Fact sheet on the Re-designation of the Restrictions of Fish and Wildlife Consumption BUI #1

BACKGROUND

The Detroit River and its watersheds have been used intensively for international shipping, industrial and agricultural development, recreation, and drinking water for decades. This has led to environmental degradation and as a result, the Detroit River was listed as an Area of Concern (AOC) in 1987. The Detroit River Remedial Action Plan (RAP) was established to develop and implement actions to clean up the river. Under the RAP, 14 Beneficial Use Impairments (BUIs) were created to measure progress towards the cleanup. A BUI is a condition that interferes with the ability of humans to use the aquatic environment and for the aquatic environment to support aquatic life. These 14 BUIs must be considered not impaired before the Detroit River can be removed from the list of AOCs.

WHAT WAS THE PROBLEM?

The Detroit River has a long history of environmental problems including combined sewer overflows, degradation of habitat, and presence of toxic contaminants (e.g., mercury, polychlorinated biphenyls (PCBs), and metals) in water and sediment. This degraded aquatic environment affects fish, birds, and other wildlife that use the river. Bioaccumulation is the process whereby pesticides and other contaminants are absorbed by fish and animals from the environment directly (i.e., from sediment and water) or indirectly through the consumption of food containing contaminants. These contaminants accumulate within fish and wildlife and the concentrations of contaminants in these organisms is directly related to the amount found in their environment and food sources. Many of these contaminants have been found to be detrimental to fish and human health.

WHAT ARE CONSUMPTION ADVISORIES?

The Guide to Eating Ontario Fish informs the number of fish meals someone can safely eat in a month based on contaminant levels in the fish, type and size of fish, and location where the fish was caught for the general and sensitive population (children under 15 years of age and anyone who is pregnant or may become pregnant). When there is a limit on the type and number of fish meals that are safe to eat, these restrictions are called **consumption advisories** or restrictions and are established in accordance with Health Canada guidelines. The benchmark is 8 meals per month and is put in place due to bioaccumulation.

WHEN WILL RESTRICTIONS ON FISH CONSUMPTION BE CONSIDERED NOT IMPAIRED?

The delisting criteria stated that Restrictions on Fish and Wildlife Consumption will be considered not impaired:

"When consumption advisories for indicator fish species (e.g. walleye, brown bullhead, and largemouth bass) given for the sensitive population in the AOC are similar to upstream and downstream non-AOC Great Lakes reference areas due to contaminants from locally-controllable sources."

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This delisting criteria was developed to focus on contaminants that were driving fish consumption restrictions within the AOC and indicator species that represent different trophic levels (i.e., bottom feeders, intolerant of pollution species, and local species).

RESULTS OF RESEARCH & MONITORING

Over the past decades a series of fish contamination and sediment assessments were conducted by various organizations. This monitoring has helped inform the DRCC of the status of fish contamination in the river over time. Below are the results of a fish consumption survey and a four-tiered assessment:

An in-person shoreline angler survey conducted in 2019, found that many respondents who ate fish from the river, 211 of 231 (91%), said that they eat less than 8 meals per month, the threshold used in this assessment.

The four-tiered assessment identified specific elements of the delisting criteria. It recognizes that assessing fish consumption is complex and multi-faceted and requires the examination of several lines of evidence through a weight of evidence approach.

Within the framework, data is collected and evaluated in a hierarchical manner via four separate, but related, tiers (Figure 1). At each tier, an unimpaired or impaired status is possible based on each assessment.

Tier 1 assesses the presence of fish consumption restrictions within the AOC and whether they exceed a benchmark level of allowable meals per month.

Tier 2 compares the degree of restrictiveness of fish consumption advisories in the AOC to multiple reference sites.

Tier 3 compiles multiple lines of evidence to address whether past mitigation actions in the AOC have contributed to the improvement of fish consumption advisories over time.

Tier 4 was added to provide an additional line of evidence that can be used to understand contaminant recovery in the AOC over time and address whether there is a need for additional, local restoration actions

None of the indicator species passed the unrestricted consumption benchmark (Tier 1) for the sensitive population, they were assessed in the following tiers.

- Brown bullhead and walleye passed Tier 2 for the general population, whereas, both largemouth and smallmouth bass failed Tier 2 for the general population.
- The majority of evidence lines in Tier 3 support decreasing environmental contamination of mercury and PCBs in the Canadian portion of the AOC.
- Tier 4 indicates that additional restoration actions in the Canadian part of the Detroit River AOC are not required to improve fish contamination levels.

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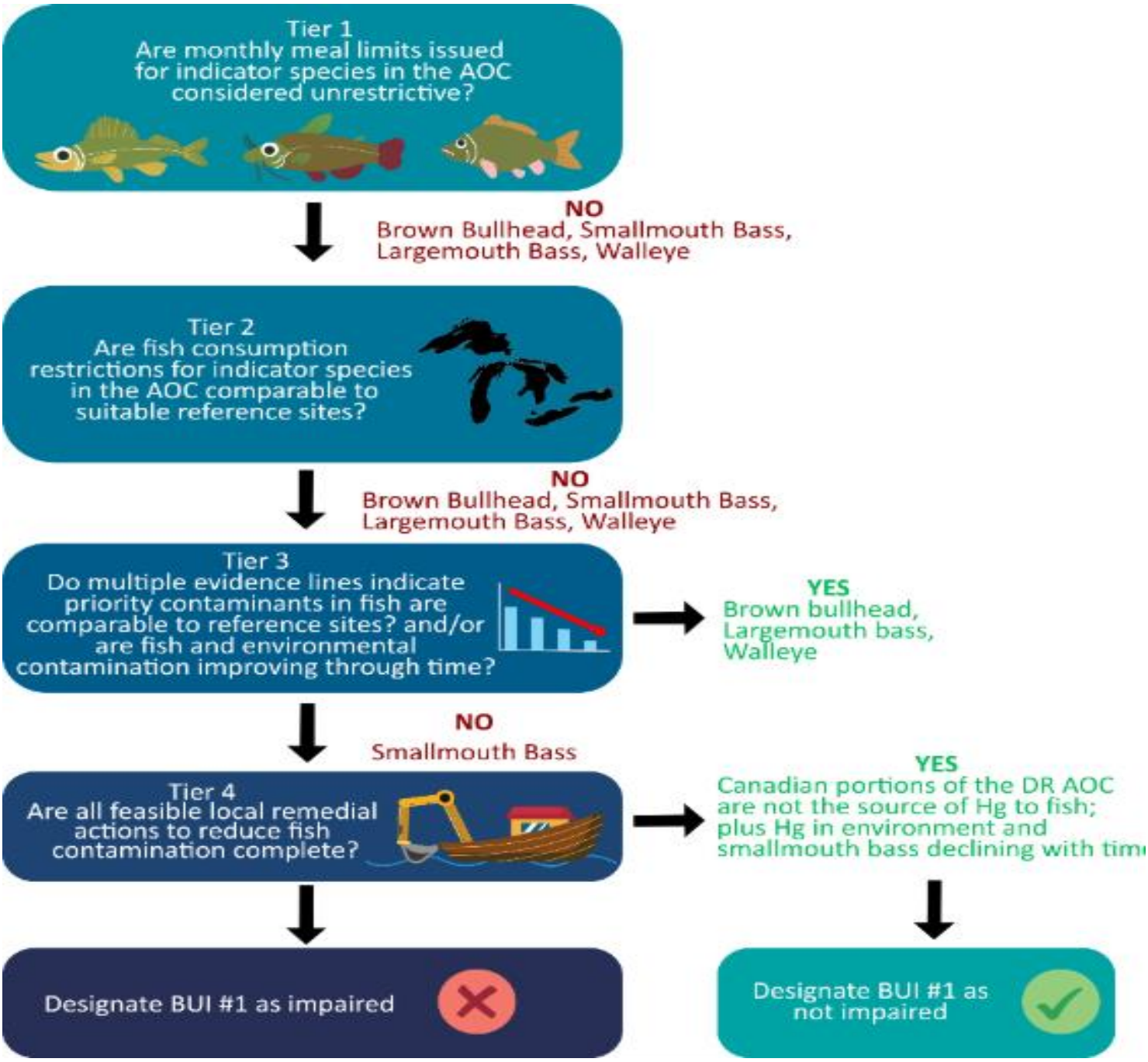

Figure 1: Hierarchical framework used to evaluate the fish consumption BUI in the Canadian Detroit River

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CANADIAN CONTAMINANT REDUCTION

A reduction in contaminants in water and sediments of the river will reduce the amount of contaminants available in the environment, thereby reducing the contaminants in fish, which positively affects fish consumption advisories.

Actions taken to reduce water and sediment contamination in Canadian portions of the Detroit River include upgrades to sewers and wastewater treatment plants, the construction of a retention treatment basin (RTB), creation of stormwater retention ponds, and sediment remediation in Turkey Creek (a tributary to the Detroit River).

CONCLUSIONS

This delisting criteria was evaluated using a tiered BUI framework to compile and interpret multiple lines of evidence. Though there were some failures within the tiers for the indicator species, historical data indicate that there are declining, or stable, concentrations of PCBs and mercury in the Canadian portion of the Detroit River AOC.

Furthermore, though the degree of fish contamination and meal per month restrictions are greater in Canadian fishing zones of the AOC compared to non-AOC Great Lakes reference sites, the degree of restrictiveness is a result of regional contamination (including heavily contaminated areas on the U.S. side of the river) and a high degree of cross-channel movements for some indicator species such as walleye, not from contaminant sources within the Canadian portion of the AOC.

Planned U.S. Detroit River and Canadian St. Clair River sediment remediation activities and the natural recovery of mercury and PCBs over time in upstream waterbodies have the greatest potential to directly benefit fish consumption advisories in the Canadian portion of the AOC.

Therefore, the results of this work and findings have led to the recommendation that the *Restrictions on Fish and Wildlife Consumption* BUI be re-designated to not impaired when reviewed against the current delisting criteria. No other Canadian remedial actions are required to meet BUI criteria.

For more information or to download the report, please visit www.detroitriver.ca.

The Detroit River Canadian Cleanup implements the Remedial Action Plan on behalf of a community-based partnership working together to protect, restore and enhance the Detroit River ecosystem. The federal, provincial and municipal government, local industries, scientific researchers, local environmental organizations and many dedicated citizens are key partners and play an important role in the cleanup process. The DRCC's member organizations provide leadership in identifying partnerships and funding opportunities to support and implement clean up goals.

Detroit River Canadian Cleanup
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