First Meeting of the U.S. National Committee for the Census of Marine Life
Scripps Institution of Oceanography, La Jolla, CA
10-11 December 2002

MINUTES

Attendees

Members:
Dr. Sylvia Earle, Conservation International
Dr. Daphne Fautin, University of Kansas
Dr. Daniel Finamore, Peabody Essex Museum
Mr. Tom Fry, National Ocean Industries Association
Dr. Nancy Knowlton, Scripps Institution of Oceanography
Dr. Clarence Pautzke, North Pacific Research Board
Dr. Shirley Pomponi, Harbor Branch Oceanographic Institution
Dr. Michael Roman, University of Maryland
Dr. George Sedberry (for Dr. Paul Sandifer), South Carolina Department of Natural Resources
Mr. Bill Shedd, AFTCO Manufacturing Company

Others:
Dr. Barbara Block, Stanford University
Ms. Penny Dalton, CORE/ Secretariat
Dr. William Fox, National Marine Fisheries Service
Dr. Sue Morra, CORE/ Secretariat and St. Francis University
Dr. Ron O'Dor, CORE/ Secretariat
Dr. Andy Rosenberg, University of New Hampshire
Dr. Karen Stocks, San Diego Supercomputing Center
RADM Richard West, CORE/ Secretariat
Dr. Boris Worm, Dalhousie University
Ms. Kristen Yarincik, CORE/ Secretariat

I. Welcome

RADM Richard West opened the meeting by welcoming the Committee members. He provided an introduction to CORE and the programs it manages. He stressed the importance of having a U.S. Committee for the Census of Marine Life and offered recommendations for a successful Census, including a shared common database that uses common spatial and temporal references. He also made several points about the relevance of the timing of establishing the Committee, such as the upcoming final reports of the Pew Oceans Commission and the U.S. Commission on Ocean Policy. The U.S. Ocean Commission interim report indicated that biology must be part of the integrated ocean observing system; RADM West believes the Census should be that biology component. The final Commission report is due June 2003 and will be reviewed by all of the States. RADM West also stated that the success of the National Oceanographic Partnership Program (NOPP) is extremely important to the success of the oceanographic community of the whole. He requested that the Committee support and take advantage of it.

II. Current goals, schedule, strategy and status of the global Census

Dr. Ron O'Dor provided an overview of the Census of Marine Life program, including the rationale behind its establishment and explanations of the various program components and projects.

III. U.S. perspectives on projects already underway

Several investigators presented overviews of current Census projects. Dr. Andy Rosenberg presented the History of Marine Animal Populations (HMAP), an interdisciplinary program to uncover and interpret historical time-series data on marine populations around the world, and described several of the regional case studies. He also mentioned the international HMAP Centers at the University of New Hampshire (run by himself), Southern Denmark University (led by Dr. Poul Holm) and the University of Hull in the United Kingdom (run by Dr. David Starkey). One of their primary tasks is to train biologists, historians, ecologists and others in the study of Marine Environmental History.

Dr. Rosenberg next described the Gulf of Maine field project, led by Mr. Evan Richert (University of Southern Maine) and Dr. Lewis Incze (Bigelow Marine Laboratory). This project will utilize and integrate a variety of technologies to identify and carry out the science required for regional ecosystem-based marine management. This project stimulated discussion on the application of this approach in other ecosystems, primarily the Gulf of Mexico, and the need for partnering with industries with a stake in the resources of the region.

Dr. Barbara Block provided an overview of the Tagging of Pacific Pelagics (TOPP) field project, which utilizes electronic tags to track large marine predators such as tuna, sharks, sea lions, seals, sea birds, squid and turtles. This multi-species approach results in a greater picture of the ecosystems in which the animals co-exist and how they use their environments. Dr. Block identified difficulty in securing further foundation funding as an important reason to seek increased government interest and support. She concluded with the conservation corridor project in Central America currently under development to use TOPP methodology. RADM West commented that it is essential to show the federal government why this program is an important investment, which can be done by presenting an organized data management system that will become part of the national data architecture. Mr. Bill Shedd noted that this program also has benefits to commercial and recreational industries.

Dr. Boris Worm described the goals of the recently established Future of Marine Animal Populations (FMAP) component of the Census. This project will utilize and integrate computer models to standardize and interpret biological and biodiversity data, as well as predict future populations by taking into account global fishing effort, climate change and extinction. Models will be developed to help analyze and synthesize the varied data types collected by the Census, such as movement data models and multi-species and food web models. He provided results from such models that have been run on movement data and catch data.

Dr. Karen Stocks gave an overview of the Ocean Biogeographic Information System (OBIS), the component of the Census that will house all data from Census projects. In addition to the Census data, OBIS is a federation of species-level, geo-referenced databases that exist and are maintained separately but are commonly formatted and searchable through the OBIS portal. Data can be searched by species name, common name, or geographical location. Users may retrieve raw data, maps and source information. The portal is improving its search functions and developing quality descriptions for the data. They are also working on linking data types other than taxonomic, such as environmental data, and providing better analytical and visualization tools. Sustained funding to link/collect data as well as to build and maintain the portal architecture is a major concern. Dr. Fautin noted that there is an up front cost to collecting biological data, and the first step may be to focus on recruiting the existing data, which will be significantly less expensive. This stimulated discussion on how OBIS must fit into the ocean observing system and national data architecture, and how it can support national priorities, such as homeland security. The Committee must make this case for the Census by showing that existing programs are missing this essential biology component. The Committee suggested that it would be useful to add one or two computer programming, visualization or software experts to the membership to help address these issues and clarify the needs. RADM West stated that the biological community must align itself with the physical and chemical communities and approach Congress with a unified voice, as that is the only way to successfully develop the integrated ocean observing system the way it should be.

IV. U.S. National Committee overview

Ms. Penny Dalton described the process by which the U.S. National Committee was formed and how it fits into the overall organization structure of the program. Members may assign alternates to attend in their places, but it is requested that only one alternate, with similar expertise, be assigned. New members may be invited as need arises.

Ms. Dalton provided an overview of the Committee's mandate, stressing the need to maintain the focus and criteria established by the international Scientific Steering Committee. The Census is not policy driven research, but must be policy relevant. It is not meant to be a monolithic federal agency program but a partnership across sectors. It is not an initiative that requires all new money but should take advantage of and coordinate with existing activities. Ms. Dalton identified the management, conservation and other applications and benefits of the existing projects, which the Committee should consider when determining U.S. priorities and strategies.

A table of regions and habitats illustrated some of the missing elements that the Committee should help develop in the U.S. It is estimated that $1 billion in funding is required to perform the Census in all regions and habitats globally. The recommended task for the Committee is to examine existing federal programs and build on those that are appropriate. Unfortunately, the availability of new funds is currently low, as many federal science programs are experiencing budget cuts. The federal funding process is also an obstacle, as budgets are already finalized through 2004. A funding table provided current U.S. funding to the Census by source.

Dr. William Fox commented on the establishment of the Census and its relevance to the efforts of the National Marine Fisheries Service. NMFS currently provides in-kind support to the

Census through scientists working on the various projects and is interested in partnering to continue to provide support. It provided direct funding to establish the U.S. National Committee. The Committee's task now is to help agencies get more money in their budgets to support Census activities, as well as to inform agencies on U.S. priorities. Dr. Fox mentioned that other areas of the National Oceanic and Atmospheric Administration (NOAA) might provide opportunities for the Census, such as the Ocean Exploration, Coral Reef, and National Marine Sanctuary programs. The Office of Ocean Exploration has already funded expeditions for Census research and has a call for proposals out now, with pre-proposals due December 16, 2002. Dr. Fox reiterated RADM West's point that a biology component must be included in the ocean observing system. There is ship-based work proposed in the ocean observing plan, but does not currently include biological observations beyond carbon flux.

Ms. Dalton provided examples of potential sources of funding in other federal agencies, private foundations and industry, such as the National Science Foundation's programs in Biodiversity Surveys and Inventories and Information Technology Research. The Office of Naval Research has primary responsibility for the National Oceanographic Partnership Program, which has partnered with the Sloan Foundation in the past to fund Census research, in particular OBIS databases. Mr. Tom Fry mentioned that the Department of Energy has funding available if we can identify energy-related applications from the Census. The U.S. Geological Survey has a biological research division that may not immediately come to mind, and this may also be true of other agencies. Private foundations and industry are another source of funding to the Census.

Ms. Dalton presented draft legislation that establishes a ten-year interagency research program on marine biodiversity with an annual authorization of $50 million. This can be proposed as part of a National Oceanographic Partnership Program reauthorization bill or another relevant bill. The Committee will review this draft legislation and provide comments before the Program Office moves forward with it.

The question was raised as to the point at which a relevant project officially becomes a Census project. This takes the endorsement of the international Scientific Steering Committee. Therefore, it is important to maintain the focus of the international program when developing U.S. projects and components. One thing the Scientific Steering Committee looks for in a potential project is its applicability in other regions. Projects should be designed so that they have the potential to expand.

V. Challenge to the Committee

Dr. Daphne Fautin, Committee Chair, presented the issues and challenges that the Committee must face, for example, leading the scientific planning for a U.S. program and convincing the public and funding agencies that this is important. The Committee must determine what the national priorities should be and develop the strategy to accomplish them. Funding issues, Committee organization, outreach and coordination must all be addressed.

The first step should be to identify short-term tasks that will take little effort but provide great returns to jump-start the program. The launch in Washington DC on October 2003 is a logical date for which to aim. The launch will be held at the Smithsonian Museum of Natural History.

Next, the Committee must determine the long-term goals and the ultimate legacy for the U.S. Census. It was agreed that OBIS is this legacy, and should be promoted and entrained in the federal funding programs as it will require the most sustained funding. It was estimated that OBIS development (populating the database) would require approximately $10-12 million over the next ten years.

Since the tasks at hand are large, organizing subcommittees to perform individual activities was suggested. Possible subcommittees included: Launch; Finance; Publicity; Legislative; Technical/New Technologies; Collections/Specimens; and Speakers to promote the program around the country.

The Committee must determine the frequency and types of meetings and visits (i.e., with policy makers) that would be useful to them. The Secretariat will provide a CD of a standard PowerPoint presentation and other useful information to aid them in speaking on the program.

VI. Discussion: Vision and national priorities for U.S. Census

The Committee held an open discussion to begin to identify potential priorities for the U.S. Census. Dr. Earle expressed the need to inform the public of the essential role of marine life on the other global cycles. The Committee must make clear that understanding the nature of marine species will help us understand the inevitable impacts their depletion will have on humans.

The Committee discussed the name "Census of Marine Life," and suggested the addition of a tagline to make it more publicly appealing as well as more indicative of the outcomes. It is more than a taxonomic inventory of the oceans.

Technology development and utilization should be a major priority of the program. Dr. David Farmer leads the Working Group on New Technologies to Observe Marine Life, which is available to projects to advise them on potential and appropriate technologies to meet their goals. The Secretariat will distribute the Working Group's Annual Report to the Committee. It was suggested that the Census become a clearinghouse for information on and standardization of techniques.

It was noted that the social sciences should be engaged. For example, the Census might work toward defining the economic value of ocean ecosystems and the services and resources they provide. This can be done by entraining resource economists into projects such as the Gulf of Maine. The Committee agreed that a global accounting of the species in the oceans and the goods and services they provide has not been effectively taken on. It was suggested that this could be either a separate project that crosscuts (includes elements for/from) the existing projects or an additional component area, such as FMAP. HMAP in particular would benefit from economic analyses.

The question was raised whether globalization and capacity building should be part of the vision in the U.S. Should the U.S. program support developing countries in dealing with issues of

climate change, coral habitats, etc., since many of the areas where these issues are most prominent are areas where there is no capacity to deal with them?

VII. Discussion: Organizing the Vision; developing a strategy

Ultimately, knowing that a complete Census too large a task to accomplish in a decade, the Committee must determine what it is possible to accomplish in the next ten years.

It is important to expressly state the benefits of the Census to commercial industries such as fisheries and oil and gas. The standardized and shared dataset was identified as a major selling point, as the data is objective but applicable to many of the different needs of the sectors. A comprehensive inventory in a single dataset is a major step forward for the community, providing information for sound decision-making. A photo inventory would also be extremely useful for the public interest side.

Some members felt the Ocean Commission's recommendations would include a movement toward ecosystem-based management. This might be a "hook" for the commercial fishing community. Dr. Fox stated that NMFS interest in the Census is to gain some support for management decisions, and that it will bring more attention to the NMFS requirement to assess ecosystems.

The Committee agreed that the program should focus on issues as well as habitats. They will examine existing projects and extract the common issues that can be applied to other regions, ecosystems, etc. For example, the Gulf of Maine approach can be replicated in the Gulf of Alaska and the Gulf of Mexico.

The Committee discussed other potential studies that cross regions. Studies of the "twilight zone" (oxygen minimum zone), genetics, and marine microorganisms, in the water column and those that live symbiotically with other organisms (i.e., how they relate to human health, water born pathogens, etc.) were among the suggestions.

The Committee will develop a one-page brief to the Ocean Commission on issues addressed by the Census. This will be written in such a way as to provide them with appropriate language should they choose to include it in their recommendations. The Committee agreed that the following issues were important to address in the brief:

- ocean observations and the need to include biological surveys/observations/data
- the need for a common shared database (OBIS), compare it to GenBank or other comprehensive digital libraries

VIII. Planning a workshop

The Committee is obligated to host a biodiversity workshop some time in spring to summer 2003. It is proposed as a 45-attendee meeting, and the Committee may invite whomever they feel will help identify priorities and shape the program and strategy. The Committee agreed the best time to hold this workshop would be late July. This will be soon after the release of the U.S.

Ocean Commission report and in time to prepare for the launch in October. The Secretariat will circulate potential dates and locations for approval by the Committee.

Dr. Michael Roman suggested that the biodiversity workshop be used to obtain community input. The report from this workshop could then be taken to funding agencies, like the National Science Foundation, whose programs and priorities are community driven.

It will be important to invite people who can address ideas for new projects, such as economists and geneticists.

IX. Outreach and education activities, Census public launch, website walk

The Committee discussed activities that might become part of the outreach efforts in the U.S. It was suggested that outreach efforts include entraining groups like the Great American Fish Watch, through which skilled amateurs compile lists of fish that can be of tremendous use to the Census.

The Committee also discussed the public launch event to be held October 2003, and brainstormed potential keynote and panel speakers. Farooq Azam, a microbe specialist from Scripps who attended the KUU meeting, was suggested a captivating speaker for a launch panel.

Ms. Kristen Yarincik provided a live demonstration of the CoML Website.

X. Discussion: Implementing the Vision; next steps

The Committee discussed the first steps in implementing the U.S. program – "low-hanging fruits." Ms. Dalton suggested making visits over the next 2-3 months to the federal agencies to discuss potential cross-over issues and attempt to influence their budgets. With a suggested goal of $50 million and a recognition that more will be needed, some concern was expressed that we would not be shooting high enough to aim for that amount. The Committee will gather more information about programs and potential sources of funding and determine a more appropriate funding goal based on their findings.

Committee members should commit to doing some of these visits with CORE. It will also be important to visit environmental agencies, industry, sport and commercial fishing groups.

Dr. Pomponi made the point that we need scientific community buy-in and just putting our label on a variety of different projects may not be the way to get it. She made the analogy of the Ocean Exploration office. Co-funding will be important to both the scientific community and the funding agencies. The national program will have to raise money for co-funding and leverage. A small amount of money to ensure data formatting and availability in OBIS was suggested as a good starting point for legitimate partnerships. We should identify sources for potential cost-sharing or leveraging.

The Committee will use the July workshop as a community forum to provide input on existing activities, potential funding opportunities, and potential new projects. This information will be

used to develop the national program plan, which should be published in time for the October launch event.

Dr. Earle suggested the Conservation International's "Defying Ocean's End" conference in June 2003 as another milestone point and opportunity to promote the Census. Prior to that conference, the Committee would need to determine its position within the whole of global marine biodiversity conservation.

Longer term goals will be to approach Congressional members, as it will be necessary to have the vision and plan well organized and clearly defined, identifying the ten-year products and outcomes, before this can be done.

XI. Rules and procedures for the Committee (*see attached Statement of Task*), including goals, terms of service, adding new members, conflict of interest

A draft charter was distributed to the members. Committee members review this document and provide comments to the Secretariat, who will revise as necessary and resubmit to the Committee for final approval. As part of this process, Committee members should inform the Secretariat of their commitment levels (2 or 4 years) in order to draft a membership rotation schedule.

Some procedural issues were discussed. The Committee agreed that a quorum be required to establish any official votes. Further, once a quorum is established at a meeting, votes will be official regardless whether members are present for the entire meeting.

Due to the heavy schedules of the members, it was suggested that meetings be scheduled for one day, but perhaps include an overnight stay for further discussion.

The Committee discussed areas in which they feel expert representation on the Committee would be of benefit. These included:

- Data management and/or technology, such as someone from ESRI, MBARI or the U.S. Navy
- Commercial fisheries
- Resource economics
- Ecotourism (this could be taken on by an economist)

The members will provide names of specific individuals to the Secretariat. The Secretariat will then distribute the full list of nominations to the Committee.

XII. Summary and future meetings

The Committee will meet prior to the July workshop to complete the development of the U.S. vision. April was identified as an ideal time, following the release of the Pew and U.S. Ocean Commissions' reports. The Committee will invite the U.S. members of the international Scientific Steering Committee to attend.

Action Items

Committee:

- Provide to Secretariat corrections and/or additional information to your bios and contact information
- Inform Secretariat of your availability in April 2003 for next Committee meeting
- Inform Secretariat of your availability in late-July / mid-August for U.S. workshop
- Let Secretariat know on which subcommittees you would like to participate
- Inform Secretariat of groups, organizations, agencies with you would like to visit over the next 2-3 months
- Prepare list of invitees to July workshop
- Prepare 5000-word manifesto – by the October launch

Secretariat:

- Distribute SCOR annual report to USNC
- Email dates and location for an April meeting (once we know Committee availability)
- Email dates and location for a late July-early August workshop (once we know Committee availability)
- Distribute subcommittee possibilities to Committee, so that they may volunteer for those that interest them (Important ones will be Launch, July Meeting/Forum, Developing the Plan/Manifesto)
- Create and distribute CD of presentations and other information from this meeting to USNC
- Assemble a list of what visits, briefings have already been set up and distribute to Committee, so no overlap or redundancy
- Assemble matrix of people contact in the different sectors and distribute to Committee
- Based on Committee input, organize visits with organizations, agencies, NGOs
- Prepare 1-page brief to the Ocean Commission