

## A Symposium with Results

by Daniel Pauly

The waters off West Africa, like most other productive parts of the world ocean have been, in the last decades, strongly exploited by coastal fisheries and by distant water fleets (DWF), but a controversy has long raged about the 'real' state of the resources. There were several reasons for this, one being the variability of some shorter-lived groups such as octopus and shrimps, which boomed when the biomass of the bottom fishes declined. Another obstacle to understanding was the competition between large national fisheries, often overgrown 'small-scale' fisheries, and DWF, whose different gear, mode of operation and especially origins made it difficult for some researchers to conceive that these fisheries have similar, and combined effects on the underlying resources. One final factor of confusion was the tendency among fisheries biologist working in West Africa to closely track fish population abundance, and in the process, to lose track of

long-term change, a process that occurs throughout the world, and which I have elsewhere called the 'shifting baseline syndrome of fisheries.'

To address these and related issues, a group of researchers, representing institution from, or working in West Africa, teamed up two years ago to launch an international symposium on "Marine Fisheries, Ecosystems and Societies in West Africa: half a century of change", that would emphasize the impact of fisheries on West African ecosystems, and the downstream consequences on West African countries, and going back deep enough in time for major trends to emerge.

The main partners involved in the preparation of this symposium were the Fisheries Commission for the countries of the Northwest African 'subregion' ('Commission sous-régionale des pêches,' or CSRP, based in Dakar, and servicing Mauritania, Cape Verde, Senegal, The

Gambia, Guinea and Guinea-Bissau, with Sierra Leone as a future member); the French Institut de Recherche pour le Développement (IRD, ex-ORSTOM); the EU-funded Fisheries Information and Analysis System project (FIAS), devoted to recovering data on the fish, fish catches and ecosystems of the CSRP countries, and the Sea Around Us Project. The interaction between these entities was straightforward, notably because the Principal Investigator of the SAUP, besides serving as the science advisor of the FIAS project, also chaired the symposium's scientific committee.

The symposium consisted of two components. The first 'subregional' component, lasting from June 24 to 25, was devoted to the results of the first two years of the FIAS project, i.e., to work conducted in the CSRP area, including two contribution by SAUP members (Sheila Heymans

*Continued on page 2  
Symposium with results*

*The Sea Around Us Project Newsletter*

*Issue 12 – July/August 2002*

*Symposium with results  
Continued from page 1*

on fisheries-induced changes in the ecosystem off Sierra Leone Ecosystem, and Sylvie Guénette, on the ecosystem off Guinea). The second 'international component,' lasting from June 26 to 28, was devoted to accounts from other part of West Africa, and to syntheses. The SAUP contributions to this consisted of presentations by Reg Watson (subregional fisheries catch maps), Villy Christensen (biomass trend maps), Rashid Sumaila (presenting joint work with Jackie Alder, on the role of DWF in West Africa), Deng Palomares (Poster of CD-ROM documenting Northwest African ecosystems and fisheries; see Palomares, this volume) and Daniel Pauly (Trophic level change as indicators of fisheries impacts

*Few conferences lead to a convergence of opinions, and even fewer conclude with a consensus statement. This one did ...*

on marine ecosystems; and ecosystem impacts of fisheries in Ghana and Namibia, presented on behalf of absent colleagues). The full title of the SAUP and other presentations are documented on the symposium web page, more about which below.

Few conferences, at least in this author's experience, lead to a convergence of opinions among their participants, and even fewer conclude with a consensus statement. This one did, and the full text of our consensus statement may be found on the symposium web site. Its major parts are:

- 1) "The reconstruction of long time series by the FIAS project has allowed demonstration, for the countries of the sub-region, that the biomass of bottom fishes has strongly declined, and that this is due beyond reasonable doubt to the impact of fishing;
- 2) A few short-lived species (e.g., cephalopods) have shown different trends [from those of longer-lived demersal fishes] but here as well, the impact of fishing is obvious, and overexploitation frequently occurs;
- 3) The present demersal fish biomass in the countries of the sub-region are well below levels that allow sustained high catches;
- 4) The demersal fisheries of the sub-region are so low as to render them highly sensitive to

environmental effects;

- 5) The strengthening of sub-regional and international cooperation through the FIAS project has established these facts clearly and unambiguously."

This was seen as having the following implications:

- 6) "Overall fishing effort in the sub-region must be strongly reduced, in particular for demersal species, to re-establish high and sustainable catches, and to minimize the risk of environmental impacts;
- 7) We are aware of the socio-economic implications of such reduction [of fishing effort], but there is no doubt that it is necessary;
- 8) It is important to strengthen national capacity and sub-regional collaboration (as done by the FIAS project) in order to fill the scientific gaps that still exist;
- 9) This goal, and the maintenance and full utilization of the database assembled by the FIAS project require, among other things, that the capabilities of the sub-regional fisheries commission be strengthened."

The international component of the symposium elaborated on these nine points, and expanded them to cover the whole of West Africa, down to Namibia.

*Continued on page 3  
Symposium with results*

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The *Sea Around Us* website may be found at [www.fisheries.ubc.ca/projects/saup](http://www.fisheries.ubc.ca/projects/saup), 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.

*Symposium with results  
Continued from page 2*

Now some will say they knew all along that the fisheries resources of West Africa are overfished. However, this very point is regularly contested during negotiation between e.g., the European Union and West African countries, leading to ever more DWF exploiting what are now strongly depleted resources, thus endangering the long-term development prospect and food security of the West African countries in question.

To get that message across, the SAUP, in the person of its principal investigator, teamed up with the World Wildlife Fund for Nature (WWF) and a colleague from the University of Washington, whom we had invited to the symposium, Dr

David Fluharty, who recently co-authored a contribution questioning the value, to West African countries, of the Fisheries Agreements they sign with the EU (Kaczynski and Fluharty 2001). This started right in Dakar, during a joint SAUP/WWF press conference held on June 28, in which the chief executive of the WWF, Mr Claude Martin, also participated. Fifteen journalists were in attendance, notably from Radio France International and the Pan African News Agency. The resulting coverage included three TV broadcasts, three radio broadcasts and one newspaper article in *Le Soleil*, Dakar's

leading daily (text available from symposium web page - <http://fisheries.ubc.ca/Projects/SAUP/Dakar/press.html>).

David Fluharty and Daniel Pauly then flew to Madrid, where they presented on July 2 the results of the Dakar Symposium to Spanish colleagues, and WWF staff. On July 3, they visited the head of the 'International Fishing Agreement' section in the Spanish Ministry of Agriculture, Fisheries and Food,



*Daniel Pauly speaks at the opening ceremony of the conference  
Photo by Pierre Chavance*

Mr. Rafael Centenera, who had just returned from the negotiations that lead to the latest round of agreements between the EU and Senegal, Angola and Mozambique. We were impressed by his tremendous knowledge of the minutiae of West African fisheries, and his formidable rhetorical skills, both of which go a long way in explaining the nature of some of the agreements thus negotiated. We also conducted interviews with a team from 'TV2,' specialized in agriculture and fisheries issues, with SER Broadcasting, and with *El País*, Spain's major daily.

Then on to Brussels, via Paris, where we bought an issue of *La Recherche*, containing a just published paper (Pauly et al. 2002) that came in rather handy, given that it deals with overfishing in the North Atlantic, and the need to set up marine reserves, and was written in one of the main languages of the European Commission (EC). The EC's Directorate General for Fisheries (DG Fish) is presently struggling to get across its planned reform of the 'Common Fisheries Policy,' which includes strong reduction of European fishing fleets. Our presentation of July 4 to staff of DG Fish, on the impact of EU vessels on West African resources went well with those in the audience that were serious about the reforms, and the copies of the *La Recherche* paper we had quickly made were snapped up. But it was obvious that there are members of DG Fish who are still struggling

to free themselves from the net the fishing industry threw over their heads.

On the other hand, our subsequent contribution to a joint WWF/European Policy Centre meeting on 'The Common Fisheries Policy: the case for radical reform' was clearly well received by its audience of about seventy journalists, embassy staff, representatives from European regional government and other "EU actors," as shown, notably, by the interviews we were invited to give to Reuters and *New Scientist*, among others.

*Continued on page 4  
Symposium with results*

*Our presentation on the impact of EU vessels on West African resources went well with those in the audience that were serious about the reforms ...*

*Symposium with results  
Continued from page 3*

The high speed train that took us back to Paris on July 5 did not require our shoes to be x-rayed, and we still got there as fast as if we had flown. So we made it to a 'press breakfast' at the Café Marly, near the pyramid of the Louvre, where we made, again, the case for considering the state of West African resources when negotiating fisheries agreements, this time to journalists from *Les Echos*, *Le Figaro*, and the Agence France Presse. The day – and a rather hectic week – were completed at the French Ministry of Foreign Affairs, where we reported on the Dakar Symposium (which they partly funded), and again discussed the agreements....

*It is getting time to do something about overfishing, which is really turning into a global plague*

Here are some lessons we learnt from, or that were confirmed by our successful symposium, and the post-symposium trip:

- 1) A well-prepared, focused scientific meeting can lead to a consensus on previously contentious issues, thus clearing the way for policy (at least we can't later be blamed for dithering);
- 2) Scientists working on environmental issues will find interested science journalists working in TV, newspaper and other media, given that they make an effort in addressing the 'so what' question that journalists cannot avoid in their work, even if we sometimes can;
- 3) It is getting time to do something about overfishing, which is really turning into a global plague.

We invite readers interested in the above meeting and/or its follow up to visit that part of the SAUP web devoted to the Dakar Symposium ([www.fisheries.ubc.ca/projects/](http://www.fisheries.ubc.ca/projects/))



*Participants pose for a group photograph outside the conference venue  
Photo by Pierre Chavance*

[saup/Dakar/index.htm](http://saup/Dakar/index.htm), where, pending the publication of full proceedings, and using generous funding from the Oak Foundation, we will make available the bulk of the material (Powerpoints, posters) presented at that symposium, along with related material published later.

#### Acknowledgments

My sincere thanks to J.M Vakily (FIAS project), P. Chavance (IRD) and Deng Palomares (SAUP) for the organization of the symposium and to WWF staff in Senegal, Spain Belgium and France for organizing a successful post-symposium tour. I also thank the Pew Charitable Trust, Philadelphia, for supplementary funding for the Dakar Symposium, and the Oak Foundation, Boston, for supporting its website.

#### References:

- Kaczyński, V.M and D.L. Fluharty. 2002. European policies in West Africa: who benefits from fisheries agreements. *Marine Policy*. 26:75-93.
- Pauly, D., R. Watson and V. Christensen. 2002. Quand le poisson vient à manquer. *La Recherche* (355): 80-83. ■

## Perspectives on Dakar by David Fluharty

It was a distinct pleasure to be invited by Daniel Pauly and the *Sea Around Us* Project to participate in the Dakar Conference. Having been involved in a number of visits as a consultant to some of the countries in the region, I was greatly impressed by the results of the FIAS Project teams. The consistently high level of sophistication and understanding represented in the presentation was remarkable and justifies the EU funding that made it possible. It attests as well to the soundness of the project design, implementation, and leadership. This project generated genuine collaboration on many levels.

As a consumer of scientific information as opposed to a producer, I found the ecosystem modeling approach as opposed to the rather desultory stock

*Continued on page 5  
Perspectives on Dakar*

*Perspectives on Dakar*  
Continued from page 4

assessment approach very enlightening. Given the huge deficits in fishery independent survey data, the fallibility of fisheries data and the limited capacities to translate results into policy, the broader approach leads to fairly clear understanding of the decrease in demersal species over time. This is undeniable.

Now the question becomes, "What can be done?" Each of the countries and its fishery management capacity is different. Common to all is involvement of the European Union in distant water fishing and, in some cases, shoreside investments. While other countries like China, South Korea, Russia and Japan are engaged selectively, the dominant external presence in the regional fisheries is Western European. This relationship is complex, long-standing and has advantages and disadvantages as seen from a coastal state perspective. My colleague, Vlad Kaczynski and I have sought to lay out some aspects of these relationships with respect to access agreements and their effects in the West African region (citation at end of Pauly report).

One of the key findings is that coastal states tend not to know the value of their own fishery resources. Secondly, they do not really know the actual harvests taken by fleets to which they grant access. Thus, these states are at a tremendous disadvantage in negotiating agreements and tend to accept less in access fees than they might otherwise demand. Even these lopsided agreements are not necessarily "bad" because they do represent the full benefits

available but they equally, are not "good" because they interfere with development of domestic capacity to capture the value added in processing and marketing. There is a tremendous gap between arriving at the findings of the FSIA Project and using that information in management of domestic and distant water fishing efforts.

At Daniel Pauly's suggestion, I was also invited to join in the WWF sponsored informational campaign in Europe. I was impressed that WWF would let us "independent" resource persons speak candidly about our work without asking us to coordinate with the positions that WWF has developed over time. However, this is exactly the opportunity that we were afforded. Whether speaking with the policy experts in the DG Fish at the EU Headquarters or butting heads with the very impressive lead negotiator from Spain or answering tough questions from top reporters from *El País*, *Le Figaro*, *New Scientist*, etc. we had free rein to engage in substantive discussions of the significance of the scientific findings and the policy implications. Two things are clear to me. If the EU is to continue as a leading fishing entity in West African waters, as I believe it can and should, it must assume a much higher standard of conduct than it applies in its own waters. If West African coastal states are to benefit to the fullest extent from the valuable fisheries inside the EEZ, enormous improvements in the management of fisheries must be made and conditions for encouraging and securing domestic and foreign investment must be vastly improved. ■

## A few thoughts about the Dakar Symposium

By Sylvie Guénette

During the Dakar symposium, a consensus was reached that most of the demersal resources have declined and some gravely depleted (see Pauly, this volume). Several stock evaluations showed the decline in biomass for several species in the last 50 years. Ecosystem modelling using Ecopath or a trophic flux model (D. Gascuel, Département Halieutique, ENSA-Rennes, France) showed the extent of the decline in the ecosystem. In response to this dismal situation, it was recommended that fishing effort be drastically decreased and that the fishing agreement took into account the state of the resource, assessed by joint African-European countries committees.

The overall goal should be to rebuild populations and ecosystems which have been considerably depleted. So how are we going to manage the fisheries in West Africa? In most cases the depletion of the resources call for severe reduction of exploitation by industrial boats and sometimes, by the artisanal sector as well. Besides reducing the effort, will we reduce the catch by implementing quotas? As we have seen in several countries over the last decades, it is difficult to assess stocks in a

Continued on page 6  
Thoughts about Dakar

*The overall goal should be to rebuild populations and ecosystems which have been considerably depleted*

*Thoughts about Dakar  
Continued from page 5*

precise and timely manner and to implement quotas efficiently without overshooting more often than not. Given the success we had in so-called developed countries, we surely need to address the issues in more creative ways than we have in the past.

Marine reserves were discussed on the last day of the symposium and generated quite a bit of heat due to classic objections of the type “we do not know” that they work in the first place (but see Guénette *et al.*, 1998). A good example of this is the Banc d’Arguin National Park (Mauritania), a 12,000 km<sup>2</sup> reserve first set up in 1976 to protect the large number of seabirds using it as their breeding or wintering grounds (Campredon, 2000). It appears that the park in an important spawning areas for some sharks and rays. It is also possible that this area acts as a nursery ground for some bony fishes and a feeding area for others. Some of these species have distributions spanning the whole North-Western coast of Africa. However, the usefulness of the Banc d’Arguin is contested on the basis that there is no formal proof it helps maintaining the fish stocks while preventing fishers from accessing the much coveted resources, notably a small shark, the tolo ( *Mustelus mustelus* ).

Clearly the efficiency of such a reserve is a researchable topic. Already, the scientific literature on the subject is rapidly accumulating evidence on the rebuilding of exploited stocks (e.g. Bertelsen and Cox, 2001; Roberts *et al.*, 2001) and modification of ecosystem structure (e.g. Edgar and Barrett, 1999; McClanahan and Arthur,

2001) following the closures of previously exploited areas.

Moreover, as the interest about marine reserves is rising in the region and some people are worried that marine reserves would be perceived as a panacea the way ITQs have been for a while. I contend that no management measure should be expected to solve all

our problems. No-take areas of appreciable size may however help us rebuild ecosystems and fish populations. A plan to introduce marine reserves in the region should clearly state the experimental and learning process that they should be based on, including the biological aspects and organisational structures for managers, biologists and fishers.

*Continued on page 8  
Thoughts about Dakar*

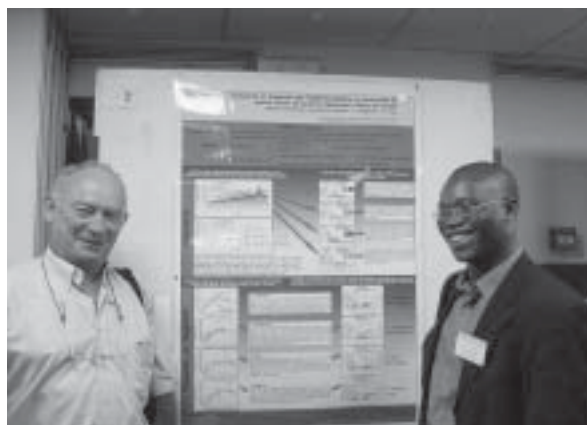
*... we surely need to address the issues in more creative ways than we have in the past*

## And the winning posters are ...

**By Maria Lourdes Palomares**

The Symposium on *Marine fisheries, ecosystems, and societies in West Africa: half a century of change* held in Dakar, Senegal in June 24-28 2002 (see Pauly, this volume) hosted a poster session covering marine ecosystems (36%), resources (25%) and fisheries (39%). Some of these posters were of a double nature, i.e., covering multidisciplinary approaches and management tools. This was a well attended session, e.g., the Ministers of Fisheries of Mauritania and Senegal graced the opening of the session, taking time to peruse the contents and messages of each of the 36 posters presented (to view these, see <http://fisheriesubcc.ca/Projects/SAUP/Dakar/posters.html>).

The high quality, not only in presentation but also in content of these posters, made it difficult for the Best Poster search committee, headed by Cornelia Nauen (UE, Bruxelles) and whose members were Michael Vakily (IRC, Italie), Virginia Pires (CIPA, Guinea-Bissau), David Fluharty (Univ. Washington, USA) and Daniel Pauly (UBC, Vancouver, Canada), to pick the three most remarkable posters in terms of their pertinence to the theme of the Symposium, clarity and originality of presentation. Thus, instead of three, the committee



*François Domain and Aboubacar Sidibé with their poster  
Photo by Deng Palomares*

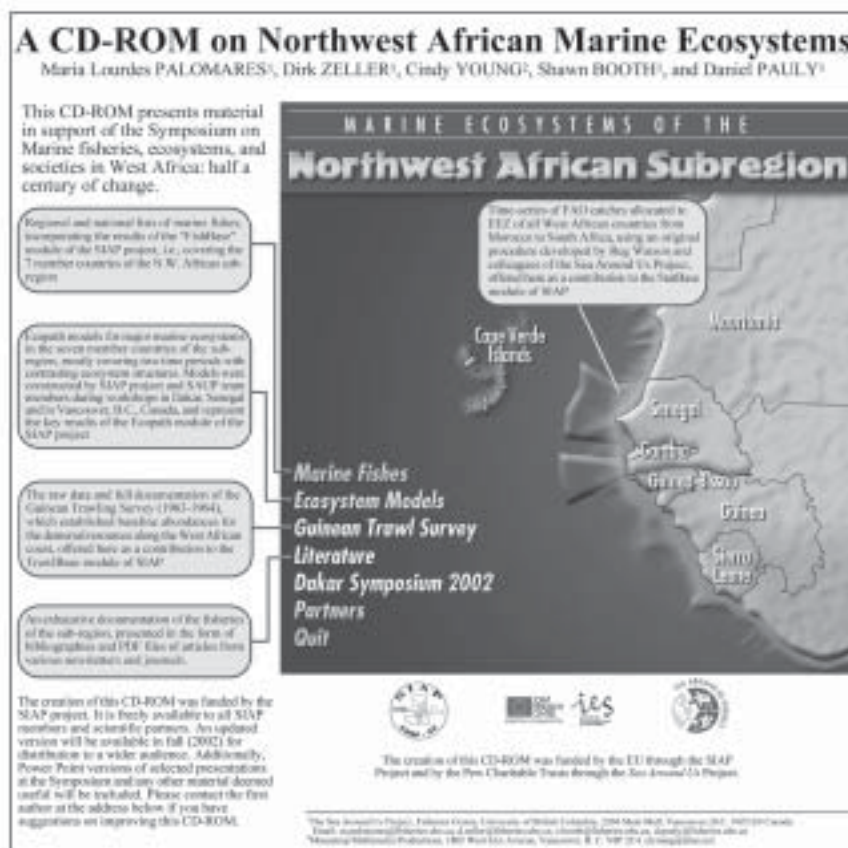


Figure 1. The poster presented by Sea Around Us team members at the Dakar Symposium

To the delight of many of the participants, the contribution from members of the Sea Around Us Project (see Figure 1) on the CD-ROM of Northwest African marine ecosystems was out of the competition, as it was (in this author's unbiased opinion) rather impressive. The CD-ROM, which provides an exhaustive documentation of the fisheries of the sub-region, was the culmination of many months' work by its authors, and was created using funding by the EU through the SIAP Project and by the Pew Charitable Trusts through the Sea

... instead of three, the committee came up with five winning posters ...

came up with 5 winning posters (the first prize was funded by the Sea Around Us project while the four other prizes were funded by the EU), namely:

**First prize (500 CAN\$):** Birane SAMB et Asberr MENDY. Poster #10 : *Dynamique du réseau trophique de l'écosystème Sénégalais.*

**Second prize (100 Euros):** Aboubacar SIDIBE, Didier GASCUEL, François DOMAIN. Poster #02 : *Évaluation et diagnostic par l'approche globale et structurale de quatre stocks de poissons démersaux côtiers de Guinée, Galeoides decadactylus, Pseudolithus elongatus, P. senegalensis et P. typus.*

**Third prize (Book):** Didier GASCUEL. Poster #05 : *Captures et biomasses par niveau*

*trophique dans l'Atlantique Centre Est : analyse de 50 ans d'évolution et première tentative d'application du modèle écosystémique de flux trophique.*

**Fourth prize (T-shirt):** Ph TOUS, R. VERNET, J.-F. SALIEGE. Poster #18 : *Cansado (presqu'île du Cap Blanc, Mauritanie) : un site de pêcheurs daté de 6700 ans.*

**Fifth prize (T-shirt):** Dario ÉVORA, Patricia AMORIM, Carlos MONTEIRO, Oksana TARICHE et Kim A. STOBBERUP. Poster #43 : *The Cape Verde Archipelago : oceanography, resources and fisheries of an insular ecosystem.*

Around Us Project. The beta version of this CD-ROM was distributed during the Symposium and an updated version is being prepared for distribution in November 2002 to a wider audience. This will contain, in addition

*Continued on page 8  
Winning posters*



Mr Se Ahmedou Ould Ahmedou, Minister of Fisheries of the Islamic Republic of Mauritania (right), admiring the posters  
Photo by Pierre Chavance

*Thoughts about Dakar*  
Continued from page 6

We will not solve the question of the effectiveness of marine reserves through rhetorical arguments. We are at the stage where we need to experiment with closures, setting specific objectives and verifying whether or not we reached these objectives.

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Bertelsen, R. D., and Cox, C., 2001. Sanctuary roles in population and reproductive dynamics of Caribbean spiny lobster. In: *Spatial Processes and Management of Marine Populations*, pp. 591-605, Ed. by G. H. Kruse, N. Bez, A. Booth, M. W. Dorn, S. Hills, R. N. Lipcius, D. Pelletier, C. Roy, S. Stephen J, and D. Witherell, Anchorage, Alaska, Alaska Sea Grant College Program. Vol. AK-SG-01-02, 720 pp.

Campredon, P., 2000. *Between the Sahara and the Atlantic, Banc d'Arguin National Park, Mauritania*. FIBA, la Tour du Valat, Arles, France. 124 pp.

Edgar, G. J., and Barrett, N. S. 1999. Effects of the declaration of marine reserves on Tasmanian reef fishes, invertebrates and plants. *Journal of Experimental Marine Biology and Ecology*, 242:107-144.

Guénette, S., Lauck, T., and Clark, C. 1998. Marine reserves: from Beverton and Holt to the present. *Reviews in Fish Biology and Fisheries*, 8:251-272.

McClanahan, T. R., and Arthur, R. 2001. The effect of marine reserves and habitat on populations of East African coral reef fishes. *Ecological Applications*, 11:559-569.

Roberts, C. M., Bohnsack, J. A., Gell, F., Hawkins, J. P., and Goodridge, R. 2001. Effects of marine reserves on adjacent fisheries. *Science*, 294:1920-1923. ■

*Winning posters*  
Continued from page 7

to updated versions of the material it already contains (see Figure 1), the Power Point versions of selected presentations at the Symposium and other material deemed useful (see Pauly, this volume).

In order to help document the results of this Symposium, the structure and contents of the CD-ROM was also used to create the Symposium's web site (<http://fisheries.ubc.ca/Projects/SAUP/Dakar/index.htm>) which will be maintained by the *Sea Around Us* Project for post-Symposium communications and publications. The creation of this web site was made possible through funding from the Oak Foundation. ■

## Fisheries Centre Research Reports on the web

We are pleased to announce the publication of three new reports, documenting the *Sea Around Us* Project's work on North Atlantic Fisheries (*Fisheries Impacts on North Atlantic Ecosystems*, FCRR Volume 9, Issues 3-5). The reports, with the themes: Catch, Effort and National/Regional Data Sets (Vol 9(3)); Models and analyses (Vol 9(4)); and Evaluations and Policy Exploration (Vol 9(5)), are available, free of charge, on the Fisheries Centre's website (<http://fisheries.ubc.ca/Reports/fcrr.htm>). Hard copies can also be purchased for \$20 (please email: [events@fisheries.ubc.ca](mailto:events@fisheries.ubc.ca)).

## Another article in *Nature*

The *Sea Around Us* Project is about to add to its growing list of high-profile publications. A team of authors from the Fisheries Centre has been commissioned by the prestigious journal, *Nature* to produce a seven-page report, as part of a special Insight section on the 'Future of Food'. The report, entitled "Towards sustainability in world fisheries" will be published in early August. Its abstract is reproduced below:

Fisheries have rarely been 'sustainable.' Rather, fishing has induced serial depletions, long masked by improved technology, geographic expansion and exploitation of previously spurned species lower in the food web. With global catches declining since the late 1980s, continuation of present trends will lead to supply shortfall, for which aquaculture cannot be expected to compensate, and may well exacerbate. Reducing fishing capacity to appropriate levels will require strong reductions of subsidies. Zoning the oceans into unfished marine reserves and areas with limited levels of fishing effort would allow sustainable fisheries, based on resources embedded in functional, diverse ecosystems.

**Reference:**

Pauly, D., V. Christensen, S. Guénette T.J. Pitcher, U.R. Sumaila, C.J. Walters, R. Watson and D. Zeller. Towards sustainability in world fisheries. *Nature*, August 8, 2002.