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Before the

Subcommittee on Oceans, Atmosphere, Fisheries, and Coast Guard

Committee on Commerce, Science and Transportation

United States Senate

Wednesday, November 4, 2009

Thank you Chairwoman Cantwell, Ranking Member Snowe, and members of the Subcommittee for convening this oversight hearing at such an important juncture, and for inviting me to testify. My name is Dennis Takahashi-Kelso, and I am Executive Vice President of Ocean Conservancy.

My career in public service includes diverse roles in natural resources management and environmental protection over several decades, much of it in Alaska. As Alaska Commissioner of Environmental Conservation, I was responsible for pollution control and environmental health regulation, including oversight of seafood safety for the seafood industry. When the tanker *Exxon Valdez* ran aground, I enforced the state's oil spill clean-up standards. I also served as Alaska's Deputy Commissioner of Fish and Game; Director of the Alaska Division of Subsistence; Chair of the Alaska Emergency Response Commission; and member of the Alaska Coastal Policy Council. More recently, my doctorate in Energy and Resources (University of California, Berkeley) led me to teach and conduct research as a member of the Environmental Studies faculty at the University of California, Santa Cruz; and I subsequently served as the fisheries conservation program officer for The David and Lucile Packard Foundation.

The Urgent Need for Action

The ocean is essential to the health of every living thing. It is the life support system for our planet. Regardless of where we live, it gives us much of the food we eat, the water we drink and the oxygen we breathe. In his June 12 memorandum, President Obama noted that our oceans, coasts, and Great Lakes play critical roles in our nation's economic well-being and national security. The President also observed that we have a stewardship responsibility to maintain healthy, resilient, and sustainable oceans, coasts, and Great Lakes resources for the benefit of this and future generations. Too often, we have failed to meet this stewardship responsibility; and the challenges we now face are daunting.

The single greatest and most pervasive threat to our ocean is posed by climate change. As the engine that drives our planet's climate, our ocean is on the front lines of the global climate challenge. It absorbs half of the carbon dioxide emitted into the atmosphere and more excess heat from greenhouse gases than all rainforests combined. Indeed, the ocean is the unsung hero in this battle. But it is also the most vulnerable victim. We already have begun to see the effects, including melting ice, rising sea levels, and extreme weather events. We have seen harmful changes to marine wildlife populations. For example, conservative predictions show that if the Arctic ice cap continues to disappear, two-thirds of all polar bears will be lost by 2050. Even the tiniest organisms will be affected as the ocean grows more acidic, compromising productivity and jeopardizing the food web. On average, the ocean is a degree warmer than it was a century ago. Another two degrees is likely to devastate many coastal communities, kill most of the world's coral reefs, and result in mass extinctions of marine life.

Added to the overarching threat posed by climate change are the additional perturbations caused by our multiple uses of the ocean, from overexploitation to coastal pollution.

These are not theoretical or future problems: the stresses on our ocean and coastal ecosystems are well-documented and a crisis today. To give one of many current examples, Madam Chairwoman, in your home state scientists are currently reporting the longest lasting and largest harmful algal bloom ever recorded in the region, resulting in mass mortality of seabirds unprecedented in Washington state waters. Harmful algal blooms can damage human health, as well, such as Washington's subsistence communities that rely on shellfish (Lefebvre and Robertson, in press). In a recent *Seattle Times* article (October 30, 2009) on the algal bloom, oceanographer Vera Trainer is quoted as saying that "the ocean is trying to tell us something."

While a specific link between this algal bloom and a warming climate is not clearly established, there is no question that carbon emissions and climate change are causing an array of problems in the marine environment. Perhaps most overwhelming and pervasive is ocean acidification, which was one of the primary subjects explored in this subcommittee's May 2008 hearing on "The Effects of Climate Change on Marine and Coastal Ecosystems in Washington."

But the ocean is not only the victim of climate change, it also can be part of the solution. A healthy and resilient ocean can continue to perform its key climate regulation functions and continue to provide us with all of the goods and ecosystem services we need to survive. A healthy and resilient ocean also can be a source of renewable energies that can increase the nation's energy independence and decrease use of fossil fuels. President Obama has made clear that increasing energy independence tops his priorities. He recognizes that as a potential major source of renewable energy, the ocean has a role in achieving these goals, and many states are working creatively to take the lead in developing ocean-based renewable energy.

The ocean is already an economic engine for our country. In 2003, ocean-related economic activity contributed more than $128 billion to American prosperity and

supported well over 2.2 million jobs. Roughly three-quarters of the jobs and half the economic value were produced by ocean-related tourism and recreation, sectors that rely on healthy oceans. Currently more than $1 trillion, or one-tenth, of the nation's annual gross domestic product is generated from the coasts (National Ocean Economics Program 2004). Harnessing the ocean's renewable energy resources, if done carefully, will create jobs and grow the nation's economy (see attached report on Offshore Alternative Energy Economics (Kildow and Colgan 2009)).

The ocean must be healthy and resilient to continue to support the current level of economic and other activity and to meet the promise of renewable energy and other uses. Today's ocean, coastal, and Great Lakes ecosystems face an era of unprecedented activity. Wind farms and other energy facilities, diverse recreational uses, offshore drilling, shipping superhighways, sand and gravel mining, commercial fishing, and aquaculture facilities are all competing for what once seemed like boundless space. Novel uses, such as wave energy and offshore aquaculture, or even combined energy-aquaculture projects, present economic opportunities, but will also result in new demands on ocean ecosystems, which are limited, fragile, and already under stress (Halpern et al. 2008). In order to maximize the benefits the oceans provide, both ecologically and economically, we need a strong, clear national policy; and then we need a rational process to address multiple management objectives consistent with that policy (see Kappel et al. 2009 and Turnipseed et al. 2009).

The Interagency Ocean Policy Task Force

Our oceans, coasts, and Great Lakes are currently governed by more than 140 laws and 20 different agencies, each with different—sometimes conflicting—goals and mandates. Numerous commissions and experts have identified the need for a unifying national policy for oceans, coasts, and Great Lakes.

We commend President Obama and his administration for moving so quickly to establish a coherent national ocean policy and a Task Force that will provide leadership and facilitate coordination as we begin to address these challenges in a focused and consistent way. In his proclamation establishing National Oceans Month, the President put it this way:

> [W]e are taking a more integrated and comprehensive approach to developing a national ocean policy that will guide us well into the future. This policy will incorporate ecosystem-based science and management and emphasize our public stewardship responsibilities. My Administration also is working to develop a systematic marine spatial planning framework for the conservation and sustainable use of ocean resources. I am committed to protecting these resources and ensuring accountability for actions that affect them.

One of the President's specific charges to the Task Force is to "prioritize upholding our stewardship responsibilities and ensuring accountability for all of our actions affecting ocean, coastal, and Great Lakes resources."

The Interagency Ocean Policy Task Force has worked tirelessly under the leadership of Chairwoman Sutley to advance the President's vision and to do so very quickly. The June 12 presidential memorandum mandated a very ambitious timeline for the work of the Interagency Ocean Policy Task Force, but that has not prevented Task Force members from engaging in an admirably transparent and inclusive process as they have moved forward.

Six public listening sessions have been convened around the country, and thousands of members of the public have expressed their views directly to Task Force members. The 90- and 180-day mandates in the presidential memorandum have necessarily required an expedited process, but we believe such decisive action is entirely appropriate given the challenges we face. Too often the opposite has been true: indecision, delay, and inaction have left the oceans and coasts as victims of policy inertia.

An Oceans, Coasts, and Great Lakes National Policy

Many members of the environmental community submitted joint recommendations to the Task Force for the adoption and implementation of an oceans, coasts, and Great Lakes National Policy. I have attached them in full at the end of my testimony. As those recommendations note, protection, maintenance, and restoration of ecosystem health must be the core focus of a national policy to meet the needs of present and future generations. We believe that ecosystem-based management is the best way to achieve this objective.

According to a consensus statement of more than 220 scientists and policy experts, "[Ecosystem-based management (EBM) is] an integrated approach to management that considers the entire ecosystem, including humans. The goal of ecosystem-based management is to maintain an ecosystem in a healthy, productive and resilient condition so that it can provide the services humans want and need. Ecosystem-based management differs from current approaches that usually focus on a single species, sector, activity or concern; it considers the cumulative impacts of different sectors" (McLeod et al. 2005, p. 1).

The Task Force's September 10 Interim Report highlighted many of the key elements of a national policy. It called for a precautionary, ecosystem-based management approach, based on the best available science, and adaptive management based on clearly stated goals, objectives, and benchmarks. We support the Interim Report's national priority objectives, including the areas of special emphasis, recognition that targeted work is needed at the regional level, and acknowledgement that the United States must show leadership at the international level to achieve ecosystem and resource health goals.

One area singled out for special emphasis is the Arctic. Temperatures in the Arctic are rising almost twice as fast as on the average for the rest of the planet, causing water temperatures to climb and the area of seasonal sea ice to shrink. The loss of sea ice

exceeds the rates predicted by climate models, and scientists predict that the Arctic Ocean will be one of the first regions to feel the effects of increased ocean acidification. The Interagency Ocean Policy Task Force recognized the need to address changing conditions in the Arctic as a national priority objective. We endorse the Task Force's recommendation to develop a strategic action plan for the Arctic to help address those challenges in a proactive manner.

The Task Force's proposed National Ocean Council is intended to ensure better interagency cooperation on policies that affect our oceans and coasts. To that end, the conservation community has submitted a number of specific recommendations to the Task Force, which I have also attached for ease of reference. These recommendations range from clarifying the definition of ecosystem-based management to improving representation on the Ocean Research and Resources Advisory Panel. We specifically underscore the recommendation for principal National Ocean Council membership for the Administrator of the National Oceanic and Atmospheric Administration.

Coastal and Marine Spatial Planning

Marine spatial planning (MSP) is a tool that can accomplish ecosystem-based management. Researchers have defined MSP as "a public process of analyzing and allocating the spatial and temporal distribution of human activities in marine areas to achieve ecological, economic, and social objectives" (Ehler and Douvere 2009, p. 18). MSP can help promote sustainable economic development by providing predictability, saving costs, and reducing conflicts, with concomitant ecological benefits. A number of states, as well as other countries, have used MSP successfully, and incorporating it into the national ocean policy is a positive step. We commend the President for charging the Task Force with development of a framework for MSP, and congressional leaders like Senator Rockefeller and yourself, Madam Chairwoman, for recognizing its potential to transform ocean governance.

MSP does not supplant existing management authorities for sectors like fisheries, transportation, and energy; instead, it coordinates and integrates decision-making across sectors and among government entities to improve institutional effectiveness and efficiency. MSP can help achieve better ocean management by providing a practical way to organize marine spaces and interactions among various human uses of the ocean while ensuring that the goal of healthy ecosystems is at the core of planning efforts and management decisions (Crowder et al. 2006).

Marine Spatial Planning Framework

The national ocean policy commitment to ecosystem health should guide the MSP framework. Toward that end, we recommend the following goals:

- protection, maintenance, and restoration of coastal, marine, and Great Lakes ecosystem health—including protection of important marine ecological areas—for current and future generations; and
- to the extent it is consistent with that overall goal, fostering sustainable development that can realize economic opportunities without detriment to ecosystem health.

In addition, national security interests are important considerations in the planning process; and coordination of these activities should be fully integrated in the MSP process.

Ecosystem attributes should serve as the foundation for setting national management objectives for ecosystem health. These attributes include native species diversity, habitat diversity and heterogeneity, populations of key species, and connectivity between species and habitats. Stresses such as climate change, ocean acidification, and water pollution_including marine debris_need to be considered, as well as the underlying geophysical characteristics of the ecosystem.

Because of uncertainty about the effect of these stressors in ecosystems and on the overall health of the oceans, we support the Interim Report statement that "[d]ecision-making will also be guided by a precautionary approach" (p. 14). While science has made progress in understanding how marine systems operate, considerable uncertainty remains, especially with respect to overarching shifts in areas such as climate change and ocean acidification. When an activity, or the cumulative impact of activities, raises threats of serious harm to the environment or human health, a precautionary approach provides a way of accounting for uncertainty. Where there is uncertainty about potential catastrophic disturbances, such as effects of an oil spill or a hurricane, marine spatial plans should provide redundant protections.

Specific recommendations for a governance structure and planning process for the MSP framework are outlined in greater detail in the attached letter from the environmental NGO community on marine spatial planning submitted to the National Ocean Policy Task Force on October 30, 2009. Also attached is a report on Ocean Renewable Energy and the Marine Spatial Planning Process developed jointly by ocean renewable energy interests and conservation groups.

Among the key points, a governance structure for marine spatial planning should utilize the proposed National Ocean Council (NOC) for interagency coordination in order to manage, approve and implement planning, which should be conducted on a regional level. The NOC provides a single point of policy formulation, plan approval, and ultimate accountability.

In order to advance planning on an ecosystem basis across jurisdictional boundaries, the NOC should establish regional ocean councils to plan in partnership with regional, state, and local entities. Among key participants would be Regional Ocean Partnerships, Regional Fishery Management Councils, and Interstate Marine Fisheries Commissions.

Wherever the issues involve other sovereign entities, including tribes and foreign governments, these entities should participate in the planning process. In addition, federal funding should be provided to assist states and tribes in developing marine spatial plans that are consistent with regional and national MSP objectives and contribute to the implementation of the national ocean policy.

The governance structure should also include robust participation of stakeholders and the general public. Their involvement will increase the likelihood that plans reflect people's values, increase social well-being, be viable over the long term, and utilize stakeholders' information and perspectives. In addition to appropriate public and stakeholder participation, transparency is essential to the legitimacy of a marine spatial plan.

The MSP framework should ensure accountability and result in a binding plan. To build such a plan, key actions should include:

- identifying regional planning needs to guide evaluation of options;
- assembling data for analysis and planning;
- conducting ecological and socio-economic assessments and identifying data gaps for each region;
- evaluating compatibility of human activities with each other and with ecosystem health;
- developing marine spatial plans designed to implement national and regional management objectives;
- adopting binding marine spatial plans;
- monitoring, revising. and adapting plans as conditions change.

The Administration and Congress must commit to adequate and sustained funding if marine spatial planning is to be successful. We urge Congress to provide funding for MSP through the appropriations process, and also to consider a sustained source of revenue for long-term funding. This is an investment worth making that will be rewarded handsomely through the more efficient use of ocean resources, and their preservation for future generations.

Capitalizing on the Moment

Madam Chairwoman, our ocean today is in crisis; but President Obama's willingness to lead on ocean policy provides a rare opportunity. The Interagency Ocean Policy Task Force is laying a strong foundation, but it is one on which the Administration and Congress must build in the months and years ahead. Current legislation provides ample authority to establish a national ocean policy and to adopt an implementation framework. In the longer run, though, Congress has a crucial role, both in appropriating funds for policy implementation and in considering new enabling legislation.

Madam Chairwoman, we very much appreciate your convening this hearing, and we look forward to working with the subcommittee on national ocean policy issues. There has never been a more important moment for shaping our nation's ocean future.

References

Crowder, L.B., G. Osherenko, O.R. Young, S. Airame, E.A. Norse, N. Baron, J.C. Day, F. Douvere, C.N. Ehler, B.S. Halpern, S.J. Langdon, K.L. McLeod, J.C. Ogden, R.E. Peach, A.A. Rosenberg, and J.A. Wilson (2006). Resolving mismatches in U.S. ocean governance. *Science* 313:617-618.

Crowder, L. and E. Norse. (2008). Essential ecological insights for marine ecosystem-based management and marine spatial planning. *Marine Policy* 32(5):772-778.

Ehler, C. and F. Douvere (2009). *Marine Spatial Planning: A Step-by-Step Approach Toward Ecosystem-based Management*. Intergovernmental Oceanographic Commission (IOC) Manual and Guides No. 53, ICAM Dossier No. 6.

Halpern, B. S., Walbridge, S., Selkoe, K. A., Kappel, C. V., Micheli, F., D'Agrosa, C., Bruno, J. F., Casey, K. S., Ebert, C., Fox, H. E., Fujita, R., Heinemann, D., Lenihan, H. S., Madin, E. M. P., Perry, M.T., Selig, E. R., Spalding, M., Steneck, R., and Watson, R. (2008). A Global Map of Human Impact on Marine Ecosystems. *Science*. **319**, pp 948 – 952.

Interagency Ocean Policy Task Force (2009). *Interim Report of the Interagency Ocean Policy Task Force*, September 10, 2009.

Kappel, C.V., B.S. Halpern, R.G. Martone, F. Micheli, and K.A. Selkoe (2009). In the Zone Comprehensive Ocean Protection. *Issues in Science and Technology*, Spring 2009.

Lefebvre, K.A., and S. Robertson (in press). Domoic acid and human exposure risks: A review. *Toxicon.*

Mapes, L.V. Algae bloom killing seabirds mystifies researchers. *The Seattle Times.* October 30, 2009. Available at http://seattletimes.nwsource.com/html/localnews/2010165049_birds30m.html.

McLeod, K.L. *et al*., (2005). *Scientific Consensus Statement on Marine Ecosystem-Based Management*. Communication Partnership for Science and the Sea.

National Oceans Economics Program (2004). Market Data: Ocean Economy Data. Accessed 30 July 2009. Available at: http://oceaneconomics.org/Market/ocean/oceanEcon.asp.

Pew Oceans Commission (2003). *America's Living Oceans: Charting a Course for Sea Change*.

Turnipseed, M., L.B. Crowder, R.D. Sagarin, and S.E. Roady (2009). Legal Bedrock for Rebuilding America's Ocean Ecosystems. *Science* **324**, 183.

USCOP (U.S. Commission on Ocean Policy) (2004). *An Ocean Blueprint for the 21st Century: Final Report*.

Attachments:

Recommendations for an Oceans, Coasts, and Great Lakes National Policy, Environmental NGO consensus document.

Comments on the Interim Report, Environmental NGO recommendations on a National Ocean Policy, submitted to the Interagency Ocean Policy Task Force, 10/16/09.

Comments on Marine Spatial Planning, Environmental NGO recommendations on MSP, submitted to the Interagency Ocean Policy Task Force, 10/30/09.

Kildow, J. and C. Colgan. *Offshore Alternative Energy Economics, Report to Ocean Conservancy*. The National Ocean Economics Program, submitted October 15, 2009.

Ocean Renewable Energy and the Marine Spatial Planning Process, report prepared by ocean renewable energy interests and conservation groups and submitted to the Interagency Ocean Policy Task Force.