Mining and Great Lakes Communities:
Past, Present and Future Concerns for the Environment

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- Bay Mills Indian Community
- Grand Traverse Band of Ottawa and Chippewa Indians
- Little River Band of Ottawa Indians
- Little Traverse Bay Bands of Odawa Indians
- Sault Ste. Marie Tribe of Chippewa Indians
Dates and Boundaries of Major Indian Land Cessions in Michigan

1807 - Ceded by the Ottawa, Chippewa, Wyandott, and Potawatomi
1819 - Ceded by the Chippewa
1821 - Ceded by Ottawa, Chippewa, and Potawatomi
1836 - Ceded by Ottawa and Chippewa
1842 - Ceded by Chippewa on Lake Superior


H.H. Tanner, 1974

Ceded waters of Chippewa-Ottawa Treaty of 1836

Figure 1
The Lake Superior Binational Program

• Created Under the Great Lakes Water Quality Agreement between Canada and the United States.

• The Agreement Requires Lakewide Management Plans to “reduce loadings of Critical Pollutants in order to restore beneficial uses”

• Mining Committee created because there was realization that the goals could be compromised by large scale proposals
Mines Once Employed Thousands in U.P.

Now We Have Highest Unemployment in State
The Economic Anomaly of Mining

• The Economic Promise
  - Tremendous Wealth Extracted
  - High Wages Paid

• The Economic Outcome:
  - Depressed and Rundown Towns & Regions
  - Lower Average Incomes, Higher Unemployment and Higher Poverty
  - Mining Regions Are Economically Depressed Regions
Our Communities are also Burdened with the Environmental Legacy of Mining
Stamp Sands in Keweenaw Peninsula Still Impacting Lake Superior

• Estimated 360 million metric tons of stamp sands dumped into Lake Superior and inland waters

• This material may also contain large amounts of mercury – is it contributing to high levels in fish?

• Torch Lake Superfund site is also Lake Superior Area of Concern (AOC)
Reserve Mining Company Discharged Directly to Lake Superior at Silver Bay, MN

- Over 500 million metric tones of pulverized iron tailings dumped into Lake Superior
- Tailings contained asbestos-like minerals that contaminated Duluth and Superior drinking water
- Landmark EPA case in 1970’s
White Pine Copper Mine Was Major Contributor to Mercury in the Lake Superior Basin

• Smelter contributed 550 Kg/Yr of Mercury to the basin

• Over 14,000 acres of land in the Upper Peninsula was impacted due to the mine including wetland destruction and contamination with copper, mercury and industrial chemicals

• Mine was closed in 1995
Wawa Sintering Plant was the largest contributor of Mercury on the Canadian Side of Lake Superior

- Plant processed high sulfur and arsenic bearing iron ore

- Contributed about 600 kg/yr of mercury

- The extremely high levels of SO$_2$ and arsenic led to a “fume kill” zone that extended for 40 km

- Mine was shut down in 1998
Taconite Mining Continues to Contribute Mercury

- Taconite processing on Minnesota’s North Shore contributes about 380 Kg/Yr of mercury to the basin.

- Expansion and additional mining and refining of ore could doom Zero Discharge Program to failure?
## Mercury Discharges and Emissions (kg/yr) from Sources in the Lake Superior Basin

### Percentage of Mercury Discharges and Emissions

**2005** (total 635 kg)

- **Mining/ Metals Production**: 57%
- **Fuel Combustion**: 33%
- **Incineration**: 4%
- **Waste Handling/ Landfills**: 2%
- **Municipal/ Institutional**: 2%
- **Product Volatilization**: 1%
- **Industrial**: 1%

**2010** (total 431 kg)

- **Mining/ Metals Production**: 65%
- **Fuel Combustion**: 33%
- **Incineration**: 3%
- **Waste Handling/ Landfills**: 1%
- **Municipal/ Institutional**: 1%
- **Product Volatilization**: 1%
- **Industrial**: 1%

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**Legend**
- **Light Green**: Mining/ Metals Production
- **Gray**: Fuel Combustion
- **White**: Incineration
- **Red**: Waste Handling/ Landfills
- **Beige**: Municipal/ Institutional
- **Blue**: Product Volatilization
- **Blue/Dark Blue**: Industrial
Current, Proposed Mines and Exploration
What are the Main Concerns?

• Habitat Loss from Large Scale Open Pit Mining

• Acid Mine Drainage

• Air Emissions from New Smelters or Processing Plants

• Perpetual Maintenance