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Tropical Conservation Biology

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Spotlight 7: Daniel Pauly

Biography

After completing my doctorate studies in Germany in 1979, I spent many years at the International Centre for Living Aquatic Resource Management (ICLARM), then in Manila, The Philippines, where I developed methods for tropical fish stock assessment, which I applied and taught in many tropical developing countries. I became a professor at the University of British Columbia's Fisheries Centre in 1994, and its Director in 2003. My scientific focus has mainly been on the management of fisheries and ecosystem modelling, comprising over 500 contributions to peer-reviewed journals, authored and edited books, reports and popular articles. The concepts, methods and software I have (co-)developed are in use throughout the world. This applies notably to the ecosystem modelling approach incorporated in the Ecopath software (see www.ecopath.org), to FishBase, the online encyclopaedia of fishes (see www.fishbase.org), and the global mapping of fisheries trends (see www.seaaroundus.org).



My work has received numerous awards, notably the Cosmos Prize (2005, Japan) and the Volvo Environment Prize (2006, Sweden). Profiles on me and my work were published in *Science* on 19 April 2002, *Nature* on 2 January 2003, the *New York Times* on 21 January 2003, and in other publications.

Major publications

- Pauly, D. and Christensen, V. (1995) Primary production required to sustain global fisheries. *Nature* 374, 255–257.
- Pauly, D., Christensen, V., Dalsgaard, J., Froese, R. and Torres Jr, F. C. (1998) Fishing down marine food webs. *Science* 279, 860–863.
- Pauly, D., Christensen, V., Guénette, S., Pitcher, T. J., Sumaila, U. R., Walters, C. J., Watson, R. and Zeller, D. (2002) Towards sustainability in world fisheries. *Nature* 418, 689–695.
- Pauly, D., Alder, J., Bennett, E., Christensen, V., Tyedmers, P. and Watson, R. (2003) The future for fisheries. *Science* 302, 1359–1361.
- Watson, R. and Pauly, D. (2001) Systematic distortions in world fisheries catch trends. *Nature* 414, 534–536.

Questions and answers

Which type of fisheries – commercial, recreational or artisanal – represents the greatest exploitative threat to tropical marine ecosystems?

All fisheries have the potential to deplete the resources they exploit. Industrial fisheries, however, are extremely effective at what they do, and even over a short period they have a devastating effect on their resource base.

What fisheries management practices can be used to counter the phenomenon you have described as ‘fishing down marine food webs’?

Establishing large marine protected areas, and strict controls over the remaining fished areas.

Why are freshwater and lacustrine systems so sensitive to human-induced environmental change?

Because they are small systems compared with the reach of our industries (fishing, pollution, habitat modification, etc.). The oceans are larger, and hence the human impacts appeared later.

How effective are marine protected areas (MPAs) in conserving tropical biodiversity, and should alternative solutions also be pursued?

MPAs should never be seen as sufficient by themselves. Conventional management is needed too.

How can scientists work to overcome misconceptions among policy makers and the public that arise from the ‘shifting-baseline’ syndrome?

We should use old records and data routinely, and always refer to the earliest time for which data are available. We should use a wide range of data, not only those compatible with the model currently fashionable.