Sea Around Us

President John Atta-Mills of Ghana and the *Sea Around Us* Project

by Ussif Rashid Sumaila

Professor John Atta Mills was elected on December 28, 2008, to serve as Ghana's President for the period from 2009 to 2013. On January 7, 1997, Atta Mills, who was then an Associate Professor of Law at the University of Ghana, was appointed and sworn-in as the Vice President of the Republic of Ghana, under the then-elected government of President John Jerry Rawlings. Atta Mills was later elected by his party to be its flagbearer, and led them into the 2000 elections, which he lost.

Once a professor always a professor: Atta Mills decided to go back into academia after his electoral defeat, and used the opportunity to reflect on his future and do some writing (Atta Mills, 2002). In 2001, Prof. Atta Mills came to the Liu Centre for the Study of Global Affairs (www.ligi.ubc.ca/), here at the University of British Columbia (UBC) as a Visiting Professor. I met the law professor for the first time, at a meeting organized by the Liu Institute for UBC persons

President of Ghana John Atta Mills. Photo: attamills2008.com

who are interested in Ghanaian and African issues. The aim of the meeting was to have a conversation with the former Vice President and Presidential Candidate of Ghana. The connection between Atta Mills and me was made during introductions. As soon as I mentioned that I was at the Fisheries Centre and explained the work we do, the professor's face lit up. He went on to say that fisheries are a big issue in Ghana, and revealed that for years during his tenure at the University of Ghana, he had been advising and working to defend small-scale fishers against the actions of large fishing companies. Over the years, he saw the misery in the fishing communities increase because of dwindling catches, to the extent that many did not even bother to go fishing anymore. He further added that as Vice President he has worked to create a new national fisheries law that attempted to stem the tide and put Ghanaian fisheries on a sustainable path.

Following this meeting, I invited Professor Atta Mills to give a talk at the Fisheries Centre, which he did enthusiastically. Given the global focus of our work at the *Sea Around Us* Project, and the fact that we were then planning a symposium in West Africa, Jackie Alder and I co-authored a paper with the professor from Ghana (Atta Mills, Alder and Sumaila, 2004), the highlights of which were presented by Atta Mills as a keynote address at the Dakar Symposium on West African fisheries in 2002 (www.seaaroundus.org/Dakar/index.htm).

We at the *Sea Around Us* Project can only wish the new president every success as leader of Ghana at a time

Continued on page 2 - Ghana

The Sea Around Us Project Newsletter

Issue 50– November/December 2008

... help make fisheries in Ghana and Africa work for the people in a sustainable manner.

Ghana - Continued from page 1

when Africa needs to demonstrate to the world that the continent can run flourishing democracies that work for its people. With respect to fisheries, I believe that President John Atta Mills is, most probably, the current sitting president in the world with the best understanding of the problems of fisheries in his or her country. I am optimistic that he will use his considerable influence as President of an important African country to help make fisheries in Ghana and Africa work for the people in a sustainable manner.

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NCEAS: Finding common ground

by Dirk Zeller and Reg Watson

The National Center for Ecological Analysis and Synthesis (NCEAS) in Santa Barbara, California, encourages cross-disciplinary research that utilizes existing data to address major issues in ecology and related fields, generally with application to management and policy. As part of this mission, NCEAS hosts and sponsors working group meetings that bring together experts from around the world. In December, Dirk Zeller and Reg Watson from the *Sea Around Us* Project participated in a working group meeting on '*Finding common ground in marine conservation and management*'. This working group is led by Boris Worm and Ray Hilborn, and seeks to find common approaches between marine ecologists and fisheries scientists for assessing the state of global marine resources. This is in the hope of creating a more cohesive front to address marine resource use and current issues in ocean management. To reach this, the group is:

(1) developing a unifying terminology and a common analytical framework for assessing marine fisheries and ecosystems;

(2) applying this framework to a number of representative marine ecosystems; and

(3) assessing management successes and failures to identify tools that have been shown to reverse trends of degradation in marine fish stocks and ecosystems.

The central question the working group is trying to answer is: *how can we merge contrasting objectives, tools, and scientific criteria among marine ecology, fisheries science, and management into a unifying framework.*

In essence, papers published by Worm and others, together with members of the *Sea Around Us* Project (e.g., Worm *et al.*, 2006; Halpern *et al.*, 2008) were considered controversial by some members of the marine assessment community. They could not, and did not, rely on traditional stock assessment methods. There was much debate about the application of the meta-methods developed by these authors and groups (some through the NCEAS working

Continued on page 3 - NCEAS

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The *Sea Around Us* website may be found at www.seaaroundus.org and contains up-to-date information on the project.

The *Sea Around Us* Project is a scientific collaboration between the University of British Columbia and the Pew Environmental Group. The Pew Environmental Group is the conservation arm of the The Pew Charitable Trusts, a non-governmental, non-profit organisation. Pew applies a rigorous, analytical approach to improving public policy, informing the public and stimulating civic life.

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NCEAS- Continued from page 2

group approach), and the different views that these formed about the status of marine stocks both generally and specifically. NCEAS sponsored the present working group in an effort to bring together proponents of the different approaches. The *Sea Around Us* Project is an active partner in this NCEAS group. Mapped global catch data and other information provided by the Project have made a significant contribution to several publications discussed by the group. A mutual understanding is developing of why perceptions about the status of marine resources can differ so much and what can be done to incorporate more approaches and information. The work to date promises some very interesting and useful results; watch the literature for upcoming publications.

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The Sea Around Us Project is an active partner in this NCEAS group.

GCFI: Good science and management, but where is the public outreach?

by Dirk Zeller

In November, I was invited to give the keynote address for the 2008 Gulf and Caribbean Fisheries Institute (GCFI) annual conference in Guadeloupe. The GCFI provides information exchange among governmental, non-governmental, academic, and commercial users of marine resources in the Gulf and Caribbean region (www.gcfi.org). The conference provided opportunities to present science and management research and issues.

After the usual opening ceremonies, attended by numerous local, regional and national dignitaries, I presented the keynote address on '*Caribbean versus global fisheries: marine ecosystems, food security and the data connection*'. Throughout the rest of the conference I was approached by many participants expressing their support for, and understanding of, our work at the *Sea Around Us* Project, and also their surprise at learning how widespread fishing concerns and overfishing problems appear to be. For me, other highlights of the conference were Jeremy Jackson's special session keynote address on '*Coastal habitat degradation and fisheries*', and Yvonne Sadovy's '*Management and conservation of spawning aggregations: lessons learned and future perfect*'.

Throughout the conference, I engaged in the role of placing the presented local or regional findings in a global context. Interesting discussions and questions arose from this. However, I increasingly became concerned by the observation that no media were present (at least once the opening ceremony dignitaries left). I tried to make the point that the GCFI has many important scientific stories to tell the general public (the ultimate stakeholder in marine resources and ecosystems), yet it was apparent before, during, and immediately after the conference, that they had no active outreach program or initiative. I made the comparison with the International Coral Reef Symposium held in July in Fort Lauderdale, which had a well organized and successful outreach program, resulting in good message transfer to the general public. My point was that GCFI may be missing an opportunity to inform the public about science and management issues in their region of interest, and should seriously consider including an active outreach presence at their next event in Venezuela in 2009. This concern, as well as my presentation on global fisheries issues, led to several interesting discussions, both during sessions, but especially during the very friendly and sociable networking scene. In (typical French?) manner, email reception was only available while sitting around the hotel bar! This contributed to a very enjoyable social-science experience which was excellently managed by the very competent and professional organizing committee.

...GCFI is missing an opportunity to inform the public about science and management issues...

To William Cheung, on the completion of his Postdoc with the *Sea Around Us* Project (2007-2008)

by Daniel Pauly

Wai Lung 'William Cheung, on December 31, 2008, completed his Postdoc in the best manner possible: by moving on to become a 'Lecturer' (the British way of pronouncing 'Assistant Professor'), at the University of East Anglia.

This was not surprising. In his work as a postdoc, William had managed to exceed the already huge expectation we had, based on his doctoral work. As part of our team, he was tasked with developing a generic 'climate envelope' model to simulate (predict) the shift towards higher latitude that marine fishes and invertebrate (will) experience as a result of global warming. The model was developed, written and documented (Cheung *et al.* 2007), then applied to the over 1000 species of marine fishes and invertebrates for which the *Sea Around Us* Project has distributions (and FAO catch statistics).

...the first paper ever to present maps of expected impact of different global wamring scenarios on the biodiversity of the world's oceans...

This led to the supporting study of Cheung *et al.* (2008), which established, for the first time, a robust relationship between the distribution area of fish and the potential production, other things being equal (their trophic level, primary production in their habitats, etc), and to the first paper ever to present maps of expected impact of different global warming scenarios on the biodiversity of the world oceans

Former post doc William Chueng. Photo by Sherman Lai.

(Cheung *et al., in press*). And a fourth paper, building on the first three, predicting changes in global and country-specific catch potential is under review, all this being done while at the same time completing the publication of papers from his doctoral thesis, and patiently and admiringly helping other people with their research.

This work saw us closely collaborating, and I can't express how much I appreciate the thoughtful exchanges this generated. Fortunately, William has promised to continue our collaboration, particularly on global warming impact. The next paper is planned to include the effect of declining dissolved oxygen, which we expect to be very strong, but have so far ignored. Watch this space, therefore, for more news about William and his path-breaking work.

In the meantime, we shall wish him good luck in his new home. And in order to avoid him embarrassment with his new colleagues, I won't conclude by quoting the words he used when describing the local food (I did warn him).

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Dumb as a cod: Fisheries in the Baltic Sea

by Peter Rossing and Dirk Zeller

Historic chronicles from the monk Saxo in the 12th century suggest that the oars from fishing boats would get stuck in large schools of herring during their migration through the Sound of Denmark. The abundance of herring was such that they could be caught with bare hands and literally shoveled into barrels (Grammaticus, 1980).

Magnus, Olaus. (1555) Historia de Gentibus Septentrionalibus. Description of the Northern Peoples. Image obtained with thanks from Callum Roberts, University of York, UK

Herring was a highly valued export commodity, and was an important part of people's diet during Catholic fast. Cities like Copenhagen and Lübeck, if not founded on herring, drew much of their early wealth from the sale of Baltic Sea herring, and of their control of the salt required for preservation (Grammaticus, 1980). The historic importance of fishing in the Baltic Sea is such that many metaphors commonly used today relate to fish. In Danish, something worthless is '*not worth five sour herrings*', a beautiful woman is a '*delicious herring*', and if somebody calls you '*dumb as a cod*' you have likely done something of the lowest intelligence. A major newspaper even has the '*new year cod prize*' that is given to the politician who made the biggest blunder during the year.

Ironically, this appreciation of cod is a fitting description for how the management of the fisheries resources in the Baltic Sea has gone awry. The once abundant cod is now at risk of stock collapse as the Baltic countries (Denmark, Sweden, Germany, Poland, Russia, Lithuania, Estonia, Latvia and Finland) continue to sidestep and ignore International Council for the Exploration of the Sea's (ICES) scientific recommendations for a complete moratorium, because they cannot agree on terms (WWF, 2008). Other species also in trouble are eel, which have gone nearly commercially extinct, and salmon, which now contain so much dioxin that fish over 4.4 kg are deemed unfit for human consumption (Lövin, 2007). Eutrophication is also a substantial problem as the Baltic Sea is now regularly hit by massive toxic blooms of blue-green algae and by anoxic events which leave large areas lifeless during the summer season (ELME, 2007).

A Swedish businessman, Björn Carlson, decided in 2006 to actively contribute to reversing these disastrous developments by setting up the *Baltic Sea 2020 Foundation* (www.balticsea 2020.org). His 500 million SEK (US$ 60 million) person donation represents the single largest ever made in Sweden. The entire capital is to be used by 2020, hence the name of the foundation. The aim is to stimulate concrete measures to improve the environmental quality of the Baltic Sea.

The *Sea Around Us* Project is contributing to the work of the *Baltic Sea 2020 Foundation* by reconstructing total catch time series for all Baltic countries from 1950. Only the landings from commercial fisheries have traditionally been reported from the Baltic countries, and incompletely at that. It is therefore widely recognized that the region's official statistics underestimate true catch (although formal stock assessments do account conservatively for discarding), as they do not take into account Illegal, Unreported and Unregulated (IUU) catches. Policy makers have therefore historically underestimated the impact of fishing on stocks, and hence on the decline seen in some of the Baltic fisheries.

Our work, when completed in April 2009, will provide a better baseline for analyzing long-term trends by going beyond what is officially reported by the Baltic countries' governments (and hence ICES) from 1950 to the present.

The basic approach to, and philosophy behind, catch reconstructions is described in

Continued on page 6 - Baltic

The once abundant cod is now at risk of stock collapse as the Baltic countries continue to sidestep and ignore ICES recommendations.

Baltic - Continued from page 5

Zeller *et al.* (2006; 2007). In essence, we utilize every data- and information-source available to us (including grey literature, media sources and expert knowledge) to obtain data 'anchor points' in time regarding nominal and IUU catches (including recreational), as well as discards. We have also endeavored to establish collaborations with local in-country experts in the Baltic region, as local input, knowledge and experience are particularly valuable in helping us to develop reasonable data time series. Therefore, Peter Rossing has been busy over the last 8 months establishing and nurturing, relationships with scientists in the Baltic region that share an interest in collaborating with us. We have successfully established collaborations in Sweden, Finland, Germany, Russia, Lithuania and Latvia, and have been able to get access to material and sources from Poland. As a Dane, it has been a particular privilege for Peter to travel around the Baltic region. Generally, our request for collaboration and advice has been well-received, as most people appreciate the relevance of what we are trying to achieve. The goodwill and information generated from these meetings and collaborations cannot be underestimated.

However, a substantial problem has been the political sensitivity over access to existing spatially disaggregated discard and illegal catch data, despite the fact that most government institutions in the Baltic and ICES have access to such data. ICES, for example, utilizes such discard data to improve their yearly stock assessments and fisheries advice to the European Union. However, they are under considerable political pressure not to disclose the country-specific disaggregated data, as Baltic country governments would be embarrassed if singled-out as a major culprit of illegal activities, or for wasting resources by throwing dead fish back into the sea.

Peter found another example of how politics can interfere with the common good when he visited the Institute for Baltic Sea Fisheries in Rostock, Germany. Since 2004, this institute has been conducting extensive recreational catch surveys. This apparently benign project became a political hot potato when the results indicated that current German cod catches would be 50% higher if recreational catches were included. Initially, the German government wanted to close down the project, however the results had already been published. Instead, the German government is now possibly faced with the uncomfortable situation of making an informed decision about how to divide their total cod quota between the recreational and commercial fishing sectors. It is amazing, given such shenanigans, that there are still cod left in the Baltic. Dumb Cod!

The Baltic Sea

There are approximately 100 fish species living in the Baltic Sea Region comprising Denmark, Sweden, Germany, Poland, Russia, Lithuania, Estonia, Latvia and Finland. The fish fauna include marine (e.g., cod, flatfish, sprat, herring), anadromous (e.g., Atlantic salmon, and Sea trout) catadromous (e.g., European eel) and fresh water species (e.g., pike and perch). The diversity, composition and distribution of the Baltic fish fauna is influenced by the brackish-water and enclosed nature of the Baltic Sea. The number of marine species is therefore highest in areas near the Danish Straits and diminishes eastwards and northwards as salinity decreases. The catches of cod, herring and sprat has, in recent times, accounted for approximately 95% of the reported commercial catches in the Baltic (ICES, 2007).

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