



## SUMMARY

# Exploring the Potential Impacts of WTO Fisheries Subsidies Rules:

## The Case of Shrimp on the West Coast of Latin America

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The world's marine fisheries resources are confronted with a series of challenges which put at risk these resources' ability to continue to provide social and economic benefits to communities and which also put at risk the ecological sustainability of the resources themselves. These challenges are largely the result of human actions and existing economic incentives and can be effectively addressed with new and cooperative policies. Historical and continued overfishing, i.e., fishing mortality beyond what can be sustained by natural populations, has led to an increasing number of overfished stocks, which means they are well below their potential ability to provide sustainable benefits. Overcapacity, an excess of the fishing effort that would capture these benefits most efficiently and with highest profits, is a significant cause of overfishing and has been built up and maintained in good part through subsidies to the fishing sector.

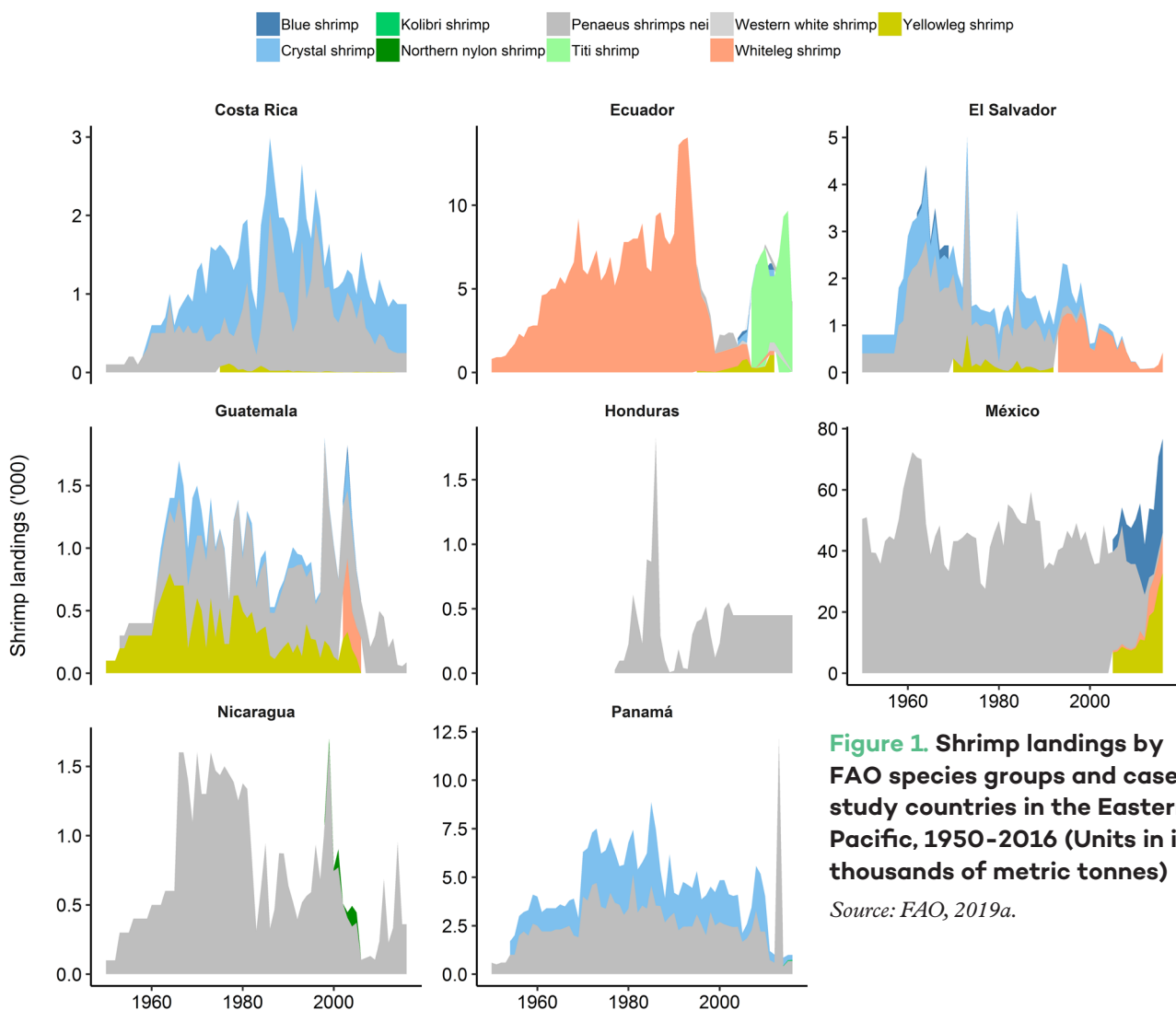
Fishery subsidies in their current form frequently contribute directly to increased fishing capacity. They are thus one of the drivers of fishing activity for which the need for reform is clearest. Subsidies can simultaneously worsen economic performance and ecological state of fisheries resources, distort international seafood prices and trade, and increase poverty over the long term, all while using public funds with many other more beneficial uses.

Governments have the opportunity to address many of these negative impacts through their current mandate to negotiate an effective agreement to discipline fisheries subsidies at the World Trade Organization (WTO). This study explores potential impacts of rules on the table in the WTO negotiations that could include: a prohibition of subsidies for fleets that are involved in illegal, unreported, or unregulated (IUU) fishing activity and of subsidies for fleets fishing on overfished stocks, and restrictions on subsidies that contribute to overcapacity and overfishing. To ground this discussion, we focus on shrimp fisheries along the Eastern Tropical Pacific (ETP).

Shrimp fisheries are among the most valuable in the ETP region and generate landed values of around USD 194 million per year, supporting at least 140,000 jobs. This study focuses on countries within

the region where shrimp represents an important part of total landed value: México, Guatemala, El Salvador, Honduras, Nicaragua, Costa Rica, Panama and Ecuador. Shrimp fisheries in the region are also technologically and commercially relatively similar, which allows for useful contrasts of the effects of different policies.

Fishery data generally show a decrease in total landings and a sequential overexploitation of shrimp species (Figure 1), as fleets have moved into new areas and deeper waters when catches decrease in current fishing grounds. Evidence from national fisheries assessments and statistics suggests that many shrimp stocks along the Eastern Tropical Pacific are currently overfished (Table 1). Available time series data of catch-per unit of effort suggest that overfishing—both of shrimp and bycatch species—is continuing. However, there is also evidence of recovery in some shrimp stocks in different countries where fishing effort has decreased. In in some cases this reduction in effort is correlated with reductions in subsidies.



**Figure 1. Shrimp landings by FAO species groups and case study countries in the Eastern Pacific, 1950-2016 (Units in in thousands of metric tonnes)**

Source: FAO, 2019a.



**Table 1. Catch and state of shrimp stocks according to national evaluations**

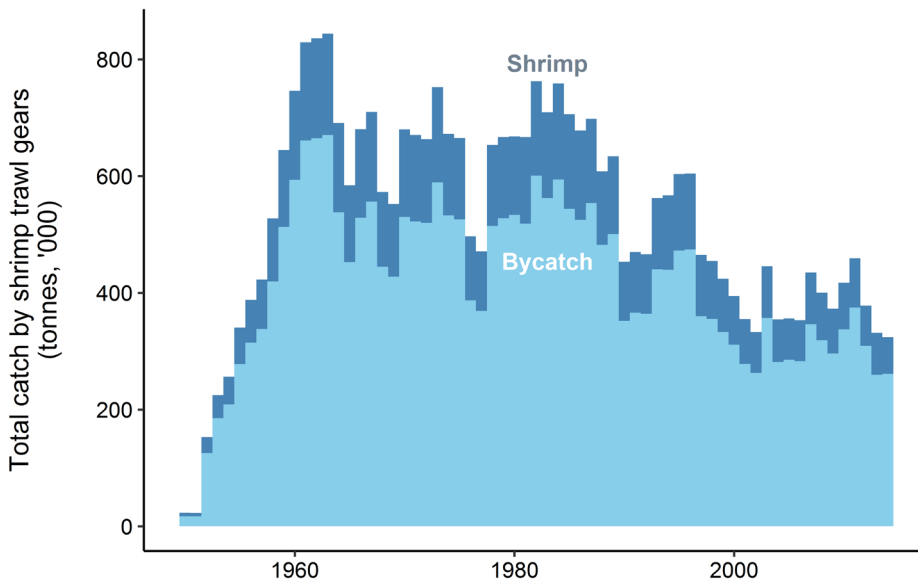
Group	Costa Rica	Ecuador	El Salvador	Guatemala	Honduras	México	Nicaragua	Panamá
Blue shrimp ( <i>Litopenaeus stylirostris</i> )		383				24,378		
Chilean knife shrimp ( <i>Haliporoides diomedea</i> )								
Chilean nylon shrimp ( <i>Heterocarpus reedi</i> )								
Crystal shrimp ( <i>Farfantepenaeus brevisrostris</i> )	615	383	3					336
Kolibri shrimp ( <i>Solenocera agassizii</i> )								44
Penaeus shrimps ( <i>Penaeus spp.</i> )	260	769		139	450	4,726	447	2,899
Tití shrimp ( <i>Protrachypene precipua</i> )		6,658						
Western white shrimp ( <i>Litopenaeus occidentalis</i> )		277						
Whiteleg shrimp ( <i>Litopenaeus vannamei</i> )		256	166			8,198		
Yellowleg shrimp ( <i>Farfantepenaeus californiensis</i> )	1	1,022				22,106		

Notes: blue = maximally sustainably exploited, yellow = overexploited, grey = unassessed. Numbers show average catch (last five years) by FAO species group; in some cases (shaded cells without numbers) catch is not reported to FAO by species, but countries have specific evaluations.

Source: see Table 2.3 of the main study.

IUU activities related to shrimp fisheries are fairly common across the region and include fishing during seasonal or spatial closures intended to protect juvenile and breeding shrimp, catching of sea turtles, seahorses or other protected species, and unreported catch and discarding of bycatch species. Academic estimates suggest that bycatch makes up around 80% of total shrimp trawl catch in the study area (Figure 2), 70% of which is discarded at sea.

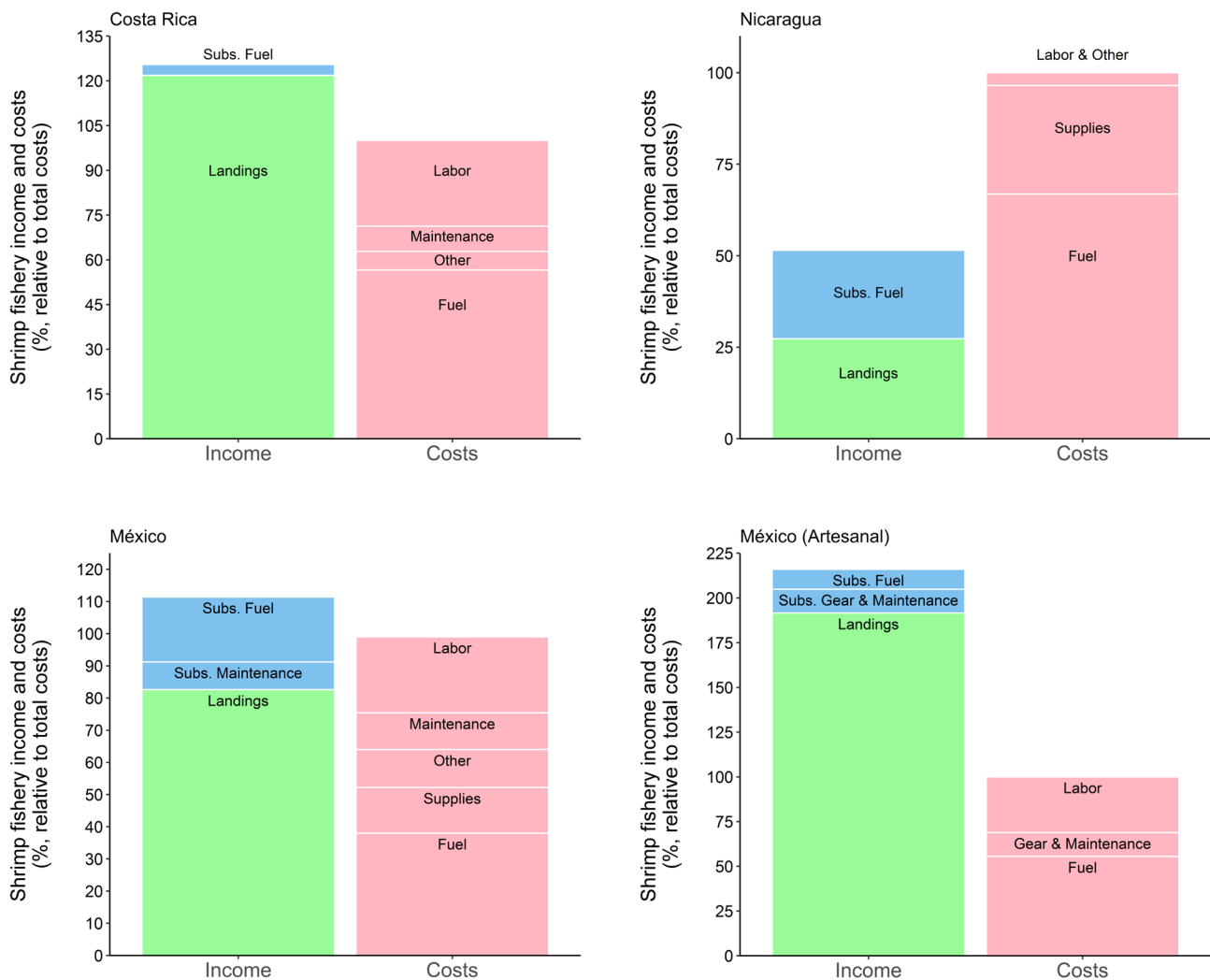
**Figure 2. Catch of shrimp and bycatch by shrimp fisheries in the Pacific coast of Latin America (FAO areas 77 and 87).**



Source: Pauly & Zeller, 2015.

Evidence of subsidies was sparse, but what evidence is available suggests there are a range of subsidy amounts and types across nations in the region. Most capacity-enhancing subsidy programs provide support to fuel (through direct price supports or tax exemptions) or vessel or gear maintenance and renewal (Figure 3). Available evidence and previous academic estimates suggest that current subsidy totals are largely received by the industrial sector, which generates a much smaller portion of direct fisheries employment, and which is often vertically integrated and makes profits from exports of shrimp rather than landed values. In Costa Rica, current subsidies to the semi-industrial shrimp fishery appear to add to profit margins but do not seem to be essential to operations. In México, however, subsidies to an average shrimp trawler do appear to be important to its profitability. At the artisanal scale, the very limited evidence available (of the costs of an artisanal shrimp boat in Sinaloa, México) suggests the activity may be profitable without subsidies over the long term, although wide seasonal fluctuations means subsidies could be important to profitability in years where levels of valuable catches of shrimp are low.

**Figure 3. Income, including subsidies, and cost structure for the operation of representative industrial shrimp vessels in Costa Rica, Nicaragua and México, and artisanal shrimp fishing in México**



Sources: *EEUNACR, 2016 (Costa Rica, semi-industrial)*; *Almendarez-Hernández & Hernández-Trejo, 2012 (Mexico, industrial)*; *Beltrán Turriago, 2008 (Nicaragua, industrial)*; *Hernández-Padilla, 2017 (Mexico, artisanal)*.

The study then reviews the possible impact of different types of rules on subsidies using the evidence available about the cost structure of different fleets in the region that fish shrimp.

The evidence available on IUU fishing in this fishery suggests most infractions are by domestic vessels, so the main impact of a prohibition of subsidies to IUU fishing would likely depend on the extent to which governments in the region identified their own vessels or operators for infractions, and the degree to which a prohibition of subsidies provided an additional deterrent to existing sanctions. The absence of detailed information about infractions and sanctions means we cannot draw firm conclusions about the impact of a subsidy prohibition, but, given the nature of the IUU problem in these fisheries, a subsidy prohibition added to existing sanctions could in principle provide an additional incentive to report catch, and by-catch, where this is required by national governments.



The impact of different options for a prohibition of subsidies on fishing of overfished stocks is likely to differ depending on whether the rule included a ‘negative effects’ test and whether or not it covered fishing of overfished by-catch, and unassessed, stocks. A subsidy prohibition that required that a subsidy have a ‘negative effect’ on a targeted stock could have a lower impact than other variants of the rule if it excluded subsidies to fishing that targeted the few shrimp stocks in the region where management appears to be strong enough to mitigate some of the (otherwise likely negative) impacts of the subsidies provided. However, many shrimp fleets in the region target several stocks or species depending on the season, so in practice may have a ‘negative effect’ on at least one. A subsidy prohibition that applied more broadly, when by-catch was overfished or unassessed stocks were fished could apply to virtually all these shrimp fisheries given the likelihood that they took, as part of their considerable bycatch, some overfished or unassessed stocks.

The impact of different options for overcapacity and overfishing disciplines revolves almost entirely around whether subsidies to fuel, the most common and often largest subsidy in the data available, are included or excluded from the prohibition. Prohibiting fuel subsidies could have different impacts on different fleets. It might be expected to result in lower effort by vessels for whom subsidies are an important contributor to profitability, as appears to be the case in the Mexican industrial shrimp fishery. It might be expected to have less impact on artisanal fishing where these fishers access few subsidies because of administrative hurdles, and where the activity is profitable overall, as appears to be the case in some fleets from the data available, although large seasonal variations in income mean subsidies might be more important to the profitability of artisanal fishers in years when valuable shrimp catches are low. Interestingly, the study suggests that even if a subsidy rule were applied only to industrial fishing under a special and differential treatment exemption for subsidies to artisanal fishing in developing countries, this may not lead to lower levels of catch, given how overcapitalized the industrial segment of the sector is. Additional fisheries management policies might be required, in addition to subsidy reform, to help move industrial and artisanal shrimp trawl fisheries to a more economically and environmentally sustainable position. The experience of some shrimp fisheries in the region suggests such stock rebuilding is possible.

Fishing effort by shrimp fleets has been limited in Mexico, Nicaragua, Ecuador and Panama—partly by decreasing fishery subsidies—and available information for the first three countries suggests recoveries in stocks; in the case of Mexico and Ecuador, catches have actually increased. Costa Rica and Ecuador have both suspended shrimp trawling completely for some species, in both cases due to negative effects on bycatch species and the economic losses for artisanal fisheries and food security that this causes. In Ecuador, the main focus on shrimp production has transitioned to aquaculture and the country is now one of the world’s largest producers. Several of these countries have experienced some social and political resistance, at least initially, to reforms, though there is no concrete evidence that these reforms resulted in significant economic losses. The experience so far underlines the importance of gradual reform of subsidies, and of effective consultations with stakeholders in any program of subsidy reform.

Shrimp fisheries are a good example of the complexity of public policy design for the sustainable use of natural resources. In this case, aside from the overexploitation of fish stocks, there are concerns about the negative externalities of IUU fishing, particularly given its negative effects on threatened species and others that are important for artisanal fisheries and local and national food security. It is important to highlight the fact that when fleets are at overcapacity and stocks are overfished, as is the case for several shrimp stocks in Latin America, reducing fishing capacity does not only result in



more economically efficient fisheries, but also in higher overall yields with subsequent continued or increased benefits both to artisanal and industrial fishers and to the processing sector that represents another large source of employment, particularly for women.

Increased transparency of reporting, and collection of detailed information on subsidy program rationales, amounts, distribution, and outcomes, is essential for discussing the potential effects of any policy design. This study highlights existing information gaps, though, as discussed above and at length in this report, there is certainly enough information available to anticipate general benefits and implications of subsidy reform for existing and future fisheries. The elimination of harmful capacity-enhancing subsidies will not by itself solve challenges in fisheries management, but it is clear that improved strategies can have significant long-term sustainable benefits for local and national economies, marine ecosystems, and seafood trade.

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