

Niagara River RAP Beneficial Use Impairment (BUI)

Restrictions on Fish Consumption

Impaired

Status of BUI assessment:

- Anticipated - 2016.

Current Niagara River RAP Delisting Objectives:

1. No restrictions on the consumption of sport fish in the Ontario portion of the AOC due to locally-controllable contaminant (PCBs and dioxin-like PCBs) sources. The probable sources of contaminants causing the restrictions will be considered; locally-controllable contaminant sources will be addressed by the Niagara River RAP. Any regional or upstream sources that are likely the cause of remaining restrictions on sport fish consumption in the AOC will be identified and referred to a broader regional program (i.e., Lake Ontario Lake-wide Management Plan, Lake Erie Lake-wide Management Plan and Niagara River Toxics Management Plan.) Restrictions on sport fish consumption in the AOC will be evaluated through comparison to restrictions present in appropriate fish species from a suitable non-AOC reference sites or sites.
2. OR if a contaminated site (as designated by the Niagara River Contaminated Sediment Technical Advisory Group fails to meet the criteria described above in regards to fish and wildlife consumption, then a risk based Contaminated Sediment Management Strategy must be in place with appropriate monitoring and mitigation measures and/or administrative controls.

Canadian/American AOC Comparisons: In the Niagara River (New York State) RAP, this BUI was designated as "Impaired".

Lead agencies: Ministry of Environment and Climate change (MOECC) – Environmental Monitoring & Reporting Branch (EMRB)

What was the problem?

- The Stage 1 report (1993) stated "Fish consumption advisories are in effect for the lower Niagara River for large sizes of freshwater drum, coho salmon, chinook salmon, white perch, lake trout, American eel, rainbow trout, yellow perch, channel catfish and smallmouth bass. Similar consumption advisories are in effect for the upper Niagara River for freshwater drum and white sucker. Contaminants involved are: mercury, mirex, PCBs, metals, pesticides and 2,3,7,8 dioxin."

What Do We Know?

- The Niagara River was identified as a river with serious water pollution problems since the early 1900s. The focus of concern from conventional pollutants to persistent toxic chemicals occurred in the 1980s, following the release of the Niagara River Toxics Commissions (NRTC) report (1984). Since then, annual sampling and analysis of fish flesh from sport and forage species in the upper and lower Niagara River has determined toxic contaminant body burdens and established consumption advisories.
- The Welland River flows through agricultural land and is a turbid, eutrophic river. Significant zones of contaminated (heavy metals) sediments existed in the lower Welland River (at Atlas Steel) until they were removed through a RAP dredging project in the mid-1990s (i.e. the Welland River Contaminated Sediment Cleanup Project).
- PCB-contaminated sediments exist at locations along Lyons Creek as a result of pre-1970s industrial activity.
- The 14 contaminated sediment sites identified within the AOC included some tributaries that flow directly into the Niagara River.
- The Ontario Ministry of Natural Resources (MNR), Niagara Area Office, and the Ontario Ministry of the Environment (MOE) Sport Fish Contaminant Monitoring Program collect fish within eight discrete areas ("sampling blocks") in the Ontario portion of the AOC. All contaminant analyses are conducted by MOE.
- Fish consumption advisories are still in place for the Niagara River. The advisories are based on health protection guidelines provided by Health Canada. Fish consumption advisories are based on the most restrictive contaminant.
- New York State publishes fish consumption restrictions data for the U.S. side of the Niagara River.
- Some of the NRTC "priority toxics" sources are from upstream (Lake Erie) and a few from along the Niagara River.
- Results from a study (Karst-Riddoch et al., 2008) on changes in contaminant burdens in Niagara River sport fish following remedial actions to reduce toxic loadings since 1986/87 indicate the following:
 - Significant changes, resulting in lower concentrations of mercury and organic pollutants, have occurred over the past 20 years in Niagara River sport fish. These declines are consistent with the reduction of Niagara River contaminant sources resulting from mitigation efforts under the NRTMP.
 - Reduced bioavailability of Niagara River sources of contaminants is evidenced from biomonitoring studies (mussels and juvenile forage fish) (French, et al. 2011) and upstream/downstream water and sediment monitoring (Burniston, et al. 2012).
 - In the most recent sample year (i.e. 2002 for lake trout, 2004 for rainbow trout and freshwater drum), only total PCB concentrations still exceeded the MOE consumption restriction guidelines. PCBs in Niagara River sport fish likely originate primarily from sources within the river.
- It's anticipated that fish consumption advisories will remain in effect after the Canadian portion of the AOC is delisted.

What Has Been Done?

- Ontario municipal and industrial point sources to the Niagara River have been reduced significantly and comply with MOE's Certificates of Approval. Between 1986 and 1995, sampling results indicated a 99% reduction in loadings discharges of the 18 Chemicals of Concern to the Niagara River. (MOEE, 1996)
- Ongoing upstream/downstream monitoring through the Niagara River Toxics Management Plan (NRTMP) since 1987.
- OMOE sport fish contaminant monitoring program most recently conducted for the entire AOC in 2009/10.
- Sport fish were collected by electro-fishing in Lyons Creek East in 1991-92, 1994, 1999- 2000, 2002-03 (Fletcher & Petro, 2005), and 2008-09, with some additional work in 2010 to support the long-term monitoring of the contaminated sediments.
- In Lyons Creek East, Monitored Natural Recovery was selected as the management strategy for the contaminated sediments. An Administrative Controls Protocol was developed and since 2011 is being implemented by the signatory agencies, with the NPCA as the lead coordinating agency.
- Transport Canada is the major property owner at Lyons Creek West. Franz Environmental Inc. conducted a field investigation and site specific risk assessment in 2006. Arsenic contaminated sediment and soil were removed by Hydro One in September 2007.
- Assessments of the remaining tributary creeks' contaminated sediment sites indicated that there was no potential risks to biota and no further action required (Stage 2 Update report, Table 8, 2009).
- See Status Sheet for on AOC contaminated sediment sites and related project reports and references.

What Still Needs To Happen?

- Enhanced fish collection and analyses of fish for contaminants anticipated in 2016-17.
- MOECC-EMRB needs to carry out the technical BUI assessment for the Niagara River.
- To initiate public consultation, a public guidance document will be released to summarize the BUI assessment reports. The guidance document will explain how the assessment for each of the "Impaired" BUIs were completed, provide the rationale for the "Not Impaired" re-designation and how to obtain more information. Following consultation with all stakeholders and the public, the RAP Coordinating Committee will complete a final evaluation and recommend whether or not all BUIs have been remediated or restored, resulting in the "delisting" of the AOC. The final decision to delist the Niagara River AOC will then be made by federal, provincial, and local RAP participants, with advice from the International Joint Commission.

Who will write the assessment?

- MOECC-EMRB will write the technical assessment

Who will do peer review?

- RAP Committee and fisheries experts, US and Canada

When Will The Status Change?

- Anticipated 2018

May 2016