DULUTH, MN LABORATORY

US EPA OFFICE OF RESEARCH AND DEVELOPMENT

At a Glance

The EPA-ORD laboratory in Duluth, MN is recognized as a leader in advancing scientific knowledge and expertise concerning the effects of stressors on the water resources of the Great Lakes, and the impacts of those changes on benefits to people. The laboratory contributes to the local economy in Duluth and the surrounding region, and staff are active participants in the local community.

Science: ORD is a world-class research organization, and the research conducted by scientists in Duluth has far-reaching significance. EPA scientists in Duluth are leaders in predicting and assessing the potential effects of stressors such as pesticides, bacteria, and changes in land use on the water quality and condition of the Great Lakes, the largest body of freshwater in the world. One example is early detection of invasive species, a plants or animals that are foreign to an ecosystem. Once established, it is extremely difficult to control the spread of an invasive species and the damage it creates.

***Community Engagement*:** Staff are active members in the Duluth community. To celebrate its 50th Anniversary this year, the laboratory will hold an open house highlighting the health of the Great Lakes and the science behind it. In May, staff take part in River Quest to educate students on the impact and activity of people on Lake Superior and the St. Louis River Corridor. Since 1993, River Quest has provided hands-on learning to over 23,000 students.

Economic Impacts: The $6.4 million in disposable income from federal jobs and over $8.6 million on contracts, grants, and supplies and equipment that are injected into the local economy have broader impacts as that spending supports additional jobs and spending, and as workers buy goods and services in the community using their disposable income.

Duluth Laboratory Impacts by the Numbers

Duluth (St. Louis County), MN		
136 Total jobs at the laboratory	**$14.5 million** Annual payroll, on-site contracts, and grant dollars supported by lab	**63** Federal jobs on-site
21%[1] Percent of U.S. fresh water supplied by the Great Lakes	**37** Post-doctoral, student, and visiting researchers on-site	**0** Potential net water usage at the lab due to conservation
	3 counties, 2 states Where Duluth lab employees live	

[1]https://www.epa.gov/greatlakes/great-lakes-facts-and-figures

Did you know?

- In addition to federal scientists, the laboratory provides 73 on-site jobs including post-doctoral researchers, student contractors, and facility staff.
- The laboratory has unique and valuable capabilities to grow and hold a large variety of freshwater animals for use in scientific studies.
- The laboratory generates chemical toxicity data for fresh water organisms .

Turn over for more science!

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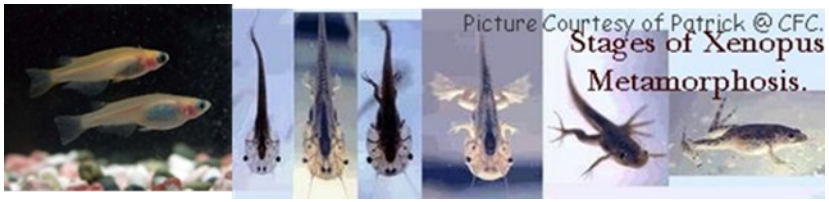
The Duluth research facility is home to the EPA Office of Research and Development's Mid-Continent Ecology Division. It is located on 13 acres adjacent to Lake Superior and occupies 90,138 ft2 of laboratories, offices, and support operations. Originally constructed in 1967 for the Department of Interior as the National Water Quality Laboratory, the Duluth campus became part of EPA in 1970.

Mission and Science Facilities

Scientists at Duluth provide leadership in freshwater toxicology and ecology with a goal of predicting and assessing the effects of stressors on the aquatic resources of the Great Lakes and the Nation, and describing how changes in those resources affect the well-being of humans. The Duluth facility has unique capabilities, including the ability to grow multiple freshwater species for toxicity testing. A few examples of the research conducted are summarized below.

Assessing the Effects of Chemicals on Aquatic Species.

Duluth scientists have developed methods to assess the amount of chemicals in freshwater and sediment. Using their unique freshwater culture and testing systems, scientists are able to determine the effects of exposure to these chemicals on multiple freshwater species.



Evaluating Chemical Safety

In June 2016, Congress adopted significant reforms to the Toxic Substances Control Act (TSCA). TSCA mandates that the EPA reviews all existing and new chemicals for toxicity to humans and wildlife. Duluth scientists have developed tools and approaches that will allow EPA to screen, prioritize, and assess hazards associated with chemicals, and are providing science to support better, faster, and more efficient regulatory decisions for EPA. One approach is called Adverse Outcome Pathways, which is a way to show the linkages from molecular interactions of a chemical with biological processes (for example digestion) to effects at the level of human health and health of aquatic and wildlife resources

Protecting and Restoring the Great Lakes

Taken together, the five Great Lakes contain 21% of the world's surface fresh water, forming the largest body of fresh water in the world. Research and development at the Duluth laboratory includes comprehensive programs to monitor, assess and predict the condition of Great Lakes waters and coastal systems. Scientists are working on approaches for early detection of invasive species, those that are not native to the Great Lakes. Once introduced, they can spread rapidly, adversely affecting ecosystems and ultimately the economy, health, and well-being of the people that rely on the system for food, water, and recreation. Prevention is the most cost-effective approach to minimizing the damages of invasive species, so early detection is essential.

The Great Lakes Restoration Initiative was launched in 2010 to accelerate efforts to protect and restore the Great Lakes. The Duluth laboratory has provided critical science support for this effort. For example, partnering with the Minnesota Pollution Control Agency, the laboratory has been instrumental in providing data, analytical expertise and guidance to remove "Beneficial Use Impairments (BUI's)" in the St. Louis River areas of concern in Duluth, MN and Superior, WI. These areas represent the largest and most complex of the 43 legacy pollution sites identified in the Great Lakes Restoration Initiative, and the partnership supports Minnesota in meeting its Great Lakes Restoration Initiative target dates.

Scientists at the Duluth laboratory have developed methods for measuring ecological, public health, economic and social benefits of remediation and restoration of contaminated sites. Cleaning up sites and revitalizing Great Lakes communities ensures that future generations can enjoy this unique national treasure.

For more information, please visit: https://www.epa.gov/aboutepa/about-mid-continent-ecology-division-med-epas-national-health-and-environmental-effects