MTS Task Force Presentation

Risk Prevention and Response

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In the Department of Commerce and the National Oceanic and Atmospheric Administration (NOAA), the National Ocean Services (NOS) is the focal point for coastal stewardship. We cover a range of issues and responsibilities ranging from navigation services to coastal zone management; to marine protected area management; to research, response, and restoration.

Because of the very nature of our business, the word "partnership" is not the fad that it sometimes appears to be today. We have always had strong partnerships with state and local government, the academic community, the private sector, and nongovernmental organizations.

One thing that already should be apparent at this meeting is that risk assessment and risk management have an array of meanings. I particularly like the descriptor that says risk assessment is characterized by uncertainty. Because we very often have limited data, we are required to be continually making assumptions. Sometimes they are good assumptions; sometimes they are not. It all depends on the quality and the quantity of the data on which they are based.

Because we have responsibilities for safe navigation and for coastal resource management, the risks that concerned us fall into two categories: (*a*) the risk to ships, crew, and property; and (*b*) the risks to coastal resources and coastal communities. Our key objective in NOS is to bring the two categories together, because we believe they are inseparable. We integrate our approach to risk management through a continuum of prevention, preparedness, response, and restoration. I will touch just briefly on those categories.

The focus of our risk management strategy is prevention. We produce lots of products and services, some of which I will mention today. For example, we have been doing nautical charts since the days of Thomas Jefferson, and today we've seen the traditional paper charts that we're all used to give way to electronic charts—charts that use digital data are much more accurate than paper charts and are able to detect hazards as well as the time it is going to take a mariner to bump into that hazard in a meaningful timeframe for the mariner. We also have a system called Electronic Chart Display and Information System (ECDIS) that brings this information to the bridge of a ship. It can display the location of the ship, update the information every few seconds, bring in radar images, and bring in all kinds of real-time data—tides, currents, water levels, and any meteorological information that might be needed. The real-time data are also being developed for major ports around the country through our Physical Oceanographic Real Time System (PORTS). This system can be accessed through the Internet or by telephone. It was designed primarily to benefit commercial mariners, but we are finding more and more that it is being used by recreational boaters and commercial fishermen.

We also designate areas to be avoided on our nautical charts, particularly marine areas with special resources, like those in our National Marine Sanctuary program, and we use the mandatory ship reporting system. For example, the International Maritime Organization recently ap-

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proved a U.S. proposal to designate two areas off the Atlantic coast as mandatory reporting areas. These areas are the caving grounds and the feeding grounds for the world's most endangered whale, the northern white whale.

When and where preventive efforts fail, we move into the response and restoration activities. No matter how hard you try and no matter how sophisticated your prevention methods are, accidents will happen in this business because people are involved.

We have developed a variety of tools to assist in risk assessment. For example, we do environmental sensitivity indices where we plot the distribution of critical resources and their habitats as well as their sensitivity to various chemicals and various types of oil. These indices are available on paper. They are also available on CD-ROM and we are hooking them into our next edition of the Coast Pilot, so it will all be tied together. We also have developed what we call a trajectory analysis planner, which is a computer-based tool that analyzes the probability of the movement of various chemicals and various oils within a particular area. This provides a planning tool that can be used to prepare for an event, whatever it is and whenever it occurs.

We also prepare manuals and teaching materials. We do training courses to get the information out to local communities so that they can be better prepared. We also serve as a primary scientific advisor to the Coast Guard during spills of oil and hazardous material.

An example of one of the tools we're using is the International Tug of Opportunity System. This is a system that was used in Canadian and U.S. industry to protect the resources in the Olympic Coast National Marine Sanctuary and in the Straight of Juan de Fuca. This system is a call-in system so we can monitor the availability of tugs: we can determine where they are, what they are doing, and what their capability is to respond to ships in distress from either loss of power or loss of steering. We conducted a ship drift analysis and developed a model simulating what would happen and how long it would take a ship to run aground in a particular area; this is useful to the Coast Guard because it tells them how much time they have to respond to a situation.

Restoration is also a big part of our program. We are the federal trustees for living marine resources and their habitats. We exercise those responsibilities through something called a damage assessment and restoration program, which assesses damages and restores resources that have been injured as a result of oil spills or other hazardous material spills. We do Superfund work and we practice damage assessment and restoration for resources within national marine sanctuaries when they are injured.

Since we have been in business, we have generated close to $280 million for restoration activities. What we attempt to do is to restore the resource to a baseline condition, the way it was before the accident, and then compensate the public for the interim loss of those resources, pending restoration. For example, when a ship went aground on an ancient spur and groove system in the Florida Keys National Marine Sanctuary, we worked with the state and the responsible party to do some emergency restoration; we came in and reattached corals and cleaned up rubble (if you leave the rubble there as the currents come in and the storms go through, it just scours the area again). Then we did some longer-term restoration; we moved in large boulders and put down flexible concrete mats to allow the corals to recolonize. When we had to calculate compensation to the public, we wondered if there was anything we could do to prevent this type of accident in the future while the reef was restoring. We came up with the idea of installing a warning system so other ships could avoid having the same kind of accident. The responsible party paid for this and the Coast Guard has agreed to manage it. It is now in place.

In this case, the responsible party was very responsible—they worked with us from the beginning and they paid for everything. The case never went to court as many cases do.

We like to view the programs in NOAA and NOS as part of a picture puzzle. Usually, we use a slide to discuss the pieces of NOS programs—hydrographic surveys, real-time data, nautical charts, hazardous materials response—but you can just as easily take those puzzle pieces and put in the Maritime Organization, the Coast Guard, the Corps of Engineers, and the Port Authorities. The message is that if any of those pieces is missing, then the mariner and the coastal resource manager are likely to have a problem.