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ASK DR. PAULY

What are 'small-scale fisheries'?

"Nomen es omen," said the Romans (who, interestingly, were all good Latinists) or "Your name is your fate." So it is with "small-scale fisheries," which are widely seen as traditional, slightly exotic activities maintaining fishing lore and postcard harbors, but which no longer supply the seafood that people eat worldwide, this being the job of large scale industrial, or "commercial" fisheries.

But this is all wrong.

Small-scale fisheries consist of three components:

- 1 Subsistence fishing, i.e., fishing for one's own consumption (plus family and friends), with no commercial transaction involved**
- 2 Recreational fishing, which, as for subsistence fisheries, involves no commercial transaction, but whose main purpose is recreation, not obtaining food. Where 'catch and release' programs are involved, a fraction of the released fish survive, the other are so stressed that they later die and/or are taken by a predator, even if it looked viable when released; and**
- 3 Artisanal fishing (often called 'petit métiers' in Western Europe), which use small inshore vessels and/or fixed gear (e.g., coastal traps) and whose purpose is to catch fish and other organisms for sale. (For this reason, "commercial fishery" is an inappropriate term for industrial fishing, as artisanal fishers also engage in "commercial" transactions).**

Presently, the only database of global fisheries statistics in the world was created and is maintained by the Food and Agricultural Organization of the United Nations (FAO), based on annual submissions by its member countries. It is from this source that most statements on the world catch trends and their composition originate, e.g., in FAO's 2012 State of the World's Aquaculture

and Aquaculture (SOFIA), which reports that "the declining global marine catch over the last few years together with the increased percentage of overexploited fish stocks and the decreased proportion of non-fully exploited species around the world convey the strong message that the state of world marine fisheries is worsening and has had a negative impact on fishery production."

However, the government agencies of FAO member countries which send in catch statistics, for example, NOAA in the United States, do not usually have small-scale fisheries in their mandates. This means that the catch statistics they send to FAO do not include small-scale fisheries catches, which are then omitted from all reports based on FAO data, then justifying, that one doesn't need to look at small-scale fisheries.

This vicious circle, resulting in the exclusion of small-scale fisheries from the FAO database, is the main reason why they are not mentioned in international debates about food security. This is similar to ignoring the huge catch that is discarded annually by industrial fisheries, e.g., for shrimp, where for one pound of shrimp, 8-9 pounds of mostly perfectly edible fish are caught and immediately discarded.

The result is an underestimation by the FAO database of fisheries statistics of the world catch and with the contribution of small-scale fisheries (and particularly artisanal fisheries) underestimated to a tremendous extent.

The Sea Around Us project is presently completing 'reconstructions' of the historic catches since 1950 taken from the 200-mile Exclusive Economic Zone of all maritime countries and territories of the world. Thus, for the U.S. flag-associated islands in the Pacific, i.e., Guam, the Northern Marianas, and American Samoa, the reconstructed (or 'actual') catches were about 2.5 times larger than the official catches, and it was mainly the small-scale reef fisheries that were underestimated¹.

Overall, this will allow us to assess the true contribution of small-scale fisheries to the world catch, and hence to our food security. Watch this space for the key results of our study, of which I can already announce one: small-scale fisheries are not small! 🐟

¹ Zeller, D., S. Booth, G. Davis and D. Pauly. 2007. Re-estimation of small-scale for U.S. flag-associated islands in the western Pacific: the last 50 years. U.S. Fisheries Bulletin 105: 266-277.