

BUI 1A RESTRICTIONS ON FISH CONSUMPTION CRITERIA UPDATE

OCTOBER 2020



HAMILTON
HARBOUR
REMEDIAL ACTION PLAN



Fish Consumption Criteria Update



Most fish from Hamilton Harbour are safe to eat; however, restrictions on their consumption are strongly advised. These restrictions should lessen as historical pollution is cleaned up and the Harbour becomes a healthier place for fish to live. The Hamilton Harbour Remedial Action Plan works with partners to clean up the Harbour with the goal of making fish safer to eat for the community. Periodically, goals (criteria) of the Remedial Action Plan are reviewed and modernized as knowledge is gained.

Previous Criteria

There is no significant difference in the fish consumption advisories for Hamilton Harbour compared to reference location(s) and the contaminants of concern are declining in Hamilton Harbour fish.

New Criteria (2020)

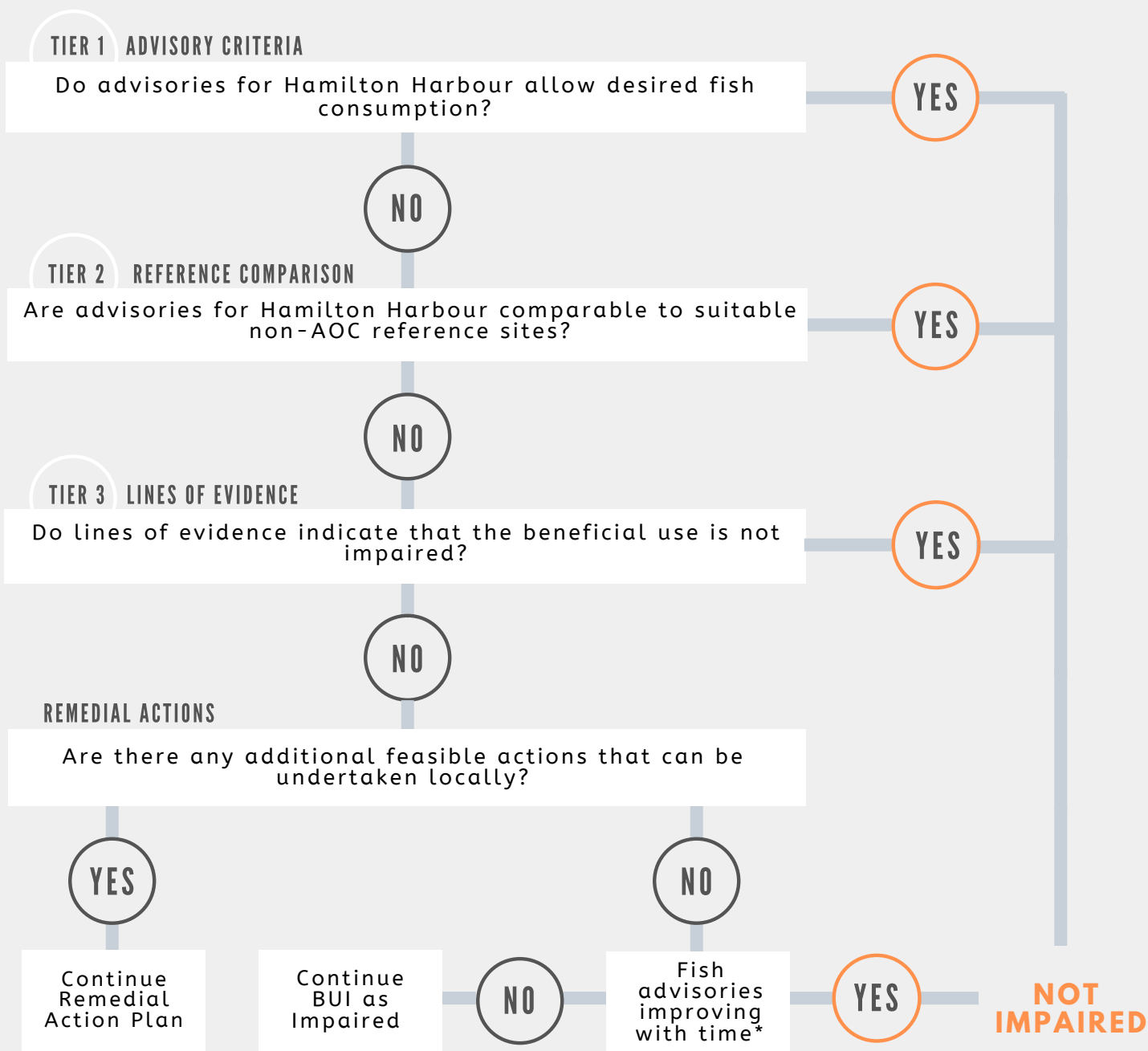
Consumption advisories for fish of interest in Hamilton Harbour are non-restrictive or no more restrictive than the advisories for suitable reference site(s) due to contaminants from locally-controllable sources.

Cover Photo Credit: Fisheries and Oceans Canada
Photo Credit (below): P. McColl



BUI 1A

FISH CONSUMPTION DECISION MAKER



*Where a substantial response delay to previous action can be expected, no additional relevant actions have been identified, fish consumption advisories are predicted to be non-restrictive or the same/less restrictive than reference sites within a reasonable time period (e.g. in 10 years), the BUI may be recommended to be re-designated as not impaired along with other mitigation considerations. Such a re-designation could support an Area of Concern in Recovery designation for the AOC when all remedial actions identified in the RAP have been completed and more time is needed for restoration targets to be achieved (Bhavsar et al. 2018).

Flow chart adapted from Bhavsar et al. (2018) and is subject to revision.



Photo Credit: J. Dziuba

Fish Consumption

Background and Rationale for the Changes

History

Restrictions are advised on eating fish from the Hamilton Harbour Area of Concern. Consumption advisories (or the number of fish meals that can be eaten in a given time period) is driven by a contaminant called PCBs or polychlorinated biphenyls. Hamilton Harbour is heavily contaminated with PCBs through past manufacturing uses as well as prior waste management practices. PCBs tend to accumulate in fat and the level of contamination can be measured. An advisory can be non-restrictive, partially restrictive, or may advise do not eat depending on the type and size of a fish. Measurements are undertaken every several years by the Ministry of Environment, Conservation and Parks to issue advice through the Guide to Eating Ontario Fish, which can be found at Ontario.ca/fishguide.

PCBs are more persistent and toxic than previously thought, which has led to stricter advisories. This is partly why advisories still exist despite improvements in fish contaminant levels. PCB levels in some fish species have decreased in the past two decades; however, concentrations are still elevated compared to both nearby western Lake Ontario locations (reference sites) and other AOCs and are greater than consumption advisory benchmarks.

What is a Fish Consumption Beneficial Use Impairment (BUI)?

Since restrictions are advised on consumption of all fish species tested in Hamilton Harbour, this “beneficial use” of the Harbour or aspect of ecosystem health is considered impaired. Remedial Action Plans were created to restore the beneficial uses of the waterbodies of concern and fish consumption is one of 11 beneficial uses needing remediation in Hamilton Harbour. Delisting criteria are goals that guide the vision of remediation for a beneficial use and are set by the local Remedial Action Plan. As new information is gained, delisting criteria can be updated to reflect that new knowledge. The new delisting criteria will eventually be used to assess whether the beneficial use is remediated and can be labelled not impaired.

Why the Change?

The new wording brings consistency across Canadian AOCs and ensures the assessment of fish consumption for Hamilton Harbour is robust. For the scientific background on what the changes mean for Canadian AOCs please

read the supporting paper by Bhavsar et al. 2018, referenced below. This BUI is complex and incorporating a decision making framework makes the process more transparent and scientifically sound by taking into account more information.

The framework sets the order of evaluating information and becomes more scientifically complex as the assessment proceeds. Importantly, the changes capture the intent of the original delisting criteria in Hamilton Harbour in terms of using advisories, lake-wide reference data, and local action, yet broadens evidence and potential considerations to include desired fish species for consumption, as one example. Perceptions of desirable fish species to angle and consume change through time (e.g., with the Walleye introductions) and having its inclusion in the delisting criteria takes into account the habits of the local community. Moreover, what is considered safe to eat has become more stringent through time.

What Environmentally Needs to Happen?

The Remedial Action Plan works with partners to identify and control sources of contamination in Hamilton Harbour. Two sources of PCBs have been identified: the Kenilworth and Strathearne Boat Slips. Strategies to control the source and clean up the PCB-laden sediment are in development. Clean up needs to happen before any major changes in fish contamination can be expected. Controlling the contamination at the source is best, although over time cleaner sediments can also help bury contaminated areas making them less available to fish and their food.

A fish consumption survey is being conducted by the Remedial Action Plan. The goal is to understand the public's current and desired fish consumption from Hamilton Harbour in line with the new criteria. This information will also supplement retesting of PCB levels in fish fillets as improvements to the Harbour are made. If the community can eat their preferred types of fish from the AOC at a desired frequency, then the beneficial use can be considered not impaired.

References:

Ministry of Environment, Conservation and Parks. 2019. Guide to Eating Ontario Fish 2017-2018. [accessed April 2020] www.ontario.ca/fishguide

Bhavsar et al. 2018. Assessing fish consumption Beneficial Use Impairment (BUI) at Great Lakes Areas of Concern: Toronto case study. *Aquatic Ecosystem Health and Management* 21(3):318-330.

Neff et al. 2016. Improvements in fish polychlorinated biphenyl and other contaminant levels in response to remedial actions in Hamilton Harbour, Ontario, Canada. *Aquatic Ecosystem Health and Management* 19(2): 161-170.

Photo Credit: J. Vanden Byllaardt

