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Natural Heritage, Lands and Protected Spaces Branch
Parks and Protected Areas Policy Section

18/12/2014

RE: Provincial Bait Policy Review: Bait Use and Commercial Harvest in Provincial Parks and Conservation Reserves, EBR No. 012-2835

Dear Ms. Hartley,

Thank you for the opportunity to provide comments on policy options for managing angler use and movement of bait in Ontario. I am submitting comments with input from my colleagues (Drs. Cheryl Chetkiewicz and Justina Ray) in our respective capacities specializing in freshwater and wildlife ecology, conservation biology and landscape ecology in Ontario (Appendix 1). Furthermore, I have participated in the Bait Review Advisory Group (BRAG) managed by Ontario Ministry of Natural Resources and Forestry (MNR), which has facilitated and improved our understanding of live bait use and harvest in Ontario and its impacts on freshwater fish communities and their habitats in Ontario.

We strongly agree with the need to revise Ontario's live baitfish use policy and regulations. Although we are commenting on the policy options presented here, and in proposal, Angler Use and Movement of Baitfish in Ontario (EBR No. 012-2836), there is ample evidence to support an outright ban of live bait in Ontario. Most provincial and territorial jurisdictions have banned the use of live bait due to known ecological risks associated with invasive species, diseases, and pathogens with significant economic impacts on recreational and commercial fisheries. The delay in banning live bait may, in part, explain why Ontario has twice the number of invasive freshwater fish than Alberta and one and a half times that of British Columbia (see [Ontario Invasive Species Strategic Plan](#)). We recommend MNR consider a complete ban on live bait in Ontario.

This review and anticipated policy reform is both timely and necessary. We have appreciated our participation as a member of BRAG and the opportunity this has provided to enhance our understanding of this important conservation issue and appreciation for various stakeholder interests. In addition to our comments offered throughout the BRAG process to date, we provide the following formal remarks on the proposed policy options in the current proposal regarding **Bait Use and Commercial**

Harvest in Provincial Parks and Conservation Reserves. We highlight our preferred options given the information provided and offer scientific support for our choices as per our experience, expertise, and mission of WCS Canada. We take this opportunity to highlight our recommendations to strengthen live bait policy in Ontario.

3.1. Policy Options for Fishing with Bait in Provincial Protected Areas

We support Option A, whereby the use of live baitfish/leeches in Provincial Parks (PPs) and Conservation Reserves (CRs) would be prohibited.

As described in the proposal, the primary purpose of Ontario's protected area system is to permanently protect the best examples of Ontario's ecosystems and manage them to ensure that native species, natural processes, water, and land are maintained or restored. The use of live baitfish/leeches in provincial protected areas contradicts this purpose by increasing the risk of:

- a. Introducing invasive freshwater species (Litvak and Mandrak 1993). Research conducted in Ontario investigating the role of baitfish and live bait operations in facilitating the spread of invasive species, found several invasive species in live bait shops including invasive rainbow smelt (*Osmerus mordax*), goldfish (*Carassius auratus*), and round gobies (*Neogobius melanosostoma*) (Drake and Mandrak 2014).
- b. Introducing diseases, pathogens and parasites. Purchased or harvested baitfish are kept in bait buckets and bait bucket water is exchanged by lakes and rivers water during each fishing trip. The exchange of bait bucket water within lakes and rivers can transfer pathogens, parasites and microscopic invasive species (Litvak and Mandrak 1993).
- c. Homogenization of native fish populations. Introducing native fish outside their native range tends to homogenize genetic diversity and structure of native fish communities, reducing their capacity to respond to stressors, such as climate change (Drake and Mandrak 2014, Olden et al. 2004).
- d. Increasing mortality of native fish caught with live bait. Research conducted on Northern Pike (*Esox Lucius*) showed that fish caught using live bait are usually hooked beyond the gills, which increased mortality rates compared to artificial bait (Beukema 1970).

Currently, live bait use is managed within each protected area in Ontario, resulting in inconsistent regulations across the Province. As described in the proposal, some protected areas have already banned live baitfish (e.g., Algonquin, Lake Superior, Esker Lakes Provincial Parks), while nearly 60% of waters in provincial PAs are supposed to have banned live baitfish, but have not done so. While we respect the cultural value of using live bait for angling, recreational objectives could be met with the use of artificial bait. For example, Quebec recently banned the use of live bait fish based on a survey conducted prior to the ban that found that the majority of anglers were willing to accept this ban. Prohibiting the use of live baitfish across all PPs and CRs would be more efficient for management and policy administration as well as for anglers. Further, live

bait prohibition throughout Ontario would be more consistent with public education and angler community outreach on the live baitfish impacts on native fisheries.

3.2. Personal Harvest of bait in Provincial Protected Areas

We support Option A, which prohibits personally harvested baitfish, leeches, and frogs in PPs and CRs.

As stated above, there is ample scientific support for banning all live bait harvest regardless of where it occurs (e.g., within or outside PPs and CRs). We recommend a complete ban and consider the current distinction between personal harvest and other types of bait harvest to be artificial in this regard.

In the case of personal harvest only, our recommendation is based on scientific research that suggests that it is common for anglers to misidentify live bait species for invasive species, native non-target live fish, and endangered species (Drake and Mandrak 2014). As such, anglers harvesting their own bait in Ontario waters may harvest invasive species and increase the risk of spreading non-native species to new protected areas and provincial waterbodies. In addition, anglers may not be able to identify these species in their bait purchased from commercial sources. Research has shown that anglers misidentified the 48 baitfish species on the MNR white list and identified invasive species and native non-target species as legal baitfish. Further, anglers often transfer the same bait bucket with its water between lakes, a practice that may help the introduction of diseases and pathogens in PPs and CRs. An outright ban on live bait use and harvest would reduce the risk to native fisheries, including at-risk species, of invasive species, diseases, and pathogens. Finally, because water bodies are connected and park boundaries are rarely based on aquatic considerations, we recommend an outright ban on live baitfish use in Ontario since angler behaviour outside of parks (e.g., dumping bait buckets) could still impact provincial parks and their ecological integrity objectives through natural connectivity.

3.3. Commercial Harvest of Bait in Provincial Protected Areas

We support Option A. We do not agree with allowing commercial bait harvest in PPs and CRs.

As with personal harvest of live bait, commercial bait harvest poses known risks to native fisheries both inside and outside of PPs and CRs. Prohibiting commercial harvest in PPs and CRs sends a clear policy message regarding the objectives of Ontario's protected area system. A ban on commercial harvest lessens the risk of invasive species, disease and pathogen introductions into PPs and CRs, and should reduce the impact on at-risk species that may be harvested inadvertently. As above, banning commercial harvest in Ontario would better support the ecological integrity of PPs and CRs by reducing the risk of invasive species, diseases and pathogens from entering waters in PPs and CRs through natural connectivity.

3.4. Storage of Commercially Harvest Bait in Protected Areas

We support Option A, which prohibits the storage of commercially harvested bait in PPAs and CRs.

In addition to the same concerns mentioned above on the risk posed by invasive species, diseases, pathogens and homogenization of native fish communities, the incidental escape of the stored bait, often thousands of fish, can have devastating impacts on the receiving environment (Kerr et al. 2000). One mass release event of live baitfish may facilitate the spread and introduction of invasive species, diseases, and pathogens into PPs and CRs (Drake and Mandrak 2014). In addition, prohibiting live baitfish storage in PPs and CRs would help prevent homogenization of the native fish genetic and community structure in which can reduce their ability to address other stressors such as climate change (Olden et al. 2004).

3.5. Timeline to Phasing Out Commercial Harvest in Provincial Protected Areas

We support Option A, which requires an immediate phase out of commercial operations in provincial protected areas. We draw on experience from Quebec that announced an immediate phase-out of all live bait use when new regulations were developed in early 2013.

3.6 Where to Apply Policy Options within Protected Areas

We support Option B, which extends the policy on bait use to connected waters outside of protected area boundaries.

Commercial harvest, storage and use of live bait in waterbodies connected to PPs and CRs should be prohibited. Extending the policy to waters connected to PPs and CRs will reduce the likelihood that natural connectivity between waterbodies could facilitate the introduction of invasive species as well as pathogens and diseases from waterways connected to but outside of PP and CR boundaries.

From an aquatic conservation perspective, as well as a freshwater planning perspective, the natural connectivity of aquatic systems needs to be considered more explicitly in decision making about live bait use and harvest. Scientific research shows that optimal conservation conditions of freshwater can be attained through the protection of intact watersheds (Saunders et al. 2001). While watershed protection does not seem to be a priority in Ontario's protected areas, it should be considered in management planning and policy development. In addition, protected area systems are subject to other threats, aside from fishing and commercial harvest of live baitfish, such as development and water management within waterways and land use activities in terrestrial areas, especially in and around shorelines. Addressing cumulative impacts on aquatic systems should be a high priority for protected area design and management in Ontario.

In conclusion, the proposal highlights the significant need to address regulations on live baitfish use in Ontario, particularly within Ontario's protected areas, where the mandate for management is maintaining or restoring ecological integrity. Live baitfish harvest and use clearly contradicts this mandate and poses considerable risks to conserving Ontario's native fisheries for both ecological and social values. Banning live bait use, storage, personal and commercial harvest of live bait in PPs and CRs acknowledges the goals and objectives of these protected areas and offers a management solution to addressing the risks of live baitfish movement. An outright ban reduces the complexity of current management regimes across provincial protected areas. We emphasize these points on MNRF's concurrent policy on Angler Use and Movement of Bait (EBR No. 012-2836).

We encourage MNRF to consider more explicitly how useful the current approach to protected area design and management is for freshwater resources, including fisheries. We take this opportunity to highlight the emerging protected areas in Ontario's Far North, led by MNRF, and the commitment to protect 225, 000 sq. km. of some of the planet's most intact watersheds under Ontario's *Far North Act, 2010*. In terms of protected area planning and design for freshwater, this region demands more proactive planning ([Far North Science Advisory Panel Report 2010](#)).

Thank you again for this opportunity to comment. I would be happy to discuss these comments further. You can reach me at malshamlih@wcs.org or via phone at 705 761 9031.

Sincerely yours,

A handwritten signature in black ink, appearing to be 'Mohammed Alshamlih', written in a cursive style.

Mohammed Alshamlih, Ph.D.
Postdoctoral Fellow

References:

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- Litvak, M. K., and N. E. Mandrak. 1993. Ecology of freshwater baitfish use in Canada and the United States. *Fisheries*. 8(12):6- 13
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- Saunders D. L., Meewuig, J.J., and A.C.J. Vincent. 2002. Freshwater protected areas: strategies for conservation. *Conservation Biology*. 16 30 – 41

Appendix 1.

WCS Canada (www.wcscanada.org) was established in May 2004 as a Canadian non-government organization with a mission to conserve wildlife and wildlands by improving our understanding of and seeking solutions to critical problems that threaten key species and large wild ecosystems throughout Canada. WCS Canada generates knowledge through research and tools for conservation of the northern boreal's fish and wildlife species and ecosystems and the services they support. WCS Canada provides this information to Government and First Nations' decision makers to create policies and governance systems that support conservation, sustainable use of biological resources, and best practices for industrial development.

Dr. Mohammed Alshamli is a Postdoctoral Fellow. His postdoctoral research is investigating smallmouth bass range expansion in Ontario. Using genetic methods, his research considers the vectors of smallmouth bass introduction in northern waters.

Dr. Cheryl Chetkiewicz is an Associate Conservation Scientist and the Lead for Ontario's research and conservation efforts in Ontario's Far North. She is focused on regional scale research and planning in the Far North, specifically wildlife research and monitoring, cumulative effects, and strategic environmental assessment.

Dr. Justina Ray is the President and Senior Scientist and has been engaged in field research in northern Ontario. She is one of the few biologists to spend significant time in this remote region over the last decade, with a specific focus on wolverine and caribou. Dr. Ray serves on MNRF's Provincial Caribou Technical Committee and co-authored Ontario's Wolverine Recovery Strategy. She was a member of MNR's Far North Science Advisory Panel.