

\$18.6 Million



Minnesotans gained \$18.6 million in economic benefit from Minnesota Sea Grant programs and services in 2016. Minnesota Sea Grant created or sustained 236 jobs, helped 57 communities and helped the Port of Duluth-Superior implement sustainable economic and environmental land-use planning. Sea Grant preserved millions in property values through aquatic invasive species prevention education.

Citizen Science



Minnesota Sea Grant co-founded the Lake Superior Regional Citizen Science Collaborative to identify opportunities for Minnesotans to participate in science and collaborate with researchers, educators and other volunteers. The collaborative helps citizens and nonscientists make informed decisions about water research priorities and more.

New Data Improves Rip Current Forecasts and Safety Awareness in Western Lake Superior



Posts with rescue equipment and safety information are installed along Lake Superior's Park Point Beach near Duluth, Minnesota in a collaboration among Minnesota Sea Grant, National Weather Service, Duluth YMCA and the city of Duluth. Credit: M. Thoms/Minnesota Sea Grant.

Minnesota Sea Grant led the development of the website ParkPointBeach.org that provides live information about water and weather conditions for the Lake Superior beach on Park Point in Duluth. The Point is one of largest freshwater sandbars in the world and attracts thousands of residents and visitors who can be unfamiliar with hazards of a Great Lake. ParkPointBeach.org includes a beach cam, information on rip currents, bacteria warnings, daily UV index and weather forecasts. Real-time wave-height and improved water-temperature data were added in 2016. The National Weather Service office in Duluth uses the data to forecast rip current risk and set the red, yellow or green beach hazard flags for the day.

K-12 Students & Educators

In 2016, Minnesota Sea Grant extension educators reached more than 16,000 Minnesota students with sound water science. By 2017, nearly all Duluth-area students in 6th to 12th grade had received rip current awareness and education from Sea Grant educators at Duluth's annual River Quest event. In 2016, the Minnesota Sea Grant Partners in Education program supported 18 student volunteers who delivered 57 classroom lessons - an estimated value of about \$17,000. Minnesota and Wisconsin Sea Grant partnered to host Great Lakes shipboard science workshops that trained 27 teachers in hands-on water science in 2016. These teachers reached about 800 students in Minnesota.

Green Infrastructure Summit

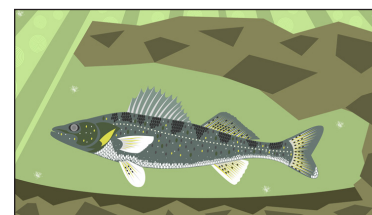


Minnesota Sea Grant and partners trained 183 stormwater professionals, planners, state and local agency staff and private industry representatives in green infrastructure research-based tools, strategies, practices and policies in a one-day summit in 2016. Green infrastructure is a cost-effective, resilient approach to managing wet weather effects that provides many community benefits. Participant surveys showed 91% increased their knowledge of green infrastructure planning.



Food-Fish Aquaculture Workshop and Report

Minnesota Sea Grant hosted the state's first food-fish aquaculture workshop in 2017, which brought together more than 30 aquaculture experts from industry, government and academia to begin envisioning the state's aquaculture future. The workshop addressed the status, trends and future for raising food-fish such as walleye, trout and shrimp. Sea Grant is currently working with the Minnesota Department of Natural Resources to help communicate what information is required for start-up aquaculture businesses. Sea Grant is also pursuing funding for a Minnesota-based aquaculture market study. Workshop report is online at: <http://bit.ly/AquaReport>.



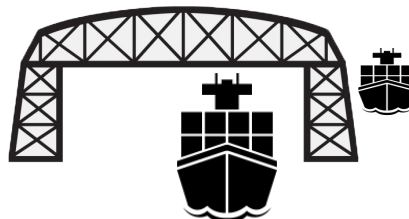
Preventing the Spread of Aquatic Invasive Species

Minnesota Sea Grant leads the Great Lakes Sea Grant Network in helping protect water resources from the spread of aquatic invasive species, in part, through the hosting of education and outreach booths and events.



These events have helped rehome snakes, turtles, fish and aquatic plants. Sea Grant led the formation of the Habitattitude-Surrender Collaborative and Surrender Network to provide pet owners with environmentally safe alternatives to releasing unwanted animals into the environment.

Advising on Dredge Material Recycling and Reuse



Minnesota Sea Grant is contributing to the delisting of a Great Lakes Area of Concern by advising on the use of cleaned dredge materials to remediate contaminated sites and restore wetlands. Innovation and cooperation on dredging allow continued commercial activity in the Port of Duluth-Superior while reducing disposal costs, creating revenue and generating economic opportunities within the harbor and surrounding communities.

Facilitating Great Lakes Oil Transportation Discussions

At the 2017 Crude Moves Oil Symposium, Minnesota Sea Grant helped coordinate sessions on regional transportation, how crude oil moves and a financial analysis of the region's oil industry for the Great Lakes-St. Lawrence River Basin. The symposium addressed oil transportation hazards and risk, emergency responses and lessons learned from the Great Lakes and St. Lawrence River region and lessons learned from the New Horizon oil rig explosion in the Gulf of Mexico. Attendees came from the U.S. and Canadian



governments, and stakeholders from industry, academic and nongovernmental organizations.