



Miscellaneous

# The World Trade Organization and global fisheries sustainability

Ussif Rashid Sumaila<sup>a,\*</sup>, Ahmed Khan<sup>a</sup>, Reg Watson<sup>a</sup>, Gordon Munro<sup>a,b</sup>,  
Dirk Zeller<sup>a</sup>, Nancy Baron<sup>c</sup>, Daniel Pauly<sup>a</sup>

<sup>a</sup> Fisheries Centre, University of British Columbia, 2202 Main Mall, Vancouver, B.C., Canada V6T 1Z4

<sup>b</sup> Department of Economics, University of British Columbia, Vancouver, B.C., Canada V6T 1Z4

<sup>c</sup> COMPASS, National Center for Ecological Analysis and Synthesis (NCEAS), 735 State St. Suite 300,  
Santa Barbara, CA 93101, United States

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## Abstract

The World Trade Organization (WTO) is in a unique position to move global fisheries towards sustainability. The current Doha Trade Round of Negotiations offers an important opportunity to improve the future prospects of fish as a main source of animal protein for one-fifth of the world's population. Countries are wrestling with the issue of government fishing subsidies, which keep too many commercial fishing boats in operation and drive the unsustainable exploitation of the world's depleted fish populations. Removal of subsidies is challenging as it cannot be resolved without international cooperation because unilateral action has trade implications, and may not work because fish and fishing vessels do not respect national exclusive economic zones. This is why the WTO, which has in place mechanisms to enforce its agreements, is the only institution that can tackle the global problem of overfishing subsidies. We identify the opportunities and challenges that WTO members face, and provide suggestions on how to address these challenges.

**Keywords:** Bad subsidies; Overcapacity; Overfishing; Unilateral versus multilateral action

## 1. Fisheries and subsidies

While the threat of overfishing to world seafood supplies has been well publicized (e.g., Pauly et al., 2002; Worm et al., 2006), little attention has been paid to government subsidies as a major reason that fisheries are not sustainable. Subsidies are deeply entrenched in the history of many countries. They harken back to a time when global fisheries seemed inexhaustible, and while that has clearly been shown not to be the case, removing subsidies is challenging for a variety of reasons. However, help may come from an unexpected quarter, the World Trade Organization (WTO), the 151-country entity that determines the rules of international trade.

In its current Doha Trade Round of Negotiations, there is a distinct possibility that member countries may agree to cut government subsidies to fisheries, a major driver of overcapacity and unsustainable exploitation of the oceans (Milazzo, 1998; Clark et al., 2005). Currently, the global fishing fleet is more than

twice the size that the oceans can sustainably support (Porter, 1998). In May 2007, the senior author met with Pascal Lamy – Director-General of the WTO – and briefed a large number of WTO member country delegates on the perils of overfishing subsidies. The WTO is in a unique position to help global fisheries become sustainable. Therefore, it is crucial at this point that the global fisheries science community is made aware of what is happening at the WTO in this regard, as they are in a position to help their country delegates choose actions that promote a healthy fishery resource.

If fisheries globally are to attain sustainability, the elimination of overfishing subsidies is necessary and overdue (Pauly et al., 2002). There is, however, a catch: unilateral action by individual countries is not attractive because fisheries in such countries will suffer trade disadvantages<sup>1</sup>. Further, unilateral action is not likely to work because some important fish species (e.g., tuna) do not respect national Exclusive Economic Zones, and fishing fleets are mobile and can operate worldwide. This implies

\* Corresponding author. Tel.: +1 604 822 0224.  
E-mail address: [r.sumaila@fisheries.ubc.ca](mailto:r.sumaila@fisheries.ubc.ca) (U.R. Sumaila).

<sup>1</sup> Many parallels can be drawn here to the current climate change debate, particularly with regard to carbon trading, etc.

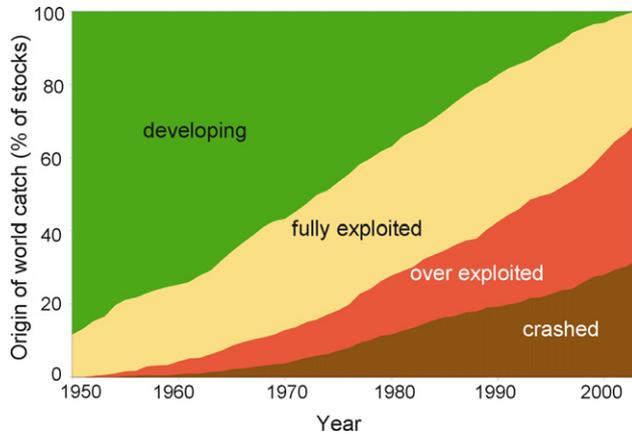


Fig. 1. Global trend in the status of marine fisheries resources. Based on FAO statistics to 2003 and methods and definitions adapted from Froese and Pauly (2003). Developing: year of catch is before year of maximum catch, and catch is less than 50% of the overall maximum catch. Fully exploited: catch is greater than 50% of maximum catch. Overexploited: year of catch is after year of maximum catch, and catch is between 10% and 50% of the overall maximum catch. Crashed: year of catch is after the year of maximum catch, and catch is below 10% of the overall maximum catch.

that the only effective approach to the problem of overfishing subsidies is through multilateral action, with all fishing nations ending or reducing these subsidies under similar rules.

The WTO is the only global multilateral organization that can enforce its agreements. Furthermore, the WTO's main mandate is to level the trade 'playing field' for all countries of the world. These two aspects of the WTO make it the ideal institution to tackle the global problem of overfishing subsidies.

Basic economic theory argues that fisheries should be self-sustaining—when fish populations (stocks) get low and/or the cost of fishing rises, fishing will be less profitable, and people and capital assets will move out of the business, thus allowing stocks to recover. This theory, however, cannot translate into practice when fisheries receive government subsidies, as this enables otherwise unprofitable fleets to continue fishing.

In the 1950s and 1960s, the more capacity-enhancing subsidies a country gave, the more catch it got—because at that time, the majority of stocks were largely underexploited (Fig. 1). Things have changed, however. The resource base is now too small for all fishing boats to make a profit, with too many stocks being fully or over-exploited (Fig. 1). Thus, subsidies, far from having the effect they had earlier, now contribute to overfishing, i.e., more fish are being caught than can be sustained. A second important reason for governments subsidizing fisheries is the belief that without subsidies, the fishing industry and fishing communities will suffer in the short term, and withdraw its political support. Finally, governments are also motivated to provide subsidies by the perceived need to attain or maintain trade competitiveness in fisheries products.

## 2. Concerns about fisheries subsidies

Subsidies provided by governments around the world are substantial. Until recently the most cited global estimate of fisheries subsidies, prepared by the World Bank, was US\$ 14–20 billion

Table 1  
Fishery subsidies midpoint estimates by categories

Subsidy categories	Developing countries (billion US\$)	Developed countries (billion US\$)	Global total (billion US\$)
Good	1.1	5.5	6.6
Bad	12.3	9.7	22.0
Ugly	0.9	2.5	3.4
Total	14.3	17.7	32.0

Data summarized from Sumaila and Pauly (2006). Detailed data by subsidy type can be found for each country at <http://www.seaaroundus.org>.

per year (Milazzo, 1998). However, the University of British Columbia's Fisheries Centre recently released a comprehensive estimate (summarized in Table 1)<sup>2</sup>, for various subsidy types grouped into 'good', 'bad' and 'ugly' (or 'ambiguous') categories, in both the developed and developing world, which puts global fisheries subsidies at US\$ 30–34 billion per year (Sumaila and Pauly, 2006).

'Good' subsidies help to maintain or enhance the growth of fish stocks through conservation and monitoring of catch rates via control and surveillance measures. Examples of good subsidies are fisheries management, monitoring and enforcement programs. 'Bad' subsidies result in the growth of fishing effort, which can lead to outright destruction of the natural resource (Bjorndal and Munro, 1998). Bad subsidies include all forms of capital inputs from public sources, such as vessel construction and fuel subsidies. 'Ugly' subsidies are ambiguous, and can lead to either decline or growth in fishing effort depending on the context and management effectiveness. An example is vessel buyback or decommissioning programs, which if not designed and implemented such that the industry is caught by surprise, will not guarantee that the subsidies will have a reducing effect on overcapacity (Clark et al., 2005).

This latest estimate of global subsidies (Sumaila and Pauly, 2006) indicates that about two-thirds of the estimated US\$ 30–34 billion per year are categorized as 'bad' subsidies (US\$ 20 billion). If overfishing subsidies are defined as the sum of 'bad' subsidies and the portion of 'ugly' subsidies that contribute to overfishing (which can range from 0 to 100% of a country's 'ugly' subsidies), then total overfishing subsidies range between US\$ 20 and US\$ 26 billion annually. Of this sum, between US\$ 6 to US\$ 10 billion may go to bottom trawlers alone (Watson et al., 2006)<sup>3</sup>. These subsidies, generally dominated by fuel subsidies, support fishing methods that destroy sea bottom habitats, and can therefore be considered particularly unsustainable.

Also, fisheries subsidies are problematic in that they introduce distortions in the market place with significant trade and distributional consequences. For instance, fisheries in countries that do not provide overfishing subsidies are disadvantaged

<sup>2</sup> The amount of marine fisheries subsidies, by subsidy type, paid by each coastal country of the world to its fishing fleets is available via the 'governance' page for each country at <http://www.seaaroundus.org>.

<sup>3</sup> Watson et al. (2006) determined the percentage of total global catch value by trawlers to be about 28%. This number is used here to pro-rate the amount of overfishing subsidies to bottom trawlers.

because their counterparts in subsidizing countries can supply fish at a lower price and still make profits.

Finally, the critical cause for concern is that overfishing subsidies result in overcapacity (too many boats and related infrastructure) that ultimately leads to overexploitation of fish resources (Fig. 1).

While the opportunity exists now for the WTO to make a significant contribution to sustainable global fisheries by addressing the subsidies issue, there are some challenges that are complex but not insurmountable.

### 3. Opportunities and constraints for the WTO

Discussions on fisheries subsidies began in the early 1990s in the WTO's Committee on Trade and Environment, which has evolved since then into a full-fledged negotiation in the Negotiating Group on Rules.

Thus far, the parties have not come to an agreement on actions to eliminate overfishing subsidies. Several reasons account for this lack of agreement, including: first, countries are worried about 'free-riders', i.e., when some decide to cheat and therefore reap the benefits of cooperation without any effort. Free-riders will gain a trade advantage over countries that play according to the rules. To tackle this problem, a multilateral enforceable agreement is needed. At the moment only the WTO can provide such an agreement.

A second obstacle relates to the developing-developed country dichotomy. The Hong Kong Mandate stipulates that the importance of the fisheries sector to developing countries should be taken into account<sup>4</sup>. Under discussion are special provisions, also known as Special and Differential Treatment (S&DT) that would allow developing countries to provide subsidies to develop their domestic fishing sectors to service local demand for fish products and gain footholds in international trade for fish products. However, many if not most, fisheries in the developing world are already overexploited (e.g., Christensen et al., 2004), in which case overfishing subsidies will only serve to deplete the resources further.

Another contentious subsidy issue relating to developing countries is fishing access agreements, i.e., agreements that allow a (usually industrialized) country or region to buy fishing access for its fleet. An example is between the European Commission (EC) and some coastal countries of West Africa (Kaczynski and Fluharty, 2002). The reason these agreements are considered subsidies is that the EC negotiates and pays the countries in West Africa on behalf of their fishing sector, thereby enabling their fleet to earn higher profits than they would otherwise. The obvious way to tackle this subsidy would be to demand that the fleets that benefit from having access pay for these fees themselves rather than the government. This solution is, however, not straightforward because developing countries such as in West Africa or the Pacific Island countries rely heavily on

the foreign exchange they earn from these agreements, and fear that demanding that the fleets themselves pay the access fees will make access agreements unattractive to industrial countries (Kaczynski and Fluharty, 2002; Campling et al., 2007).

One innovative way to deal with the concerns raised by developing countries would be to combine policies on fisheries subsidies with those on conservation, trade and development, which is not the case under the present WTO mandate. A possible solution is to develop a package involving a number of multilateral organizations that simultaneously remove overfishing subsidies, and develop adjustment programs to ease the short-term difficulties that developing countries will face as a result of removing these subsidies. The good news is that the tens of millions of dollars of savings that will result from reducing overfishing subsidies can be used to fund the adjustment program, and be redistributed as foreign aid in order to meet the United Nations Millennium Development Goals<sup>5</sup> aimed at building a better world for the 21st century (Sachs, 2005).

Despite progress within the Doha Round talks, at the most recent meetings of the WTO Negotiating Group on Rules, countries clashed over the shape of future WTO rules on subsidies while submitted contrasting proposals. The EU, Japan, Korea and Taiwan advocate a 'bottom-up' approach that would ban only specific types of subsidies (e.g., payments in support of the acquisition, modification or construction of fishing vessels) leaving the rest (e.g., fishing access agreements and vessel buyback programs) permissible. Other countries, including the US and New Zealand, want to ban all subsidies, barring some negotiated exceptions, and are arguing that a comprehensive 'top-down' approach is necessary<sup>6</sup>.

Given the serious condition of the world's fisheries, significant global fishing overcapacity and rapid depletion of fish stocks, the world cannot afford to get trapped in the semantics of 'top-down' versus 'bottom-up'. This is crucial for the two camps to realize. We suggest that the classification of fisheries subsidies into the 'good', the 'bad' and the 'ugly' described above could provide a compromise out of the impasse.

We suggest that 'bad' subsidies, which include fuel, foreign access agreements, boat construction and renewal programs; fishing port construction and renovation, and tax exemptions that support increases in fishing effort, should be banned outright. One benefit of using the categorization in Sumaila and Pauly (2006) is that the list of 'bad' subsidies is defined based mainly on the potential impacts on growth in fishing capacity by independent researchers (Sumaila and Pauly, 2006). To deal with ambiguous subsidies (i.e., the 'ugly' category), a shift in the burden of proof (Dayton, 1998) is required, that is, it should be up to countries providing such subsidies to specifically demon-

<sup>4</sup> Hong Kong Ministerial Declaration, December 22, 2005, WT/MIN(05)/Dec Annex D, para. 9. Available at: [http://www.wto.org/English/thewto\\_e/minist\\_e/min05\\_e/final\\_text\\_e.htm](http://www.wto.org/English/thewto_e/minist_e/min05_e/final_text_e.htm) [accessed August 22, 2007].

<sup>5</sup> The United Nations Millennium Development Goals were adopted 5 years ago by all the world's governments. There are eight goals in all, including, the eradication of extreme poverty and hunger, and ensuring environmental sustainability. Available at: <http://www.un.org/millenniumgoals/> [accessed August 22, 2007].

<sup>6</sup> See <http://www.ictsd.org/biores/07-06-08/story3.htm> [accessed August 23, 2007].

strate that they do not enhance or artificially maintain fishing effort and capacity.

To conclude, fisheries around the world are important socially and economically, as they are an important source of food, contributing about 20% of animal protein intake by humans, and are a significant source of fishmeal for carnivorous farmed species (Naylor et al., 1998; Naylor et al., 2000). At present, the WTO has an opportunity to demonstrate that it can balance global trade and the environment, and help solve one of the most worrisome environmental issues of our time—the decline in global fisheries.

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### References

- Bjorndal, T., Munro, G.R., 1998. The economics of fisheries management: a survey. In: Tietenberg, T., Fomer, H.S. (Eds.), *The International Yearbook of Environmental and Resource Economics 1998/1999*. Edward Elgar, Cheltenham, pp. 153–188.
- Campling, L., Havice, E., Ram-Bidesi, V., 2007. Pacific Island Countries, The Global Tuna Industry and The International Trade Regime—A Guidebook. Forum Fisheries Agency, Honiara, Solomon Islands.
- Christensen, V., Amorim, P., Diallo, I., Diouf, T., Guénette, S., Heymans, J.J., Mendy, A.N., Taleb Sidi, M.M., Palomares, M.L.D., Samb, B., Stobberup, K., Vakily, J.M., Vasconcellos, M., Watson, R., Pauly, D., 2004. Trends in fish biomass off Northwest Africa, 1960–2000. In: Moctar, B.A., Chavance, P., Gascuel, D., Vakily, M., Pauly, D.S. (Eds.), *Pêcheries Maritimes, Ecosystèmes et Sociétés: Un Demi-Siècle de Changement*. Institut de Recherche pour le Développement, Paris, pp. 377–386.
- Clark, C.W., Munro, G., Sumaila, U.R., 2005. Subsidies, buybacks, and sustainable fisheries. *J. Environ. Econ. Manage.* 50, 47–58.
- Dayton, P.K., 1998. Reversal of the burden of proof in fisheries management. *Science* 279, 821–822.
- Froese, R., Pauly, D., 2003. Dynamik der Überfischung. In: Lozán, J., Rachor, E., Reise, K., Sündermann, J., von Westernhagen, H.S. (Eds.), *Warnsignale aus Nordsee und Wattenmeer-eine aktuelle Umweltbilanz*. GEO, Hamburg, pp. 288–295.
- Kaczynski, V.M., Fluharty, D.L., 2002. European policies in West Africa: who benefits from fisheries agreements? *Mar. Pol.* 26, 75–93.
- Milazzo, M., 1998. Subsidies in world fisheries: a re-examination. World Bank Technical Paper No. 406, World Bank, Washington, p. 86.
- Naylor, R.L., Goldburg, R.J., Mooney, H., Beveridge, M., Clay, J., Folke, C., Kautsky, N., Lubchenco, J., Primavera, J., Williams, M., 1998. Nature's Subsidies to Shrimp and Salmon Farming. *Science* 282, 883–884.
- Naylor, R.L., Goldburg, R.J., Primavera, J.H., Kautsky, N., Beveridge, M.C.M., Clay, J., Folke, C., Lubchenko, J., Mooney, H., Troell, M., 2000. Effect of aquaculture on world fish supplies. *Nature* 405, 1017–1024.
- Pauly, D., Christensen, V., Guénette, S., Pitcher, T.J., Sumaila, U.R., Walters, C.J., Watson, R., Zeller, D., 2002. Towards sustainability in world fisheries. *Nature* 418, 689–695.
- Porter, G., 1998. Estimating Overcapacity in the Global Fishing Fleets. WWF, Washington, DC.
- Sachs, J.D., 2005. *The End of Poverty: Economic Possibilities for Our Time*. Penguin Books, New York.
- Sumaila, U.R., Pauly, D. (Eds.), 2006. Catching more bait: A bottom-up re-estimation of global fisheries subsidies. Fisheries Centre Research Reports 14(6), Vancouver.
- Watson, R., Revenga, C., Kura, Y., 2006. Fishing gear associated with global marine catches. I. Database development. *Fish. Res.* 79, 97–102.
- Worm, B., Barbier, E.B., Beaumont, N., Duffy, J.E., Folke, C., Halpern, B., Jackson, J., Lotze, H., Micheli, F., Palumbi, S.R., Sala, E., Selkoe, K.A., Stachowicz, J.J., Watson, R., 2006. Impacts of biodiversity loss on ocean ecosystem services. *Science* 314, 787–790.