Statement to the
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Marine Emergencies: Prevention, Preparedness, Response, and Restoration

Thank you for the opportunity to meet with you today to discuss marine emergencies and how NOAA works with its partners in government, industry, and communities to help prevent maritime accidents. When spills do occur, NOAA and its partners are charged with supporting the response and for restoring injured natural resources.

As you know well, maritime transport is critical to the nation's economy. Here in Alaska, the need for safe and efficient marine transportation is particularly apparent. Whether it is barges carrying food stuffs, heavy equipment, or other necessities; the state's Marine Highway System; fishing vessels transiting to and from Alaska; or oil flowing through the Trans Alaska Pipeline System to refineries in San Francisco and Long Beach, all Alaskans rely on the movement of vessels in marine and coastal waters that is routine, safe, and efficient. The same is true for their fellow citizens who reside in the rest of the country.

Maritime commerce is a critical link in Alaska's economy. Alaskan waters are home to major marine ports, petroleum development, large-scale commercial fisheries, intense cruise ship activities, and spectacular natural resources. But nature significantly complicates maritime activities in Alaska. Limited visibility, ice in traffic lanes, high winds, rough seas, extreme currents, and large tidal ranges can impair safe and efficient navigation.

Not only do weather and Alaska's rugged shoreline increase risks for marine operations, the consequences of disasters here are high as well. In addition to the potential loss of human life, accidents threaten Alaska's natural resources with profound implications for the economy and the long term health of coastal and ocean ecosystems.

However good clean up technologies may become, it will always be better to prevent pollution to the environment in the first place. It is better for ocean and coastal ecosystems, better for those whose livelihood depends on the productivity of these systems, and better for those who have to pay for clean ups. But, we do not live in a world where preventive measures are enough. There will always be the possibility that an accident will occur. Systems will fail and humans will commit errors in judgment.

We must stand prepared to respond to marine emergencies with proper planning and training. When a response is required, it must be effective, efficient, and set the stage for the restoration of marine and coastal resource harmed by the event. The restoration that follows must address both the loss of the resources themselves and the loss of the use of those resources.

Today, I would like to describe some of the ways the National Oceanic and Atmospheric Administration addresses these four themes of prevention, preparedness, response, and restoration.

Prevention

In 1990, just a few cruise ships operated in Alaskan waters. Today, ten major cruise lines operate 25 ships here. The cruise industry projects it will carry 730,000 passengers in Alaska in 2002, a number almost 10 percent greater than the population of the entire state. The cruise industry has become an important part of the Alaska economy, but the industry's explosive growth brings with it concerns about safe navigation, passenger safety in the event of casualties, pollution from ship discharges, and other issues.

Alaska's coastal waters are vast and difficult to survey. Many areas remain poorly charted or have not been updated for many years. In some cases coastal glaciers have receded several miles, creating "new" waters that have never been surveyed. Until recently the demand for charts in many areas simply did not exist. NOAA is moving aggressively to fill the survey and chart gaps in Alaska. But today cruise ships are, in the most literal sense possible, sailing into uncharted waters with disturbing frequency. The risk of groundings in areas where survey data may be many decades old, or may simply not exist, places passengers in jeopardy. Alaska cruise ships typically carry 1600 passengers and 700 crewmembers. A rupture of a cruise ship's fuel tanks could result in a catastrophic spill.

NOAA's mission as a provider of navigation services and steward of coastal and ocean resources places the agency in a unique position to help organize prevention efforts tailored to local and regional conditions. NOAA also has been an active participant on the Interagency Committee on the Marine Transportation System. In partnership with the Coast Guard, state agencies, industry, and communities, NOAA has been active in promoting prevention efforts that increase navigation safety and promote efficiency.

For example, in 1995, NOAA launched the Cook Inlet/Prince William Sound Navigation Safety and Efficiency Project (Project). The Project brought together NOAA's Ocean Service and Weather Service with the Coast Guard, the Corps of Engineers, the Prince William Sound and Cook Inlet Regional Citizens Advisory Committees, University of Alaska, and others to identify specific activities that would reduce risk for maritime operations in Cook Inlet and Prince William Sound. Funded through the *Exxon Valdez* restitution fund, the Project's areas of focus include:

Reducing Risk from Ice

Ice is a serious threat to shipping in Prince William Sound. When the *Exxon Valdez* struck Bligh Reef, she was outside of the normal traffic lane to avoid ice. Better information about actual ice location and conditions might have prevented the disaster. New services and products recommended through this partnership project helped develop to reduce ice risk. They include:

- a new ice radar installation (operational September 2002) to allow Coast Guard Vessel Traffic Services to provide actual ice conditions to vessels operating in Prince William Sound;

- an Ice Atlas, prepared by the Army's Cold Regions Research and Engineering Research Lab to show historical seasonal ice conditions for transit planning purposes in Cook Inlet; and

- a Pocket Ice Guide for shipboard observers to help ensure consistent reporting of actual ice conditions to Coast Guard and other vessels.

Improving Navigation Services

The project partnership and a major risk assessment published in 1997 identified the need to improve navigation services in several key areas. New navigation services include:

- new surveys and charts for College Fjord in Prince William Sound in response to increased cruise ship traffic;

- updated Coast Pilot editions for the region;

- a new aid-to-navigation at Nikiski in Cook Inlet to mark a safe route to and from Nikiski for deep draft tank vessels, bulk carriers, and other vessels and for passage to and from Anchorage. There are over 700 vessel transits each year in the area around Nikiski; and

- Physical Oceanographic Real Time System (PORTS) installations at Anchorage and Nikiski. Existing tide gauges and meteorological sensors were modified for real-time voice reporting, allowing pilots and masters to telephone the system for up-to-the-minute information about tides, winds, barometric pressure, and temperature.

Better Weather Information

Under the project, a need for improved weather information was identified for key areas in Prince William Sound and Cook Inlet. The problem was particularly acute in Prince William Sound, where restricted maneuvering room in Valdez Narrows meant that accurate wind information would significantly improve pilots' and masters' ability to plan for safe transits and for the Coast Guard to manage the waterway. New weather stations (all NOAA "C-MAN" stations)

include stations at Middle Rock in Valdez Narrows, Pilot Rock outside Seward, and Drift River in Cook Inlet.

Other NOAA efforts to improve navigation safety in Alaska include

- new surveys on the western side of Prince William Sound covering an area of 1,850 square nautical miles;
- twelve provisional Electronic Navigational Charts created for Prince William Sound; and
- new large scale charts in the areas of College Fiord, Unakwik Inlet, and Columbia Bay, to improve cruise ship navigational safety near receding glaciers.

But Alaska, of course, is not the only area of the country at risk from spills. The expected nationwide growth in marine transportation means a greater potential for accidents as more and larger ships transit into our ports and harbors. Ports must expand to accommodate increased demand. The port and maritime communities must make informed decisions about what infrastructure improvements will lead to the most cost effective risk reduction measure and promote efficiency. In the Gulf of Mexico, energy infrastructure is at risk from erosion, sea level rise, and severe storms. Identifying the structures, evaluating risk, and incorporating risk reduction strategies into new energy facility construction are facets of prevention as well.

We have made substantial progress in reducing risk and preventing harm to the coastal and ocean environment. But more needs to be done to prevent harm to ocean and coastal resources—and to the livelihoods of those who depend on them—particularly in a regional and local context.

Preparedness

Gwydyr Bay on Alaska's North Slope is an area of new off shore oil and gas development. Ice bound for 8 months of the year, and subject to extreme weather conditions, the area confronts developers with unique technological and environmental challenges. NOAA initiated discussions with the industry representatives, the Coast Guard, the state, Minerals Management Service, and the native corporations on how to improve the information available to all parties to support oil development, production, preparedness, and response operations addressing the concerns of the local community, regulatory agencies, and potential responders.

These discussions led to a partnership to develop new Environmental Sensitivity Index Maps for areas of the North Slope for spill planning and response. NOAA and British Petroleum undertook a joint effort to develop a publicly available oil spill trajectory model. Both products were public-private partnerships that involved the local communities from initial concept to final product. The effort also helped to build local capabilities and trust that can have long-term benefits as oil exploration continues on the North Slope. In addition, all parties have held detailed discussions about how a damage assessment would proceed should a spill occur and conducted "damage assessment" drills to understand the process of assessment and restoration planning.

Without preparation, a response cannot be effective. A critical lesson of the *Exxon Valdez* disaster is that a framework must be in place before an event occurs in order to organize decision making; to understand appropriate response strategies; and to establish mechanisms for evaluating the environmental tradeoffs among different approaches and the implications of response strategies for restoration. The Incident Command System—the framework within which these discussions and decisions take place—cannot be effective without advance planning that includes coordination, training, and regular drills among government agencies and industry. NOAA plays an important role through its oil spill planning and response programs, contingency planning, and training.

One of the most important assets NOAA brings to its partnerships is its institutional experience planning for, and responding to, spills of oil and hazardous materials. The NOAA oceanographers, chemists, biologists, and other experts whose work focuses on marine emergencies, have accumulated more on-scene science experience than any other organization in the nation. In working with state agencies, the Coast Guard, and other responders, NOAA is able to transfer this vast experience in a local context, drawing from the agency's experience in other parts of the country and the world.

In preparing for spills, NOAA brings scientific understanding of climatology, oceanography, spill threats, behavior of oil and hazardous materials, risk to resources, effects of oil on marine mammals, fish, and other biota, and the consequences of oiling for other coastal and ocean resources. NOAA provides this body of experience through oil spill planning tools, support for development of area specific plans and drills, expert advice provided through regional staff assigned to work with local, state, and Coast Guard offices, other responders, and training. For example:

- Environmental Sensitivity Index Maps show shoreline geomorphology and natural resources, including seasonal distributions. ESIs are used in contingency planning and response to guide protection and clean up plans, and pre-positioning of response equipment. The NOAA-developed ESI standard is widely accepted in the US and internationally. While NOAA partners with others to produce the Indexes, many other entities produce ESIs to the NOAA standard for their own uses.

- The Trajectory Analysis Planner is a software tool that allows planners to evaluate different planning scenarios very quickly based on historical climatology and oceanography. The Planner greatly improves contingency plans by allowing non-scientists to evaluate different options for responding to spills without individual, detailed studies for each scenario.

- The NOAA Guide to Seafood Safety is a resource for local and state officials responsible for regulating fisheries. It helps them plan for appropriate actions following spills. The Guide transfers NOAA's extensive national experience with seafood contamination and tainting from spills to the local level where it is needed for operational planning and decision-making.

- NOAA programs train industry, state agencies, federal agencies, and others in the science of oil spills, response strategies, and restoration approaches. This training supports the Incident Command System by helping ensure that ICS participants are knowledgeable and well informed.

- Drills and other mechanisms for advance coordination help ensure the common approach required for effective response. Internal NOAA coordination on issues such as marine mammal protection or dispersant use allows the responders to focus on appropriate actions

NOAA and its partners have made great strides in preparedness since the *Exxon Valdez* disaster. Every spill or event provides new insights, which are applied to prevent and prepare for the next response. As in prevention, however, there is much to be done to better prepare for emergency responses.

Response

In November 1997, the M/V *Kuroshima* dragged its anchors during a severe storm and ran aground near Dutch Harbor, Alaska. Some 40,000 gallons of fuel were released as a result and driven on shore and up into Summer Lake, oiling sensitive habitat, archeological sites, and other cultural resources. Winter weather complicated the response, and clean up and salvage were abandoned in December until early spring. The damage assessment conducted by NOAA and its co-trustees showed injury to bird, shellfish, salmonids and cultural resources.

NOAA provided scientific support during the spill that included area-specific weather forecasts, overflights to assess oil movement, shoreline assessments, assessments of resources at risk, information management services, and other services to the Incident Command. NOAA's damage assessment team also worked on site, collecting data needed to determine injury to resources. The restoration plan was completed and the case settled earlier this year. Restoration efforts are underway.

The *Kuroshima* response was successful because all of those involved had been trained in the Incident Command System. They brought the requisite expertise to the table, understood their roles and responsibilities, and worked together toward common response goals. The *Kuroshima* response illustrates the value of the Coast Guard, state, and responsible party acting as a team directing the response. They were able to focus on achieving outcomes to address the immediate crisis and anticipated longer term needs for recovery and restoration. The result was that the response efforts were effective and efficient despite the extremely difficult environment.

NOAA's support during a response begins with a call through the Incident Command System for scientific support. NOAA responders begin providing initial assessments of oil or chemical behavior, focusing first on health and safety issues for on-scene responders and the public. Other NOAA offices provide weather forecasts, tide and

current predictions, begin oceanographic modeling runs, and mobilize other expertise across the agency. As the response unfolds, NOAA continues to provide regular analyses of weather, oil movement, and resources at risk, as well as to assess and integrate all of the scientific information from other sources coming to the command center. NOAA also provides advice on countermeasures and other aspects of the response strategy as the on-scene coordinators require.

When fishery resources or marine mammals may be affected, NOAA response organizations work closely with NOAA Fisheries. For example, response experts and marine mammal scientists have collaborated in developing response strategies for counter the effects of oiling on rookeries and other marine mammal habitat.

The strength of NOAA's ability to respond to spills or other disasters depends completely on the agency's operational capabilities. The response field staff responsible for coordinating with local, state, Coast Guard, and industry responders are a critical part of NOAA's operational capability, but so too are:

- NOAA Weather Service data collection and analysis capabilities and field offices;

- NOAA Ocean Service data collection and analysis capabilities, such as the ability to deploy a temporary tide gauge or current meter, or other instrumentation to provide critical information during a response;

- the ability to rapidly mobilize, divert, and deploy NOAA ships, aircraft, and survey equipment from ongoing operations to assist in spills and other disasters. (NOAA survey ships have located wreckage from all of the recent major aircraft disasters off the Atlantic coast over the past six years, including TWA 800, EgyptAir 990, and the John F. Kennedy, Jr. general aviation crash); and

- the ability to mobilize atmospheric scientists, oceanographers, biologists, and others in offices throughout NOAA to focus on response problems and to provide that expertise in a form useful to on-scene responders.

NOAA must maintain and strengthen its operational capabilities to remain an effective part of emergency response in the marine environment.

Restoration

As a natural resource trustee, NOAA is responsible for assessing damage to and restoring coastal and marine resources injured by releases of oil or hazardous materials. Since the early 1980s, NOAA has been a leader in the field of damage assessment. NOAA was a lead agency in the *Exxon Valdez* oil spill damage assessment. Shortly after the incident, NOAA established a permanent program, staffed with biologists, economists, attorneys, and restoration scientists to address this element of NOAA's trusteeship.

Almost as soon as the response to the *Exxon Valdez* spill was underway, there was much interest in damage assessment and restoration activities. Under the paradigm in place at the time of the spill, damage assessment was based on economic valuations of resources and uses of the resources that were lost. Much of the scientific research by government agencies and by Exxon was conducted under the cloak of litigation secrecy. The litigious relationship between trustees and responsible parties prevented the dissemination of assessment results to the response community and the public. The litigation process often does not provide for informed public involvement early in natural resource damage assessment (NRDA) cases. This adversarial process can be costly as well. Both the trustees and Exxon conducted separate studies, hired experts, and contracted technical studies for litigation. Communication between state and federal agencies was limited and, even within agencies, scientists had difficulty collaborating and sharing information.

Economists played an important role in the process. They generated models and conducted surveys to determine the monetary value of the injured natural resources. Although the spill resulted in a record settlement for restoration, the process to reach the settlement was acrimonious, difficult, and uncertain for all involved—responsible parties and trustees alike.

One of the lessons learned from the *Exxon Valdez* spill and other incidents is that restoration is delayed when the focus is on establishing the monetary value of natural resource damages. Furthermore, by focusing on assigning a monetary value to the damaged resources instead of the restoration costs, the settlement or judgment may be insufficient to conduct restoration. For example, the economic value of a fish or acre of wetland may not represent the costs to restore that resource, especially for natural resources that are not easily valued.

The Oil Pollution Act of 1990 (OPA), passed shortly after the *Exxon Valdez* spill, required that NOAA promulgate new damage assessment regulations. NOAA began to develop an alternative approach. Rather than attempting to attach a price tag to each fish, bird, or marine mammal injured by a spill, NOAA proposed a restoration-based focus. In other words, the claim submitted to the responsible party is based on the cost to conduct restoration projects rather than the value of the injured resource. The OPA regulations for conducting natural resource damage assessments recognize that the adversarial process is unnecessarily time-consuming and can be inefficient, especially when nearly all NRDA cases are ultimately settled out of court. The OPA regulations changed NRDA to a more open process by making assessment results and critical documents available to the public in an administrative record, requiring that the public have a chance to review and comment on restoration plans, and inviting the responsible parties to participate actively in the assessment and restoration planning.

The response and damage assessment for the 1997 M/V *Kuroshima* oil spill illustrates some of the key concepts of the new regulations. During the spill, response and damage assessment teams shared information and worked closely with the responsible party. Early restoration work was conducted to protect a local archaeological site and restore dune vegetation. The local public was involved with the restoration planning process and

all key documents were made available in public repositories in Anchorage and Unalaska. The settlement crafted with the responsible party was based on restoration projects, and the public had an opportunity to comment on the plan prior to settlement.

Today, many potential responsible parties understand the importance of a more collaborative approach to damage assessment and restoration. They are working with NOAA and the other natural resource trustees to plan for how damage assessments and restoration should be done in the event of a spill or release. The focus is on expediting the process of assessing damages, reaching an agreement on the restoration plan, and restoring injured natural resources.

The new paradigm for conducting natural resource damage assessments embodied in the OPA regulations has proven to be an effective way to restore natural resources. NOAA's experience with this paradigm has been very positive and we are working hard to enhance our abilities to apply this approach to a wide range of threats.

Thousands of spills—many of them small--occur around the country each year. Regional restoration planning that involves all stakeholders to identify watershed-wide and regional restoration goals expedites the restoration process and reduces costs. Regional restoration planning can provide watershed-wide benefits regardless of whether spills occur, since restoration is needed in response to harm from contaminated sediments, waste sites, coastal development, and other shoreline modifications. Watershed-based restoration planning and the new NRDA paradigm are improving the ability of NOAA and its partners in communities, industry, and government, to achieve effective restoration.

Even with this success, however, we believe there are a few changes that could further enhance our trustee efforts. Including:

- Continuing to improve cooperation among trustees and responsible parties. The NRDA process usually is shorter and less costly for all parties when the damage assessment is conducted in a predictable and cooperative fashion.

- Streamlining the claims process through the National Pollution Funds Center.

- Institutionalizing state NRDA programs and forging stronger partnerships with other trustees and improved efforts to transfer NOAA's expertise to other natural resource trustees. Not all co-trustees have formal NRDA programs, and therefore may be hampered in their ability to participate effectively and fulfill their natural resource trustee responsibilities**.**

- Supporting advanced research and development on the increasingly complex fate and effects of multiple contaminants and the efforts to restore the affected resources.

- Developing partnerships among industry, government, and local communities at sites affected by chronic releases of contaminants where industry and the trustees can carry out cooperative natural resource damage assessments**.**

- Coordination among programs as they address the protection and restoration of coastal and marine resources within a context of a liability hierarchy that assigns the first level of responsibility to polluters and the second level responsibility to taxpayers (and only when causality cannot be determined).

- Enhancing NOAA's participation in natural resource trustee activities in the Great Lakes. Contaminants have degraded many Great Lakes resources. NOAA has been involved only minimally in damage assessment activities there, even though our trusteeship extends to natural resources in the Great Lakes basin.

Conclusion

I am pleased to have been able to describe how NOAA and its partners have been successful in addressing prevention, preparedness, response, and restoration issues. NOAA has made important contributions to ensure that future generations of Americans have healthy and productive coastal and marine ecosystems. What we have done to date, however, is not enough, and in some ways the task is becoming even more challenging. Despite increasing commercial vessel traffic and more natural resources at risk from habitat loss and other factors, Americans expect that coastal and ocean resources will be protected and managed for future generations. We must do more to improve our ability to prevent harm, to be prepared for and respond effectively, and to restore injured natural resources.

NOAA will continue to improve its understanding of the science of oil spills, develop technologies that improve our ability to plan for and respond to releases, improve delivery of information to those who depend on it for response, and to restore injured resources. In addition to the issues I have raised earlier in my testimony, there are several overarching concepts the Commission should consider supporting;

- A more institutionalized regional approach to risk reduction and prevention that focuses on partnerships among industry, government, and communities to identify and respond to specific threats to marine safety—and the resources to respond to those threats.

- An expanded role for NOAA in marine transportation system improvements that would better utilize its expertise on waterways management and port development activities in collaboration with the Coast Guard and the Army Corps of Engineers, and regionally and locally with state and community agencies and industry.

- A new emphasis on training and preparedness to address deficiencies and the new challenges we face from ageing infrastructure, increased vessel traffic, and threats of terrorist attack on vulnerable energy facilities.

- The resources to develop and deploy an ocean observing system that would allow NOAA and its partner agencies to provide real-time data directly to mariners, including improved marine weather forecasts, climatological and oceanographic information for operational and research purposes, and spill responses.

- Support expanded authorities that would allow agencies to collaborate more effectively on marine transportation issues, such as codifying and clarifying the role of the Interagency Committee on the Marine Transportation System. Partnerships are a viable approach to addressing prevention, preparedness, response, and restoration challenges. Expanded authorities would enhance agency participation in these critical partnerships.

- Institutionalize on-going research and development in an oil spill research institute. Such an institute—ideally a government-industry partnership—would conduct research and development to improve safety, incorporate operational spill response and restoration experience into new approaches, develop new technologies, and improve preparedness, response, and restoration.

- Support continued research and development on the fate and effects of multiple contaminants on the restoration of natural resources

- Support efforts to develop faster and more efficient ways to assess injuries and for planning and implementing restoration. The natural resource damage assessment process can be expensive and time consuming, with the result that many small and medium sized incidents are not addressed. Improvements in monitoring, an emphasis on regional restoration planning that identifies in advance the most promising restoration sites in an area, and a focus on regional partnerships would all help expedite the assessment, planning, and implementation process for restoration.

- Expand incentives for industry, agencies and other partners to encourage existing, more cooperative approaches to assessing injury and implementing restoration.

- Ensure the level of funding in the Oil Spill Liability Trust Fund is sufficient to respond effectively to spills of national significance and allow the fund to be used to support prevention and preparedness activities.