Ocean & Coastal Management 135 (2017) 79–92

Contents lists available at ScienceDirect

Ocean & Coastal Management

journal homepage: www.elsevier.com/locate/ocecoaman

# Impediments to fisheries sustainability – Coordination between public and private fisheries governance systems

Alexis T. Gutiérrez [a, b, *], Siân Morgan [c, d]

[a] Environmental Change Institute, Oxford University Centre for the Environment, South Parks Road, Oxford OX1 3QY, UK
[b] NOAA Fisheries Service, 1315 East-West Highway, Silver Spring, MD 20910, USA
[c] SCS Global Services, 2000 Powell St., Emeryville, CA 94608, USA
[d] Institute for Oceans and Fisheries, Project Seahorse, University of British Columbia, AERL, 2202 Main Mall, Vancouver, BC V6T 1Z4, Canada

ARTICLE INFO

*Article history:*
Received 11 August 2014
Received in revised form
19 October 2016
Accepted 24 October 2016
Available online 12 November 2016

*Keywords:*
Non-state market-driven governance
Seafood certification
Fisheries governance
Network governance
Sustainable Seafood Movement

ABSTRACT

The Sustainable Seafood Movement (movement) arose in reaction to government fisheries managers' inertia and failure to prevent overfishing, overcapacity and impacts on the ecosystem. This movement has successfully developed non-state market-driven governance tools to catalyse improvements in fisheries governance. Non-state market-driven governance is often discussed in the context of certification programs such as the Marine Stewardship Council (MSC), but this is just one facet of a diversified, multi-pronged governance regime that has been created to improve the sustainability of fisheries; others include fisheries improvement projects, sustainable seafood sourcing policies, and traceability schemes. Movement actors use these non-state market-driven governance tools to reform fisheries governance through the supply chain.

While recognition exists in the literature of the continued importance of fisheries governance reform, the complementary nature and the need for improved coordination between public governance and non-state market-driven governance efforts is insufficiently explored. Few actors in either sector understand fully the work of the other. Using the United Kingdom and the United States as case studies, this paper contrasts public governance mechanisms with non-state market-driven governance mechanisms to highlight where their efforts are complements, substitutes, rivals, or monopolies. Understanding the roles and structures of these governance regimes is necessary to identify impediments to coordination as well as possible solutions.

Published by Elsevier Ltd.

## 1. Introduction

The administration of fisheries governance is increasingly shared through formal and informal arrangements between government and non-government actors (Acheson, 2003; Gibbs, 2008). In the past, the continuum of involvement by non-government actors has ranged from formally established stakeholder groups like, the U.S. Fishery Management Councils or Take Reduction Teams, to formal co-management arrangements (McCay and Jentoft, 1996). However, over the last two decades supply chain based non-state market-driven governance regimes have emerged. In this context, shared governance takes place not through negotiated arrangements or co-management agreements between non-government and government actors. Rather this regime uses new tools and has developed outside of government led processes, largely as a result of the efforts of what has come be known as the Sustainable Seafood Movement (referred to henceforth as "movement") (Gutiérrez and Morgan, 2015).

This social movement is trans-national and composed of ten principal sectoral actors including environmental non-governmental organizations (ENGOs), foundations, certification schemes, verification experts, retailers/food service providers, chefs, the fishing industry, academics, consumers, and the media. The movement arose in response to the failure of governments to prevent and stop the decline of capture fisheries (Jacquet and Pauly, 2007; Sutton and Wimpee, 2008). The movement's principal objective is to improve the sustainability of fish stocks and

* Corresponding author. Permanent address: NOAA Fisheries Service, 1315 East-West Highway, Silver Spring, MD 20910, USA.
*E-mail addresses:* alexistgutierrez@gmail.com, Alexis.Gutierrez@noaa.gov (A.T. Gutiérrez).

http://dx.doi.org/10.1016/j.ocecoaman.2016.10.016
0964-5691/Published by Elsevier Ltd.

associated ecosystems so that benefits can continue to accrue in the seafood supply chains. To accomplish this, actors a.) use the pressure of the seafood supply chain to improve the sustainability of the fishing industry, b.) use the pressure of the seafood supply chain and the fishing industry to improve government regulation and c.) generate international frameworks that allow for a common understanding of the status of fisheries relative to key sustainability goals/metrics among diverse sectors and members from different nation-states (Gutiérrez and Morgan, 2015). To achieve these objectives, the movement has established non-state market-driven governance tools in the global seafood supply chain. These non-state market-driven governance tools include seafood certification schemes, like the Marine Stewardship Council (MSC), fishery improvement projects, seafood sourcing policies, traceability schemes and voluntary truth-in-labelling guidelines. Further, the actors in Sustainable Seafood Movement participated in the processes to develop the standards for these tools, such as the Guidelines for Fishery Improvement Projects. This ensured broad support across these diverse actor groups. Through these tools, the movement has garnered credibility and authority in the global seafood supply chain that often resembles that held by government bureaucracies' whose responsibility it is to regulate that same supply chain. Consequently, the movement has increased its authority and credibility in the operational governance of the seafood supply chain and thus has increased its influence over fisheries governance.

There is value to analyzing this interaction between non-state market-driven governance and public governance from a positive sum perspective rather than a zero sum perspective (Bell and Hindmoor, 2011). If greater coordination occurred between these governance systems, could fisheries sustainability be more rapidly improved? Using the United States and the United Kingdom as case studies, this article presents an analysis of the areas where public governance of commercial fisheries and non-state market-driven governance tools rival, complement, or substitute for one another and also where they are non-rivals (monopolies). We identify impediments to coordination and mechanisms with the capacity to improve coordination.

### 1.1. Background

#### 1.1.1. What is governance?

A number of definitions of governance exist, depending on the disciplinary perspective (Kjaer, 2004). In this paper, we discuss two types of governance, public governance and a type of private governance, known as non-state market-driven governance. We use Rhodes' definition of governance, which comes from a public policy perspective, to frame our discussion of the concept of governance. He articulates governance as the self-organising, interorganisational networks characterized by interdependence, resource-exchange, and regulated by rules of the game (Rhodes, 1997). While there is significant degree of autonomy from the state, Rhodes contends the state still influences these networks (Rhodes, 1997).

Within governance, there can be public and private governance. As Reff Pedersen summarizes, Weber and other governance scholars have characterized public governance as carried out by a sovereign ruler or executive that controls the governance process through organized bureaucracies that have the authority to develop and implement policies (Reff Pedersen et al., 2011). In private governance, policy-making systems that derive their authority not from the states but, from markets and associated consumer preference (Cashore, 2002). As Smith notes, "private governance comes about when private actors take fields of governmental intervention into their own hands, and apply to them instruments that are customarily part of the private sphere (Smith and Fischlein, 2010)." Private governance is not merely self-regulation, as there is not necessarily uniformity of approaches within private governance or an effort to preempt government regulation (Smith and Fischlein, 2010).

A key characteristic of governance is the interdependence between organizations to carry out the governing of society (Rhodes, 1997). Documenting the emergence of governance during the Thatcher/Reagan era of neo-liberalism, Rhodes evaluated the use of markets to deliver public services as opposed to government command and control (Kamarck, 2002; Rhodes, 1997). He found that this fostered a proliferation of networks of organizations to carry out these services (Rhodes, 2007). These organizations had to develop networks to coordinate and cooperate in order to achieve their goals. Thus, interdependent policy networks composed of non-state and/or state actors emerged. The term "network governance" was coined to capture this phenomenon (Rhodes, 2007).

Networks are different to bureaucracies as they are characterized by trust and diplomacy as opposed to authority and rules (Rhodes, 2007). These policy networks may be autonomous and self-organising, and thus are not accountable to the state (Rhodes, 2007). Organizations participate voluntarily and through their interactions they determine their shared goals and norms. Actors in the network are deemed as credible (trustworthy and reliable), based on their social and technical interactions with other actors in the network (Boström, 2006). Actors garner authority and legitimacy by creating obligations between themselves and other actors (Auld, 2009), and in order to cooperate, they have to trust one another, which eventually creates interdependencies (Rhodes, 2007).

As networks have become the means to deliver the governance of public services, political systems became fragmented across government and non-government organizations (Kjaer, 2004). This fragmentation has led to the idea that "steering" these networks is needed. There are two perspectives on how steering can be achieved – state steering or self-steering. The latter refers to a top down approach with governments steering networks, where the former refers to self-organising networks. These self-organizing networks can either support or oppose the implementation of policies and thus work positively or negatively with efforts to steer (Kjaer, 2004). Since networks are based on trust and reciprocity, diplomacy is the means to resolve conflict and coordinate actions amongst participants, instead of rules and commands (Kjaer, 2004). This paper will explore the interplay between the public and private sustainable fisheries governance networks and introduce approaches to overcome the fragmentation that has occurred.

#### 1.1.2. Why is governance needed in commercial fisheries?

By the 1990s, scientists were calling fisheries "a global disaster" in both developed and developing countries (Pauly, 1995). By the turn of the 21st century, developed countries were starting to make small steps towards regulatory reforms, but a significant portion of global fish stocks remain overfished (Worm et al., 2009). The 2014 Food and Agriculture Organisation's (FAO) State of the World Fisheries and Aquaculture assessed marine fish stocks and showed that those fished within biologically sustainable levels had declined from 90% to 71.2% between 1974 and 2011 (FAO, 2014). At the same time, worldwide consumption of seafood continues to grow, particularly as globally, three billion people are expected to enter the middle class by 2030 (WEF, 2012).

Marine capture fisheries are a common-pool resource that represents a collective action problem. Perspectives offered by Hardin and Ostrom are two approaches to collective action problems of common-pool resources – command and control from a

central government or local management through co-management arrangements. Hardin saw the "Tragedy of the Commons" as "rational herdsmen" each seeking to "maximize his gains" (Hardin, 1968). In a common property situation under no, or weak regulation, the rational actor is incentivized to use the resource to the greatest extent possible to maximize gains, lest the common resources be depleted by others. In doing so, according to Hardin "[r]uin is the destination toward which all men rush, each pursuing his own best interest in a society that believes in the freedom of the commons. Freedom in a common brings ruin to all (Hardin, 1968)." Hardin saw the "tragedy of the commons as a cesspool [that] must be prevented by different means, by coercive laws or taxing devices that make it cheaper for the polluter to treat his pollutants than to discharge them untreated" (Hardin, 1968). Hardin's framing contributed to arguments for privatization and strong, centralised government management of common pool resources. In the fisheries realm, this would manifest through states' claims of Exclusive Economic Zones (EEZs) and moves to establish individual fishing quotas or catch shares, to end the "race for fish (Costello et al., 2008; Oosterveer, 2008)."

Ostrom, on the other hand, advocated for recognition that communal institutions and actors can effectively govern common pool resources (Ostrom, 2003) when effective common property regimes have clear boundaries, rules and norms and compliance mechanisms (Feeny et al., 1990; McCay and Jentoft, 1996; Ostrom, 2012). For example, the territorial system of Maine lobstermen developed organically and effectively, without privatization or government (Acheson, 2003). For Ostrom, such organic governance may evolve as a multi-scale activity that can range from small family units up to global arrangements. When these diverse governance systems are arranged polycentrically from small to very large, collective action problems on multiple scales can be tackled. She concludes that "no magic solution" exists to address collective action problems, but that there are design principles that sustain small to medium systems over time (Ostrom, 2012). The Ostrom perspective shifts the focus from government to governance. As Stoker notes, "governance is ultimately concerned with creating the conditions for ordered rule and collective action. The outputs of governance are not therefore different from those of government. It is rather a matter of a difference in processes (Stoker, 1998)."

While Ostrom and Hardin present different approaches to governing common pool resources, neither denies the need for management of these resources. Marine capture fish stocks are the last food source still harvested from the wild and in most countries are viewed as a public good (Gibbs, 2008). Governance is needed to ensure the sustainability of capture fisheries for present and future generations for food security and because governments have a responsibility to maintain functioning ecosystems into the future (FAO, 1995).

State-led management (henceforth referred to as public governance) is more closely aligned with Hardin's theory of common pool resources, employing means to establish property rights and tools to command and control. However, strong centralised governance of fisheries can be cumbersome and expensive to regulate, particularly if there are divergent interests between managers and fishers. Increasingly, Western fisheries managers have looked towards establishing property rights through individual fishing quotas to reduce overcapacity and provide appropriate incentives to steward resources (Costello et al., 2008). Such systems may still invoke aspects of command and control, but at a localized level, among actors who have a stake in the resource and are sanctioned in a controlled fashion to participate in the fishery.

Community driven management and co-management have been employed by fisheries managers as well, but not to the same level as systems that rely on command and control measures (McCay and Jentoft, 1996). Ostrom's work suggests that public governance by itself is not sufficient to address collective action problems and thus argues for the need to go beyond government led systems to governance systems that include non-state actors. Increasingly fishery scientists have endorsed such multi-scale, multi-level governance systems, particularly for small-scale fisheries and for non-vertically integrated fisheries which present fewer predictable control points for systemic, top-down management (Hilborn and Hilborn, 2012; Worm and Branch, 2012).

#### 1.1.3. Network governance in the public governance of fisheries

As discussed earlier, the evolution of government to governance has been characterized by the emergence of networks to tackle governance issues. The fisheries sector is no different. Gibbs detailed the emergence of network governance in the fisheries sector due to the failure of traditional command and control authority to prevent overfishing (Gibbs, 2008). In these policy networks, ENGOs, who did not directly profit from fishing, began to extend their participation beyond lobbying and engaging in public consultation, to one of active engagement in the public governance of fisheries (Gibbs, 2008). As Gibbs notes, "… under network governance information and influence are shared throughout the network of stakeholders and management decisions are emergent properties of the network (Gibbs, 2008)." Gibbs attributed this phenomenon to globalisation and the rapid flow of information with the emergence of Internet technology and the internationalization of policy issues (Gibbs, 2008).

However, other key drivers existed. As ENGOs engaged more in public consultations on fisheries management, they recognized that the strength of the fishing industry's influence over regulators was too great to be overcome solely by increasing their involvement in these processes and lobbying regulators (Sutton and Wimpee, 2008). Instead, the dynamic needed to be changed by involving actors with fiscal control over key access points in the seafood supply chain. In particular, the power dynamic shifted to give non-governmental actors more influence once corporate buyers started entering cooperative arrangements with ENGOs either proactively or because of fear of brand risk from being named and shamed.

Philanthropic foundations and powerful international non-governmental organizations working together, laid the foundation for the Sustainable Seafood Movement that aimed to reform the public governance of capture fisheries through the supply chain. This in turn contributed to a growing network of actors engaged in various and diverse forms of decentralized fisheries governance that influenced both public fisheries governance and the seafood supply chain (Jacquet et al., 2009; Konefal, 2013). Gibbs' analysis did not account for this emergence of a non-state market-driven governance structure in the supply chain and mainly looked at the influence of non-governmental actors on public governance, when in fact two phenomena were occurring simultaneously (Gibbs, 2008).

#### 1.1.4. The Sustainable Seafood Movement and non-state market-driven governance

The Sustainable Seafood Movement arose between 2000 and 2005, as loose, organic relationships among collaborative ENGOs: from 2005 to 2015, these relationships became formalized. Associations had the opportunity to solidify, scale and deepen in unique ways with the help of funds provided for coordination via philanthropic foundations. These resources created unusual opportunities for ENGO actors to form supportive networks among players that while philosophically in alignment, may have otherwise competed in similar professional niches for access to foundation funds.

During the same time period (2005–2015), a diverse assortment

of players (certification schemes, verification experts, retailers/food service providers, chefs, the fishing industry, academics, consumers, and the media) worked with ENGOs and were supported by philanthropic funding to create shared initiatives and overcome differing approaches (Gutiérrez and Morgan, 2015; Jacquet et al., 2009; Jacquet and Pauly, 2007; Konefal, 2013; Sutton and Wimpee, 2008). Whereas previous efforts had remained siloed within sectoral lines, this decade saw the proliferation of projects with diverse players working in novel collaborations often with dense points of inter-organizational connections. Key thought leaders from each of the actor groups worked together for the first time and developed innovative approaches that had heretofore not been employed in fisheries governance.

Retailers recognized the need to ensure fisheries sustainability to maintain long-term access to key products. Likewise, fishermen and seafood processors recognized that dwindling stocks jeopardized their long-term livelihoods. ENGOs also produced a series of actionable tools for market actors. Further, a clear understanding of shared values facilitated by joint projects birthed a new level of mutual respect and potential for productive dialogue between non-traditional allies (Gutiérrez and Morgan, 2015). The movement's focus on market-based fisheries reform also broadened the stakeholder base for fisheries governance from traditional participants, to include actors in the entire supply chain, some of whom did not previously participate in fisheries consultations or other aspects of public fisheries governance (e.g., retailers, verifications experts, and standard holders).

This shift differed from the 1990s trend of governments to devolve authority through deregulation, as it was initiated not by governments but by the aforementioned non-governmental actors. The movement actors collaborate outside of public governance processes to fill roles government agencies ceded, either due to resource constraints or shifts in priorities. These actors also create and fulfill roles in the supply chain that governments do not have the mandates for, or jurisdiction to govern. For instance, the movement has developed a series of market-based tools that include seafood certification schemes, such as the MSC. These tools create norms and compliance regimes outside of government processes, in order to improve seafood sustainability. In doing so, the movement developed a type of private governance, known as non-state market-driven governance. As Cashore detailed, non-state market-driven governance occurs when the "market and its supply chain provides the institutional setting within which governing authority is granted and through which broadly based political struggles occur (Cashore, 2002)." Actors are incentivized to participate because of a desire for market access or increased market share (Roheim et al., 2011). As supply chain actors have agreed to use these tools, the movement has obtained legitimacy and authority (Cashore, 2002). Non-state market-driven governance tools may function as complements, substitutes, rivals or monopolies, relative to public governance processes.

## 2. Methods

This article complements the authors' earlier article on the Sustainable Seafood Movement in the United States and the United Kingdom (Gutiérrez and Morgan, 2015). Our investigation initially focused on the role that different actors played in seafood ecolabelling. Based on the results of the 27 interviews, with actors in the fishing industry, environmental non-governmental organizations, governments, academia, the retail sector and certification organizations the study was broaden to examine the Sustainable Seafood Movement and all of its governance tools. From these interviews we identified the 10 sectors that compose the movement, their roles and the cultural models that underpinned their shared objectives. Based on the analysis of the interview data and review of peer-reviewed literature, we identified several non-state market-driven governance tools that were used in addition to, or instead of, public fisheries governance tools. This article explores how these systems relate to each other via the following questions –

a) What is the public governance regime for sustainable seafood in the U.S. and U.K. markets?
b) What is the non-state market-driven governance regime for sustainable seafood in the U.S. and U.K. markets?
c) How does the nature of these governance regimes differ?
d) How do public and private governance tools complement, substitute, exclude (monopolies) and rival each other?
e) Why is coordination beneficial between public and private governance regimes?
f) What are the impediments to coordination?

The United States and the United Kingdom serve as case studies for this article, since these supply chains were identified by the proponents of the Sustainable Seafood Movement as the "natural starting place" given their large markets for high-valued seafood in the global market (Packard, 2012). There is also a regular dialogue as well as exchange of the thought leaders on numerous public policy issues, including those related to marine conservation. ENGOs in the two countries often share ideas and approaches such that advocacy campaigns spill over between the two countries, (e.g., Greenpeace supermarket rating report started in the U.K. and once successful, was expanded to the U.S.). Each country's government, one a parliamentarian democracy and the other a federal system, lead to differences in policy implementation. However, they maybe influenced by similar policy approaches. For instance, both governments subscribed to neo-liberalist approaches during the Thatcher/Reagan era and more recently both governments were being advised by the architects of libertarian paternalism, Sunstein and Thaler (Pykett et al., 2011). This provides an opportunity to compare and contrast how the U.S. and U.K. governments have coordinated with non-state actors and, where possible, identify lessons learned from coordinating public and private fisheries governance in one country that could be applied to the other.

## 3. Results

This section is structured around the five questions raised in the methods section.

### 3.1. What is the public governance regime for sustainable seafood in the U.S. and U.K. markets?

The U.S. and U.K. governments have a legislated role to manage fisheries. In the United States, the principal fisheries legislation is the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson Act) which aims "to take immediate action to conserve and manage the fishery resources found off the coasts of the United States, and the anadromous species and Continental Shelf fishery resources of the United States" through exercising sovereign rights within the EEZ and exclusive fishery management authority beyond the EEZ (MSRA, 2007). In the U.K., the Marine Management Organisation under the authority of the Marine and Coastal Access Act of 2009 manages the inshore fisheries of England and Wales. As a member of the European Union (EU), the U.K. also abides by the EU Common Fisheries Policy, which was reformed in 2013. The Common Fisheries Policy has many similar objectives to the

Magnuson-Stevens Act including managing fisheries in an "environmentally sustainable" manner over the long-term that are "consistent with the objectives of achieving economic, social and employment benefits, and of contributing to the availability of food supplies (EU, 2013)."

While the Sustainable Seafood Movement has coalesced and developed numerous market-based governance tools over the last decade, there has also been significant reform of public governance of fisheries in the United States and the European Union and consequently in the United Kingdom. Several players in the Sustainable Seafood Movement were instrumental in advocating for these reforms, in addition to those in government who recognized new tools and mandates were needed. In the case of the United States, the 2006 reauthorization of the Magnuson Act ushered in a mandate to end overfishing in U.S. Federal waters. This required the use of accountability measures and annual catch limits. Annual catch limits have been critical in reducing the number of stocks undergoing overfishing from 41 in 2007 to 11 in 2015 (NMFS, 2016). In the E.U., the Common Fisheries Policy ushered in several new mandates including a ban on discards, requiring the use of maximum sustainable yield when setting targets, increasing stakeholder representation through Regional Advisory Councils and multi-year fishery plans (EC, 2009).

Fishery agencies tend to be the main government agency for managing fish stocks. However, once fish are harvested they are transformed from a public good to a commodity – seafood. Other government actors are involved in the laws, regulations and norms surrounding the seafood supply chain. Our analysis showed that the relevant government agencies fall into five categories: (1) fisheries production, (2) seafood consumption, (3) international compliance, (4) consumer protection and (5) producer protection. Fisheries production relates to the laws, norms, and regulations pertaining to harvesting of fish and shellfish products from the ocean, including conducting stock assessments, setting the quota, determining the number of permitted vessels, and assessing the environmental impact of production. These actions are generally the responsibility of national fisheries agencies, which can either be independent agencies or sub-agencies within a larger department, such as the U.S. Department of Commerce and the U.K. Department for Environment, Food and Rural Affairs (DEFRA). Seafood consumption relates to laws, regulations and norms that establish government funded seafood promotion boards or set forth governments' seafood procurement policies. This includes dietary recommendations that may encourage consumers to eat more seafood as part of a healthy diet. Notably, these recommendations may be promulgated without considering whether the domestic or global seafood stocks can sustainably supply seafood. International compliance, the third category, relates to all international obligations and corresponding domestic laws and regulations related to food safety, trade agreement compliance, multilateral environmental agreements, regional fisheries management organizations and other international mechanisms. For example, a regional fisheries management organisation resolution may obligate ratified parties or cooperating non-parties to regulate seafood harvesting, processing and catch documentation. Finally, the last two categories relate to protection of consumers and producers. On the consumer side, mechanisms could include laws and regulations that ensure truth-in-labelling, food safety and environmental assurance e.g., Dolphin-Safe labels. On the producer side, protections could include legal mandates for the imposition of import tariffs, anti-dumping measures, and measures directing the governments to "level the playing field" between domestic fishers and their international competitors. Table 1 presents an overview of examples of each category in the United States, the United Kingdom, and the European Union.

### 3.2. What is the non-state market-driven governance system for seafood in the U.S. and U.K. markets?

Cashore initially identified the emergence of non-state market-driven governance regimes in the forestry sector (Cashore, 2002). He found four related conditions for non-state market-driven governance (Cashore, 2002). First, this governance system is rooted in the supply chain and products are "regulated" through the demand by purchasers in the supply chain. Second, the state's authority is not used to require participation or compliance with these supply chain based rules. Third, stakeholders garner authority through assessment and verification processes. And fourth, "enforcement" occurs through compliance audits. His analysis principally focused on the Forest Stewardship Council, (FSC) and other authors later expanded this work to include seafood certification schemes, particularly, the MSC (Auld, 2009; Bell and Hindmoor, 2011; Konefal, 2013).

In the decade since Cashore's initial research, additional non-state market-driven governance tools - beyond certification schemes - have been developed to influence the seafood supply chain. The supply chains of marine capture fisheries are long and complex, as marine fisheries could be harvested in one nation's EEZ, transshipped onto another country's flagged vessel, then processed in another country and finally exported to a final country for sale (Plagányi et al., 2014). This requires a global network of actors to influence and sustain fisheries governance reform. In the seafood supply chain, the Sustainable Seafood Movement has been the proponent of the development of several market-based governance tools. A brief overview of the three main tools — sustainable seafood sourcing policies, certification schemes and fishery improvement projects — is provided here, but additional tools are discussed in Section 3.4.

Seafood sourcing policies are typically retailers' and food service providers' corporate buying policies based on the retailer's sustainability objectives. ENGOs specialising in the area of sustainable business partnerships, like the U.K. Marine Conservation Society or the U.S. Monterey Bay Aquarium, often provide advice on these policies (Gutiérrez and Morgan, 2015). These policies can mirror ENGOs seafood buying guides (also known as seafood cards), which are publicly available to use by all audiences. Other ENGOs may partner with members of the supply chain to work with the leadership of interested businesses to craft policies that reflect the values of that organisation (e.g. FishWise, Sustainable Fisheries Partnerships etc.). The objective of a seafood sourcing policy is to create a coherent set of goals for a given organisation, such that the executive, the company's seafood buyers, the public and suppliers have a clear and common understanding of their seafood sustainability mission. This sourcing policy usually includes how it aligns operationally with pre-existing tools (e.g., certification systems) suitable for procurement purposes. These rules or guidelines in a procurement policy translate goals of the Sustainable Seafood Movement into norms for purchasing, which include limiting product in the supply chain to those from specified seafood certification schemes, such as MSC.

Independent certification schemes tend to have a high level of credibility because they use third-party verification experts to evaluate a fishery against sustainability criteria and determine whether the fishery meets all requirements. If the fishery does, it is awarded a certificate, which may carry conditions for further improvement, to be completed during the validity of the certificate cycle, e.g. MSC, (Bush et al., 2012; Cummins, 2004; Potts and Haward, 2006).

Not all fisheries will meet the criteria for certification right away. To help fisheries become eligible for certification programs or because fisheries want to demonstrate efforts to improve their

**Table 1**
Examples of laws, regulations and norms for seafood sustainability.

| Category | Country | Examples of law/regulation/norm | Lead agency | Description |
|---|---|---|---|---|
| Fisheries production | United States | Magnuson Stevens Fishery Conservation and Management Act (2006) | Department of Commerce, National Marine Fisheries Service | Principle U.S. law to manage, conserve fishery resources found off the coast of the U.S. and anadromous species. |
| Fisheries production | European Union | Common Fisheries Policy (2013) | EU Directorate General for Maritime Affairs and Fisheries | EU policy that sets rules for sustainable fisheries, monitors size of EU fishing fleet, provides technical support and agrees that the EC negotiates on behalf of the EU member countries internationally |
| Fisheries production | United Kingdom | Marine and Coastal Access Act (2009) | Department of Food and Rural Affairs, Marine Management Organisation | Management of inshore fisheries, marine conservation zones, marine planning, marine licensing and enforcement |
| Seafood consumption | United States | Dietary Guidelines for Americans 2015–2020 | U.S. Department of Agriculture/U.S. Department of Health and Human Services | Recommends increasing the amount of seafood consumed in place of meat and poultry. |
| Seafood consumption | United Kingdom | U.K. Guidance on Government Buying Standards for Food and Catering Services | Department of Food and Rural Affairs | In England, all central government procurement of fish must ensure that all fish "are demonstrably sustainable with all wild-caught fish meeting the FAO Code of Conduct for Responsible Fisheries (includes Marine Stewardship Council certification and Marine Conservation Society 'fish to eat'.) |
| Seafood consumption | United States | Guidelines for Federal Concessions and Vending Operations | General Services Administration/Health and Human Services/Centre for Disease Control | Concessions Sustainability guidelines for contracts at federal facilities states that "where seafood options offered, provide those procured from responsibly managed, sustainable and healthy fisheries." |
| International compliance | United States | Final Rule – Antarctic Marine Living Resources; Use of Centralised-Vessel Monitoring System and Importation of Toothfish; Re-export and Export of Toothfish; Applications for Krill Fishing; Regulatory Framework for Annual Conservation Measures | Department of Commerce, National Marine Fisheries Service | Implements U.S. obligations as part of its membership in the Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR). Includes measures on importation and exportation of Toothfish and the catch documentation scheme documents for re-export. |
| International compliance | European Union | Communication from the Commission to the Council and the European Parliament Community - participation in Regional Fisheries Organizations (RFOs)/* COM/99/0613 final */ | EU Directorate General for Maritime Affairs and Fisheries | Section 3.2.4 [barring objection] measures of Regional Fisheries Organizations must be complied with by member states as soon as they become binding under the rules of that Regional Fisheries Organisation. |
| Consumer protection | United States | Green Guidelines, Federal Trade Commission Policy Statement on Deception | Federal Trade Commission | Guidelines for marketers on environmental claims.<br>To ensure that consumers are not mislead by deceptive practices. |
| Consumer protection | United States | Dolphin Protection Consumer Information Act | Department of Commerce | To allow consumers to know if the tuna they purchase is falsely labeled as to the effect of the harvesting of tuna on dolphins. |
| Consumer protection/ Producer protection | European Union | Council Regulation (EC) No 1005/2008 of 29 September 2008 establishing a Community system to prevent, deter and eliminate illegal, unreported and unregulated (IUU) fishing | EU Directorate General for Maritime Affairs and Fisheries | Requires all seafood imported into the EU carry catch documentation that it was legally caught. Creates an IUU vessel list. |
| Producer protection | United States | High Seas Driftnet Fisheries Moratorium Protection Act | Department of Commerce | Enforces the High Seas Driftnet Moratorium by denying port privileges and potentially denying entry of fish products from those countries negatively certified. |
| Producer protection | United States | Tariff Act of 1930 | Department of Commerce/U.S. International Trade Commission | U.S. industry can petition for relief from imports that are being sold in the United States at less than fair market value ("dumping") or that are subsidized by other governments. |

sustainability to seafood buyers, actors in the Sustainable Seafood Movement created Fishery Improvement Projects (WWF, 2013). Supply chain actors, such as fishermen, ENGOs, verification experts, retailers and processors work together to identify changes needed to improve the sustainability of the fishery.

Tools such as certification and fishery improvement projects have developed through the cooperative efforts of actors in the Sustainable Seafood Movement, with a shared cultural frame that many fisheries were not sustainable and that government approaches alone were not sufficiently able to address key risks to fisheries (Gutiérrez and Morgan, 2015). States did not grant authority to these actors, rather actors in the supply chain either initiated, consented or acquiesced to the demands of other actors either because of moral suasion, the mainstreaming of these practices and/or economic benefits, such as increased market access or reducing brand risk (Cashore, 2002). When ENGOs collaborate with retailers and food service providers to generate seafood buying policies, this reduces the likelihood that other ENGOs, who may name and shame, can portray these retailers as laggards. Hence ENGO partnership is a way to decrease the risk of being targeted by boycotts and advocacy campaigns (Gutiérrez and Morgan, 2015). Through these mutually beneficial relationships, ENGOs, obtain greater legitimacy and authority in the supply chain and retailers become invested in the norms of non-state market-driven governance regimes, particularly those that provide businesses benefits, such as market access, increased brand recognition or the ability for producers to demonstrate sustainable practices to the public, the media and ENGOs.

### 3.3. How does the nature of these governance regimes differ?

The Sustainable Seafood Movement initiated a non-state market-driven governance regime to improve fisheries sustainability and, in the process, carved out a larger role in fisheries governance (Gutiérrez and Morgan, 2015; Jacquet et al., 2009; Konefal, 2013; Sutton and Wimpee, 2008). As a consequence, fisheries are now managed by private and public governance systems. Yet, their power bases lie in different spheres, with the Sustainable Seafood Movement's power based in the supply chain and dictated by market forces, whereas state actors' power is based in legal mandates and subject to the political climate of that government.

Non-state and state actors address many of the same issues, but from very different orientations due to their differing cultural models, as detailed in Gutierrez et al. (Gutiérrez and Morgan, 2015). A cultural model is an informant's understanding of how a process or phenomenon operates, be it climate change, sustainable fisheries management, or some other aspect of nature or culture. Cultural models are shared among individuals but often not completely; there may be variation within and between groups. Elements of a cultural model can be abstracted from interviews and patterns of discourse evident in transcripts or other documents (see methods (Gutiérrez and Morgan, 2015)), such as common motifs that multiple members of the same group express when speaking about an issue. Kempton et al. (1996) found that when people's cultural models diverge amongst them or diverge from the mental models that elites, such as scientists hold, it offers insight into why some actors support environmental action while others do not (Kempton et al., 1996).

The Sustainable Seafood Movement's cultural model is captured in its theory of change, which focuses efforts on improving the sustainability of fisheries through the seafood supply chain from the perspective of seafood as a market commodity. From that perspective, purchasers have the power, so this model works on co-opting voluntary engagement from the retailers through the supply chain to the producer, to influence fisheries governance (Packard, 2012). In contrast, fisheries agencies are mandated to manage fisheries as a natural resource and often operate through a top down command and control approach, focused on managing the harvest of the fisheries. Fisheries agencies either have a secondary role in the commodity side of supply chains or no role. In the case of the U.S. and the U.K., other government agencies have the legislative mandates for regulating seafood processing, labeling and trade (see Table 1).

Based on the fundamental responsibilities of public fisheries governance versus private, it follows that the public governance definition of a fishery is centred on the resource, while the non-state market-driven governance definition is centered on seafood as a commodity, that moves through a supply chain. The non-state market-driven system has the ability to re-define the boundaries of governance based on those willing to participate, often making them either smaller and more manageable, or larger, but bound by a series of economically linked actors. In either situation, the lens of seafood as a commodity means that market-based incentives naturally align cooperation and participation. Those willing to participate in non-state market-driven governance systems, such as certification programs, are often the most innovative actors in a fishery. Since participants have to pay to be assessed for certification, these systems can also be better resourced than public governance systems through voluntary investment in sustainability by private sector actors.

Public governance systems, in contrast, cannot choose who participates, but must balance the interest of all stakeholders against legal mandates, and therefore are compelled to be more inclusive than non-state market-driven governance systems, despite not always having sufficient resources. As a result, all actors must participate in a public governance system, which can result in divergent interests. Thus, coordination of actors can take longer. This can mean that public governance processes generally are less agile and take longer to implement.

This agility is a key difference between non-state market-driven governance systems and public governance systems and it manifests in numerous outcomes. For example, the means used to determine the scope of fisheries in private governance systems are more flexible than in public governance systems. One important component of the non-state market-driven governance regime is fisheries certification, such as the MSC standard. The MSC defines fisheries by the "unit of assessment," which the "fishery client" determines (MSC, 2013a). The "fishery client" represents any party that is willing to enter into a contractual agreement with a conformity assessment body (verification experts), to pay for the cost of an assessment that may, or may not, lead to MSC certification (MSC, 2013a). The scale of participation and compliance with MSC conditions may be a fishery client's voluntary decision or a market driven requirement of the supply chain. The scope of a fishery (Unit of Assessment) within the MSC system is defined as "the target stock, fishing method and practice, and the fleets, groups of vessels, individual fishing operators and 'other eligible fishers' that are evaluated against the MSC Certification Requirements (MSC, 2014)."

In public governance, the state's legal framework determines the scope of any given fishery. A fishery cannot self-declare and in turn, expect access to the traditional aspects of governance in any dedicated fashion. In the United States for example, the Magnuson Act defines a "fishery" as "one or more stocks of fish which can be treated as a unit for the purposes of conservation and management and which are identified on the basis of geographical, scientific, technical, recreational, and economic characteristics; and any fishing for such stocks (MSRA, 2007)." By definition, the scope of such units is defined by the state in legislation or regulations instead of by the producers.

The nature and breadth of participation in non-state market-driven governance systems is also more flexible than in state systems. In the public fisheries governance process, participation is mandatory, if a vessel wishes to legally fish. However, in non-state market governance systems, the actors that voluntarily choose to participate in the market tool, such as a certification program, determine the scale of participation. Further, non-state market-driven governance tools can impact the commodity chains of multiple countries, whereas public fisheries governance will often be delimited by national, regional or international legal regimes.

It is also logical that the tools used by non-state market-driven governance actors are different from those used by public governance systems. In general, tools used by public systems are legal or regulatory, and constrained to national borders. In contrast, most of the voluntary tools used by the non-state market-driven system are market-based tools, predicated on affecting international market access. The main tools that have achieved traction by non-state market-driven governance actors seldom stop at national borders and most are deliberately designed to operate flexibly, across jurisdictions, and along supply chains to create international purchasing norms that explicitly do not differ among nation states. For this reason, international standards are tools that have generally been of greater interest to major buyers, who prefer credible processes that evaluate fisheries against a common international standard, rather than national standards.

Table 2 summarizes the key components of these governance systems discussed in this section. In several cases there are complementary tools (e.g., boycotts and import restrictions) between the two governance systems. As Cashore and others have noted, non-state market-driven governance systems still rely on legal and policy tools of government (Cashore, 2002). Thus, while two systems have diverged, they remain interdependent.

### 3.4. How do public and private governance tools complement, substitute, exclude (monopolize) and rival each other?

Public governance and non-state market-driven governance tools complement, substitute, and rival each other, but each regime still has a monopoly over certain tools. Table 3 provides a summary of different tools. The section below discusses each of these categories – complements, substitutes, rivals and monopolies.

#### 3.4.1. Complements

Public governance and non-state market-driven governance systems may complement each other as a result of formal or informal coordination. Complementarity occurs when governance mechanisms co-exist in the "same policy domain" and contribute to a "common objective" but have not merged into one governance system (Trubek and Trubek, 2007)." As discussed in Section 3.2, fisheries improvement projects are one area where public and non-state market-driven governance can complement each other. Fisheries improvement projects are partnerships between ENGOs, fishermen, fishery managers, researchers and sometimes retail chains. These partnerships are typically led by non-state actors outside of regulatory processes and seek to improve the sustainability of the fishery (WWF, 2013). In many cases, fisheries improvement projects are deliberately structured around the MSC framework. In other cases, fishermen may simply want to increase their influence within the public fisheries governance process, improve market access by demonstrating either responsible practices and/or reform a specific practice based on the sustainable seafood policy of a corporate buyer (Deighan and Jenkins, 2015).

Many fisheries use fishery improvement projects as stepping stones towards MSC certification (Conservation Alliance for Seafood Solutions, 2014). The ENGO community in North America has also created a clearly defined framework for Fishery Improvement Projects, that fall into two main categories: Basic and Comprehensive. To be considered a comprehensive, fisheries must undertake an MSC pre-assessment led by qualified consultants or fully accredited conformity assessment bodies (verification experts) (Conservation Alliance for Seafood Solutions, 2015).

Fishery improvement projects arose from a need to have sufficient supplies of sustainable seafood in developed and developing countries as more and more retailers adopted sustainable seafood sourcing policies. Public fisheries governance has not always been able to quickly incentivize improvements in stock status and reduce ecosystem impacts because regulatory processes are often very lengthy, subject to multiple consultations and bureaucratic clearance processes (Gibbs, 2008). In contrast, fishery improvement projects can develop innovative initiatives to speed improvements in a fishery and complement existing government led policies. For instance, the Gulf of Mexico Reef fishery improvement project started in 2010 after the Gulf of Mexico Reef Fish Shareholders Alliance underwent an MSC pre-assessment (Deighan and Jenkins,

**Table 2**
Comparison of non-state market-driven and public governance systems.

| | Non-state market drive governance | Public governance |
|---|---|---|
| Actors | Sustainable Seafood Movement (ENGOs, Retailers, Food Service Providers, Chefs, Fishing Industry, etc.) | Fisheries Agencies/Agricultural Agencies, Consumer Protection Agencies, Food Safety Agencies and Trade Agencies, Non-governmental organizations |
| Authority | Contracts and agreements | Laws and regulations |
| Legitimacy | Established by relationships within the supply chain and demonstrated ability to execute commitments/improve status of resource | Established in legal mandates and norms and demonstrated ability to execute commitments/sustainably manage the resource |
| Market based tools | Boycotts/Buycotts | Import restrictions |
| | Buying Guides/Sourcing Guidelines | Procurement Policies |
| | Certification schemes | Certification programs |
| | Eco-labels | Eco-labels |
| | Fishery Improvement Projects | Fisheries Management Tools e.g., fisheries closures, individual fishing quotas |
| | Traceability Schemes | |
| | Industry Norms (e.g., the Common Vision for Sustainable Seafood, GSSI) | Marketing Boards |
| | | Food Safety regulations |
| Nature of participation | Voluntary to economically compulsory in the supply chain | Voluntary to legally compulsory |
| Scale of governance | Mainly international supply chains | Mainly national, regional or international regulatory regimes |
| | Resources provided by actors in the supply chain | Resources determined in government budget. |
| Scope | Fishery as defined by those willing to participate in a fishery improvement project or certification assessment | Fishery as defined in legislation focuses on the target stock and associated complexes |
| Emergent attributes | High agility, high flexibility of scope and scale, voluntary inclusiveness | Lower agility, lower flexibility of scope and scale, mandatory broad inclusivity |

**Table 3**
Governance tools to incentivize sustainable fisheries.

| Tool | Non-state market governance | State-led governance | Role | Examples |
|---|---|---|---|---|
| Fishery improvement projects | X | X | Complements | Gulf of Mexico Snapper/Grouper |
| Boycotts/Buycotts | X | | Complements | Greenpeace boycott of supermarkets (Black, 2010) |
| Import restrictions | | X | Complements | EU IUU import restrictions |
| Voluntary industry labeling guidelines | X | | Complements | U.K. Sustainable Seafood Coalition (truth in labeling)<br>Global Seafood Sustainability Initiative (seafood certification benchmarking) |
| Truth-in-labelling regulations | | X | Complements | Federal Trade Commission Guidelines, Competition & Markets Authority |
| Seafood Sustainability Information | X | X | Substitutes | Seafoodwatch.org, Fishwatch.gov |
| Corporate sustainable sourcing guidelines | X | | Monopolistic | Supermarket sourcing guidelines |
| Government procurement policies | | X | Monopolistic | GSA Guidelines for Federal Concessions and Vending Operations |
| Private traceability schemes | X | | Monopolistic | ThisFish!, TraceRegister |
| Food safety regulations | | X | Monopolistic | US Department of Agriculture, Food and Drug Agency |
| Fisheries regulation | | X | Monopolistic | U.S. Magnuson Stevens Act, EU Common Fisheries Policy |
| Eco-labels | X | X | Rivals | MSC, Department of Commerce Dolphin Safe; AIDCP Dolphin-Safe label |

2015; SFP, 2014). The pre-assessment indicated that, even with government regulation, issues remained relating to discard monitoring, observer coverage and data gaps in the recreational portion of the fishery. The participating fishermen signed conservation covenants which stipulated no high grading or discards of fish not required to be released, participation in research, use of electronic monitoring and completion of electronic logbooks (SFP, 2014). To aid existing government led programs, the participants adopted a pilot electronic monitoring program. This project demonstrated to regulators that electronic monitoring could be used as an effective method of observing and categorising bycatch and discards on longline vessels. As a result of the partnerships created during the fishery improvement project, the Gulf Wild brand was launched which aims to give market recognition to those participating. This work coincided with fisheries managers implementing new regulations in March 2012, which ended overfishing for gag grouper, a reef fish, and established a 10 year rebuilding timeline (SFP, 2014). The most recent stock assessment for red snapper, another reef fish, found that overfishing has ended and the stock is rebounding. These examples suggest that public and non-state market-driven governance can act in complementary ways to achieve congruent objectives in the same policy area.

Table 3 highlights that several governance tools are the sole purview of non-state actors, while others are solely the responsibility of states. These roles and functions have developed in relation to each other. Several of these public governance tools have a direct corollary in non-state market-driven governance systems. For instance, the U.K. Sustainable Seafood Coalition has developed draft voluntary labelling guidelines for what seafood can be labeled sustainable or responsibly harvested independent of the U.K. government. The U.K. Competition and Market Authority is the competent legal authority. As the interviews revealed, ENGOs, like ClientEarth, have found it more effective to work directly with retailers through forums such as the Sustainable Seafood Coalition than to compel the state to use their authority to address the issue. Non-state actors use market-based norms including shaming to compel other players, such as retailers, to take proactive approaches (Jacquet et al., 2009). Further, actors in Sustainable Seafood Movement, such as ENGOs or the fishing industry, often point to legal means that could be pursued (ClientEarth, 2011; Warner et al., 2013). Public governance continues to serve as an important enforcement and compliance tool that non-state market actors can invoke in order to compel action within the supply chain. While operating independently, these complementary governance tools often have similar objectives.

### 3.4.2. Substitutes

At times, public fisheries governance and non-state market-driven governance systems co-exist and produce products that actors in the supply chain consider similar enough that they can be substituted for each other. For example, in the United States, seafood sustainability information for consumers and commercial seafood buyers, such as Seafoodwatch.org and Fishwatch.gov, is one area where state and non-state actors are increasingly performing similar functions – to provide clear information on the sustainability of fisheries. Providing this information enables commercial seafood buyers as well as the general public to make more informed purchases. It also serves to improve the transparency and accountability of fishermen and government regulators by providing timely information on the health of the fish stock and the associated environmental impact of the production method. These products have not always been seen as substitutes, however, and in the early days of Fishwatch.gov, some saw it as a rival to Seafoodwatch.org. Over time the clarity of the information on the Fishwatch.gov website has evolved so that it could be more easily understood by the public. Thus, end users may use both products or substitute one for the other.

Substitutes could be viewed as redundant, a costly duplication of efforts, or they could be seen as providing resiliency to both governance systems. If government funding or foundation funding diminished or was eliminated, the other governance system could still provide the critical sustainability product to both governance systems. Trouble arises when actors do not coordinate and the products are eliminated from both systems simultaneously. There is a limit to which products from non-state market-driven governance systems and public governance systems can be substituted. For instance, while fishery improvement projects facilitate additional improvements in fisheries, government regulation is still needed to support these commitments. Further, market-based tools often recognise the need of government regulation. For instance, the FAO's Guidelines for the Eco-labelling of Fish and Fishery Products from Marine Capture Fisheries identify fisheries management as a minimum substantive requirement (FAO, 2009). Likewise, third party eco-labels, such as MSC, identify government management as one of their evaluation criteria for determining whether a fishery is sustainable. Further, studies have indicated that accountable governance must be in place prior to using market

based incentives, like eco-labels (Erwann, 2009). The Conservation Alliance for Seafood Solutions and the World Wildlife Fund guidance on fishery improvement projects both identify governments as critical actors in the development and implementation of the fishery improvement projects (Conservation Alliance for Seafood Solutions, 2014; WWF, 2013). Only a handful of products can presently be substituted between non-state market-driven governance and public fisheries governance, but those that can, such as seafood sustainability information may allow for a more resilient system of governance that facilitates a shared cultural model by diverse actors in the seafood supply chain.

#### 3.4.3. Monopolies

Public governance and non-state market-driven governance each have areas where they possess sole authority and consequently, have a monopoly over certain governance tools. As discussed in Section 3.1, U.S. and U.K. fisheries agencies have legislated mandates to manage their nation's fisheries. This is intimately tied to exercising sovereignty over their territorial waters and/or their EEZs - not just for fisheries management purposes, but also for maritime security. As such, states have a monopoly on the legal enforcement of fisheries regulations and stopping incursions from unauthorised vessels. States are also the responsible party in the vast majority of international fisheries treaties and ocean governance regimes. As parties to agreements concerning international fisheries, marine governance, trade, and food safety, states are the relevant actors, responsible for generating national-level compliance with international agreements.

While states have a clear role in the international legal regime, other governance actors have created niche roles in the international seafood supply chain in areas where governments lack mandates. For example, governments do not have legal mandates or resources for providing customised buying guidelines, traceability and auditing schemes for large commercial retailers. Accordingly, non-state actors have serviced this niche.

As indicated in Table 2, non-state actors are typically more agile, as they are not confined by legislative and bureaucratic processes, and have a transnational scope to their work. Since they are not accountable to elected officials and bureaucratic processes, they can develop and trial new tools relatively quickly to service the international supply chain. If the effort proves expedient in addressing governance gaps, both the non-state actor and the tool may rapidly engender authority and legitimacy in the supply chain. For instance, in the case of the Global Sustainable Seafood Initiative, which seeks to create a benchmarking tool of seafood certification schemes for retailers to compare different schemes, the initiative began in the summer of 2012 and by the summer of 2014, the consultation for the draft benchmarking standards commenced (GSSI, 2012). In the space of two years, a significant portion of U.S. and U.K. ENGOs, retailers, and fishing industry representatives joined the initiative. The Global Seafood Sustainability Initiative is quickly carving a niche in the supply chain as the authority for seafood certification benchmarking and gaining legitimacy through the participation of large seafood processors, retailers and food service companies, such as High Liner, Royal Ahold and Sodexho.

Non-state actors have developed norms and rules within the supply chain, such as the previously mentioned seafood sourcing guidelines or benchmarking of certification schemes, in areas where the government has no legal authority or has chosen not to be active. These monopolies are based on sole authority and non-competition between the two governance systems. Governments do not have the mandates for these roles and so do not have the authority to compete with non-state market-driven governance actors. If the situation changes, and competition emerges, these roles may move into a state of rivalry.

#### 3.4.4. Rivalry

Rivalry develops when public and non-state market-driven governance systems compete for authority, or when it is perceived that the newer governance system performs the same task as the legal regulation, but better (Trubek and Trubek, 2007). Rivalry can also occur when there is a perceived need to choose between governance systems (Trubek and Trubek, 2007). The latter situation tends to occur particularly when certification systems or buying guidelines compete for legitimacy and authority with government processes. For instance, Alaskan salmon producers, opted to develop an alternative seafood certification scheme to MSC (Foley and Hebert, 2013). In doing so, they no longer met the buying guidelines of the U.S. National Park Service or Walmart, as both sets of guidelines stipulated sourcing MSC certified fish. The Alaskan producers then argued that by being compliant with the regulations of the U.S. Magnuson-Stevens Act that they demonstrated their fisheries were sustainable and did not need an MSC certification to verify that. During the course of 2013, Congressional hearings and government meetings were held to discuss why some U.S. government agencies were adopting MSC as a buying standard as opposed to relying on U.S. government information provided by Fishwatch.gov. While Fishwatch.gov does not certify fisheries, it was argued that it provides up to date information on the sustainability of U.S. managed Federal fisheries and therefore should be the source for all U.S. government procurement. Ultimately, under political pressure from U.S. politicians, the General Services Administration's and the National Park Service's buying guidelines were changed to reference Fishwatch.gov (Petersen, 2013). The use of private certification schemes as requirements within the buying guidelines of a U.S. agency, and arguably duplicating the mandate of other U.S. government agencies to assure the public that fisheries are sustainable, demonstrates how rivalries may arise between private and public governance.

The cause of the rivalry between state and non-state actors can start on either side. Rivalries have advantages and disadvantages for both governance systems. On the positive side, the rivalry can keep actors innovating in order to keep pace or improve relative to others. Conversely, rivalries can be expensive in terms of both human and financial resources and, in zero-sum fashion, can siphon resources away from other critical fisheries governance reform issues, or may result in acceptance of suboptimal systems due to tactics that may be employed by some actors.

### 3.5. Why is coordination beneficial between public and private governance regimes?

Coordination between the two governance systems is necessary because the systems are interdependent, have a responsibility towards society, and share a common goal of ensuring sustainable fisheries. Fisheries sustainability could be hastened through effective coordination.

While the Sustainable Seafood Movement established a non-state market-driven governance regime in reaction to the inertia and inadequacy of public fisheries governance processes, government's responsibility for fisheries management has not diminished nor can the movement successfully manage fisheries completely independent of government action (Packard, 2012; Shelton, 2009). These governance systems are interdependent. Non-state actors are also increasingly seen as having a moral responsibility to the societies with whom they work, as evidenced by the growth of corporate social responsibility (Robinson, 2012) whereas states have legal obligations to the citizens they govern based on social contracts. While the basis for these authorities and responsibilities are very different, they both indicate an obligation to the greater society in which they live and work.

Both governance systems share common objectives, so coordinating their actions to be more complementary could enable both systems to achieve the shared goal more quickly and maintain it. There are several similar governance tools between the systems (Table 3). In some cases, coordination is occurring between public and private governance so that both systems can maximize the sustainability gains, but in other instances unrealized opportunities exist. One such example would be the informal or formal coordination of buycotts and import restrictions. Private governance actors can use advocacy campaigns to encourage corporate buyers to boycott or refuse to sell certain products such as shark fins. Likewise, public governance systems could use import restrictions to prevent the same product from coming into a domestic market. Thus, supply chain norms could pave the way for legal import restrictions and/or help to ensure compliance and enforcement of them. Furthermore, because national borders do not bind the private governance system the implementation of any industry-wide ban on a product could have broader reach and could incentivize multiple governments to cement an industry norm in regulations or law. Once a government has adopted a regulation or law then it becomes very difficult for non-compliant actors in the supply chain to buck the industry norm. As this example demonstrates, coordination could lead to greater improvements to fisheries sustainability.

### 3.6. What are the factors inhibiting coordination?

During the course of the interviews and literature review, several impediments to coordination emerged. First, since the Sustainable Seafood Movement is a smaller network of actors than the respective bureaucracies of the U.S. and U.K., it is easier for the movement to coordinate and develop consolidated positions. Coordination between government departments on sustainability issues can be lacking and the number of departments engaging in sustainability issues is increasing. When coordination does occur the size and nature of government bureaucracies requires more time than needed by the movement.

The movement is also horizontal in nature, making it difficult to pinpoint a leader to represent all ten actor groups on all issues. Gutiérrez and Morgan (2015) demonstrated that actor groups often play specific roles on specific issues, and can be competitive with one another (Gutiérrez and Morgan, 2015). While there maybe dominant actors, there is no one single leader, but several foci such as the Conservation Alliance for Seafood Solutions in North America or the Sustainable Seafood Coalition in the United Kingdom. This makes it challenging for large, formalized and hierarchical governments to understand, let alone determine, how to best engage the more fluid and horizontal movement. This mismatch between a horizontal, agile structure and a hierarchical, bureaucratic structure can make it difficult to identify simple means for coordination.

Public governance of fisheries in the U.S. and the U.K. has typically involved multi-stakeholder consultative processes, such as the U.S. Fisheries Management Councils or the EU Regional Advisory Councils, specific to a particular regulatory or legislative actions (Eliasen et al., 2015; Msomphora, 2015; Okey, 2003). Regular forums for multi-stakeholder discussion with all the relevant government agencies on broader seafood sustainability issues, from human rights to food miles to traceability, have not previously existed. Conversely, actors in the supply chain regularly coordinate through sustainability forums and other private sector initiatives, but government representatives are often limited to one or two Departments, and authorised only to speak on specific issues. Worse yet, there may be no government representatives, given budgetary constraints or in the absence of clear role for these representatives at these meetings.

Interviews with actors inside and outside of the Sustainable Seafood Movement indicated that movement actors and government bureaucrats were not fully aware of each other's processes. Government representatives were often unfamiliar with the norms defining fisheries improvement projects, common to members of the movement. On the other hand, several movement actors did not fully understand relevant laws and regulations, such as how environmental compliance and fisheries management legislation interact. This reciprocal lack of awareness can make it difficult for non-state and state actors to identify synergistic opportunities for coordination.

Government policies can also make it difficult for coordination, which is particularly true in the United States. For instance, the U.S. government can only receive consensus recommendations from external stakeholders if a Federal Advisory Committee is formally established (Aurelia, 1995). This means that while governments can hold public consultations or roundtables, no consensus recommendations can be made to the government by the stakeholders present, which inhibits coordination, and the pace of change.

Coordination in relation to certification is also challenging, as the U.S. National Marine Fisheries Service's policy states that it does not endorse or participate directly or indirectly in the private sector certification of fisheries (NMFS, 2005) The policy goes onto say that the Service is not under an obligation to change "it's scientific or management operations to satisfy the conditions of continuation of any private sector certification award (NMFS, 2005)." The Service will provide information to applicants and certification entities, but beyond that there is limited engagement.

Examples of indirect coordination between the movement and aspects of governance are present in the U.K. where the Marine Management Organisation (national fisheries authority) also does not directly engage in assisting fishermen through private certification schemes. However, U.K. Seafish, is a quasi-government agency under DEFRA and funded by a tax on the first sale of seafood in the U.K., and has created an Interactive Guide to help the fishing industry to compare different certification schemes to identify the right one for them (Seafish, 2014). Seafish also facilitated Project Inshore, a EU-funded project to conduct MSC pre-assessments on all the English inshore fisheries (MSC, 2013b). The EU provides funds for member state fisheries that are interested in seeking MSC certification. In addition, prior to the 2012 London Olympics, the U.K. government worked with the Sustainable Fish Cities coalition to adopt sustainable seafood sourcing policies. This resulted in all fish at the 2012 London Olympics being MSC certified or rated 1 or 2 on the U.K. Marine Conservation Society ratings (Holland, 2012). Since that time, the House of Commons, Her Majesty's Prisons as well as the Armed Forces have signed the Sustainable Fish Cities pledge to source sustainable seafood.

As noted in the introduction, while the U.S. and U.K. governments may have similar policies their approaches to coordination with non-state actors have varied considerably. This is likely due to their histories in working with network governance. The United Kingdom has a longer tradition of divesting public service management to networks that they steer (Rhodes, 2007). The United States has had a more litigious history with stakeholder groups, particularly when it comes to management of natural resources, which has likely slowed the development of governance networks.

## 4. Discussion

The United States and the United Kingdom offer insight into the different roles that public and non-state market-driven governance systems can play in fisheries management. While this analysis is focused on two countries, there are increasing examples of fisheries

management occurring through these separate but interdependent governance systems across the globe (WWF, 2013). The nature of these roles from complements to substitutes to monopolies to rivals is not static, but rather highly dynamic given the nature of the global seafood supply chain. These roles often evolve from one actor moving independently to fulfill a niche role in the face of a perceived governance gap. To date, however, these governance systems have not been well coordinated. Instead of operating in a network governance framework or polycentrically, they are instead operating as two parallel but interdependent governance systems.

### 4.1. How can coordination be improved?

While we identified shortcomings in Gibbs' (2008) analysis of network governance in fisheries management at the beginning of the paper, we find that a "network management" approach that spans both the private and public governance systems for sustainable fisheries is needed. Networks cannot replace the policy-making apparatus of democratically elected governments, but they can supplement it (Kjaer, 2004). Network management requires coordination, but who carries out that coordination and how it is done needs to be further explored. One perspective is the "steering view" of networks, which "sees them as a structure to be managed and a tool of greater central coordination (Rhodes, 2007)." This perspective assumes that the government generally will be leading the coordination. Rhodes cautions that there are two issues with the centralised steering view. First, when networks that are horizontal, such as those in the Sustainable Seafood Movement, become centrally managed, they change from horizontal to vertical networks. The inherent relationship is changed between the actors from one that is flat to into one that is hierarchical. In these situations, the autonomy, innovation and effectiveness of the local network that bubbled up from the bottom can be lost (Rhodes, 1997). Should coordination between public and private governance actors lead to such a dynamic, this could result in an altered power dynamic that is counter to what the movement enjoys among supply chain actors. Secondly, by transforming the relationship to a centrally coordinated one, questions arise as to the lines between public and non-state market-driven governance systems and whether they would continue to act as counterbalances to one another.

Reff Pedersen et al. (2011) surveyed public administration theory, organization theory and planning theory to evaluate the coordination between public and private governance. They found that a universal, rational solution to coordination is unlikely (Reff Pedersen et al., 2011). That instead a pluricentric coordination process, much like what Ostrom has advocated for, that recognizes that there will often be a plurality of linkages between different levels and different institutions that continually adjust to identify shared meaning and practices, is more appropriate for today's governance systems. As they argue, a "pluricentric theory of coordination … gives up the longing for coherence, unity and universal rationality. Instead, it celebrates the value of the floating and messy character of coordination. These are not factors to overcome but to exploit in the pursuit of public governance (Reff Pedersen et al., 2011)."

That doesn't mean that public governance or private governance actors don't try to steer these governance networks, it may just mean they focus on influencing specific processes towards their desired outcomes instead of trying to steer the entirety of public and private governance networks (Kjaer, 2004).

The political cultural of each country will influence how private and public governance actors coordinate. The U.K. government has not had the same litigious relationship with its stakeholders that U.S. government agencies often have, making it easier to establish trust. Based on our interviews, we identified five actions that need to occur to facilitate coordination.

First, governments need to improve internal coordination so that their representatives speak with a coordinated perspective. The Sustainable Seafood Movement's actors coordinate regularly at key venues such as the major seafood trade shows, but only a handful of representatives from each bureaucratic agency may coordinate on seafood sustainability. Inter-agency coordinating groups dedicated to facilitating dialogue amongst government seafood sustainability efforts are an important component, but this must be coupled with a mechanism to disseminate that information broadly. The smaller size of the Sustainable Seafood Movement allows for information to be shared much more easily than in a bureaucracy. Hence, public governance actors often do not have the awareness and understanding of the entire suite of government seafood sustainability efforts – from fish as public goods to seafood as a commodity. This needs to be addressed in order for internal coordination within the public governance system to improve. Without improved internal coordination of the public governance system, coordination between private and public governance systems will be limited.

Second, a mapping process is needed to orient actors in both governance systems to the organizational structure, processes and roles of the other, in order to begin discussions with appropriate colleagues. Third, to ensure effective internal coordination, there needs to be clear direction for senior leadership in both public and private governance systems (Jantarasami et al., 2010). Without clear expectations from an executive and firm accountability measures, collaborations can lack purpose, direction, and become another layer of bureaucracy (Jantarasami et al., 2010). With such a diverse network of actors, coordination and clear leadership can be challenging for both private and public governance networks. Thus, key leaders in public and private governance systems should use the results of the mapping exercise to identify possible key policy issues ripe for improved coordination. Fourth, appropriate venues for coordination between state and non-state actors need to be identified. While U.K. Seafish has facilitated regular conference calls and engagement with industry and ENGOs, such a forum has not existed for the U.K. Marine Management Organisation beyond the traditional public consultation process. Likewise, in the United States, the recent recommendation (#13) of the Presidential Task Force on Combatting IUU Fishing and Seafood Fraud is the first time that a forum across all relevant U.S. government agencies and supply chain actors has been created (NMFS, 2015). A regular high-level forum, alternatively, or cooperatively, led between public and private governance actors, could serve as an effective bridging organisation, thus creating an obligation for regular engagement (Crona and Parker, 2012). This forum would likely need to take place at existing meetings of the Sustainable Seafood Movement to ensure full participation of all actors.

Finally, there needs to be a clear agreement on the areas where both governance regimes will work to improve coordination. In this instance, some steering from state actors could be helpful, as legal and budgetary constraints, often dictate the areas where there is a mandate to work. Agreement on these areas then provides all governance actors an opportunity to collaboratively focus their efforts on specific issues. As indicated in Table 3, there are multiple areas where there are complements and monopolies that have a corollary in the other governance system. These areas should be explored to determine where coordination could improve fisheries sustainability, such as how private traceability programs could complement existing food safety regulations. As these areas of collaboration are explored, private and public governance actors should clearly frame the expectations early in the process. Trust and diplomacy is critical for effective steering of networks and it

can be diminished or lost if actors expectations are repeatedly not met (Kjaer, 2004).

## 5. Conclusion

Leaders of non-state market-driven governance and public governance have an opportunity to improve the sustainability of global fisheries stocks, if they make deliberate efforts to reassess each other's roles and achievements and coordinate a common goals for a polycentric governance system. The rivalries that exist now only serve to hinder sustainability efforts. With greater recognition of the importance of coordination, redundancy and resilience in all fisheries governance systems, an opportunity exists to quicken the pace of global fisheries reform. Five steps have been identified that will facilitate these actions – 1.) Greater internal government coordination on seafood sustainability issues, 2.) Mapping process to orient actors in both governance systems to the organizational structure, processes and roles of the other, in order to begin discussions with appropriate colleagues, 3.) Clear direction from private and public governance leaders that coordination is needed and valued 4.) Identification of appropriate venues to coordinate, and 5.) Agreement on the priority areas for coordinated work. This approach stands to make best use of human and financial resources, minimize duplicative efforts, avoid friction among players and accelerate innovations in support of sustainable fisheries in both countries.

## References


Acheson, J.M., 2003. Capturing the Commons. University Press of New England, Lebanon, New Hampshire.

Auld, G., 2009. Reversal of Fortune. Yale University.

Aurelia, L., 1995. The Federal Advisory Committee Act and its failure to work effectively in the environmental context. Boston Coll. Environ. Aff. Law Rev. 23, 1–34.

Bell, S., Hindmoor, A., 2011. Governance without Government? The case of the Forest Stewardship Council. Public Adm. 90, 144–159. http://dx.doi.org/10.1111/j.1467-9299.2011.01954.x.

Boström, M., 2006. Establishing credibility: practising standard-setting ideals in a Swedish seafood-labelling case. J. Environ. Policy & Plan. 8, 135–158. http://dx.doi.org/10.1080/15239080600772126.

Bush, S.R., Toonen, H., Oosterveer, P., Mol, A.P.J., 2012. The “devils triangle” of MSC certification Balancing credibility, accessibility and continuous improvement. Mar. Policy 37, 288–293. http://dx.doi.org/10.1016/j.marpol.2012.05.011.

Cashore, B., 2002. Legitimacy and the privatization of environmental governance: how Non-State Market-Driven (NSMD) governance systems gain rule-making authority. Gov. Int. J. Policy, Adm. Inst. 15, 1–27.

ClientEarth, 2011. Environmental Claims on Supermarket Seafood.

Conservation Alliance for Seafood Solutions, 2015. Guidelines for Supporting Fishery Improvement Projects.

Conservation Alliance for Seafood Solutions, 2014. Guidelines for Supporting Fishery Improvement Projects. Conservation Alliance for Seafood Solutions.

Costello, C., Gaines, S.D., Lynham, J., 2008. Can catch shares prevent fisheries collapse? Science 321, 1678–1681. http://dx.doi.org/10.1126/science.1159478.

Crona, B.I., Parker, J.N., 2012. Learning in support of governance: theories, methods, and a framework to assess how bridging organizations contribute to adaptive resource governance. Ecol. Soc. 17, art32. http://dx.doi.org/10.5751/ES-04534-170132.

Cummins, A., 2004. The Marine Stewardship Council: a multi-stakeholder approach to sustainable fishing. Corp. Soc. Responsib. Environ. Manag. 85–94. http://dx.doi.org/10.1002/csr.056.

Deighan, L.K., Jenkins, L.D., 2015. Fishing for recognition. Mar. Policy 476–485.

EC, 2009. The Common Fisheries Policy, pp. 1–40. http://dx.doi.org/10.2771/71141.

Eliasen, S.Q., Hegland, T.J., Raakjær, J., 2015. Decentralising_ the implementation of regionalisation and co-management under the post-2013 Common Fisheries Policy. Mar. Policy 62, 224–232. http://dx.doi.org/10.1016/j.marpol.2015.09.022.

Erwann, C., 2009. Eco-labelling: a new deal for a more durable fishery management? Ocean Coast. Manag. 52, 250–257. http://dx.doi.org/10.1016/j.ocecoaman.2009.03.003.

EU, 2013. Regulation (EU) No 1380/2013 of the European Parliament and Council of 11 December 2013.

FAO, 2014. The State of the World Fisheries and Aquaculture. FAO, Rome.

FAO, 2009. Guidelines for the Ecolabelling of Fish and Fishery Products from Marine Capture Fisheries. FAO, Rome.

FAO, 1995. Code of Conduct for Responsible Fisheries. FAO, Rome.

Feeny, D., Berkes, F., McCay, B.J., Acheson, J.M., 1990. The tragedy of the commons: twenty-two years later. Hum. Ecol. 18, 1–19.

Foley, P., Hebert, K., 2013. Alternative regimes of transnational environmental certification: governance, marketization, and place in Alaska's salmon fisheries. Environ. Plan. A 45, 2734–2751. http://dx.doi.org/10.1068/a45202.

Gibbs, M.T., 2008. Network governance in fisheries. Mar. Policy 32, 113–119. http://dx.doi.org/10.1016/j.marpol.2007.05.002.

Global Seafood Sustainability Initiative, 2012. Global Seafood Sustainability Initiative. GSSI. http://www.ourgssi.org/ (Accessed 6 14).

Gutiérrez, A.T., Morgan, S.K., 2015. The influence of the Sustainable Seafood Movement in the US and UK capture fisheries supply chain and fisheries governance. Front. Mar. Sci. 2, 1–15. http://dx.doi.org/10.3389/fmars.2015.00072.

Hardin, G., 1968. The tragedy of the commons. Science 162, 1243–1248.

Hilborn, R., Hilborn, U., 2012. Overfishing: what Everyone Needs to Know. Oxford University Press, New York, New York.

Holland, J., 2012. Global Feature: Gold Mettle [WWW Document]. Seafoodbusiness.com. http://www.seafoodbusiness.com/articledetail.aspx?id=15801 (Accessed 2 14).

Jacquet, J., Hocevar, J., Lai, S., Majluf, P., Pelletier, N., Pitcher, T., Sala, E., Sumaila, R., Pauly, D., 2009. Conserving wild fish in a sea of market-based efforts. Oryx 44, 45. http://dx.doi.org/10.1017/S0030605309990470.

Jacquet, J., Pauly, D., 2007. The rise of seafood awareness campaigns in an era of collapsing fisheries. Mar. Policy 31, 308–313. http://dx.doi.org/10.1016/j.marpol.2006.09.003.

Jantarasami, L.C., Lawler, J.J., Thomas, C.W., 2010. Institutional barriers to climate change adaptation in U.S. National Parks and Forests. Ecol. Soc. 1–16.

Kamarck, E.C., 2002. The end of government as we know it. In: Donahue, J.D., Nye Jr., J.S. (Eds.), Market-based Governance. Brookings.

Kempton, W., Boster, J.S., Hartley, J.A., 1996. Environmental Values in American Culture. The MIT Press.

Kjaer, A.M., 2004. Governance. Polity Press, Malden, MA.

Konefal, J., 2013. Environmental movements, market-based approaches, and neoliberalization: a case study of the sustainable seafood movement. Organ. Environ. 26, 336–352. http://dx.doi.org/10.1177/1086026612467982.

McCay, B.J., Jentoft, S., 1996. From the bottom up: participatory issues in fisheries management. Soc. Nat. Resour. 9, 237–250. http://dx.doi.org/10.1080/08941929609380969.

MSC, 2014. Fisheries Certification Requirements Version 2.0. MSC, London, England.

MSC, 2013a. Get Certified! Fisheries. MSC, London.

MSC, 2013b. Partner Release: Report Completes Sustainability Map of England's 450+ Inshore Fisheries [WWW Document]. MSC. http://www.msc.org/newsroom/news/parner-release-report-completes-sustainability-map-of-england2019s-450-inshore-fisheries?fromsearch=1&isnewssearch=1&b_start:int=20 (Accessed 3 1 14b).

Msomphora, M.R., 2015. Stakeholder participation and satisfaction in the process of developing management plans: the case of Scottish Inshore Fisheries Groups. Ocean Coast. Manag. 116, 491–503. http://dx.doi.org/10.1016/j.ocecoaman.2015.09.015.

MSRA, 2007. Magnuson-stevens Fishery Conservation and Management Act.

NMFS, 2016. Ending Overfishing through Annual Catch Limits: Office of Sustainable Fisheries [WWW Document]. nmfs.noaa.gov (Accessed 6 25 16).

NMFS, 2015. Presidential Task Force on Combating IUU Fishing and Seafood Fraud. NOAA, Silver Spring, MD.

NMFS, 2005. Private Sector Certification of Fisheries. NMFS.

Okey, T.A., 2003. Membership of the eight Regional Fishery Management Councils in the United States: are special interests over-represented? Mar. Policy 27, 193–206. http://dx.doi.org/10.1016/S0308-597X(03)00002-2.

Oosterveer, P., 2008. Governing global fish provisioning: ownership and management of marine resources. Ocean Coast. Manag. 51, 797–805. http://dx.doi.org/10.1016/j.ocecoaman.2008.08.002.

Ostrom, E., 2012. Polycentric systems: multilevel governance involving a diversity of organizations. In: Brousseau, E., Dedeurwaerdere, T., Jouvet, P.-A., Willinger, T. (Eds.), Global Environmental Commons. Oxford University Press, UK, Oxford.

Ostrom, E., 2003. The commons in the new milennium. In: Dolsak, N., Ostrom, E. (Eds.), Challenges and Adaptation. The MIT Press, Cambridge, Massachusetts.

Packard, 2012. Marine Fisheries Subprogram.

Pauly, D., 1995. Ancedotes and the shifting baseline syndrome of fisheries. Trends Ecol. Evol. 10, 1–1.

Petersen, L., 2013. FISHERIES: Senate Panel Probes Disputes over Sustainable Certification Programs [WWW Document]. EE News. http://www.eenews.net/eedaily/stories/1059987661/print (Accessed 1 11 14).

Plagányi, É.E., van Putten, I., Thébaud, O., Hobday, A.J., Innes, J., Lim-Camacho, L., Norman-López, A., Bustamante, R.H., Farmery, A., Fleming, A., Frusher, S., Green, B., Hoshino, E., Jennings, S., Pecl, G., Pascoe, S., Schrobback, P., Thomas, L., 2014. A quantitative metric to identify critical elements within seafood supply networks. PLoS One 9, e91833. http://dx.doi.org/10.1371/journal.pone.0091833.s001.

Potts, T., Haward, M., 2006. International trade, eco-labelling, and sustainable fisheries – recent issues, concepts and practices. Environ. Dev. Sustain 9, 91–106. http://dx.doi.org/10.1007/s10668-005-9006-3.

Pykett, J., Jones, R., Whitehead, M., Huxley, M., Strauss, K., Gill, N., McGeevor, K., Thompson, L., Newman, J., 2011. Interventions in the political geography of ‘libertarian paternalism'. Polit. Geogr. 30, 301–310. http://dx.doi.org/10.1016/j.polgeo.2011.05.003.

Reff Pedersen, A., Sehested, K., Sorensen, E., 2011. Emerging theoretical understanding of pluricentric coordination in public governance. Am. Rev. Public Adm. 41, 375–394. http://dx.doi.org/10.1177/0275074010378159.
Rhodes, R.A.W., 2007. Understanding governance. Organ. Stud. 28, 1–23. http://dx.doi.org/10.1177/0170840607076586.
Rhodes, R.A.W., 1997. From Marketization to Diplomacy: it's the mix that matters. Public Policy Adm. 12, 31–50. http://dx.doi.org/10.1177/095207679701200204.
Robinson, J.G., 2012. Common and conflicting interests in the engagements between conservation organizations and corporations. Conserv. Biol. 26, 967–977. http://dx.doi.org/10.1111/j.1523-1739.2012.01914.x.
Roheim, C.A., Asche, F., Santos, J.I., 2011. The elusive price premium for ecolabelled products: evidence from seafood in the UK market. J. Agric. Econ. 62, 655–668. http://dx.doi.org/10.1111/j.1477-9552.2011.00299.x.
Seafish, 2014. Interactive Guide. Seafish. http://www.seafish.org/industry-support/guide-to-seafood-standards/interactive-guide (Accessed 5 15).
SFP, 2014. Gulf of Mexico Reef Fish Fishery Improvement Project [WWW Document]. sustainablefish.org. https://www.sustainablefish.org/fisheries-improvement/fisheries-improvement/fip-stories/gulf-of-mexico-reef-fish (Accessed 4 14).
Shelton, P.A., 2009. Eco-certification of sustainably managed fisheries—Redundancy or synergy? Fish. Res. 100, 185–190. http://dx.doi.org/10.1016/j.fishres.2009.08.004.
Smith, T.M., Fischlein, M., 2010. Global environmental change. Glob. Environ. Change 20, 511–522. http://dx.doi.org/10.1016/j.gloenvcha.2010.03.006.
Stoker, G., 1998. Governance as theory: five propositions. Int. Soc. Sci. J. 50, 1–12.
Sutton, M., Wimpee, L., 2008. Towards sustainable seafood: the evolution of a conservation movement. In: Ward, T., Phillips, B. (Eds.), Seafood Ecolabelling: Principles and Practice. John Wiley and Sons, Oxford, pp. 403–415.
Trubek, D.M., Trubek, L.G., 2007. New governance & legal regulation. Columbia J. Eur. Law 13, 1–27.
Warner, K., Timme, W., Lowell, B., Hirshfield, M., 2013. Oceana Study. National Seafood Fraud Testing Results, Washington, DC.
WEF, 2012. More with Less: Scaling Sustainable Consumption and Resource Efficiency. World Economic Forum.
Worm, B., Branch, T.A., 2012. The future of fish. Trends Ecol. Evol. 27, 594–599. http://dx.doi.org/10.1016/j.tree.2012.07.005.
Worm, B., Hilborn, R., Baum, J.K., Branch, T.A., Collie, J.S., Costello, C., Fogarty, M.J., Fulton, E.A., Hutchings, J.A., Jennings, S., Jensen, O.P., Lotze, H.K., Mace, P.M., McClanahan, T.R., Minto, C., Palumbi, S.R., Parma, A.M., Ricard, D., Rosenberg, A.A., Watson, R., Zeller, D., 2009. Rebuilding global fisheries. Science 325, 578–585. http://dx.doi.org/10.1126/science.1173146.
WWF, 2013. FIP Handbook. WWF, Washington, DC.