

International Joint Commission  
Canada and United States



Commission mixte internationale  
Canada et États-Unis

July 11, 2014

Mr. Chris Korleski  
Director, Great Lakes National Program Office  
U.S. Environmental Protection Agency  
77 West Jackson Blvd.  
Chicago, IL 60604-3590  
U.S.A.

**Re.: Deer Lake Area of Concern Final Delisting Report**

Dear Mr. Korleski,

We are writing in reply to your letter dated June 3, 2014, formally requesting the Commission's review of the Final Delisting Report for the Deer Lake Area of Concern (AOC), in accordance with Annex 1 of the Great Lakes Water Quality Agreement. As the first delisting processed under the Agreement as revised by Protocol in 2012, this is an historic milestone.

The Commission has reviewed available Deer Lake Remedial Action Plan (RAP) reports and finds that there is adequate justification to remove the three impaired beneficial uses, including Bird or Animal Deformities or Reproduction Problems, Eutrophication or Undesirable Algae, and Restrictions on Fish and Wildlife Consumption. Further, we agree that Deer Lake should be delisted as an Area of Concern. More detailed comments that support this assessment are attached, some of which are applicable to other AOCs and could be considered in the preparation of future delisting reports.

Commission staff attended the Deer Lake Public Advisory Council's (PAC) meeting on November 5, 2013, where the PAC endorsed proceeding with the delisting process, as well as the Delisting Public Meeting held on June 17, 2014. Commission staff have also commented on an earlier version of the Delisting Report. The Commission has appreciated this engagement and the responsiveness of U.S. EPA and Michigan Department of Environmental Quality (MDEQ) staff to our earlier comments.

Since the listing of Deer Lake as an Area of Concern in 1987, governments and many other organizations and individuals have made commendable efforts to address impairments and restore Deer Lake. We applaud the partnerships that have made delisting possible.

234 Laurier Avenue W., 22<sup>nd</sup> Floor  
Ottawa, ON K1P 6K6  
Phone: (613) 995-2984 Fax: (613) 993-5583  
[commission@ottawa.ijc.org](mailto:commission@ottawa.ijc.org)

[www.ijc.org](http://www.ijc.org)  
100 Ouellette Avenue, 8<sup>th</sup> Floor  
Windsor, ON N9A 6T3  
Phone: (519) 257-6700 Fax: (519) 257-6740  
[commission@windsor.ijc.org](mailto:commission@windsor.ijc.org)

2000 L St. NW, Suite 615  
Washington, DC 20036  
Phone: (202) 736-9000 Fax: (202) 632-2006  
[commission@washington.ijc.org](mailto:commission@washington.ijc.org)

The Commission supports the continued monitoring of sediment, water and fish as described in the Final Delisting Report. We are also encouraged by the Deer Lake PAC's intent to form a Deer Lake Association to continue its important role as a steward and advocate for the lake after delisting. We hope this effort will be supported to ensure long-term involvement of multiple stakeholders in Deer Lake stewardship.

The Commission is conveying this determination, by copy of this letter, to the U.S. Department of State, Foreign Affairs, Trade and Development Canada, and Environment Canada. Consistent with its current policy, the Commission will make these comments available to the public.

We congratulate the U.S. EPA, MDEQ, Deer Lake PAC and all RAP partners on the delisting of the Deer Lake Area of Concern.

Sincerely,



Lana Pollack  
Chair  
U.S. Section



Gordon Walker  
Interim Chair  
Canadian Section

Attachment

cc. Christopher Wilkie, Foreign Affairs, Trade and Development Canada  
Susan Saarnio, U.S. Department of State  
Catherine Stewart, Environment Canada  
Michael Goffin, Environment Canada  
Jon Gee, Environment Canada  
Susan Hedman, U.S. Environmental Protection Agency  
Mark Loomis, U.S. Environmental Protection Agency  
Jon Allan, Michigan Office of the Great Lakes  
Stephanie Swart, Michigan Office of the Great Lakes  
Diane Feller, Deer Lake Public Advisory Council

**INTERNATIONAL JOINT COMMISSION  
DEER LAKE AREA OF CONCERN DELISTING REPORT REVIEW**

**July 11, 2014**

**Introduction**

Under the Great Lakes Water Quality Protocol of 2012 (the Agreement), Remedial Action Plans (RAPs) for designated Areas of Concern (AOCs) are to be developed and implemented by the Parties (Canadian and U.S. Governments) in cooperation with State and Provincial Governments. The Agreement specifies that AOC Delisting Reports will be submitted to the International Joint Commission (Commission) and to other agencies and stakeholders for review and comment.

The Delisting Report for the Deer Lake AOC has been reviewed by the Commission. For all beneficial use impairments (BUIs), supplemental information was obtained from the individual BUI removal reports for our analysis.

Comments associated with the Commission's review criteria are included below.

**Have the identified delisting criteria have been met for the impaired beneficial uses?  
Were appropriate standards, criteria, and guidelines used, and any assumptions justified?**

The Deer Lake RAP report, prepared by the Michigan Department of Natural Resources in 1987, identified three beneficial use impairments (BUIs) for the AOC.

Eutrophication or Undesirable Algae

The 1987 RAP report identified hypereutrophic conditions in Deer Lake. The major source of nutrients was domestic sanitary waste and municipal wastewater treatment plants. Following construction of an enhanced secondary municipal wastewater treatment plant in 1985, nutrient loadings to Carp Creek and Deer Lake decreased by 89% for phosphorus, and by 95% for nitrogen.

The State of Michigan does not have numeric nutrient water quality standards. Rather, MDEQ uses a narrative test to determine whether waters should be included on Michigan's 303(d) list of impaired waters due to nutrients or excessive algal growth. This approach was also adopted as the delisting criterion for the Eutrophication or Undesirable Algae BUI.

Monitoring completed at Deer Lake from the 1970s to 2006 has documented (i) declines in phosphorus loads and concentrations to levels indicative of mesotrophy, (ii) increases in dissolved oxygen concentrations to levels that generally meet State of Michigan and EPA standards and are favorable to fish survival, and (iii) increases in secchi depths in Deer Lake indicative of reduced algae. Deer Lake no longer exhibits persistent and excessive algal growth.

The Commission finds adequate justification for removal of this BUI.

### Bird and Animal Deformities

The 1987 RAP report identified bald eagle reproduction problems, and documented that the eagle nest on the lake failed to produce any young from 1964 to 1996. Delisting criteria for this BUI are based on the State's guidance, which utilizes a tiered approach. The first tier evaluates restoration based on field assessments of birds and/or other wildlife. The U.S. Fish and Wildlife Service has documented that an eagle pair at Deer Lake has been successfully reproducing between 1997 and 2011 inclusive (the BUI removal report was prepared in 2011). An average of 1.73 young/year have been successfully fledged for the period 1997 through 2011, with no documented eaglet deformities. The U.S. Fish and Wildlife Service and Lake Superior Binational Program recommend a five year productivity average of 1.0 young/year.

While the Commission finds adequate justification for removal of this BUI, the Commission believes that the Delisting Report would be improved by describing the temporal duration of the 'monitoring cycle' referred to in Removal Criteria – Approach 1 (p. 9 of draft Delisting Report). Additionally, the statement "USFWS information has not indicated deformities in the bald eagles nesting at Deer Lake" is vague (p. 11 of draft Delisting Report) and the report would be improved by describing the specific monitoring activities that support the finding of an absence of deformities.

### Fish and Wildlife Consumption

The 1987 RAP report documented that historic mining practices resulted in mercury contamination of Deer Lake. Mercury contamination led to a fish consumption advisory in 1981 by the Michigan Department of Community Health (MDCH) for all species in Carp Creek, Deer Lake and Carp River. This advisory has been in place continuously ever since. Deer Lake is one of the most productive fisheries in Michigan's Upper Peninsula.

The State's *Guidance for Delisting Michigan's Great Lakes Areas of Concern* utilizes a tiered approach for this BUI. Per the Guidance, Tier 3 (trend analysis) should be used when a comparison approach (Tier 1) or appropriate control site (Tier 2) is not applicable. Analysis of fish tissue mercury concentrations completed in support of the BUI Removal Report documents that mercury concentrations in Deer Lake fish have declined at a rate comparable to, or greater than, the rate of decline in two other monitored Upper Peninsula lakes. Further, MDCH will relax the fish consumption guidelines for Deer Lake in the 2013-14 *Eat Safe Fish Guide* from the most restrictive 'Do Not Eat Any Species' category (fish tissue concentrations exceed 1.5 mg/kg mercury) to the 'Limited' category for northern pike, walleye and perch. All northern Michigan inland lakes listed in MDCH's *Eat Safe Fish Guide* have 'Limited' consumption advisories due to mercury contamination primarily from atmospheric deposition. Current consumption advisories for the three AOC waterbodies are similar to several other northern Michigan inland lakes.

The Commission finds adequate justification for removal of this BUI given that Deer Lake fish consumption advisories are similar to other northern Michigan inland lakes *and* local sources of mercury to the AOC have been controlled through remedial actions.

**Did qualified individuals peer review the delisting report and/or individual beneficial use impairment removal reports associated with the delisting?**

The RAP report was prepared by Michigan DEQ in consultation with U.S. EPA staff. Subject matter specialists at each agency peer reviewed the individual BUI removal reports that cumulatively justify delisting. The BUI removal reports, in some cases, include the names and affiliations of the subject matter specialists involved in report preparation and/or review. Named individuals have expertise in the relevant subject matter areas.

The Commission recommends that the names, titles, and affiliations of those subject matter specialists involved in individual BUI removal report preparation or review be included in the relevant sections of the Delisting Report.

**Has RAP implementation been an important step in the elimination of the impaired beneficial uses?**

The Commission finds that remedial actions completed in the 1980s prior to the designation of Deer Lake as an AOC under the 1987 Agreement, as well as additional remedial actions completed since 1987, have contributed to improvements in the AOC.

Major nutrient sources to Deer Lake were untreated wastewater from the City of Ishpeming and Ishpeming Township to Carp Creek prior to 1964, and discharge from three primary wastewater treatment plants operated by the two municipalities between 1964 and 1985. An enhanced secondary municipal wastewater treatment plant to replace the three primary plants was constructed in 1985, after which nutrient loading to Carp Creek and Deer Lake decreased significantly (89% decrease in phosphorus (15,960 lbs/year to annual average of 1,711 lbs/year (1987-1997) and 95% decrease in nitrogen (69,090 lbs/year to 3,051 lbs/ year)). The wastewater treatment plant has a discharge limit of 0.8 mg/L and 8.8 lbs/day for total phosphorus as part of its National Pollutant Discharge Elimination System (NPDES) discharge permit. Separation of the City of Ishpeming's combined sewers was completed in 1986, eliminating the discharge of untreated sanitary sewage to the AOC during wet weather events.

The draft Delisting Report summarizes the remedial actions completed to reduce local sources of mercury to the AOC:

1. A main source of mercury to Deer Lake was caused by discharges from the Cleveland-Cliffs Iron Company assay labs to Ishpeming's sewer system. Lab discharges ceased in 1981 when the problem was identified.
2. Under a consent judgment (1984) and amended consent judgment (2006) with the State of Michigan, Cliffs Natural Resources (Cliffs) drawdown of Deer Lake was discontinued to reduce microbial methylation of mercury in lake sediments. Cliffs maintains a minimum water level elevation through a bottom draw dam at the outlet of Deer Lake, which oxygenates sediments and further reduces the conversion of mercury to biologically available methylmercury.
3. In 1970, Partridge Creek was diverted into an abandoned shaft mine, where water transported mercury to Carp Creek and Deer Lake. Between 2011 and 2013, Partridge Creek was rerouted to bypass the abandoned shaft mine, thereby eliminating an ongoing source of mercury to the AOC.

**If any beneficial uses remain impaired, are these impairments a result of influences outside of the AOC or are the result of natural causes, and have all reasonable actions been taken within the AOC to address the impairments?**

All BUIs have been removed. Although fish consumption advisories remain in effect for Deer Lake, the advisories are similar to several other northern Michigan lakes affected by atmospheric mercury deposition. All reasonable local actions have been taken to control mercury loadings and address the impairments.

The Commission concurs that all reasonable actions to eliminate ongoing local sources of mercury to the AOC have been taken.

**Have Work Plans and resource commitments been made for long term monitoring and other necessary activities?**

Under a consent judgment (1984) and amended consent judgment (2006) with the State of Michigan, Cliffs Natural Resources (Cliffs) is required to maintain lake levels at an elevation that minimizes the methylation of mercury, to monitor fish, water and sediment until 2034 and provide those results to MDEQ, and to monitor mercury concentrations in Partridge Creek. Additionally, sediment chemistry and accretion sampling will be continued in 2014, by U.S. EPA.

In addition to AOC specific ongoing monitoring, non AOC-specific monitoring will be completed. MDEQ's Fish Contaminant Monitoring Program will continue to collect fish from Deer Lake for mercury testing, and MDCH will distribute educational materials for eating AOC fish safely. MDEQ's NPDES permit program will regulate point source discharges to AOC waterbodies. MDNR's fisheries management program will routinely conduct population surveys in Deer Lake and Carp Creek to determine the health of the fishery. Michigan's multi-department Aquatic Invasive Species (AIS) program will continue to work with local partners to prevent, monitor and control AIS. MDEQ's Water Resource Division will conduct basin cycle monitoring of Deer Lake, with the next survey scheduled for 2015. Other examples of ongoing monitoring in the AOC are provided in the Delisting Report.

Although the report does include examples of ongoing monitoring, the Commission believes that the Delisting Report would benefit from additional details about Cliffs' Amended Consent Judgment monitoring activities be included as part of the long-term protection of beneficial uses in Deer Lake AOC.

**Has public consultation been adequate?**

The Deer Lake Public Advisory Council has played a substantial role in the RAP process since its designation as an AOC in 1987. IJC staff had an opportunity to observe the PAC meeting on November 5, 2013 where it endorsed the final BUI Removal Report and voted unanimously in support of delisting the AOC, as well as the Delisting Public Meeting held on June 17, 2014. Through observing those meetings, as well as individual conversations with the PAC Chair and several long-standing PAC members, PAC support for delisting appears strong.

The Commission finds it laudable that following delisting, the PAC intends to continue its role as a voice for, and steward of, the lake as the Deer Lake Association.

## **Conclusion**

The Commission concurs that to the extent the RAP can have influence over local conditions, beneficial uses have been restored and there is adequate justification to delist the Deer Lake AOC.