Invasive Species Panel
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1. The problem of invasive species and why research and education are needed to address this problem.

I'll assume that the Commission has many thousands of pages on this at this point. Hundreds of invasive species in our coastal zones have had profound modifications on the seascape, on biodiversity, on the economy, on fisheries, on recreational value and other ecosystem human resources, and on coastal geology. I summarize these in some of the papers noted below. Clearly, invasive species are one of the greatest modifiers of the American coastal zone in the past 100 years, and demand serious investments in research and education.

2. Also, the Commission would like more information on current, effective education initiatives.

I can't do much better here than what's offered and explained on the very extensive invasive species websites from both National and state Sea Grant agencies, various NGO websites, the NISC website, and the USGS and Smithsonian Institution websites. Effective education initiatives, as explained on these sites, are the persistent on-the-ground work at boat launching ramps, in public schools, in the media, and so forth. The Achilles heel: vastly underfunded. The Result: underfunding leads to more invasions which costs vastly more than the funding would have (see below).

3. Data and trends that illustrate the rapidity at which the introduction of nonnative species is taking place.

We review this in detail in our Ruiz et al. paper, published in 2000, and provide graphics that show this rapidity.

4. Efforts being made to address the need for monitoring the influx of invasive species and for developing an effective rapid response strategy.

I believe the various state and federal efforts are known to the Commission, but the funds remain minuscule to advance the initiatives in a meaningful way. There is now a great deal of discussion about monitoring and rapid response, but it is not accompanied by realistic funding levels. Put another way, numbers mentioned are often in the hundreds of thousands of dollars (which investigators often embrace), when the actual costs is in the tens of millions of dollars for monitoring and response. We invest only 10s or 100s of thousands of dollars, but the 3P's (the political world, public, and press) remain mystified

by our lack of rapid advance in our knowledge, understanding, and predictive ability (see below).

5. The introduction of Atlantic salmon in the Pacific Northwest and whether this event was intentional or inadvertent.

I defer to my fish invasion colleagues. The event was said to be accidental.

6. Your views on the current invasive species legislation pending in Congress (specifically, the proposed revisions to the National Invasive Species Act).

In my testimony before Congress this past June, I urged passage of this legislation, which continues the pattern of growth of the regulatory and management framework, from 1990 to 1996 to 2003 (if passed this year). The challenge here is the same as noted above: adequate funding. Perhaps the best analogy I could give is the "Space Program". Let's say the funding for exploration of space -- such as the MARS program -- for 2004-2005 was $1,000,000 (one million dollars), and then in 2006 Congress inquired as to why we had not gathered the data we wanted from Mars. In fact, the agencies conducting the space program would not have accepted $1 million under the assumption and presumption they could move forward with the hope of success. In contrast, those agencies and researchers involved with invasive species accept whatever funding is released -- $50,000, $500,000, or $1,000,000 -- the latter two pieces often intended to be divided up among dozens of different researchers around the country! If we give a researcher $100,000 to tackle a key problem, the University he/she is associated with takes about $40,000 for overhead, leaving $60,000 to the researcher. The researcher then hires one bright young postdoctoral scientist to tackle the problem, at a salary of $30,000. But to the $30,000 we add $9,000 in medical benefits and other indirect costs, leaving $21,000 to blaze trails into the question. $21,000 to gather that data from Mars. The irony, of course, is that in the end, invasions cost far, far more than the tens of millions of dollars that must now be invested in invasive species research and education programs.

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