



EAST - WEST CENTER

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James D. Watkins  
Admiral, U.S. Navy (Retired)  
Chairman  
U.S. Commission on Ocean Policy  
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Dear Admiral Watkins:

I was honored to be asked to make a presentation to the U.S. Commission on Ocean Policy concerning climate related issues in the Pacific Islands when you met in Honolulu in May. My East-West Center colleague Eileen Shea, the lead author of *Preparing for a Changing Climate: The Potential Consequences of Climate Variability and Change - Pacific Islands* has shared with me a letter that she wrote to Senator James Jeffords last March in response to his request for comments on the first U.S. National Assessment of the Consequences of Climate Variability and Change. It highlighted some of the points raised in the first question that you posed and I will borrow from it in my response. In addition, both Eileen and I would be pleased to provide additional information and analysis if it would be helpful in your deliberations.

*During the question and answer session following your testimony, you were asked to provide an assessment of the linkages between current climate-related programs in the Pacific Islands. In addition to this assessment, the Commission would like to ask you to submit information on the need to create and sustain additional regional and international partnerships to share resources and learning.*

With respect to the Pacific Assessment, perhaps the most important recommendation to emerge from the effort was that the Assessment should be a continuing process of research and dialogue with the overarching goal of nurturing the critical partnerships necessary to develop climate information to support decision-making. We have taken this recommendation to heart and are actively seeking resources to address some of the critical research and information gaps identified during the Pacific Assessment process including:

- improving our understanding of climate-related extreme events;
- enhancing Pacific Island efforts to reduce vulnerability to patterns of natural climate variability such as El Niño and, thereby, enhance regional capabilities to adapt to long-term climate change;

- improving our ability to document and model climate processes and consequences on local, island and regional scales;
- developing reliable projections of climate variability and change on various timescales; and
- enhancing our understanding of the consequences of changes in climate on the region's unique ecosystems and natural resources, including the consequences of those changes for critical economic sectors such as tourism, fisheries and agriculture

**A Pacific Islands Climate Information System.** I described, briefly, during my testimony, the Pacific ENSO Applications Center (PEAC). PEAC is already providing ENSO-based climate forecast information that is being used to support decision making in key sectors such as water resource management, health, disaster management and agriculture. PEAC demonstrates how the individual assets of government (the U.S. National Weather Service at the Federal level and various local government agencies in the U.S.-affiliated Pacific Islands) and universities (the University of Hawaii and the University of Guam) can be combined to provide a climate information service whose integrated capabilities are greater than the sum of its parts. The National Weather Service plans to maintain this government-academia partnership as they assume operational responsibility for PEAC and we believe that this model could be used in other regions just as effectively.

Another important lesson learned from the PEAC (and Pacific Assessment) experience is the importance of a multi-disciplinary approach to studies of climate and the development of effective climate forecast applications. Within the University of Hawaii, PEAC involves a partnership between the Social Science Research Institute and the School of Ocean and Earth Sciences and Technology. The close collaboration between social scientists, meteorologists, oceanographers and climate forecasters is part of PEAC's strength and has facilitated the development of forecast applications and services in new areas such as climate and health.

The PEAC experience, similar ENSO-based climate forecasting work being supported through the Samoa based South Pacific Regional Environment Programme (SPREP) have helped lay the foundation for discussions of a Pacific Islands Climate Information System. The concept of such a regional service emerged from a June 1999 meeting co-hosted by the East-West Center and the South Pacific Regional Environment Programme (SPREP). As conceptualized in that meeting, a Pacific Islands Climate Information System would provide a mechanism to coordinate and focus the work of numerous organizations and programs engaged in climate observations, research, forecasting and assessment in the Pacific. Participants in the June 1999 meeting committed to continue the development of such a regional climate information service and the discussions are expected to continue. Many of the ideas that emerged from the June 1999 meeting are now being reflected in discussions of Regional Climate Centers under the auspices of the World Meteorological Organization. Continuing this dialogue and sustaining a commitment to a regional climate information service in and for the Pacific is essential.

Our experience in the Pacific has also demonstrated the importance of establishing and sustaining an effective partnership between the providers of climate information (in the research and forecasting communities) and the users of those climate information products in the public and private sectors. Activities such as PEAC and the Pacific Islands climate assessment have established the foundation for such a partnership but it is now essential to provide the resources required to sustain the dialogue, identify critical information needs and develop new products designed to meet that need. Maintaining this kind of knowledge bridge between science and policy does not require substantial resources but it does demand a sustained, institutional commitment to an integrated scientific and decision support system that will support the development and application of new scientific insights in response to the information needs identified by the governments, businesses, resource managers, public interest groups and communities in the Pacific.

Like our colleagues in other regions, we are committed to securing the resources required to help establish a Pacific regional climate information service – an integrated scientific and decision support system that will support the development and application of new scientific insights in response to the information needs identified by the governments, businesses, resource managers, public interest groups and communities that participated in the Pacific Assessment.

We would, of course, like to see a similar commitment on the part of the U.S. Global Change Research Program agencies that supported the first National Assessment. While we have seen promising indications of continued interest in Pacific Assessment activities within individual agencies such as NOAA and EPA, the absence of a clear national, interagency commitment to sustaining this important regional assessment process is discouraging and unfortunate.

*The Commission is aware that the potential impacts of climate change on human health and societal well-being are enormous. It is apparent that, even as coastal areas continue to be threatened by the impacts of climate change, more and more people are moving to the coast. What is your view on how coastal planning should address this issue? What coastal zone management strategies could be used to mitigate the impacts of climate change.*

In responding to this question, I would like to reinforce some of the specific recommendations that emerged from the Pacific Assessment and then make a more general statement. As noted in my written testimony, participants in the Pacific Assessment suggested a number of ways to enhance the resilience of Pacific Island coastal communities and resources, including:

- *Adopting flexible, adaptive resource management approaches that recognize the dynamic character of coastal and marine ecosystems, provide the capability to adjust to changing conditions and provide for the routine integration of climate information in planning and regulatory processes;*
- *Reduce the risk of economic losses in the critical fisheries sector through innovative approaches such as regional revenue sharing, industry diversification and stock enhancement, including aquaculture and mariculture;*

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- *Pursue integrated coastal zone management principles* to provide a framework for adaptation, engage experts from affected businesses and communities, and coordinate activities and decisions among sectors and across levels of government;
- *Integrate climate information routinely* in coastal management planning and decision-making, for example: coastal managers could use ENSO-based rainfall forecasts to establish conditions for permits in areas subject to floods or mudslides; incorporation of ENSO forecasts in decisions about the timing of restoration projects; integration of climate considerations in design of habitat monitoring programs; and integration of climate information in growth management plans;
- *Control the introduction of invasive and alien species*; and
- *Enhance education and public awareness* programs.

As communities, coastal and inland as well, plan for the future it is imperative that they use all the tools available to reduce the vulnerability and enhance the resilience of their communities and their resources to extreme events including climate variability and change. What communities are, in fact, adapting to are extreme events. We can look to recent developments in the natural hazards community that focus on building resilience and emphasize adaptation. At the East-West Center in collaboration with the Pacific Disaster Center on Maui and regional collaborators such as SPREP and the Asia Disaster Preparedness Center (ADPC, Bangkok) we are developing a program in vulnerability assessment that is integrated across natural and human systems, comprehensive, participatory and responsive and evolutionary in that it allows for continuous integration of emerging scientific insights and tools, new technology and changing circumstances and priorities.

Thank you for the opportunity to present testimony and respond to the additional questions. Both Eileen Shea and I would be happy to respond to additional queries and I would be more than happy to engage other members of our research staff if their expertise would be of use.

Most Sincerely,

Nancy D. Lewis

Nancy D. Lewis  
Director

NDL/lm