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BEFORE THE

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SUBCOMMITTEE ON OCEANS, ATMOSPHERE, FISHERIES, AND COAST GUARD  
U.S. SENATE

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Senator Peters, thank you for the opportunity to testify on oil spills from pipelines in the Great Lakes. My name is Scott Lundgren and I am the Chief of the Emergency Response Division within the Office of Response and Restoration at the National Oceanic and Atmospheric Administration (NOAA), within the Department of Commerce. My testimony today will focus on NOAA's role in emergency response to oil and chemical spills and, more specifically, oil spill preparedness and response in the Great Lakes region.

The U.S. Coast Guard National Response Center reports that several thousand incidents occur in the U.S. each year in which oil or chemicals are released into the environment as a result of accidents or natural disasters. On average, NOAA provides scientific support to federal responses for between 120-170 of these incidents each year. Spills in our waters can harm people, ecological resources, and waterways, with potential for widespread economic impacts.

The Great Lakes are a national treasure and are the largest freshwater system on Earth, with about 21 percent of the world's supply of surface freshwater. They provide drinking water for 40 million residents of the United States and Canada. The lakes are also a critical feature of the region's economy and natural environment—from transportation and recreation to wildlife and habitat. As a major transportation corridor, 160 million tons of maritime cargo is transported within the region or to overseas destinations. The Great Lakes support commercial, recreational, and tribal fisheries that contribute \$7 billion annually to the United States and Canada.

Clearly, the Great Lakes are a very important freshwater resource and deserve our protection and care. When these resources are threatened by oil, chemicals, marine debris, and other hazards, NOAA's Office of Response and Restoration, within the National Ocean Service, provides expert leadership, training, and time-critical services.

**NOAA's Response and Preparedness Role**

As the Federal On-Scene Coordinator, the U.S. Coast Guard has the primary responsibility for managing coastal oil spill response and clean-up activities in the coastal zone. For larger and more complicated spills, the U.S. Coast Guard relies on NOAA for scientific support. As a

result, NOAA has provided support for nearly 4,000 marine and inland oil and chemical spills, including many major international spills.

During an oil spill, NOAA's Scientific Support Coordinators make their technical and scientific expertise available to the U.S. Coast Guard. A team of 12 NOAA Scientific Support Coordinators are located around the country, generally aligned with U.S. Coast Guard District areas of responsibility. They are ready to respond around the clock to any emergency involving the release of oil or hazardous substances into the coastal, marine, Great Lakes, and related areas. The Scientific Support Coordinator is also the Federal On-Scene Coordinator's gateway to NOAA resources, including NOAA's Scientific Support Team. NOAA's Scientific Support Team is an assembly of experts that draw on NOAA forecasts, data, models, or services during nearly every response. On a large incident response, many NOAA programs and support staff may deploy to support field operations.

NOAA has three critical roles in spill response and damage assessment, mandated by the Oil Pollution Act of 1990 and the National Oil and Hazardous Substances Pollution Contingency Plan:

1. **Spill response.** During the emergency response, NOAA provides scientific expertise in the fields of biology, chemistry, oceanography, toxicology, and economics to the Federal On-Scene Coordinator. We specialize in predicting pollution transport (trajectory modeling) for spilled oil, tracking observations of oil on water, and assessing highly valued or sensitive environmental areas. NOAA also coordinates required emergency consultations for protected resources (such as threatened and endangered species). These services support critical operational decisions during the response and determination of clean-up priorities. NOAA's decision support services in the Great Lakes are informed by our core capabilities in hydrodynamic modeling, baseline monitoring, applied research, water level forecasting, navigation services, and spill preparedness training. NOAA has historically responded to 120-170 oil and chemical spills each year, with fiscal year 2017 setting a record number of 205 incidents. This year we are on track for a similar number of calls.

In the event of an exercise or spill in the Great Lakes, the U.S. Coast Guard will coordinate through the NOAA Scientific Support Coordinator in Cleveland, co-located with the 9th Coast Guard District, to access NOAA science and services. The NOAA Scientific Support Coordinator for the Great Lakes Region would serve on the staff of the Federal On-Scene Coordinator directly.

2. **Damage Assessment.** As a natural resource trustee, NOAA conducts a joint Natural Resource Damage Assessment with other federal, state, and tribal trustees to assess and restore natural resources injured by an oil spill. NOAA biologists, toxicologists, policy analysts, information specialists, attorneys, geologists, environmental engineers, and economists work together to accomplish this assessment. The Natural Resource Damage Assessment process also assesses the lost uses of natural resources, such as recreational fishing, canoeing, and swimming, with the goal of restoring these or other resources.

The NOAA Regional Resource Coordinator in Ann Arbor leads the Natural Resource Damage Assessment process in the Great Lakes region. To date, NOAA and other

trustees have recovered \$10.4 billion for restoration of critical habitats, fisheries, protected species and recreational uses nationwide.

- 3. Interagency coordination and leadership.** NOAA represents the Department of Commerce in spill response decision-making activities through the 15-agency National Response Team. With over 30 years of experience and using state-of-the-art technology, NOAA provides expertise and a suite of products and services for making science-based spill response decisions. NOAA develops tools such as field-oriented job aids to assist preparedness for response communities. In addition, NOAA promulgates standards for observing oil, assessing shoreline impact, and evaluating and selecting cleanup technologies that have been widely accepted by response agencies.

### **Collaborations on Oil Spill Response and Restoration**

#### *NOAA, Federal Agency, and Industry Collaborations*

The Office of Response and Restoration maintains strong relationships with other NOAA programs and offices. We host preparedness trainings and coordinate the transition from damage assessment to restoration. Our collaborators within NOAA include:

- The Great Lakes Environmental Research Laboratory in Ann Arbor, MI and its Lake Michigan Field Station in Muskegon, MI
- National Weather Service River Forecast Centers and Weather Forecast Offices
- Office of National Marine Sanctuaries

The Office of Response and Restoration collaborates with NOAA laboratories throughout the country for research and preparedness projects, including in the Great Lakes region. For example, in May 2016, our office held a Science of Oil Spills course in Ann Arbor, Michigan, at the NOAA Great Lakes Environmental Research Laboratory (GLERL) facility. The course focused on oil spill science in the Great Lakes and inland waters and was attended by 35 students from the U.S. Coast Guard, the U.S. Environmental Protection Agency (EPA), industry, state agencies, and tribal representatives.

During oil spill response, the Office of Response and Restoration collaborates with multiple offices and programs in planning and conducting response activities. Forecasts from the National Weather Service allow NOAA oceanographers to develop accurate, up-to-date predictions of where the oil will go. The U.S. Coast Guard also relies on the National Weather Service forecasts to plan aviation, marine, and shoreline operations and to keep responders safe.

Depending on the location of the spill or the resources at risk, the NOAA Office of National Marine Sanctuaries will also provide support for oil spill response. This includes specialized marine archeological support for spills that involve or may affect underwater cultural resources. In 2015, during the chemical spill from the historic sunken barge *Argo*, the U.S. Coast Guard relied on the Screening Level Risk Assessment Package that was developed by Office of Response and Restoration and the Office of National Marine Sanctuaries. This effort, which is also supported by GLERL, identifies and prioritizes sunken wreck oil spill risks based on archival research, and was used to help identify the barge as the *Argo*.

Following the *Exxon Valdez* oil spill, Congress authorized NOAA's Damage Assessment, Remediation, and Restoration Program (DARRP) to assess, restore, and protect coastal environments, including the Great Lakes, impacted by oil spills, chemical waste releases, and

vessel groundings. DARRP is administered by three NOAA programs: the Office of Response and Restoration conducts scientific assessments, the Office of General Counsel negotiates legal matters, and the NOAA National Marine Fisheries Service Office of Habitat Conservation implements restoration projects. DARRP has completed work on the *Argo* barge spill and is currently in the post-settlement (restoration) phase of the Enbridge pipeline release case, in which approximately 843,000 gallons of oil spilled into a creek of the Kalamazoo River. Current restoration activities include the creation and improvement of a park and river access.

NOAA also provides training to individuals in industry and government on the scientific aspects of oil and chemical spill response. In September 2015, NOAA organized a Straits of Mackinac Preparedness for Response Exercise Program (PREP) exercise as a collaborative initiative in response to the increasing risk of oil spills in the Great Lakes. The goal of NOAA's training is to transfer scientific expertise and experience to the broadest possible audience. Successful training promotes more efficient planning and spill response. In fiscal year 2017, we trained over 2,000 people in oil and chemical spill response and planning.

#### *International Collaborations*

International collaborations are also vital in protecting natural resources and economies along the United States border. NOAA participates in international conferences, meeting and preparedness drills, as well as response activities with other governments. The Great Lakes region represents a 1000-mile international border and requires a strong partnership with the Canadian government. Oil imports from Canada, mostly oil sands, increased by over 40% between 2010 and 2015. In 2013, NOAA as well as oil sands experts from Canadian agencies and organizations participated in an Oil Sands Products Forum in Seattle, Washington. The focus of the forum was on how to prepare better for and effectively respond to a spill of oil sands products.

As NOAA experts assess the impacts from oil sands spills such as the Enbridge pipeline spill, their studies both inform restoration for past spills and help guide response for the next spill. We've been working with the response and restoration community around the country and internationally to incorporate these lessons into spill response, including at recent meetings of the West Coast Joint Assessment Team with industry and trustees, and the International Spill Control Organization. Additionally, international agreements between the United States and Canadian Coast Guards include a Great Lakes regional annex (called CANUSLAK) for joint pollution contingency plans. NOAA and other U.S. and Canadian agencies routinely exercise the plans in response to spills that affect the maritime border.

Finally, NOAA is a permanent member of the conference committee for the International Oil Spill Conference held every three years. The conference provides a vital forum for professionals from the international spill response community, private sector, government, and non-governmental organizations to tackle the greatest challenges in oil spill response facing the international community.

#### **Oil and Chemical Spill Models and Tools**

Some of the more widely distributed tools that NOAA develops include a suite of oil trajectory forecasting tools known as GNOME™ (General NOAA Operational Modeling Environment). This set of tools, used for NOAA's oil spill response support, helps us predict the fate and transport of pollutants (such as oil) in water. The tools are also publicly available for use by the broader academic, response, and oil spill planning communities. Additionally, we jointly develop, with the EPA, a suite of tools known as CAMEO® (Computer Aided Management of

Emergency Operations), which are designed to assist emergency responders and planners in events involving hazardous chemicals. Freely available to emergency planners and responders, CAMEO programs are among the most highly downloaded products we create.

Additional tools that NOAA provides include ERMA® (Environmental Response Management Application) and DIVER (Data Integration Visualization Exploration and Reporting). ERMA® is designed to aid in spill preparedness and planning, assist in coordinating emergency response efforts and situational awareness, and support the Natural Resource Damage Assessment process. Great Lakes ERMA supports coastal pollution cleanup and restoration efforts across the region by integrating static and real-time data, such as ESI maps, ship locations, weather, and currents, in a centralized, easy-to-use format for environmental responders and decision makers. DIVER is a data warehouse and query tool providing natural resource trustees and the public with extensive information on environmental pollution, sampling, and restoration efforts. NOAA has worked jointly with the states of Minnesota and Wisconsin to tailor the functions of Great Lakes DIVER to the specific needs of the St. Louis River Area of Concern and recently gave a demonstration of the project at the St. Louis River Summit in Minnesota.

Environmental Sensitivity Index (ESI) maps are also used as a tool to identify oil-sensitive resources and habitats in advance of emergencies so that appropriate response actions can be planned. While the maps principally capture information on shoreline types, biological resources, and socioeconomic resources based on their sensitivity to oil, they are also used by resource managers for other purposes such as environmental compliance and all hazards planning. ESI maps in the Great Lakes were created between 1985-1994 and are updated as resources allow. NOAA recently received funding from EPA through the Great Lakes Restoration Initiative to update Great Lakes ESI maps in two areas: The Straits of Mackinac and the St. Clair-Detroit River System. These areas include pipeline crossings that have generated public concern.

### **Oil Pollution Research**

NOAA is an active participant and the current Vice Chair of the Interagency Coordinating Committee on Oil Pollution Research (ICCOPR). The committee was established by the Oil Pollution Act of 1990 to coordinate federal research efforts on oil pollution research topics, and consists of 15 member agencies. ICCOPR's 2015-2021 Research and Technology Plan helps to guide the oil pollution research efforts of the member agencies and inform others working in the oil pollution research field of federal interests and priorities. NOAA supports a renewed commitment by ICCOPR and its member agencies to focus on the most pressing research needs — particularly deepwater releases and releases in cold or icy waters.

### **Conclusion**

NOAA serves a key role in providing scientific support for emergency response incidents. NOAA's suite of scientific products, services, and research and the expertise of our personnel are critical in mitigating harm, allocating resources during a response, restoring affected natural resources, and informing overall decision making for response and recovery. These contributions are important for the protection of the Great Lakes and other U.S. waters. Thank you for allowing me to testify on NOAA's response efforts.