

A man and a woman are shown from the chest up, smiling and looking towards the camera. They are wearing dark blue Oceanana t-shirts. The man is also wearing a dark blue baseball cap with the Oceanana logo and the text 'Oceanana Expedition' on it, and gold-rimmed aviator sunglasses. The woman has her hair pulled back. They appear to be on a boat, with the ocean and a rocky coastline visible in the background.

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FALL 2015 OCEANA.ORG

MALTESE MISSION

Elsa Pataky and Chris Hemsworth
join Oceanana's expedition to
protect Malta's seas

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What are ‘catch reconstructions’?

Fishing must generate a catch, whether it is practiced by West African artisanal fishers supplying a teeming rural market, by huge trawler fleets in Alaska supplying international seafood markets, by women gleaning on a reef flat in the Philippines to feed their families or by an Australian recreational fisher bragging about it in a bar. Indeed, the catch of a fishery and its monetary value both define that fishery and provide the metric by which to assess its importance relative to other fisheries, and other sectors of the overall economy. Hence, changes in the magnitude and species composition of catches obviously can and should be used – along with other information (e.g., on the growth, mortality, etc. of the fish that are exploited) – for inferences on the status of fisheries.

The key role of catch data in evaluating fisheries is the reason why the Food and Agriculture Organization of the United Nations (FAO) proceeded, soon after it was founded in 1945, to issue occasional compendia of the world’s fishery statistics. These compendia turned, in 1950, into the much-appreciated FAO Yearbook of Fisheries Catch and Landings. It was based on annual data submissions by its member countries and vetted and harmonized by FAO staff.

However, detailed analysis of the statistics reported since 1950 by FAO member countries suggests that these catches

(with the exception of domestic catches by China and a few other countries with exceptionally dodgy statistics), are massively under-reported. We know this because The Sea Around Us, the research project I lead at the University of British Columbia, has performed “catch reconstructions” for all maritime countries of the world. In other words, we re-estimated the total catch of all their sea fisheries from 1950 to 2010 (see www.searoundus.org).

This was done separately for industrial fisheries (including their discarded bycatch) and for artisanal, subsistence and recreational fisheries, with the higher values for the reconstructed catch due to FAO member countries reporting mainly industrial landings (i.e., omitting the discards that industrial fisheries generate). Also, the FAO statistics generally ignore small-scale fisheries (artisanal, subsistence and recreational fisheries), although they can be substantial in many countries.

Over the 12 years required by our global catch reconstructions, the key obstacle was psychological. It was necessary to convince our national research partners to overcome the notion that “no information is available.” We encouraged them to realize that fisheries are social activities, bound to throw large shadows onto the societies in which they are conducted. Hence, online or hard copy records usually exist that document some aspects of these fisheries.

All that is required is to find them and to judiciously interpret the data they contain.

Important sources for such an undertaking include old files of their fisheries department, peer-reviewed journal articles, theses, scientific and travel reports, records from harbor masters and other maritime authorities with information on number of fishing crafts (small boats by type; large boats by length class and/or engine power), records from the cooperative or private sectors (companies exporting fisheries products, processing plants, importers of fishing gear, etc.), old aerial photos from geographic or other surveys (to estimate numbers of boats on beaches and along piers) and last but not least, interviews with old fishers.

Overall, our reconstructed catches exceed FAO reported (or “official”) catches by about 30 to 50 percent in developed countries, and 100 to 300 percent in developing countries. This is good news. It suggests that the ocean contributes even more than we thought to the (sea-)food security of people. However, the trend in global catches, i.e., the sum of all the country catch reconstructions, shows a rapid decline in the last two decades, which is worrying. It will require that, throughout the world, the example of the few countries – notably the US – that are rebuilding their fish stocks be followed.