

## 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](http://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](http://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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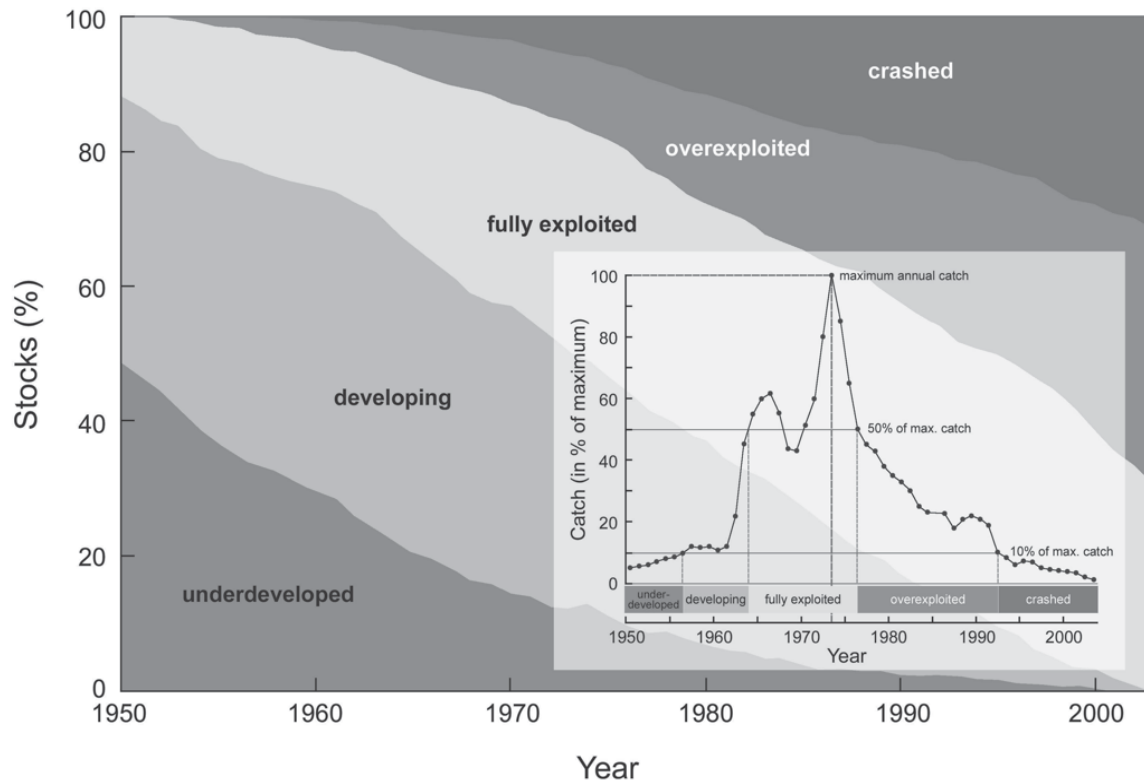
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Our mailing address is: UBC Fisheries Centre, Aquatic Ecosystems Research Laboratory, 2202 Main Mall, Vancouver, British Columbia, Canada, V6T 1Z4. Our fax number is (604) 822-8934, and our email address is [SeaNotes@fisheries.ubc.ca](mailto:SeaNotes@fisheries.ubc.ca). All queries (including reprint requests), subscription requests, and address changes should be addressed to Robyn Forrest, *Sea Around Us* Newsletter Editor.

The *Sea Around Us* website may be found at [saup.fisheries.ubc.ca](http://saup.fisheries.ubc.ca) and contains up-to-date information on the project.



**T**he *Sea Around Us* project is a Fisheries Centre partnership with the Pew Charitable Trusts of Philadelphia, USA. The Trusts support nonprofit activities in the areas of culture, education, the environment, health and human services, public policy and religion. Based in Philadelphia, the Trusts make strategic investments to help organisations and citizens develop practical solutions to difficult problems. In 2000, with approximately \$4.8 billion in assets, the Trusts committed over \$235 million to 302 nonprofit organisations.



[...] and reaching out to the members of the environmental NGO community and to the public at large.

**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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# Country Profiles: a new Sea Around Us web product

by Ganapathiraju Pramod and Ahmed Khan

[...] the existence and effectiveness of fisheries governance systems is central to successful management

Clicking 'Countries' EEZ' on the *Sea Around Us* website ([www.seararoundus.org](http://www.seararoundus.org)) leads to detailed information about the fisheries and related information for each of the world's maritime nations. These include EEZ area, the percentage of the world's coral reefs and primary production, time series of fisheries landings, fisheries values and species lists. Other information includes the marine protected area in each country's EEZ, time series of the Marine Trophic index, allowing testing for the occurrence of 'fishing down', of the primary production required to sustain the fisheries catches in that EEZ, etc. As a whole, this information provides a standardized, freely-accessible database that can be used in global analyses of the scope and impact of the world's marine fisheries.

On the other hand, the website contains little on the governance of fisheries, although the existence and effectiveness of fisheries governance systems is central to successful management and provides the important link between scientific advice and action. Until now, only a lists of treaties and conventions to which each country is party, as well as details of international fishing access agreements, were available.

Thus, as a first step to expanding our coverage of governance issues, a new page was added to our website, labeled 'Country

profile', which identify, for each of 144 countries (or territories), the government agencies responsible for marine fisheries and protection of the marine environment, as well as the relevant legislation. The Country profile also lists local and international NGOs covering the marine environment and fisheries issues, so far they could be identified. In addition to the full names of the institutions identified, web links are given (so far available), thus enabling rapid access to more details.

The 28 other islands/territories with distinct EEZ and ruled by foreign governments, but with enough local autonomy to manage their natural resources, were treated as separate 'countries'. Also, for countries with coasts spanning several regional management areas, we provided links to authorities at sub-national (State, Province) level. In countries where more than two ministries or agencies are responsible for protection of the marine environment, we attempted to identify the authority with the most responsibility. Similarly, in case of information on maritime laws and fisheries regulations, adapted from the FAO, UN and the IUCN databases, we selected only what appeared to be major pieces of legislation.

Overall, the amount of content given on management agencies' websites varied, with developed countries providing more detailed information, covering

longer periods, and with more regular updates than developing countries.

In its present version, the 'Country profile' pages also allow access (for many countries) to more detailed accounts of countries' fisheries and their governance, i.e., 'FAO profiles', brief portraits and sets of summary statistics compiled by FAO staff, and 'Code of conduct profiles', detailed evaluations of the countries' compliance with Article 7 ('Fisheries Management'), of the FAO Code of Conduct for Responsible Fisheries, published in 1995. The latter profiles are the result of work by Prof. Tony Pitcher, this note's first author, Daniela Kalikoski, Marcello Vasconcellos, Patricia Rojo-Diaz and others. Evaluations have been completed for 53 countries (strictly, marine fisheries jurisdictions representing 96% of the reported world fish catch) and form the basis of a soon-to-be released *Fisheries Centre Research Report*.

Although it is difficult to ensure the accuracy, pertinence and timeliness of information such as given in our 'Country profiles' and 'Code of conduct profiles' pages, we will attempt to do so, and readers are welcome to give the first author ([pramod@fisheries.ubc.ca](mailto:pramod@fisheries.ubc.ca)) or the *Sea Around Us* project ([office@fisheries.ubc.ca](mailto:office@fisheries.ubc.ca)) feedback that would contribute to improve this product.

