

Sea Around Us

Recalling the goals of the *Sea Around Us* project: documenting, communicating and mitigating fisheries impacts on marine ecosystems

by Daniel Pauly

The *Sea Around Us* project, funded by the Pew Charitable Trusts in Philadelphia, and hosted by the Fisheries Centre, started in mid 1999. Its goal was - and still is - to investigate the impact of fisheries on marine ecosystems, and to propose policies to mitigate these impacts.

One early product of the project, which had a large impact on both fisheries research and international policy, was the demonstration that the world catch, rather than increasing through the 1990s, had in fact been decreasing since the late 1980s, the latter trend, however, having been masked by over-reporting of catches (for internal, political reasons) from China (Watson and Pauly 2001). This declining trend is explained by Figure 1, which documents that globally, fisheries have been

involved in the serial depletion of the stocks they exploit.

Although conceived as a global activity, the project first emphasized the data-rich North Atlantic as a test bed for developing its various approaches, which rely on mapping of catch data and indicators of ecosystem health (see e.g., Pauly and Watson 2005) derived from the analysis of long catch time series data, ranging at least from 1950 to the present (Watson *et al.* 2004). Initial achievements included mapping the decline, throughout the North Atlantic basin, of high-trophic level fishes from 1900 to the present (Christensen *et al.* 2003). Also, we presented compelling evidence of change in the functioning of the North Atlantic ecosystems, summarized in a book authored by Pauly and Maclean (2003),

but which drew on work by all *Sea Around Us* project members.

The Central and South Atlantic were the next areas to be tackled, with some emphasis on the distant-water fleet off West Africa, and culminating in a major conference in Dakar, Senegal, in 2002 (Chavance *et al.* 2004). The project then worked on the North Pacific, Antarctica, and the multiplicity of tropical Indo-Pacific fisheries (much of this published first in *Fisheries Centre Research Reports*, available from www.fisheries.ubc.ca/publications/reports/fcrr.php), after which all our major contributions became based on global analyses. Example are our global estimates of fuel consumption by fishing fleets (Tyedmers *et al.* 2005), of the catches of small-scale fisheries (Chuenpagdee *et al.* 2006), and of government subsidies to fisheries (Sumaila and Pauly 2006).

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One of the reasons why the destruction of marine life by heavily subsidized fishing fleets could go as far as it did is because the public at large retained, until recently, a romantic image of fishers and fisheries. On the other hand, the environmental NGOs which could have corrected this benign view of fisheries, largely depended, for their analyses, on fisheries data from government laboratories, mainly assembled and pertinent to the tactical (year-to-year) management of industrial fleets, and generally useless for demonstrating the ecosystem impact of fisheries.

The *Sea Around Us* project was designed to counter this, its purpose being the development of what may be called 'fisheries conservation science', geared

toward maintaining ecosystem configurations likely to allow for sustainable fisheries, and not to the largely unsustainable fisheries that we have now (Pauly *et al.* 2002). This is also the goal, incidentally of most NGOs working on fisheries and ecosystems, even if the fishing industry doesn't see it.

To achieve its purpose, the *Sea Around Us* project must therefore pursue a dual strategy of contributing to the technical peer-reviewed literature, to maintain the scientific credibility of its members, and reaching out to the members of the environmental NGO community and to the public at large, using a range of products (magazine and newspapers articles, public lectures, etc.) suited for various audiences. One major tool is our website (www.seaaroundus.org), and hence the emphasis on this aspect of our work, and on maps, which can communicate complex information even to lay audiences (see Watson *et al.* 2005).

Our website presents, for each maritime country of the world (and also for 64 Large Marine Ecosystems) what we believe are key information on the marine fisheries and ecosystems of the world. The information we provide could be far more detailed for some developed countries. However, this would leave most developing countries

behind, which would seem inappropriate, given that it is fish caught along the coasts of, or exported from, developing countries which now largely supply markets in developed countries (Alder and Sumaila 2004).

Thus, the *Sea Around Us* project, now mature, will continue to exploit its global niche, i.e., concentrate on global fisheries issues. We call on interested colleagues to help us improve the coverage of their countries, or region of interest.

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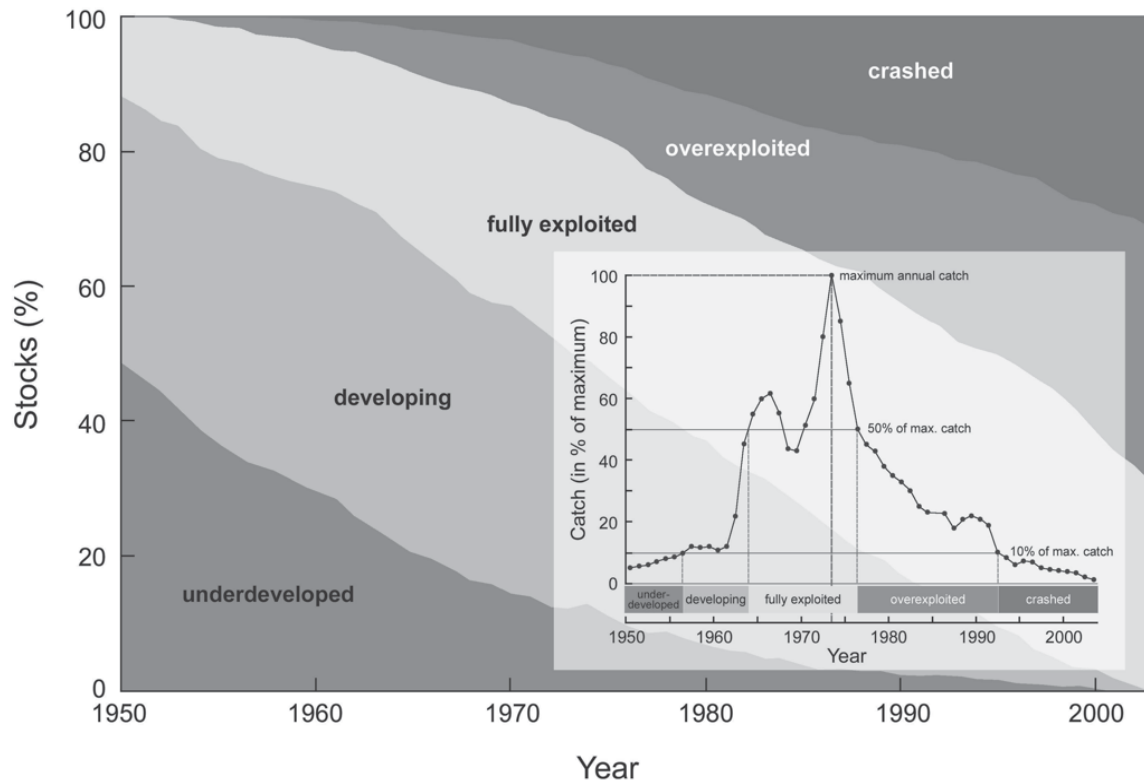
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The *Sea Around Us* website may be found at saup.fisheries.ubc.ca and contains up-to-date information on the project.

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Figure 1. Time series of the composition of global marine fisheries catch according to the status of the stocks making up that catch, 1950-2003. This status (underdeveloped: 0-10%; developing: 10-50%; fully exploited: above 50% of maximum; overexploited: 50-10 %; and crashed: 10-0%) is defined with respect to the highest catch of each time series (see insert for example), representing one stock, usually a species, within one of 18 FAO statistical areas covering the world ocean. More elaborate, but similar graphs were developed by FAO to generalize regional and global trends. Dr. Rainer Froese, of Kiel University, simplified these graphs to their present form, which can be used for predictive purposes (e.g., by projecting into the future the border line between 'overexploited' and 'crashed'; see Worm et al. 2006).

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