Statement Testimony of
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Hearing on: Deep Sea Challenge: Innovative Partnerships in Ocean Observation

Chairman Begich, Ranking Member Rubio and Members of the Subcommittee, thank you for inviting me here today to talk about innovative partnerships in ocean observations and the Alaska Ocean Observing System in particular. I am Ed Page, Chair of the Board of the Alaska Ocean Observing System and Executive Director of the Marine Exchange of Alaska.

During my 30+ years in the Coast Guard followed by 12 years as executive director of the Marine Exchange of Alaska, I have sailed on Coast Guard vessels, oil tankers, container ships, fishing vessels, tugs, oil exploration and support vessels, oil spill response vessels, cruise ships and cargo ships throughout Alaska. I can say from experience that operating in Alaska presents unique challenges and risks. Increases in vessel traffic, the opening of new waterways as ice impacted waters recede and changing ocean conditions will only intensify risks to all maritime operations. Today I am going to share just one innovative partnership-- between my organization and the Alaska regional component of the national Integrated Ocean Observing System---- that both adds value and reduces risks in a notoriously harsh environment.

Alaska is a huge state with over 39,000 miles of shoreline, most of which is remote and mariners sailing these waters are mostly outside of cell or VHF range. The Marine Exchange of Alaska was established in 2000 to bring the far-flung maritime community together to develop an extensive network of over 100 Automatic Identification System (AIS) receivers to track vessels operating in Alaska. I am proud to say that my organization has helped prevent maritime accidents, assisted emergency response efforts, and aided the maritime community to comply with state and federal regulations for vessel tracking; but that's not why I'm here today. I am here today to tell you about what happened when my organization began working with the Alaska Ocean Observing System - or AOOS.

AOOS is the Alaska component of the national Integrated Ocean Observing System, which seeks not only to increase ocean observations to meet societal needs to improve the nation's economy, navigation safety and ocean ecosystems, but also to

integrate the plethora of observations made by multiple state, federal, local and private sector entities to aid stakeholder decision-making.

From the AOOS perspective, my organization is really just one stakeholder group in the region. AOOS works with everyone: with industry, state and federal researchers to share data and observations; with the National Weather Service to integrate real-time weather and ocean observations to improve forecasts; and with the commercial maritime industry, whom I represent, who also need environmental information that aids safe, secure, efficient and environmentally sound maritime operations. Partnering with AOOS didn't just help us to do our job better; it brought us into a collaborative relationship with other groups in our region to leverage our resources and cultivate mutual benefits.

Until the Marine Exchange of Alaska partnered with the Alaska Ocean Observing System AIS communication with boats was one-way and the information was strictly geographic. Search and rescue could track a vessel in trouble, but there was no way to warn individuals at sea if conditions or forecasts changed once a vessel went out of cell or VHF Radio range. Listening to various stakeholders, AOOS identified a need for real-time weather information while at sea. They approached us to partner on a project using the AIS system to provide real-time weather conditions to mariners. AOOS staff is now working closely with mariners to deliver critical ocean and coastal information with this new technology and exploring opportunities to enhance the delivery of real time weather, ice and other environmental data as well as marine forecasts. This private-public partnership delivers a cost effective solution to a regional problem that no other government agency or contractor was set up to do. Remarkably, it is one of over a dozen similar projects this small but agile regional organization is able to support throughout the state.

Another example of the AOOS private-public partnership is their willingness to host the public access portal for all of the oil and gas industry-collected data in the Chukchi Sea that is now available to the larger scientific community as a result of the NOAA data sharing agreement with Shell, ConocoPhillips and Statoil. The industry data, valued at approximately $80 million, will be of tremendous value as federal and state managers make decisions about how best to manage oil and gas development in the Alaska Arctic.

The Alaska Ocean Observing System model of regional collaboration is one that should be replicated as the US Arctic continues to open up. I commend Senator Begich's Arctic Research, Monitoring and Observing Act, which offers a roadmap to improve maritime safety and advance marine science. For those of you who may be less familiar with Senate Bill 272, this bill recognizes that the Arctic is undergoing profound changes. The region is warming at twice the rate of the global average and seasonal sea ice is diminishing both in area and volume. Growing interest in oil and gas, commercial fishing, marine shipping and tourism are also driving changes now and down the road. This legislation would provide sustained support for long-term

research, monitoring and ocean observing programs in the Arctic Ocean, Bering Sea and North Pacific. Long-term observations in particular are difficult to fund; but they provide the backbone of most of the products - like sea ice and weather forecasts and emergency response plans that so many mariners and coastal residents rely on. We are especially supportive of providing sustained funding for the Alaska Ocean Observing System to provide the critical observations needed to sustain a healthy Arctic.

The Alaska Ocean Observing System is one of the 11 regional systems that have partnered with 17 Federal agencies as part of the Integrated Ocean Observing System – IOOS – to provide services to the entire coastline of the U.S., including the Great Lakes. Regional systems like AOOS are uniquely equipped to leverage public and private observations to meet regional needs improving the nation's economy, navigation safety and ocean ecosystems. For that reason, we also are in support of reauthorizing of the Integrated Coastal and Ocean Observing System Act of 2009 (ICOOS) that provides the foundation for our work in the Arctic.

The Act provides the framework for building a "system of systems" that links and enhances our existing observing capacity. It is an innovative approach for government, one that relies on partnerships to be cost-effective and responsive. And, it is working. The 11 regional systems, including AOOS, rely on partnerships to address the societal needs of safe commerce and navigation, climate variability, ecology and hazards. They do so in close partnership with universities, private companies, government agencies and others. IOOS links together partners at the regional level and leverages resources. IOOS is a cost-effective, flexible, responsive and innovative.

These partnerships work:

- **Superstorm Sandy**. During Superstorm Sandy, the marine transportation industry in the New York/New Jersey area made preparations based on forecast products derived from IOOS observations. In the Port of NY and NJ, all vessels were moved from anchorages in the Harbor. Over 6,700 containers were diverted from the New York/New Jersey area to Virginia. The cost estimate for these containers is approximately $1 Billion (Marine Technology Society TechSurge Event 2012);

- **Deep Water Horizon Spill**. The IOOS data management system allowed for the seamless integration of data from non-federal sources for use by the Unified Area Command. Prior to this, valuable non- federal information collected by universities, state agencies or private companies was not accessible to federal responders. The IOOS data management system, based on interoperable standards and services, now allows for the integration of data from all relevant sources. In fact, approximately 75% of the data now served by NOAA's National Weather Service through the National Data Buoy Center is from non-federal sources, most of which is

directly attributable to the work being done and supported by the Regional Associations.

- Much of the oil from the spill remained subsurface where, despite the availability of technology, we lacked the ability to readily monitor the flow of oil. IOOS, through its regional network, redeployed several underwater gliders from around the country to assist with subsurface monitoring efforts. This unique and flexible capability is one of the hallmarks of the IOOS system.

- **Search and Rescue**. The U.S. Coast Guard estimates that with the use of IOOS data on real-time surface currents they can reduce the search area for a distress call by 2/3rds, increasing the chances of safe recovery.

These are just a few of the many examples of how IOOS is making a difference. We urge the reauthorization of the ICOOS Act of 2009 to ensure that the nation's ocean, coastal and Great Lakes observing systems are sustained and enhanced.

We're here today to talk about Deep Sea Challenges, and the rapid development that is occurring in Alaska does present challenges and also an opportunity to set in place responsible risk reduction measures, including both observations and communication of products derived from observations, like marine forecasts.

I hope that my experience with the Alaska Ocean Observing System illustrates the potential and the proven success of this innovative approach and I hope that the folks in this room leave here today feeling at least a fraction of the urgency that I feel about the need to implement risk mitigating measures like the Arctic Research, Monitoring and Observing Act and the ICOOS Act Reauthorization now.