

## On solutions to the global fisheries crisis

by Daniel Pauly

This is a report of my participation in the inaugural celebration of the Nicolas Institute for Environmental Policy Solutions (good name!) at Duke University (look it up, it's in the southeastern U.S.) on September 20-21, 2005.

One attraction was Jared Diamond, author of the recently released *Collapse* (2005), and a man who captivates his audience, perhaps because he does not use PowerPoint.

The price I had to pay in return was participating in a panel discussion on 'Oceans'. In line with an emphasis on solution, I was asked to diagnose the marine fisheries in three minutes, and to propose solutions in three minutes as well. I did, and here are the pertinent bullet points (no PowerPoint either!), pre-tested for a six-minute presentation.

### Five aspects of the problem:

1) Although not known precisely, the world marine fisheries catch is most

probably declining; recorded landings have been declining since the late 1980s;

2) The existing fishing fleets are three to four times too large;

3) The biomass of the large fish traditionally targeted by fisheries is one tenth or less that before the onset of industrial fishing;

4) About half of the world's fish is consumed in a country different from that which has the fishing ground where the fish was caught;

5) An increasing fraction of the world's forage (small pelagic) fishes, normally the food of large fish, seabirds and marine mammals, is being diverted to feeding carnivorous farmed fish (salmons, tunas, groupers).

### Five aspects of the solution:

1) Marine protected areas are increasingly seen as part of any scheme with

a chance of success in putting fisheries on a sustainable basis. Unfortunately, they presently cover a cumulative area of less than 1% of the world's ocean, and their annual rate of increase – about 5% – is not high enough for minimum conservation objectives to be reached (e.g., 10% coverage in 2010);

2) Fishers should have predictable access to the resources, through equitable allocation agreements. Many fisheries economists, strangely, describe this as 'rights-based fishing', and thus turn a straightforward proposition (that fishers and fishing firms must be able to plan their operation) into an ideological argument (that public resources must be privatized before they can be managed properly);

3) Eco-labeling can involve the public in preferentially purchasing fish from sustainable fisheries. The London-based Marine

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Stewardship Council is the most prominent initiative of this sort, along with the credit card-sized advisories which, in the U.S., tell customers whether the species offered in restaurants are 'good' or 'bad' in terms of the sustainability of the fisheries they support;

4) Subsidies, which are responsible for most of the overcapacity of many fisheries, are also their Achilles' heel: they are equivalent to at least 20% of the ex-vessel value of the catch. Hence, the overcapacity problem could be addressed substantially by the WTO, whose mandate covers the eventual abolition of all subsidies;

5) However, the solution to the overcapacity problem, and perhaps even to some forms of destructive fishing (e.g., deep sea trawling), is likely to come from two aspects of their operation connected to their source of energy, diesel fuel:

i) The profits gained from deploying large trawlers are very sensitive to fuel prices, and these are likely to increase substantially in the future;

ii) Also, fishing fleets are likely to be affected when carbon taxes (or their equivalent) are introduced to reduce emission of greenhouse gases, as will inevitably have to occur in the near future.

**Conclusions**

Publications by *Sea Around Us* project members document the claims made here, but I won't cite them, except for our prescient linking of the excessive capacity of global fishing fleets to fuel prices that were, until very recently, extremely low (Pauly *et al.* 2003).

There were numerous energy experts at the Duke meeting, including the CEOs of major corporations. They acknowledged that their government's energy policy is misguided at best, and probably will prove catastrophic. These experts, and other participants, were very

surprised by our estimate of the contribution of fishing fleets to greenhouse gas emission (1.2 %, much more than they guessed), which will have to be considered when, in the near future, such emission will have to be controlled. Thus, our forthcoming paper on this (Tyedmers *et al.* 2005) may become influential.

One last observation: Duke can really be described by "Trees, trees, trees and PhDees"!

**Acknowledgments**

I wish to thank Dr. M. Orbach for arranging for me to be invited to this event, and giving me a slot in the 'Oceans Panel' that he chaired, and Sandra Pauly for the 'Duke motto', which my colleagues at Duke liked, though apparently they had never heard of it.

**References**

Diamond, J. 2005. *Collapse : how societies choose to fail or succeed.* Viking Books, New York, 592 pp.  
 Pauly, D., J. Alder, E. Bennett, V. Christensen, P. Tyedmers and R. Watson. 2003. The future for fisheries. *Science* 302: 1359-1361.  
 Tyedmers, P., R. Watson and D. Pauly. Fuelling global fishing fleets. *AMBIO: a Journal of the Human Environment.* [in press].



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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.

**The *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.

# Policy, advocacy, NGOs and the Sea Around Us project

by Jackie Alder and Daniel Pauly

A highly successful workshop, *Evaluating Marine and Fisheries Information Needs of NGOs*, held with representatives from various NGOs (see Box) occurred on October 5-6, 2005, in the lecture hall of our new Aquatic Ecosystems Research Laboratory (AERL) building. It was sponsored by the Lenfest Oceans Program ([www.lenfestocean.org](http://www.lenfestocean.org)) and was devoted to identifying the data needs of NGOs for their policy and advocacy work, as well as to assessing how well the *Sea Around Us* project helps to meet these needs and what can be done jointly in the future. Twenty-six representatives from large to medium sized NGOs, which span Africa, the Pacific, the Caribbean, Asia, Europe and North America, spent two days sharing ideas and providing constructive feedback on the current and planned databases that are behind the *Sea Around Us* website (see [www.searoundus.org](http://www.searoundus.org)), and which have been featured in previous newsletters.

The workshop allowed the project to showcase the last six years worth of work, and to give greater exposure to our web products. Some participants were not aware of our work until they received the invitation to the workshop, but left enthused and full of ideas about how the information contained in the website can help them in their

campaigns for better fisheries management and marine conservation. The workshop also provided NGOs with opportunities to increase their awareness of the breadth and depth of the work of the *Sea Around Us* project. Many ideas for future projects were hatched between the *Sea*

*Around Us* staff and NGO representatives.

The workshop ended with a round table between students and NGO representatives (see *FishBytes* Issue 11-5, p. 2), followed by cocktails, giving students and workshop participants ample opportunity to network.

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## Non-governmental organizations represented at the NGO-Sea Around Us Workshop. October 5-6, 2005

1. American Bird Conservancy
2. Caribbean Conservation Association
3. David Suzuki Foundation
4. Environment and Conservation Organizations of Aotearoa (New Zealand)
5. Foundation of the Peoples of the South Pacific International
6. Greenpeace Australia Pacific (Fiji)
7. Greenpeace International
8. Humane Society International
9. Island Press (Washington, DC)
10. IUCN Netherlands Committee
11. Lenfest Oceans Program
12. Lewis and Clark Law School
13. Marine Conservation Biology Institute
14. Marine Fish Conservation Network
15. National Environmental Trust
16. National Research Defense Council
17. Oceana
18. Regional Marine Conservation Project
19. Sea Turtle Restoration Project
20. State of the Salmon - Ecotrust
21. State of the Salmon - Wild Salmon Centre
22. The Ocean Conservancy
23. WWF - Eastern Africa Region
24. WWF - Latin America and Caribbean Regional Program
25. WWF - US
26. WWF Sulu-Sulawesi Region

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One of the most significant outcomes from the two-day workshop was participants' confirmation that the *Sea Around Us* project is meeting its mission of providing useful scientific

information for assessing the impacts of fisheries, i.e., information that advocacy groups can use. Our consistent focus on creating global datasets from reliable sources and expressing the information through our mapping system has

ensured that we are on the right track, and no doubt we will continue to improve and expand our data and associated research.

We thank the Lenfest Oceans Program for initiating and funding this activity.



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Photographs from Evaluating Marine and Fisheries Information Needs of NGOs. Left: Daniel Pauly addresses representatives from 26 Non-Governmental Organizations. Right: Participants during discussions. Photos by Sherman Lai.

## Africa meets on fish

by *Ussif Rashid Sumaila*

Abuja, Nigeria, was the venue of the New Partnership for Africa's Development (NEPAD) *Fish for All Summit*, which took place from August 22 – 25, 2005. The Summit had strong political backing from the Nigerian government, with President Olusegun Obasanjo serving as the chief host of the meeting. In fact, the President chaired the morning session of the meeting on August 25 to the delight of most participants.

Sponsors of the meeting included the Federal Government of Nigeria, NEPAD, the WorldFish Centre, the FAO, the World Bank, World Vision International, and the Nasarawa State Government of Nigeria. The objectives of the Summit

were (i) to establish a shared understanding among key stakeholders of the current status and likely future trends of African fisheries and aquaculture; (ii) to identify priorities for the development of fisheries and aquaculture; and (iii) to agree on future directions for research and capacity building in support of these development priorities. Key outputs of the Summit were: (i) the Abuja Declaration on Sustainable Fisheries and Aquaculture in Africa ([www.nepad.org/2005/fishforall/Abuja\\_Declaration\\_En.pdf](http://www.nepad.org/2005/fishforall/Abuja_Declaration_En.pdf)); and (ii) A NEPAD Action Plan for the Development of African Fisheries and Aquaculture ([www.fishforall.org/ffa-summit/ActionPlanDraft.pdf](http://www.fishforall.org/ffa-summit/ActionPlanDraft.pdf)).

While efforts were made by all participants at the Summit to meet the above objectives, in my view, the Summit, by its very nature, was not capable of giving concrete guidance on the objectives above. The Summit was essentially a high profile political meeting whose main achievement was to bring to the attention of the continent and its international partners the important role that well-managed fisheries can play in the continent's development. But the real work of charting a viable, sustainable fisheries sector in Africa that benefits the continent's coastal communities can only begin after the Summit. The starting point will be at the national and/or regional levels. This is where each country and

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region needs to seriously evaluate the challenges and opportunities it faces in the areas of capture fisheries, inland fisheries and aquaculture. It is only at these levels that concrete plans and programmes can be identified to ensure responsible management for achieving the goals of viable and sustainable fisheries that can contribute to Africa's development.

In the case of capture fisheries, for example, each country and region will need to make an honest assessment of the current state of the resources. Where the resources have been overexploited, for instance, feasible restoration plans will need to be put in place. Each country and region needs to assess the total values from its fisheries and how the values are distributed to various stakeholders. Are the countries and regions adding maximum value to their fish landings? Are the coastal fishing communities capturing a good portion of the benefits from their fisheries? Answers to these questions will help guide the shaping of economically, socially and ecologically sustainable capture fisheries in Africa.

With respect to aquaculture, each country will have to look at its prospects in this regard very carefully and dispassionately. Listening to many speakers at the Summit, it appears to me that aquaculture is seen as a kind of panacea that will help solve Africa's animal protein needs and poverty problems. This optimism is yet to be justified. Apart from Egypt, aquaculture production in the continent is currently pretty insignificant. And this is not because of a lack

of trying. Countries such as Ghana have put quite a bit of effort into developing aquaculture production without much success so far. Before plunging into huge investments in aquaculture farms, it is prudent to explore very carefully why the continent has not yet been successful in this area. Also, each country will need to carefully determine what kind of species to farm, as this will have huge environmental and economic implications for the sector and the country at large. There is the need to explore what the consequences of expansion in aquaculture operations means for a given country's capture and inland fisheries. Is it likely to complement these sectors economically and environmentally or is it likely to substitute them?

With regards to inland fisheries, countries and regions will have to assess their current state. If they are declining, as the literature seems to suggest, then countries and regions will need to find the causes of the declines. Is it because the rivers are drying up, for example? Alhaji Muktar Shagari, the Hon. Minister of Water Resources of Nigeria, made, in my view, one of the best speeches at the Summit – and it was unprepared! In a few minutes, he managed to make convincing science-based arguments connecting the state of water resources in Africa to the fate of inland fisheries in the continent, made statements about Nigerian hospitality, and provided reasons why he thinks Nigeria is qualified to be a permanent member of the United Nations



*Participants at the NEPAD Fish for All Summit.*

Security Council. A key point Alhaji Shagari made was that Lake Chad is now only about 10% of its former length, which by implication means that, everything being equal, the inland fisheries of Lake Chad should have shrunk by about 90% too. Hence, without healthy rivers and water resources, there cannot be sustainable inland fisheries. This is an important point for the continent's inland fisheries managers to note.

On a lighter note, Nigeria got the opportunity at the Summit to demonstrate the hospitable and friendly nature of its people. Participants also got the opportunity to see how Nigerians can overdo some things (like providing two Summit bags to each participant – the first time most would have experienced this) and 'underdo' some (more important) things like starting functions on time.

Finally, it was great for me to return to Abuja for the first time since 21 years ago, when I visited what was then the biggest construction site in the continent, as an undergraduate student on an excursion. For those who do not know, Abuja is the new federal capital of Nigeria, which was built virtually from scratch, right at the centre of the country, partly to make the capital more accessible to its citizens.

*Without healthy rivers and water resources, there cannot be sustainable inland fisheries*



# Rebuilding Aceh's fishing fleets: anecdotal field observations of an ill-conceived concept gone predictably astray

by Mark Erdmann

Senior Advisor,

Conservation International Indonesia Marine Program

*It seems that these boats, though constructed locally with relief funds, were poorly made and local fishers did not consider them seaworthy*

As governments, NGOs, and relief agencies began to turn their attention from the urgent rescue and relief efforts for communities in Aceh, in northern Sumatra, Indonesia - decimated by the December 2004 Asian tsunami - towards the broader and more long-term issues of rebuilding local economies and restoring livelihoods, many focused upon plans to rebuild the fisheries sector. Despite strong arguments to the contrary<sup>1</sup>, well-meaning groups carry forth with various programs aimed at "rebuilding fisheries" - ranging from supplying new and used foreign fishing vessels (some ironically gained from fisheries buyouts designed to reduce overcapacity in other countries) to building new boats locally for fishermen, to supplying grants-in-aid to fishers to replace boats and fishing gear lost in the tsunami (see also Ratana Chuengpagdee's article on the situation in Thailand: *Sea Around Us* Issue 30, pp. 1-3).

In a previous issue of this newsletter (*Sea Around Us* Issue 26, pp. 1-2), Daniel Pauly argued that such efforts were largely misplaced, and that relief funding would in fact be much better directed towards education and assisting fishing

families to reinvest in other economic sectors with a brighter, more sustainable future. Unfortunately, even if we set aside these arguments about the long-term (un)sustainability of the small-scale coastal fisheries sector throughout Southeast Asia, anecdotal observations that I made during the course of a two-week post-tsunami coral reef assessment in Aceh would suggest that these fisheries rebuilding efforts have gone astray in many instances. In speaking with dozens of coastal inhabitants (fishers and otherwise) and simply observing boats around Aceh, several recurrent issues were raised. Firstly, several people, previously farmers or tradesmen, informed me that they had now become fishers - drawn by the fisher grants-in-aid being administered by various NGOs. Though I cannot comment on how widespread this phenomenon is, it is clear that at least one small net effect of these programs has actually been to draw 'new recruits' to an already overfished coastal fishery.

The second major misfire that we observed was a significant number of beached vessels which had recently been donated by various relief groups. Enquiries about why these vessels were not being used

were met with sarcastic laughs from local fishers - a number of the vessels, donated from foreign sources, were neither appropriate for local sea conditions nor locally-used fishing gear types. Moreover, we observed several brightly-painted wooden vessels, roughly the same design as local vessels, sitting on the beach and in some cases being used as temporary shelters. It seems that these boats, though constructed locally with relief funds, were poorly made and local fishers did not consider them seaworthy (they moreover expressed annoyance at the "corruption" involved in building useless boats with relief funds).

Though I have no doubt that all of these efforts were well-meaning and that undoubtedly there are other successful examples of fisheries relief programs in Aceh, it is perhaps telling that the few anecdotal observations that I made during a two week survey there were indicative of what is perhaps best summarized as an ill-conceived concept gone - predictably - astray.

## Footnote

1. Pauly, D. 2005. Rebuilding fisheries will add to Asia's problems. Correspondence to *Nature* 433:457.

