



Comments and recommendations from Wildlife Conservation Society Canada (WCS Canada) for improving the draft *Position Statement on the Consideration of Cumulative Effects on Fish and Fish Habitat in Support of Decision-Making under the Fisheries Act* released by Fisheries and Oceans Canada.

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Comments submitted electronically through the www.letstalkfishhabitat.ca platform.

Thank you for the opportunity to submit our remarks on the draft *Position Statement on the Consideration of Cumulative Effects on Fish and Fish Habitat in Support of Decision-Making under the Fisheries Act* (hereby referred to as the draft *Position Statement*) released by Fisheries and Oceans Canada (DFO).

We submit these remarks in our capacity as conservation scientists on behalf of Wildlife Conservation Society Canada. WCS Canada (www.wcscanada.org) is a national non-government organization with a mission to save wildlife and wild places in Canada through science, conservation action, and by inspiring people to value nature. WCS scientists lead research and policy development in northern boreal and arctic regions. We are affiliated with global WCS programs in more than 60 countries in the world and active at the science-policy interface in Canada and internationally. More specifically, we are three freshwater scientists leading multiple programs studying the cumulative impacts of climate change and industrial developments on freshwater ecosystems and fish species.

We are pleased that the updated *Fisheries Act* (2019) has included renewed commitments to protect fish and fish habitat, strengthens the role of Indigenous knowledge informing habitat decisions, establishes a public registry, and includes recognition of principles of sustainability, the precautionary principle, ecosystem management, and consideration of cumulative effects.

We share the concern with DFO that failing to adequately consider cumulative effects will lead to continued loss of fish habitat in Canada, and we are pleased that DFO is working to better address cumulative effects. However, we have an **overarching concern that the draft *Position Statement* falls short of providing clear and actionable guidance for the implementation of considering cumulative effects** under the new *Fisheries Act*.

Therefore, this document contains: 1) a description of our concerns on the draft *Position Statement* and our corresponding recommended revisions to strengthen the *Position Statement* (p. 2), and 2) our recommendations for implementation in the Yukon and northern Ontario -- two landscapes where we have regional expertise (p. 5).

1. Overarching concerns and recommended revisions.

Concern 1. The draft Position Statement fails to set clear objectives for the management of cumulative effects.

The majority of Canadian project proposals have historically been accepted by DFO based on the rationale that proposed mitigation and offsetting measures will be able to avoid adverse significant effects of each project and will result in no net loss as defined by the *Fisheries Act* (Favaro et al. 2012; Murray et al. 2018). However, there is evidence that past authorizations to impact fish and fish habitat have resulted in an overall net loss of habitat, and that compensation or offsetting measures are frequently ineffective (Quigley and Harper 2006; Favaro and Olszynski 2017). Further, the inability to effectively prevent significant cumulative harm from multiple small projects (i.e., projects managed through codes of practice or letters of advice) has long been recognized as a failure of the *Fisheries Act* (e.g., Harper and Quigley 2000).

Overall, it is becoming increasingly clear that continuing a business-as-usual approach to managing cumulative effects using both authorization and codes of practices under the *Fisheries Act* will result in progressive ecosystem degradation that may be difficult or impossible to compensate for through offsetting, particularly for currently intact northern ecosystems, where there is limited scope for offsetting through restoration.

For currently intact ecosystems, primarily in northern areas in Canada, a more proactive approach to cumulative effects is required, which considers the amount of intact habitats required to support functioning ecosystem services and the ecosystem values for local human communities that rely on them (Duinker et al. 2013). Clearly defined objectives for managing cumulative effects, or thresholds for the acceptable amount of disturbance in an area, would reduce subjectivity in environmental assessment decision-making (e.g., Duinker et al. 2013; Westwood et al. 2017). This is particularly important for cases where ecosystems are intact, and therefore any disturbance will result in a loss of fish habitat. In such cases, there needs to be clear criteria for denying project authorizations that are likely to cause ecosystems to cross desired thresholds.

We recommend that regional or watershed-specific objectives or thresholds be developed in accordance with the best available science and regional ecological and socio-cultural values (e.g., Chetkiewicz et al. 2017; MacPherson et al. 2020). Where available, thresholds developed during regional land-use planning should be identified and implemented with careful monitoring or at the very least scenario modelling should be tied to certain situations associated with regional land use planning or regional assessments (Johnson and Ray 2021). In lieu of adequate local or regional guidance on cumulative effects, DFO should consider developing generic precautionary threshold targets that could vary according to regional context. In making project authorization decisions, DFO should consider not just whether the project will compromise management objectives (as stated in Section 5.1), but whether the impacts of the project will cause the ecosystems to cross-desired thresholds.

The caveat is that based on our experiences and others (e.g., Duinker et al. 2013; Duinker and Greig 2006; Johnson and Ray 2021; Noble 2015), the typical approach has been to address the “significant impacts” of individual projects, mitigating them until they are deemed “acceptable” (i.e., making impacts less bad)

with little monitoring and enforcement or learning from past efforts (sensu adaptive management). Both the practice and decision-making within impact assessment consistently fail to consider the broader regional environmental change and the cumulative effects on social and ecological systems in which a project is embedded. They therefore undermine both environmental protection and social justice in the promotion of economic development.

Concern 2. The draft Position Statement fails to acknowledge uncertainty or set risk tolerances in the impact of cumulative effects.

Despite considerable scientific effort, understanding and predicting cumulative effects remains a challenge. The cumulative effects of multiple land-use changes and climate change in environmental systems have complex interactions, and effects can vary depending on the specific ecological context (Mantyka-Pringle et al. 2014; Murdoch et al. 2020a, 2020b; Perujo et al. 2021). Effects can also be unpredictable, with the possibility of impacts producing a greater effect on ecosystems when applied together rather than individually (i.e., a synergistic effect).

The nature of the interactions, and the extent of the effects, vary widely based on characteristics of the abiotic and biotic environment where the impacts are taking place. In many cases, it is difficult to reliably apportion effects to causes within cumulatively impacted systems, let alone predict cumulative effects within an authorization framework.

As it is currently written, including the general principle that, “FFHPP may apply a precautionary approach and/or an ecosystem approach” within Section 5.0 is insufficient to adequately acknowledge and incorporate uncertainty into the proposed approach. Further, there is no discussion of what level of risk tolerance is acceptable. **We recommend that the DFO Position Statement explicitly include provisions that alongside gathering information on potential effects, the level of uncertainty must also be determined. Further, we recommend that the DFO Position Statement establish risk tolerances, and include specific provisions that when uncertainty is high, or when risk is high (for example, in currently intact ecosystems that are already being impacted by climate change) that the precautionary principle will be applied, in order to meet the legal obligations to consider cumulative effects.**

Given the insufficient information on how cumulative effects are affecting aquatic biodiversity in various ecosystems, we further advise that cumulative effects management needs to follow an adaptive approach that is updated when new data or information is available. We outline two general suggestions below that could be implemented by DFO as part of their *Fisheries Act* registry, or through another open and accessible venue. First, **we recommend that DFO synthesize the type and magnitude of cumulative effects in each watershed or region, including smaller impacts that do not require authorization.** This information would allow for a better understanding of the relative threat of cumulative effects among watersheds and help in land use planning and project proposal decision-making. Second, **information collected from major project monitoring programs needs to be standardized and reported in a single, accessible repository.** These projects provide useful opportunities for assessing cumulative effects and yet are often difficult to locate and synthesize (Jacob et al. 2018; Buxton et al. 2021; Murdoch et al. 2022).

Concern 3. The draft Position Statement does not mention Aboriginal and Treaty rights.

DFO has an obligation to uphold the Aboriginal and Treaty rights of Indigenous Peoples in Canada, including consideration of how authorization, regulation, and management approaches will affect the Aboriginal right to fish for food, social and ceremonial purposes. Further, the recent court decision by the British Columbia Supreme Court in the case of Blueberry River First Nations¹ set the precedent that failing to consider the cumulative impacts of industrial development is a breach of Treaty obligations.

This court decision establishes the precedence that consideration of Aboriginal and Treaty rights must be part of assessing potential cumulative effects, and not isolated to specific project-by-project impacts. However, despite legal obligations and court precedence, the current draft position statement fails to directly consider or address Aboriginal and Treaty rights. As an example, in Section 5.1, the draft position statement outlines scenarios where “management objectives identified for fish and fish habitat are not compromised” versus “management objectives identified for fish and fish habitat are likely to be compromised” as part of the process for decision-making under the *Fisheries Act*.

We therefore recommend that the *Position Statement* should explicitly add the consideration of whether Aboriginal and Treaty rights may be compromised as part of the cumulative effects framework, and part of the decision-making process for considering cumulative effects when issuing an authorization, since this is part of DFO’s obligations to uphold the Aboriginal and Treaty rights of Indigenous Peoples in Canada.

Concern 4. The draft Position Statement does not provide sufficient guidance for considering climate change in cumulative effects.

Section 4.1 of the draft *Position Statement* notes that DFO may take into account climate change, but it does not address climate change under the outlined principles, nor does it provide any detail or guidance for how climate change effects may be incorporated into assessment. Given that climate change is a dominant stressor in northern ecosystems that may combine with or alter other cumulative effects (Meredith et al. 2019; IPCC 2021), the consideration of climate change should be more explicitly addressed. Some regions with high climate change risk may be vulnerable enough that any additional stressors will cause the ecosystems to exceed desired thresholds, while others with lower risk may act as important climate refugia for aquatic species.

We recommend that the *Position Statement* be revised to include guidance on considering potential regional, watershed-level, or species-specific climate risk when developing cumulative effects thresholds, particularly in northern ecosystems where we are already seeing significant climate impacts. Where specific local information for climate risk is lacking, more general information, such as from previously developed climate change resilience mapping, could be used as a general starting point for incorporating climate change risk into cumulative effects (Coristine et al. 2018).

¹ Yahey v British Columbia, 2021 BCSC 1287. Available online: <https://www.bccourts.ca/jdb-txt/sc/21/12/2021BCSC1287.htm>.

Concern 5. The draft Position Statement does not take into account terrestrial landscape impacts that will affect fish and fish habitat.

In Section 4.1., the draft *Position Statement* notes that projects requiring authorization from or managed by DFO, and projects in or near water may be considered when considering cumulative effects. However, cumulative effects management should consider all activities within a watershed, not just those in or near water. There is evidence that all development activities within a catchment have the potential to impact fish and fish habitat due to altered drainage patterns, sediment and nutrient delivery, and thermal habitat (Allan 2004; Esselman et al. 2011).

We recommend that the scope of projects considered be expanded, to include all activities within a watershed or regional land-use planning area.

Concern 6. The draft Position Statement does not provide sufficient detail for how different sources of knowledge will be used to inform extent of potential effects, spatial or temporal scope, or uncertainty.

Although Section 5.0 notes that, “FFHPP will be informed by the best available scientific advice or information, Indigenous knowledge, local knowledge, or previously conducted assessments (e.g. as required by the Impact Assessment Act, land use planning)”, it does not specify how this information will be used. **In Section 5.0, we recommend that the Position Statement be revised to state explicitly that the spatial scope, temporal scope, likely effects, and the uncertainty in cumulative effects will be determined through Indigenous knowledge and the best available scientific advice, local knowledge, or previously conducted assessments.**

As noted above, **we further recommend that the Position Statement be revised to state explicitly that in cases where such information is not readily available, a precautionary approach will be applied.** Northern regions are often information-poor and there are limited resources to collect sufficient baseline data to inform decisions. In regions with limited local or regional guidance, we suggest implementing a precautionary approach that specifies threshold targets to safeguard aquatic biodiversity.

Concern 7. DFO’s science advice for assessing cumulative effects in support of policy development and regulatory decision-making is not publicly available

DFO held a meeting through the Canadian Science Advice Secretariat from March 8-12, 2021² in order to gather information and science advice on assessing cumulative effects in support of policy development and regulatory decision-making. The working papers from this meeting are highly relevant to this *Position Statement*, and **we recommend that these working papers be published, so that the information and outcomes are publicly available and can be applied to the Position Statement, and to future policy development and decision-making.**

² From the Science Advisory Schedule. Available online: https://www.dfo-mpo.gc.ca/csas-sccs/Schedule-Horraire/2021/03_08-12b-eng.html.

2. Regional context for implementation.

We have regional expertise in two northern boreal landscapes that remain largely intact. Our overarching concerns about implementing this proposed cumulative effects management process surround the lack of opportunities for habitat offsetting. This underscores the need for management of cumulative effects to be proactive and based first on avoidance of impacts, and then on managing negative impacts, in order to avoid irreparable habitat loss. In other words, the management of cumulative effects must occur at the avoidance and minimization levels of the mitigation hierarchy. Opportunities to protect intact aquatic habitat still exist in most northern regions of Canada (Chu et al. 2015; Coristine et al. 2018). Further, habitat offsetting (noted in Section 5.1) will be much more difficult in northern regions owing to limited areas for habitat restoration or creation, high expense accessing remote areas, and uncertainty in offsetting success in northern habitats experiencing rapid changes such as permafrost thaw.

Considering that offsetting in northern regions may not therefore be feasible, **we recommend that overall, the draft Position Statement be revised to put more emphasis on avoidance measures that have been successfully implemented in northern regions.** Below, we provide more specific recommendations for the Yukon and the far north region in Ontario.

Implementation in the Yukon.

In the Yukon, cumulative effects are considered through regional land use plans³ and for projects assessed under the Yukon Environmental and Socioeconomic Assessment Act (YESAA). In the case of regions with established or developing land use plans under Chapter 11 of the Umbrella Final Agreement⁴, DFO doesn't need to create a new cumulative effects framework, as it can work with the regional land use planning Commissions and local regulatory bodies to design and implement cumulative effects indicators and thresholds that are linked to important fish values and fish habitat when developing regional land use plans. Freshwater monitoring programs can then be coordinated in areas of risk to manage cumulative effects accordingly to the regional land use plans guidance. Recently, we have seen one planning Commission for the Dawson Regional Land Use Plan struggle to identify appropriate freshwater indicators that they can link to existing cumulative effects indicators such as surface disturbance and linear density that are generally much easier to monitor⁵. Instead, the recommended plan relies on the Fish Habitat Management System (FHMS) for Yukon Placer Mining, which is an adaptive management framework under the Fisheries Act⁶ to deal with placer impacts on water quality. Yet, despite having clear water quality objectives and a monitoring regime for sensitive salmon habitat within

³ Regional Land Use Planning and Cumulative Effects Management: Linkages and Applications Yukon Land Use Planning Council and Environment Directorate, Northern Affairs Program (DIAND), Yukon Region, Whitehorse February 10-11, 2003. Available online: <https://planyukon.ca/index.php/documents-and-downloads/yukon-land-use-planning-council/workshop-proceedings/cumulative-effects-management-workshop/159-managing-cumulative-effects-through-regional-land-u/file>.

⁴ Umbrella Final Agreement between the Government of Canada, the Council for Yukon Indians and the Government of the Yukon. 1993. Available online: <https://cyfn.ca/agreements/umbrella-final-agreement/>

⁵ Recommended Dawson Regional Land Use Plan, Dawson Regional Planning Commission, June 2022. Available online: <https://dawson.planyukon.ca/index.php/publications/recommended-plan>

⁶ Fish habitat management system for Yukon placer mining: adaptive management framework. Available online: <https://yukon.ca/en/fish-habitat-management-system-yukon-placer-mining-adaptive-management-framework>

the FHMS, these water quality protocols are not explicitly built into the Dawson Plan with the cumulative effects monitoring or disturbance thresholds. This is a missed opportunity. **We recommend that DFO work with Planning Commissions and the Yukon Land Use Planning Council to use water quality monitoring to determine current cumulative risk associations with mining and climate change (two of Yukon's greatest freshwater stressors; Sergeant et al. 2022) for effective cumulative effects management for fish and fish habitat.** The Government of Yukon Department of Energy Mines and Resources already monitors water throughout the Yukon River drainage area using the Canadian Aquatic Biomonitoring Network (CABIN) for assessing the health of freshwater ecosystems in Canada. These methods and data collection⁷ can be extended to other areas as a resource for monitoring and tracking cumulative effects.

For cases outside regional land use planning, DFO can work with the Yukon Environmental and Socio-Economic Assessment Board ([YESAB](#)) and their assessors as they review each individual project to consider cumulative effects. However, despite known examples of some mines causing harm to fish and fish habitats, it is impossible to comprehensively evaluate mining impacts due to a lack of transparency and access to data, particularly because climate change makes underestimation likely – increasing variability in flow regimes, permafrost melt and erosion (Sergeant et al. 2022). **We call upon DFO to work with YESAB to use stronger science and review the evidence critically at the YESAA stage of mining project proposals for more transparent risk assessment that adheres to precautionary approaches, considers climate change, and properly incorporates cumulative effects.** For species affected by transboundary environmental impacts (e.g., salmon in the Yukon River basin), cumulative effects management has to take into account the impacts within the entire watershed, regardless of regional boundaries or International borders. DFO should work at the federal, regional and watershed-scale to implement collaborative watershed-scale monitoring and cumulative effects evaluation to then identify thresholds and mandate consequences if thresholds are exceeded. Of course, DFO cannot do this alone. We need a partnership of Academic, Government, non-Government, and industry players to put the implementation into effect.

Implementation in the far north in Ontario.

The far north region in Ontario has global ecological and social significance, including the third largest wetland in the world (Abraham and Keddy 2005), which is fed by five large intact rivers (Grill et al. 2019). These rivers and wetlands provide habitat for fish that are culturally significant and important as a subsistence food source for approximately 40,000 Anishinaabe and Cree Peoples living mostly in 31 remote communities established under Treaty 9. This landscape is already seeing significant effects of climate change, and in this currently intact landscape, there is little scope for offsetting through restoration. Managing cumulative effects must be done proactively, through processes that are co-developed with Indigenous communities, and by setting watershed-scale objectives that take into account ongoing climate change and the ecological and social values desired by First Nations within the watersheds.

Ontario has not yet co-developed a land-use planning and decision-making process with First Nations that is equitable and consistent with the standards in the United Nations Declaration on the Rights of

⁷ Available online: <https://yukon.ca/en/water-quality-monitoring>.

Indigenous Peoples and the Truth and Reconciliation Calls to Action. Despite this challenge, some communities have still engaged in land-use planning in good faith under the Ontario *Far North Act 2010*. In the cases where community-based land-use plans exist, land-use plans can be used by DFO to help support considering cumulative effects under the *Fisheries Act*. However, there are many cases where land-use plans do not yet exist. The draft Ontario *Far North Land Use Strategy* may also provides some context that may support considering cumulative effects under the *Fisheries Act*, but this guidance was never finalized.

We suggest that in cases without community-based land-use plans, and in the absence of an equitable and co-developed approach to regional planning in the far north in Ontario, cumulative effects in northern Ontario should be considered at the scale of secondary watersheds. At this spatial level, we recommend that climate change and all current development and industrial activity in the watershed are considered.

Further, reasonably foreseeable future activities should be considered in light of known trajectories of growth-inducing infrastructures (Johnson et al. 2019), such as the development of new all-season roads into previously intact areas.

Thank you for the opportunity to provide input. We would certainly be open and interested in any further discussions on this important topic.

Sincerely,

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Citations:

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