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Working Paper

Trade and sustainable fisheries

ADBI Working Paper, No. 676

Provided in Cooperation with:

Asian Development Bank Institute (ADBI), Tokyo

Suggested Citation: Sumaila, Ussif Rashid (2017) : Trade and sustainable fisheries, ADBI Working Paper, No. 676, Asian Development Bank Institute (ADBI), Tokyo

This Version is available at:

<https://hdl.handle.net/10419/163175>

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ADB Working Paper Series

**TRADE AND SUSTAINABLE
FISHERIES**

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No.676
February 2017

Asian Development Bank Institute

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Suggested citation:

Sumaila, U. R. 2017. Trade and Sustainable Fisheries. ADBI Working Paper 676. Tokyo: Asian Development Bank Institute. Available: <https://www.adb.org/publications/trade-and-sustainable-fisheries>

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I thank the Asian Development Bank Institute for commissioning this report and for providing comments on earlier drafts that have helped to strengthen this contribution. I also want to thank members of the E15 Oceans, Fisheries and Trade expert group, an amazing team of colleagues that I had the privilege of serving as Theme Leader, for their wonderful contributions, from which I have drawn to write this paper. This expert group was formed as part of the E15 Initiative by the International Centre for Trade and Sustainable Development (ICTSD) and the World Economic Forum (www.e15initiative.org/).

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Abstract

The ultimate goal of this contribution is to formulate fish trade policy recommendations that can be deployed to help achieve the relevant Sustainable Development Goals of the United Nations (SDGs). Even though all the 17 SDGs are relevant to the issues addressed in this contribution, I will focus on SDG14: Life under the water, and also SDG 1 (No poverty); 2 (Zero hunger); 3 (Gender equality); 4: (Reduced inequality); and 12 (Responsible consumption and production). Before I get to the recommendations, I will review the literature on the relationship between fish trade and sustainable fisheries; and discuss the potential promise (pros) and perils (costs) of fish trade. Policy recommendations for using fish trade to support the SDGs are provided under different headings that capture the main concerns highlighted in the literature when it comes to ensuring the sustainability of fisheries in general and those related to the impact of trade on fisheries sustainability in particular. The policy measures presented in this chapter have the potential to help ensure that trade in fish and fish products would support the implementation of the SDGs.

JEL Classification: G22, G27, G28

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1. INTRODUCTION

Fish stocks¹ support livelihoods and enhance the food security and incomes of millions of people while supporting vital ecological systems. However, overfishing, pollution, climate change, unsustainable trade and globalization, and illegal and unreported fishing are threatening the long-term sustainability of fisheries worldwide.

The United Nation's Sustainable Development Goal 14 (SDG 14) highlights how marine resources are a crucial component of the world's vital natural resources, which, if managed effectively, can continue to contribute significantly to the global community's sustainable development goals of reducing hunger and poverty in the world's most vulnerable populations.

In every continent of the world, fisheries are a key part of the "blue economy" and trade in fish and fish products play a vital role since it is extensive, with significant exports flowing from developing to developed countries. Imports are dominated by the markets of the European Union (EU), Japan, the United States, and the People's Republic of China (PRC), whose trade policies have a significant impact on fisheries trade and sustainability.

The purpose of this chapter is to explore the conditions under which trade in fishery resources can contribute to meeting key components of the SDG, that is, poverty reduction and reducing hunger through inclusive and sustainable growth. The ultimate goal is to demonstrate to the international development community and policy makers, especially in developing countries, the conditions under which trade policy in fish and fish products can be designed to help them achieve their sustainable development goals.

Given that fish and fisheries products are among the most traded commodities in the world, the point of departure for this paper is that trade in fish and fish products has the potential to contribute positively to the realisation of the SDGs, but only if its pros and cons or benefits and costs are fully and adequately identified and the former (benefits) are promoted while the latter (costs) are reduced to the barest minimum possible.

Private and public actors have tried to use trade-related measures to tackle development and environmental challenges around oceans and fisheries (e.g., Sumaila et al. 2016; Bellman et al. 2016). Multilateral efforts include agreement on port state measures to stop fish caught by illegal, unreported, and unregulated (IUU) fishing from entering trade (Young 2015; Hosch 2016), and negotiations on disciplines on harmful subsidies via the World Trade Organization (WTO) (Tipping 2016). The threat of import bans by major importers appears to have had some success in motivating exporting countries to address their vessels' IUU fishing. Private food safety standards have proliferated, and growth of private sustainability standards is increasingly attracting the attention of governments (Bellman et al. 2016).

Trade-related measures can help to address the challenge of sustainable oceans and fisheries use, but will need to be part of coherent policy frameworks including improvements to management and governance of fisheries resources at all levels, and institute policies that would ensure that fishers and fishing communities are not left behind. In this paper, unlike in the other fish trade papers (e.g., Asche et al. 2016; Bellman et al. 2016), I will take a broader approach to identifying policies that need to be in place for trade in fish and fisheries to support the implementation of the SDGs.

¹ I will primarily be focusing on marine fish stocks, but most of the discussion in this contribution would also apply to aquaculture and freshwater fish stocks.

2. FISH TRADE AND THE SUSTAINABLE DEVELOPMENT GOALS

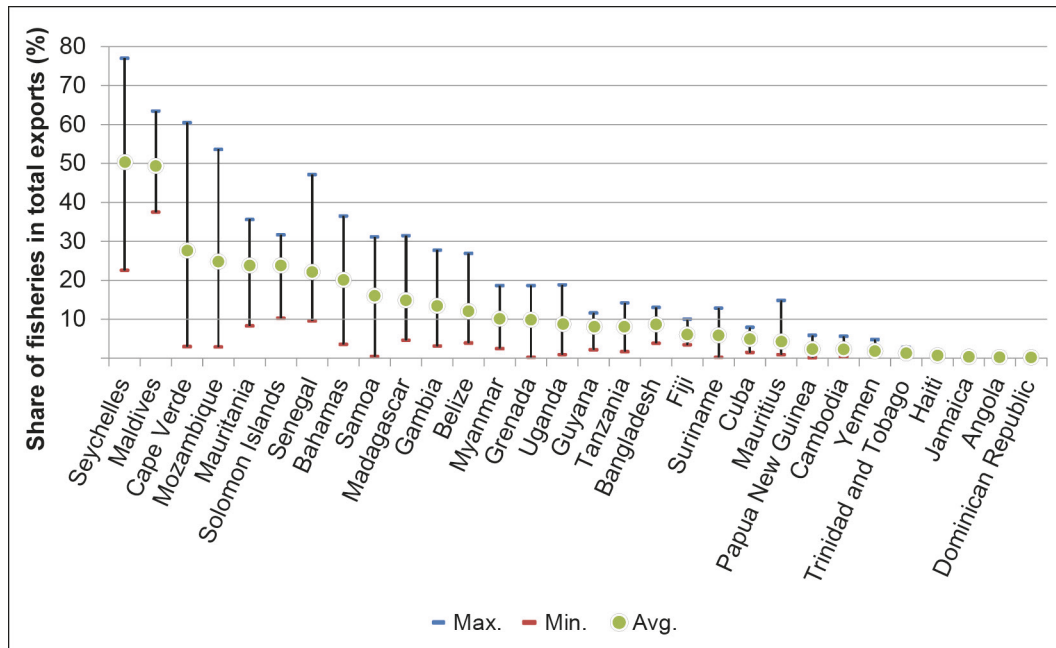
Fish and fisheries are economically and socially important. At the same time they result in significant social and environmental impacts that must be managed effectively if we are to meet the ambitious goals of the SDGs. Fisheries worldwide currently catch about 130 million tonnes of fish a year both reported and unreported (Pauly and Zeller 2016), which in 2015 dollars generates about \$180 billion annually (applying price information in Sumaila et al. 2007 and Swartz et al. 2013). Using the average global multiplier, a measure of the economic impact of a dollar of landed value of fish sold at the dock (Dyck and Sumaila 2010), marine fisheries create economic impacts of an estimated \$500 billion a year. Of the total amount of fish supplied, about 40% was marketed live, fresh, or chilled while 46% was processed in frozen, cured, or other prepared forms for human consumption, with the remaining 14% allocated to non-food uses (FAO 2012).

Fisheries are particularly important in developing countries where they support numerous small-scale artisanal and subsistence fishers, who often provide crucial food supplies, sustain regional economies, and support the social and cultural values of the areas (Béné et al. 2010; Teh and Sumaila 2011). These sectors are crucial to the livelihoods of people living in many coastal communities around the world. The share of the total fish production that is exported increased significantly from 25% in the mid-1970s to nearly 40% in 2011, reflecting the sector's growing degree of integration in the global economy (FAO 2012). In recent years, liberalization policies, technological innovations, improvements in processing, packaging, and transportation, as well as changes in distribution and marketing have further accelerated this trend, while facilitating the emergence of complex supply chains in which goods often cross national boundaries several times before final consumption (Sumaila et al. 2014; Bellmann et al. 2016).

As stated in Sumaila et al. (2016a), developing countries account for more than 50% of all fisheries exports in value terms (60% in volume). The PRC, Thailand, Viet Nam, Chile, India, and Indonesia are among the leading players. Overall, net exports of fish and fish products from developing countries largely exceed those of agricultural commodities such as rice, meat, sugar, or coffee (FAO 2012). In terms of export markets, developed countries have traditionally represented a major outlet with roughly two thirds of developing countries' exports directed to them. A growing share of these exports consists of processed fishery products prepared from imports of raw fish that are processed and re-exported. This re-export phenomenon reflects the growth of global value chains and the fact that low-cost processing means fish may be caught in one part of the world, processed in another, and consumed in a third.

Figure 1, taken from Sumaila et al. (2014), presents the average share of fisheries in total exports for the top exporting Least Developed Countries (LDCs) and Small Island Developing States (SIDS) between 1990 and 2009. The figure demonstrates the importance of fisheries to these countries' economies. We see that in countries such as the Seychelles, Maldives, Cape Verde, or Mozambique, fisheries represented up to 50% of total merchandise exports, with this share going up to 60% or even 75% in certain years. This very high level of reliance on fisheries resources suggests these countries may be particularly vulnerable should the health of the fish stock decline as a result of overfishing, or should the fish stock move as a result of climate change (Sumaila et al. 2011; Cheung et al. 2013), severely undermining the SDGs of poverty reduction (SDG 1) and hunger reduction (SDG 2) while sustaining marine ecosystems into the distant future (SDG 14).

Figure 1: Share of Fisheries Exports in Total Exports in Top LDCs and SIDS Exporters
(%, 1990–2009)



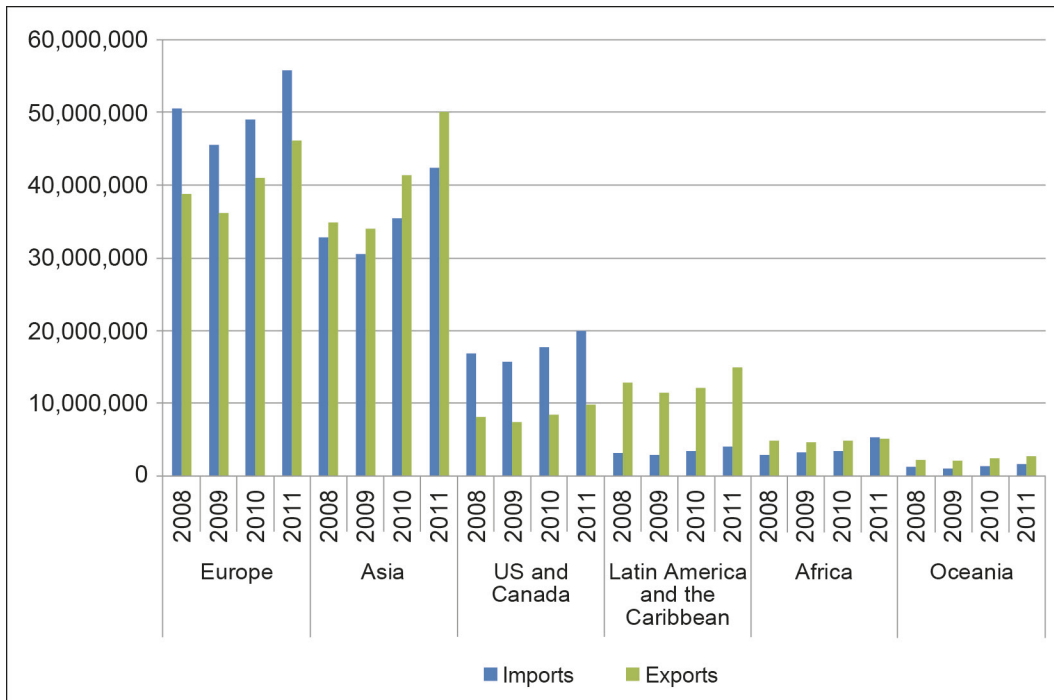
LDCs = Least Developed Countries; SIDS = Small Island Developing States; Max. = maximum; Min. = minimum; Avg. = average.

Source: Sumaila et al. (2014); based on FAO Stats and WTO Tariff and Trade Databases.

The leading fish importing countries in value terms are the United States, Japan, and Spain. On the other hand, the PRC and Japan are the top importers in terms of quantity and value, respectively (Sumaila et al. 2014).

The EU, the United States, and Japan are highly dependent on imports for their consumption (Swartz et al. 2010). The EU is the largest single market in the world, with about 26% of world imports. In recent years, however, a number of emerging markets have grown in importance including the PRC, Brazil, Mexico, and the Russian Federation, and the regions of Asia and the Near East in general. While developed countries were responsible for 86% of total imports in 1990, it was only 76% in 2010 (FAO 2012). South–South trade is likely to grow with rising disposable incomes in emerging economies, gradual trade liberalization, and a reduction in the high import tariffs due to the expanding membership of the WTO, and the entry into force of a number of bilateral trade agreements with strong relevance to fisheries (Sumaila et al. 2014; Bellmann et al. 2016).

Figure 2: Fishery Trade Flows by Regions
(\$ '000)



US = United States.

Source: Sumaila et al. (2014) and Bellmann et al. (2016), original data from FishStat.

3. THE PROMISE (PROS) OF FISH TRADE

Given the size and scope of global trade in fish and fish products described in Section 2 above, trade plays a significant role in the quantity of fish caught and how the benefits of fisheries are distributed between and within countries. If effectively harnessed, the power of trade can be used to support the implementation of the SDGs. The key theoretical economic basis for trade are comparative advantage and specialization. These concepts mean that entities can get better outcomes by specializing in their comparative advantage. In this way, both entities capitalize on their comparative advantage and are able to produce more of the two goods than if they each produced both goods to meet their own respective demands. Hence, each entity gains from trade. Applying this concepts to fish and fish products implies that trade in fish can generate high economic growth, which if properly harnessed can help reduce poverty and provide the economic base for marine conservation. On the other hand, trade protectionism can result in the inefficient use of fishery resources (Johnson 1992) while trade liberalization can improve efficiency in the allocation and use of the fishery resources.

The removal of trade restrictions such as tariffs, tariff escalation, export restrictions, subsidies, and non-tariff barriers can reduce trade restrictions with benefits to employment and possibly help conserve the marine ecosystem. They can also reduce prices of finished goods and provide consumers with greater choices of a wider range of quality products.

By facilitating the transfer of technology between nations, international trade can facilitate the transfer of more environmentally friendly technology at lower cost, which can help ease the pressure on marine ecosystems and fish stocks while helping to reduce poverty and hunger.

As we will see in Section 4 below, some of the pros or benefits of trade are double-edged swords that need to be managed carefully to ensure the potential benefits that are actually realized outweigh the potential costs.

4. THE PERILS (CONS) OF FISH TRADE

When a country or group of countries enjoy comparative advantage because of weak fisheries management; the provision of subsidies; and/or because they sell fish that are illegally caught, this may create incentives for other countries to relax their fisheries policies and management; neglect improving their fisheries management; introduce new subsidies or deliberately fail to discipline existing subsidies; and ignore illegal fishing taking place in their waters or by their fishing vessels in other countries' waters. Furthermore, lax policies and management may result in the migration of investment capital to fisheries in countries with little or no regulatory oversight, resulting in a so-called race to the bottom—a situation in which many countries deliberately weaken their fisheries policies and management to be competitive in a fish market that is supplied with fish from regions of the world with lax regulatory regimes (Arden–Clarke 1991).

A key concern of many about trade in fish is that the benefits of trade may not reach fishers and fishing communities, thereby undermining the crucial SDGs of no poverty and zero hunger because, in many instances, developing countries and their fishers and fishing communities may end up with no fish and no money (Kaczynski and Fluharty 2002; Le Manach et al. 2012). A related concern is that international trade can facilitate the transfer of technology through joint ventures that allow large industrial fleets to fish in another country's waters, which can harm fish stocks, the ecosystem, and people in fishing communities who depend on fish and fishing for their food and livelihoods.

Another major concern is that many fisheries around the world are not managed effectively (Pitcher et al. 2009). The evidence in the literature shows that trade in the absence of effective management can increase pressure on fish stocks and magnify overfishing through increased demand. This would add to the already costly problem of overfishing such as a reduction in food security and losses in revenues, jobs, and incomes (Arnason et al. 2008; Sumaila et al. 2012).

International trade is also a primary means by which exotic and invasive species that may have negative impacts on marine biodiversity and fish stocks get transported around the world. Ships and fishing vessels moving to different countries often transport species to different marine ecosystems.

A final concern is that usually, when governments commit to free trade they agree to a number of trade principles. Many people are concerned that such trade principles and laws can undermine the ability of national governments to institute measures that are tuned to local and national conditions to effectively manage their fisheries. This is one of the issues that many opponents of the Trans-Pacific Partnership (TPP), for example, are worried about.

5. HOW CAN TRADE IN FISH SUPPORT THE IMPLEMENTATION OF THE SDGS?

To support SDG 14 (Life under water), in particular, but also SDG 1 (No poverty); 2 (Zero hunger); 3 (Gender equality); 4: (Reduced inequality); and 12 (Responsible consumption and production), trade in fish and fish products has to contribute to (i) the conservation of fishery resources; (ii) reducing poverty and inequality in the distribution of fisheries benefits; and (iii) the creation of inclusive growth in the fisheries sector.

To assess whether trade in fish would positively impact our ability to achieve the SDGs, the following key questions need to be addressed. First, how do we ensure that trade is a boon to conservation and sustainability? Second, how do we make sure that trade does not increase inequality in societies but rather helps to reduce poverty and hunger among the world's most vulnerable populations?

Fischer (2010: 107) provided a nice summary of the literature on trade and natural resource management: "trade liberalisation can be a boon to resource-rich countries, but not always; that trade can lead to the depletion of natural resources, but not always; and that trade bans can be appropriate, and certified trade can be helpful—but not always." This quote makes it clear that trade and its impacts on nature and people is complex and difficult to nail down.

The literature explores various ways in which trade policies can be designed to ensure that trade is a boon to fish stock-rich countries, especially, those in developing countries; that trade does not lead to the depletion of fishery resources but rather supports their conservation and sustainable use; and that trade in fish and fish products support the alleviation of poverty and hunger.

One channel through which the effect of trade in fish is felt is in its effects on the price of fish. For a small fish-rich developing country, trade would increase prices (Fischer 2010). Basic fisheries economics tells us that an increase in prices in a situation where fisheries are not effectively managed will result in overcapacity and overfishing (Clark 1990). Even if fish stocks are managed optimally, in the long run steady-state welfare and stock sizes may be lower (Bulte and Barbier 2005; Sumaila and Walters 2005), which ultimately would lead to unsustainability and an increase in poverty and hunger among the population. Hence, to mitigate the effects of trade on the price of fish and the likely consequences on the wellbeing of people and the environment, it is crucial and necessary, if not sufficient, that fisheries management in fish stock-rich exporting countries are effective.

The simplest way to determine whether a fishery is effectively managed or not is to see if the fishing capacity deployed is such that stock biomass is not depleted over time.

Sumaila (2012), echoing the literature, identified a number of challenges that need to be addressed to achieve good governance or effective management of fisheries: (i) tackle the common property or open access nature of fishery resources; (ii) mitigate and adapt to climate change, ocean warming, and acidification; (iii) discipline the provision of trade distorting, capacity enhancing, and inequity generating government subsidies to the fishing sector; (iv) stop illegal, unreported, unregulated (IUU) fishing; (v) address the self-defeating tendency to undervalue future fisheries benefits; and (vi) find a meaningful way for aquaculture to contribute to meeting our animal protein needs.

Other important concerns, challenges, and issues, not listed in Sumaila (2012), are the need to (viii) enhance the position of women in fisheries; (ix) reduce corruption in fisheries and fish trade; and (x) “buy” insurance by creating marine protected areas.

The SDGs are crosscutting and so is trade in fish because we are dealing with matters at the intersection of healthy oceans, sustainable fisheries, reduction of poverty and hunger, increasing gender and group equity, and the trade system. This clearly requires a comprehensive approach that takes into account ecological, economic, legal, and local realities as well as existing multilevel governance regimes.

5.1 Enabling Policy Conditions for Trade in Fish to Support the SDGs

Below I briefly outline some necessary conditions for trade in fish to be sustainable; to support a reduction in poverty and hunger; and help increase equity in the distribution of fisheries benefits between genders and across different groups of peoples. Most of the conditions and policy recommendations below relate to making fisheries management more effective, which is clearly an important prerequisite for achieving sustainable fish trade.

5.1.1 Open Access and Common Property Nature of Fish Stocks

Many fisheries within country Exclusive Economic Zones (EEZs) and in the high seas are still effectively open access or common property fisheries that are not managed cooperatively (Cullis–Suzuki and Pauly 2010; Norse et al. 2012; White and Costello 2014; Sumaila et al. 2015). It has been shown that under these regimes, the tendency is to overcapitalize and overexploit the resource (Munro 1979; Sumaila 2013). The root cause of this overfishing has to be treated if fish trade is to be done sustainably and in a manner that supports the SDGs. To mitigate these problems, more effective access structures at different jurisdictional levels, from the local to the national and global are needed where they do not exist and strengthened where they exist.

5.1.2 IUU Fishing

IUU fishing occurs in many parts of the global ocean (Sumaila et al. 2006; Agnew et al. 2009). IUU fishing is problematic in several ways. It makes fisheries management ineffective as it makes it difficult for managers to determine the total biomass removal; it distorts trade and results in economic losses to legal fishers and the formal economy as IUU catches ultimately enter illicit trade in fish. IUU fishing has to be brought down to the lowest minimum possible or even eliminated completely for trade in fish to support the SDGs. The good news is that trade policies and measures can actually contribute to the fight against IUU fishing (see below).

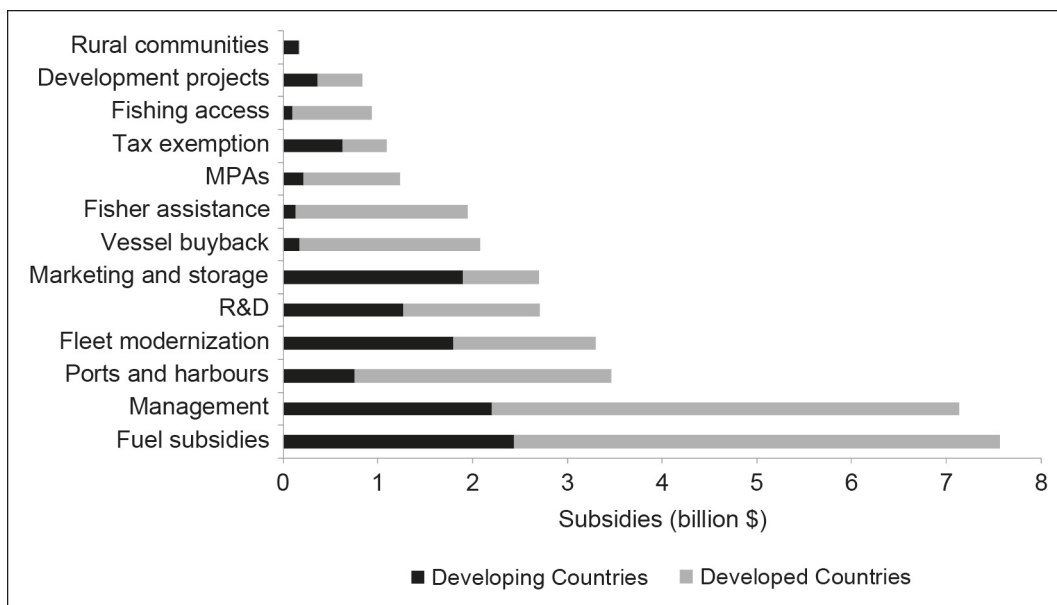
5.1.3 Trade-distorting, Capacity-enhancing, and Inequality Generating Subsidies

The most recent estimate of fisheries subsidies puts it at \$35 billion a year globally and that most of this (~\$20 billion) is capacity enhancing overfishing subsidies (Sumaila et al. 2016b). Also, subsidies are usually trade distorting as it provides recipient companies with an advantage over companies that do not receive them. A third and important issue is that ongoing bottom-up estimation of how much of the total subsidies go to small scale rather than large-scale fisheries reveals that only a small fraction of the total is received by SSF (Schuhbauer et al., forthcoming). The combined negative effects of overfishing, trade distortion, and the fact that SSF is disadvantaged is

the reason the elimination of capacity-enhancing fisheries subsidies is specifically mentioned in SDG 14. Clearly, the elimination of subsidies is crucial in ensuring that trade in fisheries supports sustainability and the reduction of poverty and hunger as stipulated by the SDGs (see below).

Figure 3 below presents the amounts of the different types of subsidies that make up the \$35 billion total. The figure shows that fuel subsidies, arguably the most capacity-enhancing subsidy, constitute the largest subsidy provided by governments to the fishing sector. We also see from the figure that developing country fisheries receive far less in subsidies than fisheries operated by or in developing countries.

Figure 3: Fisheries Subsidies by Type



MPAs = marine protected areas; R&D = research and development.

Source: Sumaila et al. 2016.

5.1.4 Balance Current and Future Needs from Fish and Fisheries

Balancing current against future needs is difficult even at the individual level when the consequences in terms of costs or benefits of failing to do so fall squarely on the individual. At the societal level, achieving balance between now and the future is even more difficult as people suffer the “problem of short-sightedness in valuation” and they tend toward instant gratification (Sumaila 2004; Sumaila and Walters 2005). This problem stems from the general human perception that what is closest to us appears to be large and weighty, while size and weight decreases with our distance from things, both temporally and spatially (Sumaila 2012). This human tendency is captured by the economic concept of discounting—that is, the approach by which values to be received in the future are reduced to their present value equivalent using a discount rate. This tendency drives us to want to frontload fisheries benefits resulting in overfishing and unsustainability. For trade in fish to be sustainable, fisheries policies to mitigate this tendency are needed (Nijkamp and Rouwendal 1988; Ainslie and Haslam 1992; Neumayer 2000; Weitzman 2001; Sumaila 2004; Sumaila and Walters 2005).

5.1.5 Enhance the Position of Women in Fisheries

Women are important players in the fisheries sector but their contribution to the sector and the economic, social, and cultural wellbeing of families and communities around the world continue to be overlooked and marginalized. Traditionally, fishing has often been very narrowly defined as catching fish by men but more evidence is beginning to show that women do engage in fishing and in a large proportion when “fishing” is expanded to include all aspects of fishing all through the fish value chain (e.g., Harper et al. 2013). Contributing to this perception that fishing is only a man’s activity is the fact that fisheries research, management, and policy have traditionally focused on direct, formal, and paid fishing activities—which are often dominated by men, ignoring those that are indirect, informal and/or unpaid—where women are most often engaged (Teh and Sumaila et al. 2011). The unfortunate effect of this is that there is a lack of policy attention given to the role of women in fisheries, with serious consequences for food and nutritional security, poverty alleviation, and wellbeing (Bennett 2005; Harper et al. 2013). For trade in fish to support the SDGs of no hunger and poverty by 2020, the role of women in fisheries must be highlighted and their position enhanced.

5.1.6 Reduce Corruption in Fish and Fish Trade

Corruption can be defined as the misuse of public office for private gain (Shleifer and Vishny 1993; Treisman 2000), through either a commission of crime or an omission of duty (Gore et al. 2013). Weak governments that do not control their agencies often experience high levels of corruption (Kolstad and Søreide 2009). Yet, corruption can also extend beyond the governmental sector to include the abuse of private office for individual gains (Bardhan 2006).

In particular, “corruption in natural resource management is defined as the use or overuse of community natural resources with the consent of a state agent by those not legally entitled to it” (Robbins 2000). Thus, the potential for corruption exists at every link in the natural resource (e.g., seafood) supply chain. To effectively manage fisheries generally, and in support of fish trade for sustainable development, every effort has to be geared towards reducing corruption to the very barest minimum (Sumaila et al. 2017).

5.1.7 Buy Insurance by Creating Marine Protected Areas

There are many good reasons why fisheries scientists generally like marine protected areas. For economists, in particular, a good reason to like marine protected areas is that they can serve as a buffer against management errors, which cannot be completely avoided because of what is described in the literature as irreducible uncertainties in fisheries (Lauck et al. 1998). With climate change and its effects on the biophysics of marine ecosystem, it is getting more difficult to manage fisheries effectively and optimally. When things are complex, a wise way to achieve a goal is apply simple approaches and solutions. Portfolio managers are a good example—many of them diversify their portfolios as a way to manage risk and uncertainty. Implementing a marine protected area as part of the management tool kit to ensure that trade in fish is sustainable and supports the SDGs is a wise thing to do.

5.1.8 Support Climate Change Mitigation and Adaptation Measures

Humanity continues to pump high quantities of CO² and other greenhouse gases into the atmosphere, which is changing the climate, warming the ocean, and affecting ocean chemistry and physics. These changes in turn directly and indirectly affect the physiology, growth, reproduction, and distribution of fish species and other marine organisms. Fish in warmer waters will probably have a smaller body size, be smaller at first maturity, with higher mortality rates, and be caught in different areas of the ocean than is typical (e.g., Cheung et al. 2013). These in turn would affect the economics and social contributions of fisheries in different parts of the world (Allison et al. 2009; Sumaila et al. 2011; Lam et al. 2016). Hence, at the general level, every effort should be made to mitigate CO² emissions. At the fisheries sector level, strategies and plans should be developed and implemented to help coastal communities adapt to the coming changes.

5.1.9 Develop Sustainable Aquaculture Practices

We have witnessed rapid growth in aquaculture production in recent years (averaging growth of about 8% per year). Aquaculture has consequently come to be seen by many as the solution to our food fish supply problem. However, in terms of the SDGs, there is reason to temper this high level of optimism with some caution because the PRC alone accounts for about 60% of world production of farmed fish, implying that with depleted wild fish stocks, countries, including cash-strapped developing ones, will have to import fish from the PRC, which may actually not be cheaply available because of the PRC's high domestic demand for fish. This situation is almost sure to increase poverty and hunger among vulnerable populations in least developed coastal communities around the world, thus, acting against SDGs 1 and 2. To mitigate this tendency, current management of wild fish stocks needs to be strengthened to ensure that they are sustainable over time. Also, we need to support the development of sustainable aquaculture that actually adds to the quantity of fish available by taking in less fishmeal and oil in weight than the final quantity of fish actually produced, not that which uses more fish as fishmeal and fish oil in the amount of fish produced. One way to achieve this is to restrict fish farming to mainly herbivorous fish such as tilapia, carps, and the like.

6. TRADE MEASURES AND POLICY OPTIONS THAT SUPPORT THE SDGS

Here, we describe how trade measures could be implemented to promote the sustainable use of fishery resources. To increase the likelihood that these measures will succeed, certain prerequisites need to be in place as stated in Sumaila (2016). First, fish trade policies need to be inclusive, transparent, and coherent since the oceans are interconnected both via nature and markets. Fish do not respect national boundaries as they swim, and fish trade, by nature, involves more than one country. This implies that to employ trade-related measures in support of healthy oceans and sustainable fisheries, international collaboration that is fair and inclusive is needed.

Next, more transparent information is needed to support international collaboration and joint action. A concerted effort is required to improve transparency around fisheries data and trade policies. This can be done by bringing private and public sector information together in integrated data platforms. The E15 Oceans, Fisheries and Trade expert group argues that this is an important basic requirement for the successful implementation of trade-related measures (Sumaila 2016).

One more prerequisite is capacity building: People make things happen and well-trained and equipped people make things happen better. The design and implementation of effective trade policies requires a concerted global effort to train people who can ensure the effective implementation not only of trade measures but also other sustainable development policies (Sumaila 2016).

In the next two sub-sections, I present trade policy options and measures to help tackle these issues based mainly on the work of the E15 Oceans, Fisheries and Trade expert group as reviewed in Sumaila (2016), that could help combat IUU fishing and discipline capacity-enhancing fisheries subsidies.

6.1 Combating IUU Fishing using Trade Measures

The goal is to suggest trade policy measures as key elements of a solution. This could be achieved by progressively closing down international trade in IUU fish products. One way to work towards eliminating IUU fishing is thus to establish means to make it difficult for fish products from IUU fishing to enter the market.

As suggested in Sumaila (2016), we need to build consultative, effective, and coordinated unilateral import measures. The EU's IUU regulation, which incorporates an escalating warning system, is having an impact (Hosch 2016). A key gap in the current situation is that the EU's import policy is limited to one market although the United States is developing options. For this recommendation to succeed, other large seafood markets need to adopt trade measures that incorporate good aspects of the EU system, such as those that address IUU fish transshipment and imports (Sumaila 2016). This approach should not be implemented as a punishment but as a way of helping fishing nations to develop approaches to reduce or even eliminate IUU fishing within their EEZs. Therefore, unilateral measures should include consultation with affected trading partners and organized in stages with import bans invoked only as a last step. Critically, unilateral measures need to take account of the impact of the shift in production required on producers in low-income countries.

A network of regional measures to address IUU fish trade needs to be created in different parts of the world. This is because unilateral measures are effective only to the extent that producers cannot easily supply their products elsewhere. The global nature of fisheries trade means that many producers may be able to sell IUU fish in less regulated markets. To extend the reach of import measures, they need to be adopted on a bilateral or regional basis through regional trade agreements. It would be important to use regional trade agreements as a way to link unilateral IUU trade measures in a cohesive network with broad country coverage—either directly or by establishing platforms that will help countries converge towards best practice (Sumaila 2016). Examples could include provisions in the Transatlantic Trade and Investment Partnership (TTIP) to ensure coherence between EU and United States systems, and the establishment of IUU platforms in the Trans-Pacific Partnership (TPP) and the African Tripartite Free Trade Area (TFTA). To increase the effectiveness of these measures, linkages would need to be developed with large import markets, especially the PRC, that are not parties to the agreements (Sumaila 2016).

Building on unilateral actions is the need to develop a system of multilateral instruments on trade in IUU fish products. Individual country and regional approaches to closing the market for products from IUU fishing could gradually change the economics of the activity such that the cost of supplying IUU fish is too high to make it worthwhile on a large scale. However, a comprehensive and inclusive solution to the problem would most efficiently be negotiated multilaterally. Regional agreements can be used to support the entry into force of other multilateral instruments, and to

establish, through the WTO, a code of conduct on illegal fish trade. Endangered marine species could be listed in Appendix I or II of the Convention on International Trade and Endangered Species; and elements of best practice from unilateral and regional systems could be captured in a voluntary code on IUU fish imports and transshipment within the WTO (Sumaila 2016).

Another recommendation relates to using private sector schemes. It is generally understood that state-based solutions alone will not be enough to address the challenges of IUU fishing. Hence, the need for complementing these solutions with private sector initiatives and solutions. Private sector certification schemes that assess the sustainability and legality of fish caught are being developed with some of them having well-developed traceability systems. One shortcoming of these schemes is that they are usually applied in developed markets, which leaves a big chunk of the market for fish in developing countries not covered. Private schemes could contribute more by enhancing the participation of developing country fisheries in sustainability and legality certification. Assistance directed at the development of data collection and infrastructure to enable the traceability and certification of fish products could be provided as Aid for Trade (Sumaila 2016).

6.2 Disciplining Fisheries Subsidies

Fisheries subsidies have been on the global agenda for several years notably via the WTO. This is because there is a general consensus that certain fisheries subsidies, known as “bad” or capacity-enhancing subsidies, lead to overfishing and are therefore harmful to fish stocks and the marine ecosystem (e.g., Milazzo 1998; Abdallah and Sumaila 2007). So far, efforts to reduce subsidies have not been very successful.

There is therefore a need to build momentum towards a multilateral agreement on subsidy reform and the following options, proposed in Sumaila (2016), could help the world make progress in significantly reducing the so-called “bad” subsidies.

A foundational requirement is the need to create a more comprehensive worldwide reliable data source on fisheries subsidies. At present, there are a few independent assessments of actual subsidy levels (e.g., Sumaila and Pauly 2006; Sumaila et al. 2016) against which to evaluate inconsistent WTO notifications. Increasing transparency is a necessary condition for further work on subsidies disciplines. Action can be stimulated by revealing the scale of the problem and by providing datasets that are accepted by governments with the responsibility of implementing reform. A solid database would provide a basis for measurement by both governments and civil society of subsidy reductions or increases. This would improve consistency across national policies, strengthen momentum for collective reform, and enable the reporting and implementation of reduction commitments to be verified (Sumaila 2016).

One way to make progress towards a multilateral agreement on disciplining subsidies, in the face of difficulty in achieving subsidies disciplines at the global level, is for a group of countries who understand the negative effects of some subsidies to implement subsidies disciplines. Such a coalition of countries could pursue such an agreement in the context of a regional trade agreement, which they can combine with trade rules that specify preferential conditions under which their group would engage in the trade of fish and fish products with countries that are not participating in the agreement. The latter is an attempt to mitigate the negative effects of free riding on members of the group.

The subsidies discipline movement could borrow from the approach adopted by the Intergovernmental Panel on Climate Change (IPCC) by establishing multilateral disciplines built stepwise and bottom-up. Here, the WTO could stimulate collective action with bottom-up voluntary commitments by countries to subsidy reform. Countries would, under this approach, declare the amount of capacity-enhancing subsidies that they would voluntarily eliminate within a given time period. Based on the sum total of voluntary commitments, the WTO would then negotiate the remaining “ambition gap” between the offers made and the level of overall reductions required at a multilateral level (Sumaila 2016).

All the good work of the WTO should not go to waste and one way for the global community to restart WTO negotiations is based on the areas of relative agreement identified during the last Doha Round. Even though the first best option is to implement an ambitious multilateral agreement, the WTO could pursue the ultimate goal by establishing disciplines built on areas of subsidy reform that attracted the most support in earlier WTO negotiations. These include subsidies to IUU fishing, vessel transfers, and access agreements (WTO 2007). There was arguably some level of consensus about the idea of reforming vessel construction subsidies and those affecting overfished stocks. It may therefore be possible for WTO members to agree to eliminate a small list of subsidies in the interest of healthy oceans and sustainable fisheries by focusing on the low hanging fruits in the first instance (Sumaila 2016).

It has been argued that a key reason for the lack of progress in protracted subsidies negotiations at the WTO is that they suffer from the requirement that negotiators should aim for an all-inclusive deal (Sumaila 2016). This has limited the ability of the subsidies negotiations to make progress by confounding the subsidies issue with other problems. To overcome this difficulty, we need to align subsidies policies with national interests by splitting the world's fisheries into domestic and international fisheries. The former would comprise fisheries operating within a country's EEZ targeting fish stocks that spend all their lives within the zone. The latter would include fish stocks that are transboundary, highly migratory, or discrete high seas stocks. International negotiations could then prioritize agreement to reform subsidies that affect international fish stocks, and governments, pressured by civil society, would work unilaterally to reform subsidies that affect their domestic fisheries (Sumaila 2016).

6.3 Tariffs and Non-tariff Measures

Here, I address issues in international fisheries trade, particularly in relation to developing countries, that relate to tariff and non-tariff barriers. Given the wide range of fisheries activities and the communities in which fisheries are situated, governments will need to work case-by-case to ensure that they integrate the impact of tariff liberalization on fish trade and trade flows in a sustainable manner.

Sumaila (2016) argues that differentiating between wild-caught and aquaculture fish products in tariff lines would enable better measurement of the changing production structure of global fisheries trade and improve the traceability of products through the value chain. This would in turn help policy makers address the differences in the environmental impacts of the two production methods and thus ensure that marine fisheries are traded in a manner that supports the SDGs.

In general, as tariff preference margins are gradually eroded, preference-dependent fishing countries (e.g., some members of the Asia Caribbean and Pacific Countries) will need to adjust to a changing competitive environment. More flexible rules of origin in preferential arrangements could help such countries diversify their sourcing of inputs and allow them time to find ways to access global fish networks, thereby creating more

options as their competitiveness evolves. Flexibility could be conditioned on fish meeting sustainability and legality requirements. Beyond rules of origin, there may be a case for international financing mechanisms, including under the Aid for Trade initiative, to provide technical assistance for producers to adjust to a loss in competitiveness caused by preference erosion (Sumaila 2016).

To continue the theme of the last paragraph, to help fishers adapt to changing competitive conditions imposed by sustainability standards fishers that are small, located in developing countries, with limited access to capital, or operating in fragmented industries are at a disadvantage when it comes to meeting high standards in export markets. Given the contribution of fisheries trade to employment and income in many developing countries, an inclusive approach in which fishers can move towards certification is essential. The private sector has an important role in this recommendation. Private actors are well positioned to both improve access to existing certification schemes and assist fishers and retailers (Sumaila 2016).

The provisions of the WTO Agreements on Technical Barriers to Trade (TBT) and Sanitary and Phytosanitary (SPS) Measures do not formally cover private standards and labels, non-governmental standard-setting bodies should be encouraged to adhere to the TBT Agreement's Code of Good Practice for the Preparation, Adoption and Application of Standards (Sumaila 2016). To harness their economic power to shape fishing patterns and ensure they are inclusive, these schemes should be encouraged to follow basic principles set out in the 2000 Decision of the TBT Committee on international standards, such as transparency, openness, and coherence, while preserving their effectiveness as incentives for sustainable fisheries and aquaculture production (Sumaila 2016).

There are differences in the National SPS and TBT systems, which sometimes are applied inconsistently. Mutual recognition between large markets can exclude other producers and reduce their competitiveness—even when these standards can be met. To ensure that these integration tools covering behind-the-border measures are inclusive, the parties to large regional trade agreements (e.g., the TPP, the TTIP, and the African TFTA) could consider including a linking mechanism by which trading partners who are outside of the agreement, but whose testing and conformity assessment systems enjoy mutual recognition with one or more of the parties involved, could benefit from the agreement's wider mutual recognition provisions (Sumaila 2016). This option, combined with technical assistance and capacity building to meet recognition requirements, particularly for least developed countries, could help change the cost–benefit equation for producers outside of the regional agreements.

7. CONCLUSION

The literature on trade and sustainable development is clear that trade in fish can be done in such a way that it supports the SDGs of the UN. This can be achieved by implementing both certain trade-related measures and policies and broader measures that pertain to the effective management of fisheries more generally, and the equitable distribution of the benefits of trade in fish among and between different groups in society, especially between different genders. We have provided recommendations and measures/policies that would help countries and the global community to achieve the core SDGs of sustainable fisheries that support inclusive economic growth and development.

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