity to respond to the information they receive. Producers therefore need to open up their channels of communication and further increase information disclosure. Second, to ensure that CFTS hold potential to influence the performance of tuna production and consumption, independent auditors should verify them. Finally, for this to be a governance innovation across the tuna GPN, CFTS that meet the above requirements need to be developed and deployed not only on a niche scale but also globally. However, in pushing for traceability at this level, there should be cognizant of its potential to act as an exclusionary device to poorer producers.

## 6.6 Future Research

This study on governance innovations for sustainability in the tuna GPN proved instructive for identifying that collectively, the actors engaging in sustainability strategies are part of a governance innovation network. However, governance innovation networks are a new concept and therefore, it comes as no surprise that further research into this concept is needed. This is not to say that ‘more information is needed’ to understand governance innovation networks but to test the robustness and generalizability of this concept in other contexts, it needs further examination.

The first factor that needs testing with further research is the extent to which these four cases are representative of the whole of a governance innovation network, or only part of it. The original reasoning behind choosing the cases in this thesis came from wanting to represent a cross-section of state- and market-led governance innovations. While the explanation of governance innovation networks has shown there to be more nuance to the state-market distinction, the cases chosen are also not representative of all possible governance innovations in the tuna GPN. The primary example that comes to mind that could be included in further analysing governance innovation networks for tuna, is the recent introduction of fisheries improvement projects (FIPs). FIPs have emerged in response to concurrent pressures for certified seafood and the inclusion of small scale, often developing country, producers in certification programmes. FIPs appear to be an innovative instrument that is bringing together many network actors, including firms, small-scale producers, NGO and retailers. This would make them an ideal case to evaluate in the context of governance innovation networks. Not only to see if they 'fit the mould' but also to see how they would contribute to shaping network dynamics. In particular, they would present an opportunity to understand how small-scale, developing world producers would interact within the broader network. My expectation is that the inclusion of FIPs would further strengthen our understanding of governance innovations, rather than produce an alternative understanding of the network.

Another area for research to expand into within the context of the tuna GPN, would be to conduct research into governance innovations for sustainable tuna being developed in other parts of the world, for example among actors in the Indian Ocean. This would both expand the scope of the governance innovation in this study but would also provide opportunity to look at the geographies of different networks, how they differ and whether/how they interact. Moreover, empirically the governance innovations in this thesis have focused on the tuna GPN targeting North American and European markets. There has been no research on governance innovations in the tuna markets in emerging economies like China, India and Indonesia. Tuna consumption in all of these countries (and others) is increasing and currently, there has been only limited attention given to the sustainable governance of production and

consumption within these markets. Research on this would be invaluable to examine actor engagement in the tuna GPN operating in these markets, and to inform what sustainability strategies within the tuna GPN would have the greatest impact on production and consumption practices. Additionally, there has also been no research on whether actors from these states are engaging in governance innovation networks. Therefore, looking at GPNs in these markets would provide another opportunity for testing the governance innovation network concept.

Moving away from tuna, the question remains whether the concept of governance innovation networks apply to the governance innovations that are emerging to address sustainability concerns in other commodities like coffee, or in other natural resources, such as forestry, water or oil. Looking at governance innovations in these sectors would test whether the concept of governance innovation networks can be generalised and is not just specific to the cases in this thesis.

A final area of research would be to look at GPN governance and governance innovation networks in the context of literature on informational governance. This thesis touched upon informational governance in the analysis of CFTS in Chapter 5. However, there is value in further research into the ways in which information is shaping the different dimensions of GPNs and governance innovation networks. To date, information is of implicit importance in GPNs, particularly in relation to globalisation and the rapid uptake of ICTs (Coe and Hess 2002). However, beyond being behind innovative technological advances such as the development of CFTS, "governance by disclosure" also holds great potential as a means of steering GPN production and consumption processes more broadly (Auld and Gulbrandsen 2010: 97). In the context of governance innovation networks, information is also playing a centripetal role in shaping the different governance innovations, as it is at the core of strategic compromises and coalitions of network actors seeking to transform production and consumption processes toward sustainability (Levy 2011). While the potential for information to be a central aspect of governance innovation networks is clear, as an area of research it is still in its nascence and demands further attention.

This could be developed in two ways. First, it would be interesting to apply the idea of informational governance methodologically in developing new tools. Through creating and using information in new media, researchers could investigate its potential for raising the profile of sustainability challenges in tuna production. An interesting way to do this would be though videography. Given the ubiquitous technologies including online streaming platforms (YouTube, Vimeo, TedTalk etc.) that are increasingly available to us, there is room for academia to incorporate them into their research design. Second, it would be especially interesting to apply these new tools to research focusing on informational demands from the perspective of developing country producers, to examine in more depth the notion of governance through disclosure. Mol (2008) describes "informational peripheries", to refer to information-poor environments and relates these to economic, political, organisational and cultural constraints of informational governance. Therefore, this could provide an interesting frame to explore such constraints in the context of tuna governance. It would be both theoretically informative but also valuable for understanding where to focus efforts to turn these constraints into opportunities for improved governance in these 'peripheries'. Combining this research with the application of new technologies could also provide an excellent opportunity for both theoretical and empirical development that could contribute to incorporating developing country producers in the governance innovation network.

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# Appendix I List of Interviews

| INTERVIEWEE | DATE | | INTERVIEWEE | DATE |
|---|---|---|---|---|
| NGO | 09/12/2009 | | EUInd | 01/11/2012 |
| IntInd | 08/12/2010 | | IntInd | 13/11/2012 |
| NGO | Sep-11 | | PhInd | 20/11/2012 |
| EUGvt | 25/10/2011 | | IntFS | 04/12/2012 |
| EUGvt | 26/10/2011 | | IntFS | 13/02/2013 |
| EUGvt | 26/10/2011 | | NGO | 06/06/2013 |
| EUGvt | 27/10/2011 | | NGO | 05/09/2013 |
| EUInd | 04/11/2011 | | NGO* | 17/09/2013 |
| EUGvt* | 26/11/2011 | | NGO | 19/09/2013 |
| NGO | 07/12/2011 | | NGO | 20/09/2013 |
| NGO | 16/12/2011 | | NGO | 20/09/2013 |
| EUGvt | 18/01/2012 | | NGO | 20/09/2013 |
| NGO | 04/06/2012 | | USInd | 25/09/2013 |
| NGO | 06/06/2012 | | NGO | 27/09/2013 |
| NGO | 06/06/2012 | | EUInd | 04/10/2013 |
| IntFS | 27/06/2012 | | NGO | 14/10/2013 |
| IntInd | 27/06/2012 | | IntInd | 24/10/2013 |
| IntFS | 02/07/2012 | | IntInd | 02/11/2013 |
| NGO | 06/07/2012 | | EUInd | 05/11/2013 |
| IntInd | 17/09/2012 | | NGO | 07/11/2013 |
| IntInd | 19/09/2012 | | IntFS | 12/11/2013 |
| NGO* | 03/09/2012 | | USInd | 27/02/2014 |
| NGO | 05/10/2012 | | | |

* Interviews conducted with more than one respondent

| CODE | EXPLANATION |
|---|---|
| NGO | Environmental NGO, including certification bodies |
| IntFS | International fisheries specialist (RFMOs, Pacific Island Forum Fisheries Agency, Parties to the Nauru Agreement) |
| xInd | Industry actor from 'x' country<br>(EUInd, USInd, where PhInd = Phlippines and IntInd = international) |
| EUGvt | EU Government official (Commission, Council and Parilament) |

## Summary

The exploitation of tuna fisheries has been expanding since the 1940s. Between 1940 and the mid-1960s, the annual world catch of the principal market species of tuna rose from about 300,000 tonnes to about 1 million tonnes. Since then it has continued to rise to more than 4 million tonnes annually in 2009, with a peak of 6.5 million tonnes in 2007. This growth presents sustainability concerns such as: over-capacity of tuna fisheries; issues associated with bycatch of juvenile tuna and non-tuna species; and the problem of illegal, unreported and unregulated (IUU) fishing activity.

These sustainability concerns associated primarily with purse seine and longline fishing mean governance for sustainable management is imperative. Traditionally, fisheries governance was the domain of state actors but often they failed to live up expectations, leading scholars as well as other stakeholders to question their governance capacity. With states facing limitations in their capacity to govern fisheries, other actors have moved forward into prominent positions. This has resulted in new, innovative governance arrangements emerging that include and engage state, market and NGO actors.

This thesis analyses the capacity of governance innovations to shape practices of production and consumption for tuna sustainability. The research takes the overarching framework of global production network (GPN) governance to look explicitly at sustainability governance and the governance innovations that firm and non-firm actors engage with. The analysis is based on the understanding that governance innovations take as their starting point innovative instruments, which governance actors are designing and using for enhancing the sustainability of tuna production and consumption. This analysis examines governance innovations to understand what groups of actors are producing innovative instruments for sustainability and how these actor-instrument constellations impact the dynamics of the tuna GPN. Hence, the central research question is:

> How do different market- and state-led governance innovations advance the governance of sustainable tuna?

This question was addressed through four case studies, each investigating governance innovations for sustainability in tuna fisheries in the WCPO, targeting European and North American markets. More specifically, it looked at two state-led governance innovations in the West and Central Pacific Ocean (WCPO) both through regional/sub-regional bodies and through the interaction between the EU and the Pacific Islands countries. And at two market-led innovations through looking at the implementation of private standards for certifying tuna fisheries and the firm-NGO development and implementation of consumer-facing traceability systems (CFTS).

Methodologically, the research employed a case study research strategy using semi-structured interviews, participant observation, direct observation and analysis of documents to analyse each of the cases. Research sub-questions were generated for each case study and guided the data collection and analysis. The thesis has six chapters, one for each of the cases and introduction and conclusion chapters.

In Chapter 2, innovations in multilateral governance are presented by looking at the interaction between regional and sub-regional governance platforms in the Western and Central Pacific Ocean. Shifting political alliances and new environmental challenges are prompting debate over processes of sub-regionalisation and whether the interplay between multiple scales of governance leads to positive synergistic outcomes or negative institutional disruption. Regional management of tuna fisheries in the WCPO is an example where a web of treaties, conventions and institutional frameworks underlie international cooperation. Through examining the interplay between the regional Western and Central Pacific Fisheries Commission (WCPFC) and sub-regional Parties to the Nauru Agreement (PNA), this Chapter explores the extent to which the PNA and WCPFC interact in the management of regional transboundary tuna fisheries. The results demonstrate that for contested marine resources such as fisheries, international sub-regions can go beyond functional units to also present wider opportunities to shift power relations in the favour of small island states. Additionally, the presence of sub-regional groups like the PNA has served to challenge the performance of the WCPFC, stimulating greater debate and progress within the regional body. The Chapter concludes that the combined work of the PNA and the WCPFC puts them ahead on many issues and may represent a testing ground for a functional multilateralism based on shared resources and utilising both regional and sub-regional governance platforms.

The case study in Chapter 3 examines the external regulatory strategies of the EU by looking at the implementation and uptake of their IUU Regulation in the WCPO. The EU has taken a leading role in the fight against IUU fishing, using both its market and normative power to advance its EU IUU Regulation (No. 1005/2008) and wider fisheries sustainability agenda outside its territory. This chapter examines how successful the EU has been in using its market and normative power to influence regulatory strategies and frameworks governing tuna fisheries in the Pacific Islands region of the Western Pacific Ocean. The results indicate that while the market power of the EU remains an influential factor, the diminishing normative power of the EU in WCPO is weakening any attempts to implement its IUU fishing regulation and Pacific Island nations have promoted their own regulatory agenda. We conclude that the changing asymmetries between market and normative power has led to a differentiated geography of regulatory uptake, and while market power will remain a dominant strategy for the EU, normative power, when exercised should focus on cooperation rather than 'teaching' the benefits of an EU regulatory approach.

Chapter 4 examines the interaction between the EII Dolphin Safe Certification and the MSC's certification of the PNA skipjack fishery to understand how interactions among certification schemes impact the uptake of the two ecolabels operating in the same GPN. Certification is widely seen as an innovative strategy for dealing with environmental problems in supply chains. As the number of ecolabels available in the fisheries sector has increased, each with its own framing of sustainability, questions are being asked about their credibility. In tuna fisheries, contrasting approaches have led to conflict over, among other things, the credibility of competing ecolabels. This chapter investigates one such conflict between the Dolphin Safe and the Marine Stewardship Council certification schemes in the WCPO. It looks at how key practices like scientific rigour, inclusiveness, transparency/openness, impartiality/independence

and impact contribute to label credibility and explains the importance of authority in understanding how certification schemes maintain influence within global production networks. The results demonstrate that despite substantially different levels of credibility within these networks, the application of an environmental standard is more connected to the authority of the standard setter than the credibility of the label. The paper concludes that understanding the more nuanced role of authority, both with and without credibility, offers new insights into the wider dynamics that shape environmental regulation in global production networks.

Chapter 5 analyses consumer-facing traceability systems in the tuna GPN to understand what their potential is for transforming the production practices of tuna firms in a manner that reflects commitments to responsible practice. Information disclosure, be it voluntary or mandatory, is playing an increasingly central role in global production. The success of traceability in food safety has led to an extension to the traceability of other product 'qualities', including sustainability and provenance. This has seen a shift not only in the information disclosed, but also the audience traceability systems are targeting. This is most obvious in the emergence of so-called CFTS, operating through a code or a label to provide consumers with access to traceable information. Through examining the consumer turn in traceability, this paper investigates various tuna CFTS that have been developed for consumers of tuna in Northern America and Europe, currently the primary markets for these types of systems. By taking a cross-section of tuna-related CFTS, we examine the diversity of CFTS, their drivers and the potential of these systems to change the sustainability performance of tuna production. The results show that while consumer-facing traceability is for the most part a nascent approach, CFTS are being used across the tuna industry, driven by pressure from NGOs, through the sustainable seafood movement. The paper concludes that while this approach to traceability is producing varied degrees of transformation inside the supply chain, instruments like CFTS are bringing new constellations of actors together to tackle issues of sustainable production and consumption.

The final chapter reflects on these case study chapters and draws conclusions related to the core question of the thesis. The conclusions suggest that while GPN governance analyses have traditionally looked at governance as being either state-led or market/lead-firm-led, the cases in this thesis indicate that this state- and market-led distinction is inadequate for understanding sustainability governance in the tuna GPN. Instead, the boundaries between actor groups are blurred. State, market and NGO actors are all demonstrating that their capacity for governance innovation is not derived from being state- or market-led, but is instead generated from their interactions with each other in the context of the tuna GPN. Therefore, for governance innovation to proliferate, actors should not be defined by the governance role they are assigned, but instead be considered as part of a governance innovation network, targeting sustainability in GPNs. The point of departure from analyses of governance in GPNs is that governance innovation networks do not start from the point of production and look incidentally at governance. Instead, the governance innovation network is the starting point and understanding the different dimensions of this network informs how production practices within GPNs will be shaped.

To date most research looking sustainability has tended to focus their attention on one instrument or type of instrument such as a particular policy instrument, or looking at ecolabelling as a key market instrument. While such research provides valuable insight into such individual instruments, it does not provide any insight into broader governance processes associated with the development and implementation of a variety of innovative instruments on the tuna GPN. When looking at innovation for sustainability in tuna fisheries, in the end focusing on a single instrument is therefore not adequate to grasp governance innovation; the innovation is the constellation of various interacting actors engaging in the implementation of different innovative instruments. In the context of tuna, governance innovations for sustainability have come from consolidating and enhancing the activities of actors introducing innovative instruments.

Therefore, in studying governance innovations for sustainable tuna, it is essential to examine the relational nature of actors-cum-instruments and how these combinations constitute a governance innovation network that is related to, but different from, the tuna GPN. To provide analytical clarity to the formation and persistence of governance innovation networks, four key components are put forward: (1) the different framings of sustainability that actors use to justify the instruments used; (2) the instruments themselves; (3) the governance arrangements emerging through combinations of state, market and NGO actors; and (4) the power dynamics between the groups of actors that shape the governance innovation network.

To summarise, through different efforts to both frame and deal with issues surrounding sustainability in the tuna GPN, actors produce innovative instruments to influence production and consumption practices. These instruments interact with each other and with different actors to form actor-instrument arrangements. This interaction leads to a reclassification of actor roles away from their assignation as standard state, market and NGO. In turn, this reclassification presents us with the need to form different concepts of power. For instance, while traditional core-periphery dynamics frequently associated with GPNs are in some ways reinforced, new power dynamics are also emerging that open up the potential for developing states and NGOs to (re)shape GPN practices. Therefore, through governance innovation networks we can understand how the interaction between actors and instruments is reconfiguring GPNs when sustainability moves to the fore.

The Conclusion chapter points to the theoretical contribution of this research to development of the global production networks literature, explaining how the research provides the first in-depth analysis of how private standards as well as public regulation are producing innovative solutions for governance over sustainability in the tuna GPN. Through introducing the concept of governance innovation into the GPN framework, the analysis of innovation in GPNs moves beyond looking at the technical innovations in production processes.

The thesis concludes by formulating policy recommendations around governance innovations for sustainability and recommendations for further research in this area.,

## Samenvatting

De tonijnvisserij is aan het uitbreiden sinds de jaren 40 van de vorige eeuw. Tussen 1940 en halverwege de jaren 60 is de jaarlijkse wereldwijde vangst van de belangrijkste tonijnsoorten gestegen van 300.000 ton tot ongeveer 1 miljoen ton. Hierna heeft er een continue stijging plaatsgevonden naar meer dan 4 miljoen ton per jaar in 2009, met een piek van 6.5 miljoen ton in 2007. Deze groei resulteert in duurzaamheidsvraagstukken zoals: overcapaciteit van de tonijnvisserij; kwesties rondom de bijvangst van jonge (juveniel) vissoorten; en het probleem van illegale, niet-gedocumenteerde en ongereguleerde (IUU) visserijactiviteiten.

Deze duurzaamheidsvraagstukken, primair geassocieerd bij sleepnet en 'long line' vangsttechnieken, maken governance voor duurzaam management noodzakelijk. Visserij governance was traditioneel het domein van overheidsactoren, maar doordat deze vaak niet konden voldoen aan de verwachtingen, twijfelen invloedrijke wetenschappers en andere stakeholders aan hun governance capaciteit. Doordat overheden als onbetrouwbare actoren worden gezien in visserij governance nemen andere actoren in toenemende mate een prominente plaats in. Dit heeft geresulteerd in nieuwe, innovatieve governance arrangementen waarbij overheden, marktpartijen en NGO actoren betrokken zijn.

Deze dissertatie analyseert de capaciteit van governance innovaties in het sturen richting duurzame productie en consumptie van tonijn. Het onderzoek neemt *global production network* (GPN) governance als alomvattend kader voor de analyse van duurzaamheid governance en governance innovaties van zowel bedrijven als niet-bedrijven. De analyse is gebaseerd op de idee dat governance innovaties innovatieve instrumenten als startpunt nemen. Deze instrumenten worden ontworpen en gebruikt voor het verbeteren van duurzame productie en consumptie van tonijn. Governance innovaties worden onderzocht om te begrijpen welke groepen actoren innovatieve instrumenten produceren voor duurzaamheidsdoeleinden en hoe deze actor-instrument constellaties de dynamiek van tonijn GPN beïnvloeden. De centrale onderzoeksvraag luidt: "Hoe versterken verschillende markt- en overheid-gestuurde governance innovaties de governance van duurzame tonijn?"

Voor het beantwoorden van deze onderzoeksvraag zijn vier case studies geanalyseerd. Deze case studies onderzoeken de governance innovaties voor duurzaamheid van tonijn uit de Westelijke en Centrale Stille Oceaan (WCPO), gericht op Europese en Noord Amerikaanse markten. Twee cases zijn specifiek gericht op overheid-gestuurde governance innovaties in de WCPO, door zowel regionale/sub regionale lichamen als door de interactie tussen de EU en de eilandstaten in de Stille Oceaan. Twee andere cases richten zich op markt-gestuurde innovaties: de implementatie van private standaarden voor het certificeren van tonijn visserij en de implementatie van op consument gerichte traceerbaarheidssystemen (CFTS)

Methodologisch past dit onderzoek een case studie benadering toe. Om de cases te analyseren is gebruik gemaakt van verschillende methoden: semigestructureerde interviews, participerende observatie, directe observatie en document analyse. Voor elke case zijn deelonderzoeksvragen gegenereerd en deze waren leidend in de data

verzameling en analyse. Deze thesis heeft zes hoofdstukken, een voor elk van de case studies, aangevuld met een introductie en conclusie hoofdstuk.

In hoofdstuk 2 worden innovaties in multilaterale governance gepresenteerd door het analyseren van interactie tussen regionale en sub-regionale governance platforms in de WCPO. Verschuivende politieke allianties en nieuwe uitdagingen op milieugebied stimuleren een debat over processen van sub-regionalisatie en het samenspel tussen de verschillende schalen van governance leidt tot positieve synergistische uitkomsten of tot negatieve institutionele verstoringen. De regionale *West and Central Pacific Fisheries Commission* (WCPFC) en de sub-regionale *Parties to the Nauru Agreement* (PNA) interacteren in het management van regionale grensoverschrijdende tonijnvisserij. Een analyse van die interactie laat zien dat voor betwiste mariene hulpbronnen zoals visserij internationale sub-regionale organisaties kansen bieden voor een verschuiving in de machtsbalans in het voordeel van de kleine eilandstaten. Bovendien zorgt de aanwezigheid van sub-regionale groepen zoals de PNA ervoor dat de prestaties van de WCPFC besproken worden, wat leidt tot het stimuleren van een breder debat en vooruitgang binnen dit regionale bestuurslichaam. De conclusie luidt dat het gecombineerde werk van de PNA en de WCPFC hen een voorsprong geeft op veel onderwerpen en als proeftuin kan fungeren voor een functioneel multilateralisme gebaseerd op gedeelde hulpbronnen en gebruikmakend van regionale en sub-regionale governance platforms.

De casus in hoofdstuk 3 betreft de externe regelgeving strategieën van de EU, door te kijken naar de implementatie en opname van hun IUU wetgeving in de WCPO. De EU heeft een leidende rol op zich genomen in het gevecht tegen IUU visserij, waarbij het zowel zijn marktmacht als normatieve macht gebruikt om de EU IUU wetgeving (Nr. 1005/2008) te versterken en haar visserijduurzaamheidsagenda te verspreiden buiten de eigen EU gebieden. In dit hoofdstuk wordt geanalyseerd hoe succesvol de EU is geweest in het gebruik maken van zijn marktmacht en normatieve macht om de wettelijke raamwerken voor tonijnvisserij te beïnvloeden in de Stille Zuidzee. De resultaten laten zien dat hoewel de marktmacht van de EU nog steeds een belangrijke factor is, de verminderende normatieve macht van de EU in de WCPO ervoor zorgt dat de pogingen om de EU IUU visserijwetgeving geïmplementeerd te krijgen in de Stille Oceaan zwakker worden en dat de Stille Oceen eilanden er steeds beter in slagen hun eigen wetgevenede agenda te implementeren. We concluderen dat de veranderende asymmetrie tussen marktmacht en normatieve macht heeft geleid tot een gedifferentieerde geografie van opname van EU richtlijnen; en dat terwijl marktmacht een dominante strategie voor de EU blijft, de normatieve macht zich steeds meer moet richten op samenwerking in plaats van het ‘onderwijzen’ van de voordelen van een EU-achtige wetgevende aanpak.

Hoofdstuk 4 onderzoekt de interactie tussen de *Earth Island Institute (EII) Dolfin Safe Certification* en de certificatie van de PNA skipjack visserij door de *Marine Stewardship Council* (*MSC).* Deze vergelijking is opgezet om te begrijpen hoe interacties tussen certificatie schema’s een impact hebben op de opname van twee keurmerken die in hetzelfde GPN actief zijn. Certificatie wordt veelal gezien als een innovatieve strategie voor het omgaan met duurzaamheidsproblemen in de productieketen. Doordat er een stijgend aantal keurmerken beschikbaar is in de

visserijsector, elk met zijn eigen definitie van duurzaamheid, worden vragen gesteld over hun geloofwaardigheid. In de tonijnvisserij zorgen contrasterende aanpakken voor conflicten over, onder andere, de geloofwaardigheid van tegenstrijdige keurmerken. In dit hoofdstuk wordt een dergelijk conflict onderzocht tussen de EII *Dolfin Safe* en the *MSC* certificatie schema's in de WCPO. De analyse kijkt naar hoe kenmerken zoals wetenschappelijke strengheid, inclusiviteit, transparantie/openheid, onpartijdigheid/onafhankelijkheid, en impact bijdragen aan de geloofwaardigheid van de keurmerken en legt uit wat het belang van autoriteit is in het begrijpen hoe certificering schema's invloed behouden in mondiale productie netwerken. De resultaten laten zien dat, ondanks substantieel verschillende niveaus van geloofwaardigheid in deze netwerken, de toepassing van een milieustandaard meer verbonden is met de autoriteit van de standaardgever dan met de geloofwaardigheid van het keurmerk. Dit hoofdstuk concludeert dat het begrijpen van de meer genuanceerde rol van autoriteit, zowel met als zonder geloofwaardigheid, nieuwe inzichten geeft in hoe milieuregulering vorm wordt gegeven in mondiale productie netwerken.

In hoofdstuk 5 worden op consument gerichte traceerbaarheidssystemen (CFTS) in de tonijn GPN geanalyseerd om te begrijpen wat hun potentieel is voor de transformatie van productiepraktijken van tonijnbedrijven richting duurzaamheid. Het openbaar maken van informatie, vrijwillig of verplicht, speelt een steeds centralere rol in mondiale productieketens. Het succes van traceerbaarheid in voedselveiligheid heeft geleid tot een uitbreiding van de traceerbaarheid van andere 'productkwaliteiten', waaronder duurzaamheid en herkomst. Deze verschuiving wordt niet alleen gezien in de informatie die openbaar wordt gemaakt, maar ook in het publiek waar de traceerbaarheidssystemen zich op richten. Dit is het duidelijkst in het ontstaan van zogenaamde CFTS, die opereren via een code of keurmerk om consumenten te voorzien in toegang tot traceerbare (product en productie) informatie. In dit hoofdstuk worden verschillende tonijn CFTS onderzocht die ontwikkeld zijn voor consumenten van tonijn in Noord Amerika en Europa, de primaire markten voor deze typen systemen. Door het nemen van een cross-sectie van aan tonijn gerelateerde CFTS, onderzoeken we de diversiteit van CFTS, de drijvers achter deze CFTS en de mogelijkheden van deze systemen om de duurzaamheidspresentaties te veranderen. De resultaten laten zien dat terwijl op consument gerichte traceerbaarheid voor het grootste gedeelte een beginnende aanpak is, de CFTS steeds meer gebruikt worden in de tonijnindustrie, gedreven door druk vanuit NGOs en de 'duurzame vis' beweging. We concluderen dat dat deze traceerbaarheid resulteert in verschillende gradaties van verandering in de productieketen, en dat instrumenten zoals CFTS nieuwe actor constellaties samenbrengen die onderwerpen zoals duurzame productie en consumptie aanpakken.

Het afsluitende hoofdstuk reflecteert op deze case studie hoofdstukken en trekt conclusies op hoofdlijnen van de thesis. De conclusies suggereren dat, terwijl analyses van GPN governance zich oorspronkelijk richten op governance als ofwel overheid gestuurd ofwel markt/bedrijven gestuurd, de casussen in deze studie laten zien dat dit onderscheid tussen overheids- en markt-gestuurde governance ontoereikend is voor het begrijpen van duurzaamheid governance in de tonijn GPN. In plaats hiervan worden de grenzen tussen de verschillende actor groepen steeds vager.

De capaciteit voor governance innovatie is niet terug te voeren is op overheid- of marktgestuurde governance, maar wordt in plaats hiervan gegenereerd door de interacties tussen publieke en private actoren in het bereik van de tonijn GPN. Het is dus belangrijk voor het verspreiden van governance innovaties dat actoren niet gedefinieerd worden aan de hand van de governance rol die zij toegekend hebben gekregen, maar gezien worden als onderdeel van een governance innovatie netwerk, gericht op duurzaamheid in GPNs. Het vertrekpunt van analyses van governance in GPN is dat de governance innovatienetwerken niet beginnen bij de productie en alleen incidenteel kijken naar governance. In plaats hiervan moet het governance innovatie netwerk het startpunt zijn en moet het begrijpen van verschillende dimensies van dit netwerk inzicht geven in hoe productie praktijken binnen GPNs worden gevormd.

Op dit moment richt het meeste duurzaamheidsonderzoek zich op één instrument of type instrument, zoals duurzaamheidskeurmerken als het belangrijkste markt instrument. Ondanks dat dit soort onderzoek waardevolle inzichten verschaft in zulke individuele instrumenten, voegt het geen verdere inzichten toe aan de bredere governance processen die geassocieerd worden met het ontwikkelen en implementeren van een verscheidenheid aan innovaties in de tonijn GPN. Het richten op een individueel instrument is niet adequaat om governance innovatie in de tonijnvisserij te begrijpen; de innovatie bestaat uit de constellatie van verschillende interacterende actoren die zich verbinden in de implementatie van verschillende instrumenten.

In de studie naar governance innovaties voor duurzame tonijn, is het essentieel om de relationele aard van de actoren-cum-instrumenten te onderzoeken en hoe deze combinaties een governance innovatienetwerk neerzetten dat gerelateerd is aan, maar verschilt van, de tonijn GPN. Om analytische duidelijkheid te brengen in de formatie en volharding van governance innovatienetwerken, worden vier componenten naar voren gebracht: (1) de verschillende manieren waarop actoren duurzaamheid definiëren om de gebruikte instrumenten te rechtvaardigen; (2) de instrumenten zelf; (3) de governance arrangementen die tot stand komen door de combinaties van overheid, markt en NGO actoren; en (4) de macht dynamieken tussen de groepen actoren die het governance innovatie netwerk vorm geven.

Samenvattend kan worden gesteld dat door verschillende inspanningen rondom zowel het definiëren als het omgaan met duurzaamheid in de tonijn GPN actoren innovatieve instrumenten produceren die de productie en consumptie praktijken van tonijn beïnvloeden. Deze instrumenten interacteren met elkaar en met verschillende actoren en vormen actor-instrument arrangementen. Deze interacties leiden tot een herclassificatie van actor rollen, voorbij de standaard indeling van overheid, markt en NGO. Dit classificatieproces presenteert de noodzaak om verschillende concepten van macht te vormen. Bijvoorbeeld, terwijl traditionele kern-periferie dynamieken (veelvuldig geassocieerd met GPNs) in sommige gevallen worden versterkt, ontstaan er ook nieuwe machtsdynamieken die mogelijkheden creëren voor zich ontwikkelende overheden en NGOs om hun GPN praktijken te hervormen. Daarom kunnen we door governance innovatienetwerken begrijpen hoe de interactie tussen

actoren en instrumenten GPNs anders worden geconfigureerd als duurzaamheid op de voorgrond treedt.

Het concluderende hoofdstuk wijst op de theoretische bijdrage van dit onderzoek aan de ontwikkeling van de mondiale literatuur over productienetwerken, met een eerste diepte analyse van hoe private standaarden alsook publieke wetgeving innovatieve oplossingen produceren voor governance voor duurzaamheid in de tonijn GPN. Door het introduceren van het concept governance innovatie in het GPN raamwerk wordt de analyse van innovatie in GPNs breder als alleen het bekijken van technische innovaties in het productie proces.

De thesis concludeert met het formuleren van beleidsaanbevelingen rondom governance innovaties voor duurzaamheid en aanbevelingen voor verder onderzoek in dit gebied.

## About the Author

Alice M.M. Miller was born and went to schoool in London, UK. She then studied Biological Science, with Honours in Zoology, at Edinburgh University. Whilst there she developed a keen interest in marine conservation, using her holidays to gain further education and work experience in this field. In 2005 after graduating she spent a year working with Blue Ventures, a marine conservation organisation, developing their conservation programme for small-scale sustainable octopus fisheries in Madagascar.

In 2006 Alice went to the University of Sussex to study for a Masters in Environment, Development and Policy. She used her experience with Blue Ventures to develop her thesis on the socio-ecological impacts of no-take zones in the octopus fisheries in southwest Madagascar.

During 2007 she worked for a year on capture fisheries and aquaculture projects at the WorldFish Centre in Bangladesh and on returning to the UK took up a teaching and research fellowship at the University of Leeds' Sustainability Research Unit.

Whilst at Leeds she decided to start a PhD and the following year, in 2009, she began at UCL as an un-funded PhD student. The initial focus of her research was the governance of marine protected areas but this subsequently shifted to looking at governance in tuna fisheries and led her to join Wageningen University's Environmental Policy Group, where she completed her studies.

Since handing in her PhD thesis, Alice has been working with the World Wide Fund for Nature's Smart Fishing Initiative, as their European Tuna Coordinator. She has also worked throughout her PhD as a writer and editor for the International Institute for Sustainable Development's Earth Negotiations Bulletin.

**Alice Miller**

**Completed Training and Supervision Plan**
**Wageningen School of Social Sciences (WASS)**


| Name of the learning activity | Department/Institute | Year | ECTS* |
|---|---|---|---|
| **A) Project related competences** | | | |
| Arts & Humanities Research Skills Programme for Research Students | UCL | 2009 | 1 |
| Qualitative and Quantitative Research Methods | UCL | 2009 | 10 |
| Geography Postgraduate Training Weekend | UCL | 2009 | 5 |
| Writing research proposal | WUR | 2011 | 6 |
| ENP research seminar | WUR | 2011-2013 | 2 |
| Social Theory and the Environment (ENP 32806) | WUR | 2011 | 6 |
| BESTTuna course | WUR | 2013 | 3 |
| **B) General research related competences** | | | |
| "Standards for sustainability: hybridised governance in the European canned tuna market" | Centre for Maritime Research MARE Conference | 2011 | 1 |
| Working on Secretariat at 9th West and Central Pacific Fisheries Commission Meeting | West and Central Pacific Fisheries Commission | 2012 | 2 |
| "Shifting Sustainability: Innovation and Competition Through Ecolabelling in Tuna Fisheries" | Workshop: Responsible Supply Chains and Networks (Södertörns Hogskola) | 2012 | 1 |
| "Europeanization Beyond Europe: EU Regulation of Tuna Trade and Production in the Western and Central Pacific" | Kolleg Forschergruppe (KFG) | 2013 | 1 |
| Organisation ENP PhD trip to Denmark and Sweden | ENP | 2012 | 2 |
| **C) Career related competences/personal development** | | | |
| Course administration and teaching: Environmental quality and governance (ENP 35806) | WUR | 2013 | 1 |
| Course administration and teaching: Environment and development (ENP 3306) | WUR | 2013 | 1 |
| Guest lectures: Ocean and coastal governance | WUR | 2012-2013 | 1 |
| Teaching assistant | UCL | 2009-2010 | 1 |
| **Total** | | | **44** |

*One credit according to ECTS is on average equivalent to 28 hours of study load