

The Planet Ocean Initiative

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Chairman Watkins, Commissioners, Commission Staff, fellow speakers and guests. It is indeed a pleasure for me to share some of my thoughts with you on the opportunities and initiatives in the ocean sciences which we are presented with at this important time in the history of our country.

In your hearings around the country you have heard how important the oceans are to the future of this planet. The societal imperative is clear. We have all heard how the fundamental understanding that comes from ocean exploration offers the potential to:

- Make wise decisions about global warming by filling in our critical gaps in understanding how the oceans regulate Earth's climate.
- Forecast ocean-related climate changes to provide warning of droughts, floods, famines, forest fires, and climate related epidemics like malaria.
- Reduce the impacts of natural disasters such as earthquakes, hurricanes and tsunamis.
- Manage sustainable fisheries and aquaculture.
- Find new offshore oil, gas, and mineral deposits.
- Discover new biomedical and commercial products.
- Protect coastal regions for housing, tourism, recreation and conservation.
- Safeguard the health of marine ecosystems and preserve Earth's biodiversity.
- Improve the speed and safety of shipping.
- Bolster national security and
- Learn how life functions in extreme environments to guide the search for life on other planets.

And, we know of the several important global science programs led by U.S. scientists over the last two decades, such as WOCE, JGOFS, RIDGE, GLOBEC, TOGA/COARE and ODP to name a few, which have positioned us to take a leap in our knowledge in this decade of how the oceans work and to assist us in how we can use them wisely and for the benefit of our society.

Future opportunities are based upon the unprecedented capability to work in three dimensions spatially. JGOFS provided an important two-dimensional look at the carbon/ecosystem problem in several key locations. WOCE made an attempt at a two dimensional, quasi three-dimensional snapshot of the state of the ocean. Both CLIVAR

and the follow on to JGOFS will be fully three-dimensional spatial explorations of the important regional components and finally a global picture of these processes. This is similar to what was accomplished in the GLOBEC/Georges Bank experiment, and is now being done in other regionally important areas such as the Pacific coast, Arctic Ocean, and Antarctica. It involves essentially the ability to sample the important variables on common spatial and time scales.

You have also heard of the several specific science programs being proposed under the umbrella of ocean observatories from the plethora of acronyms for coastal observations, to fixed sites moored to the bottom of the ocean to global ocean climate observatories to floating platforms on and in the sea.

I am not going to review all the excellent plans, which have been laid for these programs. Rather, I would like to share a few of my thoughts on this last subject from the point of view of organizational structure.

I continue to worry that many of these programs are isolated from each other in their approach, objectives, and goals. And, that they are focused on the narrower objectives of the individual facilities themselves and not the broader scientific questions or strategic mission which all the observatories should be addressing. In order to maximize the results and benefits, it is important that, although the facilities may be regional, the intellectual content of these programs must be global in nature and there must be synergy and common purpose to the overall system of observatories.

How are we going to understand what the observations are telling us if we can't put them in the context of the processes governing how the oceans work? We need to remind ourselves that data and understanding lead to models and validation, which then leads to prediction. The predictions from numerical simulations can never be better or more comprehensive than the data used to initialize the model, nor the underlying physical and other processes of the model.

To complicate the issue further, each observatory seeks its own funding, thereby competing amongst the other observatories. In addition, major infrastructure needs for access to the sea, such as fleet renewal, to undertake and sustain many of these observations, are viewed as a separate category also in competition with the observatories themselves. The same is true of very large science initiatives, such as the International Ocean Drilling Program, which are inherently observatories by nature.

A huge amount of effort has gone into creating a plan for a Global Ocean Observing System over the past fifteen years. The problem is that this information is available in a series of documents at least three feet high, maybe six feet by now.

If I were working on the Hill or in the White House right now, I would be very confused. However, it does not have to be so. To me, what we are trying to accomplish is an understanding of how our oceans work and we are using the various observatories, fixed

and floating, as facilities to collect the needed data to help us answer the specific questions being addressed, be they basic research in orientation or mission specific.

So, one initiative under one umbrella, let's call it the Planet Ocean Initiative, could encompass all these elements. In this way a coherent, logical sequence of programs and requests can be coordinated. Since various ocean observations are needed to fulfill the missions of several federal agencies, coordination among them is essential for success. We have just such a coordinating body in the National Ocean Partnership Program (NOPP), an interagency organization representing the federal agencies which fund the majority of ocean related research and education in this country.

Ocean.US currently has an important role at NOPP. However, it is mostly a coordinating role for the various programs. I am suggesting an expansion of this function by creating a major ocean initiative for this country under an umbrella organization that will initiate it, manage it and coordinate the major needs for the ocean federal agencies. And, most importantly, it would be responsible for making sure that the highest level of intellectual content is reached. What's my definition of major ocean initiative - five hundred million dollars a year for ten years?

As I mentioned earlier, the science to support such an initiative exists but the programs are fragmented and uncoordinated toward common goals. What is needed is to have an entity, which keeps these programs focused on the national objectives and oversees how the individual components compliment and relate to each other. By undertaking such a task, the timeline for the individual programs will also become clear. This approach will also be very beneficial in identifying which programs need more analytical and technical development before they will be ready to go operational.

The former Chief of Naval Operations, Admiral Borda, put it quite aptly. "If you want to control the oceans, you have to understand how they work." I would suggest the following extension of the Admiral's view. If you want to control and predict the oceans' role in effecting our lives, you have to understand how they work. We have the technology; we have the science potential. We need the priorities focused and the funding coordinated towards a common goal.

Ladies and Gentlemen, the oceans are inexorably interwoven with the destiny of humankind. We are poised to crack significant barriers to understanding and predicting how the oceans work. The Commission can take a major step towards converting this potential into a reality. Now is the time for significant action. Our children and grandchildren are counting on us.