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13 July 2015

RE: Provincial Bait Policy Review - Commercial Sale and Transport, Allocation and Reporting of Baitfish and Leeches in Ontario EBR No. 012-4222

Dear Mr. Gibson,

Thank you for the opportunity to comment on the proposed policy options being considered by Ontario's Ministry of Natural Resources and Forestry (MNRF) for managing the commercial sale and transport, allocation, and reporting of live bait (i.e., baitfish and leeches) in Ontario. We are submitting comments in our respective capacities with Wildlife Conservation Society (WCS) Canada specializing in freshwater and wildlife ecology, conservation biology, and landscape ecology in Ontario (Appendix 1), and in the case of Dr. Alshamlih, with the Bait Review Advisory Group (BRAG) on behalf of WCS Canada.

Before we comment on this proposal, we would like to express our concern about the process for addressing public feedback (e.g., surveys, written comments) on the previous proposals related to baitfish in Ontario. In the previous two proposals, MNRF ranked the policy options from the most preferred to the least preferred, based on the responses from completed surveys only. We are concerned that excluding incomplete survey responses and written comments in ranking the options can create a bias in understanding the public preference. For example, MNRF excluded more than 40 written comments on Provincial Parks policy proposals, almost all of which preferred a complete ban on the use and harvest of baitfish. Instead, MNRF used only the 80 completed survey responses to rank proposed policy options. We suggest MNRF make the importance of the survey and the **complete** ranking of all provided options more clear in their instructions on the Environmental Registry. In addition, we recommend:

- MNRF make it clear on the Environmental Registry that the survey is actually what is used to gauge public preference, and the survey needs to be filled out for any written comments to be considered in the evaluation of public input.
- MNRF make it clear that ranking **all** provided options in the survey is required in order for the public input to be considered.

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We note that the instructions on the Environmental Registry for this proposal currently do not indicate these points, which is misleading.

We strongly agree with the need to revise Ontario's live baitfish policy, including policy options and regulations for the commercial sale, transport, allocation, and reporting of bait. We recommend that in order for MNRF to meet its biodiversity conservation goals and its Statement of Environmental Values regarding ecological integrity, it should ban the live bait industry. Scientific research in Ontario (Litvak and Mandrak 1993; Drake and Mandrak 2014) indicates that live bait use and harvest in Ontario is associated with the dispersal and introduction of invasive species, diseases, and pathogens. By banning live bait harvest and sale, MNRF would be following most provincial and territorial jurisdictions in Canada. British Columbia banned live bait in 1940, Alberta banned live bait in 1963, and in 2013, Quebec prohibited live bait due to the known associated ecological, social, and economic risks associated with this industry. Even native species introduced into waters where they don't occur naturally have the potential to impact existing native fish communities. These impacts in turn affect recreational and commercial fisheries. While Ontario's strategic plan[1] and emerging invasive species legislation[2] both represent progress, banning live bait is necessary to address invasive species, diseases, and pathogen spread in the province.

Even without a complete ban, the current proposal on policy options for managing commercial sale and transport, allocation and reporting of baitfish and leeches by MNRF is a step in the right direction. Although we are commenting (and ranking) the policy options presented, we would also like to take this opportunity to highlight the lack of regulations across Ontario's Fish Management Zones (FMZ) in the Far North (FMZ 1 and 2). These boundaries are neither aligned with watershed boundaries, nor at appropriate scales to consider the connectivity and conservation of freshwater resources across the Boreal Shield and Hudson Plains Ecozones. During BRAG meetings, MNRF presentations have demonstrated that in FMZs that include more than one primary watershed (e.g., the Southwestern Hudson Bay and Nelson River, Hudson Bay and the Great Lakes), anglers tend to visit several lakes in a single fishing trip (Drake and Mandrak 2014), and this creates a higher probability of invasive species, disease, and pathogen introductions across watersheds. Given this information, and given Ontario's objectives to maintain the biological functions and processes in the Far North, designate at least 225,000 km^2 as protected areas under Ontario's *Far North Act, 2010*[3], and maintain the Far North as an "invasive species free-zone"[4], we recommend MNRF give special attention to FMZs in the Far North.

Finally, given our active scientific and conservation engagement in Ontario's Far North, we take this opportunity to highlight the imperative to consider proactive planning that explicitly considers freshwater systems for the Far North. At present, there are few invasive species and limited access and industrial disturbance in this globally significant region. However, fish assemblages in Ontario's Far North are characterized by low species richness and high vulnerability to human disturbance (Browne 2007). With the expansion of access due to resource development (e.g., Ring of Fire), remote tourism operations, and climate change, the introduction of invasive species, as well as native species that are not naturally occurring in Far North watersheds, is of high concern.

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[1] Ontario's Invasive Species Strategic Plan is available for download here: https://dr6j45jk9xcmk.cloudfront.net/documents/2679/stdprod-097634.pdf

[2] http://news.ontario.ca/mnr/en/2014/11/ontario-re-introducing-invasive-species-legislation.html

[3] http://www.ontario.ca/laws/statute/10f18

[4] See page 104 in *Science for A Changing North* - a report by Ontario's Far North Science Advisory Panel available for download at: http://www.ontario.ca/rural-and-north/far-north-ontario

In addition to our comments offered throughout the BRAG process to date, we provide the following formal remarks on the current proposal regarding Policy Options for Managing Commercial Sale and Transport, Allocation and Reporting of Bait. We highlight our preferred option, and rank the remaining options based on our expertise. We also take this opportunity to identify additional recommendations to strengthen fisheries conservation through live bait policy and regulations in Ontario.

3.1 Policy Options for the Commercial Movement of Bait

We prefer **Option F**, which restricts movement of bait by commercial operators to multiple watersheds. We would like MNRF to define watersheds at the tertiary or quaternary scale for this purpose. In terms of ranking the remaining options, we suggest the following with decreasing preference: Option E, Option C, Option D, Option B, and Option A.

Currently, Ontario allows commercial harvesters and dealers unrestricted movement of bait for sale across the province, with the exception of the VHS Management Zone[5]. This status quo poses ecological risks in the form of invasive species, which are a major threat to wildlife and fisheries in Ontario, particularly in Ontario's Far North where watersheds currently remain largely invasive-free. Allowing for the unrestricted movement of commercial bait presents an unacceptable ecological threat to native fisheries. We encourage MNRF to prioritize the associated ecological risks by adopting a proactive approach to prevent invasive species and diseases from spreading through Ontario.

Current research shows that bait purchased from dealers in Ontario is contaminated with both invasive species and native non-target species (Drake and Mandrak 2014). Although this study identified a limited number of invasive species in purchased bait, we suspect that this information is conservative given the volume of bait sold in Ontario (i.e., more than 60 million baitfish and leeches in 2013) and the limited sample size in the study (n=68 dealer shops).

Furthermore, the ecological risk of incidental catches of invasive species, species-at-risk, and non-target fish is compounded by:

- Risky angler practices and behaviours. In particular, bait buckets are a known and major pathway for invasive species introductions. Litvak and Mandrak (1993) estimated that at least 14 invasive species in Ontario's freshwater systems have been established through live bait introductions. In their study, half of the anglers indicated they discard unused live fish from their bait buckets at the end of a fishing trip in the lake or river, even though this practice is prohibited by Ontario fishing regulations. In high fishing pressure regions, as well as the remote Far North, the presence of invasive fish species can only be explained by incidental introduction via release of fish from bait buckets or illegal introductions (e.g., fly-in operations).
- The large number of fishing trips in Ontario. For example, in 2010 Department of Fisheries and Ocean estimated angling events to be around 4.2 million[6]. It is been estimated that 1 in 3000 angling events successfully introduce smallmouth bass in Ontario. Given the total number of fishing events, this translates into 1400 introductions of smallmouth bass yearly by recreational angling (Drake and Mandrak 2014).
- The number of long-distance fishing trips. For example, the average distance traveled by bait through angler trips is 319 km in Ontario. This long distance travel may facilitate the transfer of incidental catches in purchased bait across primary and secondary watersheds, and thus increasing the risk of invasive spread in the Province.

[5] https://dr6j45jk9xcmk.cloudfront.net/documents/2541/239480.pdf
[6] http://www.dfo-mpo.gc.ca/stats/rec/can/2010/section4-eng.htm

In addition, we support the restriction of moving harvested fish to the secondary watershed level. This restriction should help minimize the possibility of introducing invasive, species-at-risk, and non-target species into new watersheds. For example, a recent study by Melles et al. (2015) showed that the natural spread of invasive species from invasion hotspots (e.g., Lake Ontario and Lake Erie) is often limited by the natural connectivity of waterways. However, given the high volume of bait sold, and the lack of restrictions on the movement of baitfish, we think commercial bait currently provides an important pathway for invasive species to access watersheds that would normally be inaccessible. Movement of commercially harvested baitfish and leeches may also facilitate the introduction of invasive plants, invertebrates and pathogens. MNRF has restricted the commercial sale and transport of baitfish (e.g., emerald shiners) outside the VHS Management Zone since 2007.

3.2 Policy Options for Bait Testing

We prefer **Option C**, which requires testing of any bait moved beyond a defined geographic area (e.g., region, group of FMZs, single FMZ). In terms of ranking the remaining options, we suggest the following with decreasing preference: Option D, Option B, and Option A. However, we encourage MNRF to adopt a selective testing procedure (Option D) together with Option C. Both options are complementary, and should support detection of diseases in harvested bait.

We agree that testing to detect invasive species in the harvest is important, and addressing this policy option would be an important, proactive step for fisheries conservation and management. We have provided similar recommendations supporting Ontario's monitoring plans through discussion on the invasive species plan and legislation. We also support the recommendation made by the Far North Science Advisory Panel to address the likelihood of invasive species being introduced through potential development in the Far North (e.g., Ring of Fire.

Although we encourage MNRF to change the status quo and restrict bait movement (see 3.1), we also think testing of bait should be required. Bait testing and monitoring is crucial for the detection of pathogens and diseases, and to minimize the risk of introducing diseases to healthy fisheries. For example, the testing required for bait movement beyond the VHS Management Zone showed success by controlling the spread of VHS and maintaining the occurrence of VHS at the watershed boundaries established in 2007. This result suggests that that testing programs can be effective in combating the spread of identified diseases through live bait. We take this opportunity to emphasize that testing and assessment of fish health should include a suite of pathogens and diseases, including those known to exist in neighbouring provinces and territories, and those known internationally[7] (e.g., Crane and Hyatt 2011). Testing procedures should be implemented and optimized to detected known diseases to safe guard against any possible spread (Crane and Hyatt 2011). More broadly, we recommend MNRF consider a monitoring program aimed at fish health, rather than specific diseases.

3.3 Policy Options for Commercial Certification and Training

We support **Option E**, which is that all commercial bait operators (harvesters and dealers), designates, and employees must receive training to provide the lowest potential of invasive species and disease transmission. In terms of ranking the remaining options, we suggest the following with decreasing preference: Option D, Option C, Option B, and Option A.

[7] http://www.dfo-mpo.gc.ca/stats/rec/can/2010/index-eng.htm

The Hazard Analysis and Critical Control Point (HACCP) plan requirement for commercial bait licensees as well as training programs for commercial bait harvesters are important preventive measures to help ensure that fish, water and equipment are free of invasive species. Kerr (2012) reports that research by MNRF to evaluate the effectiveness of HACCP training found a low occurrence of non-target species in retail products, suggesting some success with this program.

Training programs for harvesters, dealers, and designates should be mandatory. Overall, having trained personnel in the part of the operation most likely to spread invasive species seems like an effective way to reduce the risk of invasive species, diseases, and parasites. Training programs should result in the production and sale of "clean" bait and having cleaner bait to begin with, should reduce the risk of introducing invasive species across watersheds and regions.

Training programs and HACCP plans should be mandatory. However, these preventative management efforts are only effective if there is adequate monitoring, inspection, and enforcement. Through our participation in BRAG, we are aware that there are some incidences of commercial harvesters that are not following HACCP protocol and may lack information about the live bait regulations in Ontario. In addition, Drake and Mandrak (2014) documented several violations of the MNRF regulations such as the by-catch of invasive species and imperilled species in bait shops that could be addressed through training programs, HACCP plans, and compliance.

We encourage MNRF to introduce a comprehensive training program that includes:

1. Identification of legal bait.
2. Identification of native non-baitfish in Ontario.
3. Identification of invasive species in Ontario and their geographic distribution within Bait Harvest Areas (BHA).
4. Detailed understanding and practice of HACCP plan program.
5. Detailed understanding of required procedures for the shipping and sale of bait to dealers.
6. Review of current regulations for the bait industry.

We also recommend a process that enables an audit by a third party to reduce violations and support monitoring and compliance. Similarly, an inspection program can encourage due diligence by harvesters and dealers to ensure the detection of incidental catches of invasive species and native fish. An inspection program could also support higher quality bait for anglers.

Finally, we recommend MNRF provide data on the number of individuals trained and the number of training programs offered since 2011.

3.4 Policy Options for Bait Harvest in Species-at-risk Areas

While live bait harvest and use is a known pathway for the introduction of invasive species, the second most important threat of the live bait industry is to Ontario's species-at-risk (SAR, Kerr et al. 2000). In Ontario, invasive species are the second most important factor, after habitat loss, driving freshwater fish extinction (Dextrase and Mandrak 2006). Consequently, we think live bait harvest and use should be prohibited in areas of known and suspected SAR habitats and areas.

Harvest of live bait in SAR habitats can affect recovery efforts both directly and indirectly. Direct impacts include the incidental capture of SAR species (e.g., Drake and Mandrak 2014) and ecological effects through: 1) population alteration due to the removal of a substantial portion of the biomass with no regard for sustainable yields; 2) trophic alteration including effects on zooplankton composition, size

and abundance due to the removal of the forage-base; and, 3) habitat alteration due to physical damage such as damage to spawning beds during the harvest operations (e.g., Litvak and Mandrak 1993). In addition, the introduction of species into new ecosystems and waterbodies can affect native species-at-risk by altering their habitats, changing trophic dynamics, spatially displacing native species, reducing genetic viability, and introducing new diseases, pathogens, and viruses.

The ecological effects of removing bait for commercial use remains poorly studied in Ontario. However, given the volume of removal (60 million baitfish and leeches in 2013), and given that the management of this harvest through BHAs lacks an ecological basis for sustainable bait fisheries management, we concur with Litvak and Mandrak (1993) and recommend MNRF prohibit commercial bait harvesting in known or suspected ecologically sensitive areas. This will prevent damage to populations of baitfish, gamefish, rare species, species-at-risk, and sensitive habitats. In Ontario, we suggest these areas would include protected areas such as provincial parks and conservation reserves. Taken together, our recommendations would support Ontario's goals for species-at-risk conservation and recovery as well as habitat protection.

3.5. Policy Options for Where Bait can be Stored in Ontario Waters

We support **Option B**, which recommends the prohibition of bait storage in sensitive areas (e.g., brook trout lakes, species-at-risk habitats). In terms of ranking the remaining options, we suggest the following with decreasing preference: Option C and Option A.

Banning live bait storage in sensitive areas would protect these habitats, and prevent damage to populations of baitfish, gamefish, rare species, species-at-risk, and sensitive habitats (see 3.4 above). However, we also encourage MNRF to adopt **both** Option B and Option C because harvested bait should not be stored in geographic areas where a regulation bans it sale. For example, harvested bait from FMZ 7 should only be stored in FMZ 7. This restriction on bait storage would eliminate the transfer of invasive species, pathogens, and diseases between management zones.

Some of the ways in which storage of bait increases the risk to native fisheries include:

- **Risk of escapes**. The release of thousands of baitfish, including invasive and non-target baitfish, can have significant ecological impacts on the recipient habitat. While the impacts of invasive species are well described above, the introduction of native non-baitfish into waters where they don't occur naturally also has the potential to impact existing fish communities. Impacts vary from altering freshwater communities to altering the genetic structure of native species (Olden et al. 2004). We recommend that storage locations be defined, and enforced, by MNRF based on current ecological knowledge of fish communities in any given area.
- **Regulation of storage gear**. We suggest that regulating mesh size of storage gear can prevent fish of certain sizes from escaping storage. This management action cannot address ecological threats due to pathogens, invasive invertebrates, and invasive plant species. However, it could address invasive and non-target fish species.
- **Timing of storage**. We suggest the use of restrictions on timing for storage, particularly if MNRF does not prohibit storage in sensitive areas. Timing restrictions could minimise the potential effects of commercial harvest on SAR and restrict harvest in sensitive areas to maintain ecosystem integrity.
- **Provincial Parks and Conservation Reserves**. In Ontario, the first priority of the *Provincial Parks and Conservation Reserves Act, 2006* is ecological integrity. The public expects the Ontario government to act as the steward of protected areas for the public interest, by putting the protection of nature first on these lands. The live bait industry creates a conflict with this

principle. At present, commercial bait harvest is banned in some, but not all, provincial parks. Existing bait operations in parks and in zones where commercial bait harvest is not permitted are slated to be phased out, which will affect bait harvesting activities in 32 provincial parks and approximately 100 bait harvest areas[8]. However, there are no specific restrictions on commercial bait harvest in conservation reserves. The current process, as well as the recent proposals on use and harvest of bait in parks and conservation reserves, demands more focused attention on the commercial harvest of bait in protected areas. While ecological integrity is an important legal statement, it needs to be put into practice, including a ban on commercial bait harvest in provincial protected areas where ecological integrity is the stated government priority.

3.6 Policy Options for Gear Restrictions

We support **Option C** to develop and implement standard gear requirements across the province. In terms of ranking the remaining options, we suggest the following with decreasing preference: Option B and Option A.

Standard gear requirement should be implemented to minimize incidental by-catch of native non-target species and limit catches of species-at-risk and native non-target species. Gear restriction on mesh size will also select for certain live baitfish size and age classes, which can also be used to support management of bait resources.

3.7 Policy Options for Bait Harvest Area Alignment

We support **Option B**, to align BHA boundaries to management boundaries (e.g., quaternary watersheds).

We agree that BHA boundaries need to be aligned with ecologically based boundaries for aquatic systems such as the quaternary watersheds. Currently, only the Simcoe County BHAs are defined based on quaternary watershed boundaries. The BHA definition should also be standardized across the province. This realignment would eliminate movement of incidental catches of invasive species or native non-target baitfish among watersheds, therefore maintaining ecological integrity, and supporting more standardized reporting and monitoring of harvest (e.g., harvest per quaternary watershed). This realignment would also help restrict the spread of aquatic invasive species and pathogens.

We also recommend that realignment of BHA boundaries should not fall across other boundaries. Where they do, we recommending considering the more restrictive management regime for the whole BHA. For example, if a BHA boundary falls across Provincial Park boundaries and Crown land, realignment should place the entire BHA under provincial park management, in order to support the ecological integrity objectives mandated by park legislation[7].

3.8 Policy Options for Allocation of Unallocated or Unutilized Resources

In reviewing the points in this section, we suggest that the variation in licensing (i.e., single vs. multiple) and the complexity of BHA management across licensees (e.g., leeches vs. baitfish) warrants a more critical review and assessment of the ecological and economic sustainability of the industry than the current process through BRAG affords. While some of this complexity is likely historical, we recommend

[8] Ontario Ministry of Natural Resources (OMNR) 2009b. Ontario Parks phase-out policy background information. Ontario Parks. Peterborough, Ontario. 8 p.

MNRF undertake a critical review of the BHA approach to management of bait, as well as the impacts of this approach on donor and recipient ecosystems within BHAs.

It is also unclear to us how the allocation of BHAs by MNRF affects Aboriginal and Treaty rights in Ontario. MNRF should clarify this issue, since it is unlikely that First Nations or other Indigenous groups will respond or communicate with MNRF on this issue through the Environmental Registry.

- ***How should unutilized BHAs should be re-allocated?***

Unutilized BHAs should be reallocated based on critical assessment of the historical and current resource overall, and within the BHA in question. Based on our experience with BRAG, and the feedback from commercial harvesters in this process, BHAs are abandoned when they are no longer profitable for that harvester. We suggest that BHAs that are abandoned are not being sustainably managed and warrant more critical review than simply reallocating the BHA to a new licensee. Reallocating abandoned BHAs to new harvesters without this review may further jeopardize baitfish communities, and recipient and donor ecosystems.

- ***Who (if anyone) should be given priority for allocation of BHAs***?

In Ontario, harvesters typically hold licences to multiple BHAs. We think an application and point system that ensures harvesters are allowed to acquire BHA's adjacent to their current harvested BHA could potentially lower the risk of overharvest and the risk of transferring pathogens, invasive plants, and invertebrates to new waterbodies. Theoretically, this could also lower the ecological risks associated with moving harvesting gear across watersheds. In addition, the BHA should not be allocated to a harvester that currently holds a license to a BHA in an ecologically separate watershed.

- ***Whether or not baitfish and leeches should be allocated separately.***

Leeches should be allocated separately from baitfish across Ontario because harvest methods for leeches are different than those for the harvest of baitfish. In addition, leeches are easily distinguished from invasive or native non-target baitfish. Separating the allocation of baitfish from leeches would minimize the risk of spreading invasive species and prevent incidental. Furthermore, we encourage MNRF to implement disease testing for leeches harvested in the province in addition to baitfish.

3.9 Policy Options for Value of the Resource

We support **Option C** that uses bait licence fees and BHA fees to offset the administration of the commercial bait program. In terms of ranking the remaining options, we suggest the following with decreasing preference: Option B and Option A.

At present, the current fee paid by harvesters (Canadian $32 for each BHA) doesn't compare to the value of the volume of bait fish resources harvested. While defined as bait, these species are parts of ecosystems that we expect are being managed in the public interest, rather than primarily for profit or economic gain for a few Ontarians. Having the resources to study, monitor, and manage these resources are also provincial responsibilities. As such, we recommend that MNRF establish fees that are proportionate to the full administrative cost of managing the bait harvest and allocation program.

We think that valuing the bait resource is best achieved using proportional royalties, harvest potential, or both, using MNRF data and records. Given that baitfish is a vector of invasive species and pathogens

spread, the industry should participate in offsetting such costs, and these revenues could be used by MNRF to offset the costs of controlling and eradicating invasive species in Ontario.

Finally, we recommend MNRF make public the actual costs for managing the program as well as the amount of revenue it generates from the bait industry, with a benefits and costs analysis.

3.10 Policy Options for Tourist Licence Types

Tourist operators currently harvest bait to sell to anglers from lakes that are in close geographic proximity to their operations. We support the discontinuation of tourist licences, since tourist dealers are not subjected to the same level of scrutiny as commercial dealers. Historically, tourist licences were created to ensure that bait was accessible to tourists in remote areas. However, municipal and resource roads (e.g., forestry) have expanded through most of the province. While Ontario's Far North remains an exception, near northern and remote operations can purchase bait from commercial harvesters throughout Ontario. Thus, we feel this reason is no longer relevant, and current tourist license activities actually increase the risk of invasive species entering Ontario's freshwater systems. We strongly disagree with the continued used of tourist licenses in protected areas and conservation reserves, given that the principal objective of parks is to ensure ecological integrity (see above under 3.5).

3.11 Policy Options for Reporting and Record Keeping

- ***Where/when and how much bait is harvested*.**

We agree that reporting where, when, and how much bait is harvested, as well as wastage and effort by waterbody and BHA, is necessary. This information would provide MNRF with the necessary data for monitoring the sustainability of the baitfish industry, including an understanding of how much of the resource is harvested, the location of BHAs providing the most bait to the industry, and the sustainability of harvests in each BHA.

- ***Where/when and how much bait is sold (including wholesale and retail transactions*).**

We agree that reporting bait transactions is important. These data would enable MNRF to make decisions about bait allocation. Documentation of bait transactions would increase traceability, discourage black market operations, and enable MNRF to better understand supply and demand.

- ***Vehicle markings to identify when they are engaged in commercial bait operations*.**

We agree that vehicle markings would support MNRF in ensuring compliance. Vehicle marks would make it easier for conservation officers to identify vehicles, as well as identify licensed harvesters from unauthorized harvesters. Similarly, transportation logs should accompany bait en route to their final destination, which could help address unregulated harvest and sale on the black market, and ensure that transported bait follows procedures in HACCP (e.g., through the use of identified check points).

- ***Who an individual purchased bait from and how much they purchased.***

The status quo does not require receipts. We feel that this represents a significant loophole in the system, and facilitates illegal harvest and sale of bait. The receipt system, if verified with the harvesters log book, would ensure that bait at bait shops have been through the three step verification required in the HACCP, and ensure the bait was not been transferred directly from the field to the bait shop. At the bait shop and with individual anglers, receipts can be used to trace catches of invasive non-baitfish in live bait sold to live bait dealers. Receipts support improved transparency on the HACCP plan and

support Ontario's efforts to address invasive species. Finally, these data would be useful if MNRF implements a restriction of live bait movement at any scale. Matching the supplier location and movement regulation would facilitate MNRF enforcement, and support dealers in complying with movement restrictions.

- ***Any invasive species or species-at-risk encountered during harvesting.***

We agree that reporting invasive species caught by commercial harvesters is important to support MNRF resource management. Given the limited ability of MNRF to monitor lakes and freshwater systems in Ontario, harvesters can provide important information on fisheries and support MNRFs efforts to monitor invasive species. Furthermore, harvesters reporting SAR species caught in their BHA would similarly provide needed data to help MNFR monitor their status and distribution.

- ***Where commercial bait was transported.***

We agree that reporting where harvested bait has been transported is very important to ensure compliance, and provide data that could be used for monitoring baitfish market supply (e.g., origin) and demand. This accounting approach could also discourage black market operations.

3.12 Policy Options for a Bait Compliance Framework

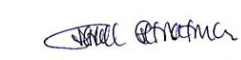
We support **Option C,** which implements a provincial demerit point system with significant consequences for multiple minor infractions or major infractions. In terms of ranking the remaining options, we suggest the following with decreasing preference: Option B and Option A.

We urge MNRF to consider demerit points to violations of bait movement and harvest policy, or violations of HACCP plan by commercial harvesters. Such violations can be of high ecological risk. Importantly, violating the HACCP plan may lead to contaminated live bait distributed to dealer shops. However, we caution against relying on the point system alone to ensure compliance. We suggest that a loss of licence be considered for major infractions, such as dealing with unlicensed harvesters, sale and harvest of high numbers of invasive fish, or moving bait between management zones, which is against current MNRF regulations.

In conclusion, we support revisions of Ontario's bait industry and the regulations on bait harvest and use, which will better align the province with the majority of Canadian jurisdictions that have banned the use of live and dead baitfish due to the ecological, economic, and social costs associated with invasive species and the spread of disease.

Thank you for the opportunity to comment. The current review and anticipated policy reform is both timely and necessary in Ontario. We also appreciate our participation as a member of BRAG, and the opportunity to enhance our understanding of this important conservation issue as well as better understand other stakeholder interests in the issue. We would be happy to discuss these comments further. You can reach Cheryl Chetkiewicz at cchetkiewicz@wcs.org or 807-472-1440.

Yours sincerely,



Cheryl Chetkiewicz, PhD
Associate Conservation Scientist

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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. WCS Canada achieves this mission by improving our understanding of critical problems that threaten key species and large wild ecosystems throughout Canada, and seeking solutions to these problems. WCS Canada generates knowledge through research, and then uses various tools to apply this knowledge to the conservation of northern boreal ecosystems, fish and wildlife species, and the ecosystem services these landscapes provide. 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 Alshamlih is a fisheries biologist focused on the impacts of human activities on the genetic diversity and structure of fish populations such as smallmouth bass.

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. Connie O'Connor is an Associate Conservation Scientist who is responsible for managing the freshwater program for WCS Canada in Ontario's Far North. She is focused on understanding and predicting the effects of stressors and cumulative effects on fish health and freshwater ecosystems.