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<https://escholarship.org/uc/item/50p471zn>

Publication Date

2003-11-17

Conference Report, November 2003
Marine Biodiversity: Using the Past to Inform the
November 14 – 17, 2003

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Conference Report
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This interim report covers the second conference hosted by the Center for Marine Biodiversity and Conservation (CMBC) and supported by the Alfred P. Sloan Foundation's Known, Unknown, Unknowable (KUU) Program. Our shared goal is to explore the structure and limits to knowledge of marine ecosystems and the implications of the state of our knowledge to research, policy and society at large.

Marine Biodiversity: Using the Past to Inform the Future

The second KUU conference, "Marine Biodiversity: Using the Past to Inform the Future" was held 14-17 November 2003 at Scripps Institution of Oceanography. The purpose of the conference was to highlight the importance of understanding past ecosystems and how they have changed, and to ask how we can make use of this historical perspective to better understand the present and to safeguard and manage the future. A major contributor to the success of the conference was the diversity of over 220 participants, who represented an international mix of producers and users of knowledge (please see attached list of participants). Seventy percent of the participants were social and natural scientists from academia and 30% were professionals from intergovernmental, governmental and non-governmental organizations, the media, educational institutions, law firms, and funding organizations.

The agenda featured five sessions, each comprised of a plenary talk and discussion followed by panel presentations and another open discussion (please see attached agenda). We encouraged speakers to be provocative and challenging and set aside half the time for free-wheeling discussion. Topics for the first two sessions focused on basic questions about the past: (1) why is the past important? and (2) how do we know about the past? The next two sessions concentrated on case studies in which knowledge of the past plays a crucial role in our understanding of dynamics of the system today: (3) cod and (4) sardines and anchovies. The final session focused on how incorporating knowledge about the past can help to build a better future for the world's oceans: (5) how can we use the past to inform the future? All panels included a moderator and two rapporteurs, a senior rapporteur and a Scripps graduate student. The final session was comprised of two plenary talks, summary presentations by the graduate rapporteurs, a panel discussion, media response, and closing remarks by Jeremy Jackson. An additional session on the evening of the second day, by filmmaker Randy Olson, discussed the issues he has faced in bringing the shifting baselines concept to the public's awareness via film. On Saturday evening, a book signing event featuring the many authors in attendance at the conference was held at a private home for the donors to CMBC and the Shifting Baselines campaign.

Several themes emerged from the conference.

- 1) History provides an essential frame of reference to measure change and shows us how our "baselines" for what is natural have shifted from one generation to the next. There was much

discussion about the role of anecdotal information and the distrust of qualitative information by many scientists. The response is that a single observation may be just an anecdote, but hundreds of observations are data that can be analyzed rigorously. Many also worried about the concept of baselines as too static because nature is always changing, but it was generally accepted that the range of natural variation before severe human impacts was much less than subsequent change.

- 2) The last point was the basis for general consensus about the magnitude of human disturbances and changes in ecosystems and the need to act immediately, even though more research is needed to fully understand the changes that have occurred.
- 3) The idea that it should be possible to restore ecosystems to their pristine or baseline state was widely recognized as naïve because human population growth and environmental impacts seem irreversible, and also because some important components of the ecosystem are gone or ecologically extinct. Their recovery would take decades to centuries. In addition, the trajectory of recovery is unlikely to trace exactly the trajectory of decline. Thus history tells us where we came from but not necessarily where we are going regardless of the scale of efforts to reverse declines. If nothing else, history tells us about the possibilities and gives us ecological expectations.
- 4) Daniel Pauly used Barbara Tuchman's book "The March of Folly" to highlight the systematic failure to regulate the extraction of marine resources that has continued at a scale that is demonstrably unsustainable. Success stories were notable in their absence although this needs to be followed up. "Business as usual" has almost entirely failed to result in responsible policy and new approaches are essential or the resources will disappear in only a few decades.
- 5) There was considerable discussion about new approaches to governance and the tragedy of the commons on the high seas. But there was also a strong sense that much more is required to communicate these challenges more effectively and to develop a sense of what is to be gained or lost, as Bonnie Becker summed up eloquently in the final graduate student rapporteur report. These last two themes spill over into next year's conference "Marine Biodiversity in the Future."

There were strong links throughout the symposium to the HMAP Program of the Census of Marine Life. These included Jeffrey Bolster's plenary talk about his and Andy Rosenberg's HMAP funded project on the history of 19th century cod populations compiled from remarkably detailed New England logbooks. Tim Smith also presented a panel talk about his work on historical populations of whales that is central to the renewed controversy about pristine abundances of whales based on Steve Palumbi's genetic work. Enric Sala presented a plenary on his HMAP related work with Jeremy Jackson on reconstructing historic food webs and their relevance to management. Five HMAP summer course students attended the conference and most of them presented posters. Andy Rosenberg combined his management experience and historic perspective gleaned from HMAP in important ways throughout the discussions in ways that clearly demonstrate the revolution in perspective that has emerged from serious consideration of the past.

We worked closely with Nancy Baron from Seaweb to explore ways of communicating the goals and achievements of the conference to a broader public audience. Nancy helped to organize the final afternoon discussion and acted as moderator. She also organized a special session for media response to the conference provided by David Malakoff from Science magazine and independent journalist Colin Woodard, both highly respected for their coverage of ocean issues. Malakoff and Woodard presented mock newspaper and radio coverage vignettes of the conference that crystallized for many the challenges of stepping out of the ivory tower. This session was especially popular among the younger participants and is a first step in the increasing attention to communication skills to be fostered by CMBC through the IGERT program and at the next KUU meeting. In addition, Randy Olson fielded questions about the Shifting baselines Media Campaign that he directs in collaboration with Jeremy Jackson, and the public reaction to new approaches to broadcasting environmental issues to the general public.

We received many written thanks and comments about the meeting almost all of them very positive. Clearly, our greatest accomplishment was getting historians, social scientists, scientists, and managers to listen to each other and to try to incorporate their widely different perspectives into a more integrated view of how ecosystems have changed and the role of people as permanent members of those ecosystems as well as agents of change. Comments like: “I had a wonderful time, learned tons, and thought it was one of the best such gatherings I have ever been to.” (Paul Dayton, biologist, SIO). “I cannot recall when I have so enjoyed and been so stimulated by a conference. Thank you for the ideas and organization which made it so successful.” (Richard Hoffman, historian, York University). “I also think the proceedings will be very important to Congress and all of us involved in these issues.” (Douglas Demaster, Director, Alaska Fisheries Science Center, NOAA). “What I liked best was your round-up of an eclectic group of people from many disciplines all thinking about similar things. The presence of the press as real participants, not just observers, was an important dimension, as was the participation of grad students.” (Jeffrey Bolster, historian, HMAP – University of New Hampshire).

Another measure of developing interdisciplinary perspective is evident in links that were established between conference participants from different disciplines. For example, Rashid Sumalia, an economist at the University of British Columbia, Ratana Chuenpagdee, a natural resource management specialist and author of the “Shifting Gears” study, and Lorenzo Rojas Bracho, director of the marine mammal program at National Institute of Ecology in Mexico, were already talking about a collaboration to establish socio-economic alternatives for the fishing communities of the northern Gulf of California where artisanal gillnet fisheries threaten to drive a critically endangered small porpoise to extinction. The conference also provided an important framework for a Smithsonian/Scripps workshop held in Panama three weeks later on the implications for coral reef policy and management that emerge from historical perspective. Most of the participants at the Panama workshop attended the KUU conference, and a manuscript has been written to submit to the Policy Forum section of Science magazine. Another collaboration that emerged from last year’s conference, but that benefited from this year’s as well, is the working group on marine ecosystem function at the National Center for Ecological Analysis and Synthesis (NCEAS) organized by Enric Sala and Boris Worm that met right after the KUU conference.

Graduate student participation was excellent. Nearly 40 graduate students from Scripps, UC San Diego, California State Universities at San Diego, Los Angeles, and Fullerton, Boalt School of Law, University of Washington School of Law, University of Arizona, University of New Hampshire, University of Southern Denmark, and Peru attended the conference. All student costs were covered. We hosted a student poster session on Sunday and, on Monday, coordinated affiliation tables for graduate students and invited speakers on various subjects such as fisheries, policy, and how to publish in environmental history. The graduate rapporteur presentations were a highlight of the conference. Their increasing ability to move easily between the social and natural sciences and to communicate these links effectively is perhaps the most encouraging outcome of these conferences.

In retrospect, we successfully addressed the three greatest weaknesses of the conference last year. We posed questions to our panels that could be addressed in a single session, we took better efforts to train the moderators to stay on topic and guide the discussion, and we rearranged the agenda so that each panelist had more time to speak. There was also less tension this year between those wanting to stick to the agenda of the meeting and those wanting to come up with a clear outcome or action plan. As always there were problems of diversity, including more plenary and panel presentations by members of the private sector, women and minorities, young people, decision makers and from developing countries, etc., which we will continue to work on for the next conference.

Products of the Conference

Jeremy Jackson is preparing a formal proposal to the University of Chicago Press for publication of the conference proceedings. Christie Henry, Senior Editor at the University of Chicago Press is enthusiastic about the project and wants to publish the book. The basic format is based on the Dahlem Conference volumes with a combination of six plenary paper chapters accompanied by five chapters synthesizing the panel discussions, and a concluding synthesis chapter of the entire conference. Jeremy Jackson will be the lead editor. The timeline is to receive manuscripts of all the chapters by mid February 2004 with the goal of submitting the entire manuscript to UCP in late April or May. If we turn these around quickly, the final book could be in the hands of UCP by September 2004.

The PowerPoint panel presentations and conference report are available on our website (<http://cmbc.ucsd.edu>).