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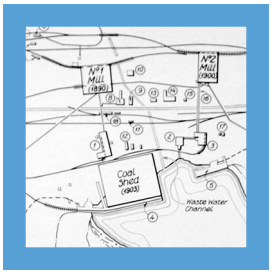

WHO IS DOING WHAT AT TORCH LAKE?

From 1845 to the 1960s, the Keweenaw Peninsula was home to intensive copper mining. Part of the mining legacy is contamination. The ongoing cleanup of the water, fish, soils, and sediments in and around Torch Lake is the responsibility of several government programs. Who is involved in cleaning up this area? What are they doing? This fact sheet provides an overview of the cleanup work and oversight at Torch Lake.

Primary responsibility for cleanup resides with the Superfund Program of the U.S. Environmental Protection Agency (EPA) and the Michigan Department of Environmental Quality (MDEQ), as described in more detail below. EPA worked closely with MDEQ to carry out the work at Torch Lake.

The Michigan Department of Health and Human Services (MDHHS), the Houghton-Keweenaw Conservation District (HKCD), and other organizations also work on specific, targeted problems associated with Torch Lake contamination.

1. United States Environmental Protection Agency Region 5

The Environmental Protection Agency is contributing to several aspects of clean up, removal, and remediation, including:

A. Superfund Long-term Cleanup Program

This program has been active around Torch Lake and in Houghton County since the 1980s. The EPA has completed the covering and re-vegetation of stamp sands in the towns of Lake Linden, Hubbell/Tamarack, and Mason. These sands have been delisted from the Superfund Program and their status is reviewed every five years. Visit the Torch Lake Superfund webpage at: *https://cumulis.epa.gov/supercpad/cursites/csitinfo.cfm?id=0503034*

B. Emergency Response and Removal Program

This program rapidly cleans up polluted sites inside or outside the Superfund boundaries around Torch Lake that pose an immediate threat to humans. For example, in recent years, the program has addressed problems of metal and arsenic contamination in Mason and Lake Linden and asbestos contamination at the Quincy smelter. An emergency response has been completed at the Calumet & Hecla Powerhouse and Michigan Smelter to remove asbestos, PCB, and metal contamination. Learn more at: *www.epa.gov/region5/cleanup/chpowerplant*

Past emergency removals have included (partial listing):

- Metals and PCBs at Lake Linden beach in 2007 *www.epaosc.org/site/site_profile.aspx?site_id=3346*
- Asbestos at the Quincy Smelter in 2008 *www.epaosc.org/site/site_profile.aspx?site_id=889*
- Arsenic-contaminated soil and waste barrels at Mason stamp sands in 2008 *www.epaosc.org/site/site_profile.aspx?site_id=4625*

C. Area of Concern Program (AOC)

The EPA delegates primary responsibility to the states for implementation of this program — however, each Area of Concern (i.e., a location on the Great Lakes determined by EPA to have experienced significant environmental degradation) has an EPA liaison. The EPA summary of AOC activities at Torch Lake may be viewed at: *www.epa.gov/torch-lake-aoc*

2. Michigan Department of Environmental Quality

Several divisions and work groups connected to MDEQ work in the Torch Lake area, including:

A. Office of the Great Lakes
Responsible for cleaning up the water pollution from past mining activities within Torch Lake under the Great Lakes Water Quality Agreement (GLWQA), signed by the U.S. and Canada.

Two major barriers (called beneficial use impairments or BUIs) to safe and clean water in Torch Lake remain:

1) Restrictions on fish and wildlife consumption – due to fish observed to be contaminated with mercury and PCBs; and
2) Degradation of benthos – due to the presence of sediments at the bottom of the lake that contain high levels of toxic metals such as copper and cadmium, and also PCBs.

B. Torch Lake Public Advisory Council (PAC)
Authorized by and working with the MDEQ and the EPA, the Torch Lake PAC is a group of local citizens and experts involved in improving the water quality and human health of the Torch Lake area. It was elected in 1997 to work with the EPA and MDEQ toward the delisting of Torch Lake from the Areas of Concern list. The PAC was instrumental in obtaining funding for remediation of the Superfund locations. It is one of 12 PACs in Michigan.

C. MDEQ Remediation and Redevelopment Division (RRD)
In conjunction with EPA, the RRD oversees three independent activities around Torch Lake.

These include:

- Working closely with the EPA to implement remediation actions (called the Record of Decision). Once remediation is completed, the responsibility for all further monitoring and implementation falls to the MDEQ Superfund office;
- Conducting ongoing investigations of mining sites around Torch Lake that are not included within the AOC or Superfund boundaries, but may contribute to pollution in and around Torch Lake. The investigations clarify whether these locations need immediate attention by the EPA Emergency Response and Removal Program, need to be listed as new Superfund sites, or do not need further remediation;
- Identifying all sites that have hazardous substances at concentrations above residential criteria under Michigan's Part 201 Program (Environmental Remediation).

D. MDEQ Water Resources Division
Responsible for protecting the quality of water in Michigan's lakes and streams. Some lakes and streams on the Keweenaw Peninsula are contaminated with copper that has leached out of mine spoils. The Division is charged with making plans for how to clean those waterways and bring the copper down to levels that are non-toxic to wildlife. The Traprock River that flows into Torch Lake is one of the contaminated rivers for which MDEQ has proposed a remediation plan.

SUPERFUND VS. AREA OF CONCERN PROGRAM

Many confuse the Superfund clean-up activities with those of the AOC, but they are two separate programs. The Superfund program began in 1980 with the passage of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), the goal of which is to clean up sites of past disposal of hazardous substances. Torch Lake was declared a Superfund site in 1986.

The primary threat from this site was concluded to be its damage to the ecosystem, with the most severe impact being the harm to the lake bottom from toxic metals. The EPA's remedy for the site, published in 1992, was to cap the above-water piles of mine tailings and slag with uncontaminated soil. The lake was left to recover on its own through natural sedimentation processes. Capping of exposed stamp sands started in 1998 and was completed in 2005. Tailings and slag piles along the lake and stamp sand piles in four other locations have been delisted. Once a site is delisted, responsibility for operation and maintenance passes from EPA to the MDEQ.

For more information see: *https://cumulis.epa.gov/supercpad/cursites/csitinfo.cfm?id=0503034*

The AOC program was authorized by the Great Lakes Water Quality Agreement between the U.S. and Canada. The goal is to clean up sites on the Great Lakes that have experienced severe environmental degradation. Torch Lake was added to this program in 1985. The AOC program identified three beneficial use impairments (BUIs), and sites are not removed from the program until all impairments have been removed. To date, one impairment (fish tumors), has been removed but the other two impairments (degradation of benthos and restrictions on fish consumption) remain in effect.

OVERVIEW: WHAT'S HAPPENING AT TORCH LAKE?

The health of the environment in and around Torch Lake is important to the well-being of the surrounding human and wildlife communities. Managing the protection of these communities is the responsibility of a network of government agencies from federal to local levels.

Who's Doing What?

Fish Health and Populations

- Stocking the lake (walleye) – MDNR/ Keweenaw Bay Indian Community (KBIC)
- Sampling and analysis for contaminants – MDHHS/MDEQ/MDNR
- Fish consumption guidelines – MDHHS

Soils

- Covering and planting over stamp sands – EPA Region 5 Superfund Program
- Testing soils on newly exposed shoreline and around abandoned industrial sites for contamination – MDEQ Remediation and Redevelopment Division, MDHHS
- Emergency remediation or removal of highly contaminated soils, sediments, or water – EPA Emergency Response and Removal Program
- Management of Part 201 Facilities – MDEQ Remediation and Redevelopment Division

Water and Sediments in Torch Lake

- Testing and monitoring the health of sediments (benthic community) – MDEQ Remediation and Redevelopment Division as part of the Superfund monitoring; MDEQ Water Resources Division as part of responsibilities under the national Clean Water Act
- Well water testing for ground water contamination – Western Upper Peninsula Health Department
- Testing lake water near bathing areas during summer months – Western Upper Peninsula Health Department
- Assessing lake and river waters for health threats to humans and wildlife – MDEQ Water Resources Division

Overall Human Health

- Emergency remediation and removal of hazardous chemicals and metals that threaten human health in specific locations – EPA Emergency Response and Removal Program
- Determining risk of exposure to stamp sands and toxic chemicals from past mining and reclamation activities – MDHHS with support from the Agency for Toxic Substances and Disease Registry (part of the Center for Disease Control)
- Determining which fish are safe to eat – MDHHS, MDEQ, and MDNR
- Preventing unsanitary water from entering into Torch Lake from domestic and industrial locations – Torch Lake Area Sewerage Authority and MDEQ
- Enabling citizen participation in Torch Lake remediation and site investigations – Torch Lake PAC

ABOUT THIS PROJECT

Intensive copper mining took place on the Keweenaw Peninsula from 1845 through 1968. Mining shaped the people and the environment of the Copper Country, as it is known, and continues to influence the region today.

On the social side, mining influenced individual lives. Where and how people lived, their social status, their health, and their longevity were all influenced by mining activity. Mining also affected community population and dynamics, dictating the locations of towns, social structures, and transportation systems.

On the environmental side, mining influenced the shape of the land surface and waterways, the quality of the air as well as surface and ground water. It also exposed humans and ecosystems to a variety of pollutants.

Torch Lake, one hub of mining-related activities, has become the center of efforts by regulatory agencies to mitigate harmful impacts from mining activities. This project was conducted by researchers at Michigan Technological University and funded by Michigan Sea Grant. Researchers assembled and evaluated available information, identified critical information gaps, and, by working with local stakeholders and government agencies, helped determine possible pathways for improving conditions in and around Torch Lake.

ADDITIONAL PARTNERS

Michigan Department of Health and Human Services (MDHHS)

Michigan's Health Department is working on Torch Lake's contaminated fish and soil issues. To read the fish consumption guidelines for Torch Lake issued by MDHHS, see: *www.michigan.gov/eatsafefish*

For example, there are fish consumption guidelines for some Torch Lake species. During the summer of 2013, MDHHS requested that MDEQ and MDNR expand sampling in order to assess PCB and mercury contaminants in fish.

Toxicologists at MDHHS have conducted evaluations of contaminant levels at locations in and around Torch Lake. They recently released studies on physical and chemical hazards. For the reports, see: *www.michigan.gov/mdch/0,4612,7-132-8347-298746--,00.html*

Michigan Department of Natural Resources (MDNR)

The MDNR is responsible for managing the Torch Lake fishery, including fish habitat. They conduct population and habitat assessments, and assist the MDHHS in conducting fish sampling for contaminant studies.

In addition, the MDNR and the KBIC stock walleye in Portage and Torch lakes. For stocking data, see: *www.michigan.gov/dnr/0,4570,7-153-10364_53405-355970--,00.html*

Houghton-Keweenaw Conservation District (HKCD)

The Houghton-Keweenaw Conservation District was formed in 1951 to serve the natural resource needs of Houghton and Keweenaw counties. It is a locally controlled resource management agency, created by concerned landowners and administered by a publicly elected board of directors.

The HKCD helps develop solutions to local resource management problems. For example, the HKCD wrote a Watershed Management Plan for the Traprock River that then led to restoration activities to reduce copper concentrations in Kearsarge Creek.

Keweenaw Bay Indian Community (KBIC)

The KBIC conducts environmental assessments in the waterways of Michigan's Upper Peninsula. They monitor water quality and fisheries, and manage wetlands.

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Michigan Sea Grant helps to foster economic growth and protect Michigan's coastal, Great Lakes resources through research, education and outreach.

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