

# CUMULATIVE EFFECTS

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## I. THE PROBLEM: CUMULATIVE EFFECTS = UNINTENDED BUT DEVASTATING HABITAT LOSSES FOR FISH

Aquatic ecosystems, and the fish that are part of them, are susceptible not just to large impacts from human activities, but also to smaller impacts that accumulate over time and across watersheds, shorelines and marine areas. Each new harm, perhaps seen as relatively small by itself, adds to previous ones, adding up to impacts that can be devastating for fish, as confirmed by research from DFO and other scientists. Yet DFO has never monitored, or managed, the cumulative effects associated with its regulation and authorization of impacts to fish and fish habitat.<sup>1</sup> Each regulatory decision might have been defensible, on its own, but the bigger picture has been missed as ecosystem health has been incrementally degraded. Fish and fisheries across Canada are now facing big challenges related to habitat losses and pollution. Yet, in most watershed and coastal regions, decisions about allowing further impacts to fish and fish habitat from urban and rural development, industrialization, resource extraction and flood management continue, without attention to the cumulative effects.

## II. CANADIAN LEGISLATORS RECOGNIZED THE PROBLEM AND PROVIDED A SOLUTION

The modernized *Fisheries Act*, Section 34.1(1)(d), now specifically requires the consideration of cumulative effects in the development of regulations to protect fish and fish habitat and in the exercise of related Ministerial powers. This is complemented by other provisions of the *Fisheries Act* that together support an effective, straightforward and transparent framework for the management of cumulative effects on fish and fish habitat. (see Appendix A for more details).

## III. FISHERIES AND OCEANS CANADA NOW HAS A LEGAL MANDATE AND THE TOOLS TO MANAGE CUMULATIVE EFFECTS TO FISH HABITAT

In meeting the legal requirement to consider cumulative effects in its development of regulation and policy, Fisheries and Oceans Canada (DFO) has the legal, scientific, and practical tools to get the job done, drawing on its own resources and working in cooperation with other orders of government. For example, the Minister can now make agreements with Indigenous governing bodies to support planning, management, monitoring and restoration for fish habitat, and this can be done in a way that contributes to the implementation of the United Nations Declarations on the Rights of Indigenous Peoples.

1. This has been the case even before the now-restored protections in the *Fisheries Act* respecting harmful alteration, disruption and destruction (HADD) of fish habitat were removed in 2013. See *2009 Spring Report of the Commissioner of the Environment and Sustainable Development*, Chapter 1, Protecting Fish Habitat, online: [https://www.oag-bvg.gc.ca/internet/English/parl\\_cesd\\_200905\\_e\\_32544.html](https://www.oag-bvg.gc.ca/internet/English/parl_cesd_200905_e_32544.html)

Regulation and policy can be grounded in science about cumulative effects and impact pathways, bringing DFO's regulatory functions in line with the strategic approach of its own science advisors. DFO's Science Framework for the Future confirms that DFO is moving towards an ecosystem approach to management, and directs research towards ecosystem science, as well as establishing centres of excellence at academic institutions.<sup>2</sup> The *Fisheries Act* also requires DFO to draw on Indigenous knowledge, where that has been provided to the Minister by Indigenous peoples. Relying on both Western science and Indigenous knowledge, DFO can develop regulations and policy that are attuned to the ecosystems they are meant to protect.

While the information necessary to ground regulation may already exist in some locations, as the result of watershed, land use or marine planning or other initiatives, in other cases it will be necessary for DFO to take the lead or collaborate with other governments and organizations to develop the necessary understanding about the state of ecosystem health.

At the operational level, a range of refined mapping and other data tools are available to better understand future and legacy impacts on ecosystem health, the risks at an ecosystem scale, and the consequences of DFO decisions. A robust version of the new Public Registry could be an important data source.

#### **IV. FISHERIES AND OCEANS CANADA HAS A LEADING ROLE TO PLAY IN MANAGING CUMULATIVE EFFECTS ACROSS CANADA**

DFO is the lead regulatory agency for fish and fish habitat in Canada, and its regulatory backbone provides critical support for a range of programs and initiatives across Canada that are supporting community and ecosystem health:

- Many regions across Canada are engaged in watershed planning and management, in some cases led or co-led by Indigenous Nations, and DFO now has specific tools and a legal mandate to regulate in a way that protects fish habitat from an ecosystem perspective, not just project-by-project, and to align authorizations and orders with place-based management such as watershed planning and implementation.
- Renewal of infrastructure is also taking place across Canada, and key legacy impacts, such as barriers to fish passage, can be addressed. DFO can use authorizations or standards in a strategic way, managing cumulative effects to ensure that flows of water are adequate for fish passage and fish habitat in infrastructure renewal projects, as well as prioritizing the restoration of degraded fish habitat where compensation is required.
- The Government of Canada and some provinces are investing in ambitious fish habitat restoration programs, including providing funding for Indigenous governments and organizations, and others to undertake projects. It is critical that ongoing DFO authorizations and orders build on the success of that work within watersheds, incorporate their learning, and do not undermine habitat restoration results.<sup>3</sup>
- Indigenous Nations are developing and growing Indigenous-led restoration and Indigenous Guardian programs, and DFO should be able to strategically manage the cumulative effects of its regulation of fish habitat protection so that it supports Indigenous-led restoration programs in a given region. There are also increasing opportunities for DFO to collaborate with Indigenous governing bodies and Indigenous Guardian programs in monitoring, and

2. Fisheries and Oceans Canada, "Aquatic Ecosystem Science", online: <https://www.dfo-mpo.gc.ca/science/data-donnees/ecosystem/index-eng.html>

3. For example, Government of Canada - Coastal Restoration Fund, Canada Nature Fund for Species at Risk, Governments of Canada and BC, British Columbia Salmon Restoration and Innovation Fund, etc.

gathering data needed to inform cumulative effects management.

- In British Columbia the salmon fisheries are in crisis, and the 2018 Wild Salmon Policy outlines a process of ecosystem assessment for conservation units that is being carried out by DFO and a number of partners. Implementing cumulative effects management in DFO regulations can be the bridge between the Wild Salmon Policy assessment work and DFO decision-making about authorizations and ministerial orders, and be an important contribution to the operationalization of the Wild Salmon Policy.

## **V. KEY CONSIDERATIONS FOR DESIGNING FISH AND FISH HABITAT PROTECTION REGULATIONS AND POLICY FOR THE MANAGEMENT OF CUMULATIVE EFFECTS**

Cumulative effects management for DFO has a clear, legislated objective: the conservation and protection of fish habitat, which also includes the restoration of degraded fish habitat in certain circumstances. To accomplish this objective, DFO must ensure that:

1. Decision-making about authorizations and orders is based on assessment of localized impacts as well as cumulative impacts to fish and fish habitat at the ecosystem scale (such as a watershed or other appropriately scaled management area, such as conservation unit). Where a watershed is already degraded by historical impacts, reference should be made to any available restoration objectives or plans for the area and the impacts on those objectives or plans. [FA section 2.5, decisions must be based on an ecosystem approach]
2. Decision-making about authorizations and orders should take into account watershed or other ecosystem-scale planning/management/restoration objectives related to fish habitat developed by Indigenous, provincial or local authorities, as well as relevant information about historical baselines. [FA section 89 (1)]
3. Where impacts of proposed activities are uncertain, decision-making about authorizations and orders should be made assuming possible impacts will occur, and relying on a precautionary view of ecosystem vulnerability. [FA section 2.5 decisions must be based on a precautionary approach]
4. Offsets for authorized impacts are regulated. The current policy approach has resulted systematically in poor quality offsets that do not balance habitat losses.<sup>4</sup>
  - a. Offsets for authorized impacts must result in documented net benefits for local fish habitat or for fish habitat within a watershed or other management area, and include funding for long term monitoring [FA section 2.5 decisions must be based on a precautionary approach]<sup>5</sup>
  - b. Offsets for authorized impacts may take the form of funding to fish habitat restoration plans of Indigenous authorities or organizations within the watershed or other management area.

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4. Megan Liesley et al, *Assessing habitat compensation and examining limitations to native plant establishment in the Lower Fraser River Estuary* (2016) BC Conservation Foundation & Community Mapping Network, online: [https://www.cmnbc.ca/wp-content/uploads/2018/11/Assessing-Habitat-Compensation\\_2016Appendix-I-IV.pdf](https://www.cmnbc.ca/wp-content/uploads/2018/11/Assessing-Habitat-Compensation_2016Appendix-I-IV.pdf)

5. Significant losses of fish habitat in Canada are already a reality, and managing cumulative effects requires supporting habitat and ecosystem recovery. Canada's international commitments include not just managing, but reducing cumulative effects <https://www.cbd.int/countries/targets/?country=ca> Emerging best practices require "net positive impact" from development activities. See <https://www.iucn.org/theme/business-and-biodiversity/our-work/business-approaches-and-tools/business-and-biodiversity-net-gain> In the UK this has been expressed as "net biodiversity gain" and in the State of Washington as "net ecological benefit."

5. The best available existing knowledge (Western science and Indigenous knowledge, where provided by Indigenous Nations for that purpose) is used when assessing the impacts of regulated activities on fish habitat, and it should be updated regularly to reflect new information.
6. Any impacts that are allowed by regulation or exercise of Ministerial powers are tracked and monitored as part of the authorization or order.

In addition:

7. All impacts to fish habitat governed by the fish and fish habitat protection provisions of the Fisheries Act must be legally authorized, recorded by DFO and the records made publicly accessible.
8. DFO must stop providing Letters of Advice that allow projects with “minor” impacts to proceed without legal authorization. This practice has been censured by Canadian courts and has no legal basis.<sup>6</sup> Research has shown that the cumulative impacts of Letters of Advice on fish habitat is significant.<sup>7</sup>
9. Standards are needed for specific works such as flood management infrastructure so that fish friendly features are included in all upgrades and new works. [FA section 34.1(c)]
10. The designation of ecologically significant areas should be used for especially vulnerable/significant areas for fish and fish habitat, and could helpfully overlay or overlap areas where watershed or other ecosystem-based management exists or is being developed by Indigenous and provincial governments.
11. Opportunities to partner or cooperate with Indigenous governing bodies and Indigenous Guardian programs should be further developed.
12. Opportunities to work with grassroots stewardship groups in tracking and monitoring cumulative effects should also be explored.

## **VI. FISHERIES AND OCEANS CANADA HAS THE MANDATE AND TOOLS TO DEVELOP A REGULATORY FRAMEWORK FOR MANAGING CUMULATIVE EFFECTS IN A STRATEGIC AND EFFECTIVE WAY**

As the lead agency for fish and fish habitat in Canada, DFO has an important role to play in developing regulations and policy to manage cumulative effects. Some of the regulatory measures described above can be implemented relatively quickly across Canada. In other cases, particularly with respect to assessing ecosystem-level impacts and aligning with other government-based initiatives, such as watershed planning and management, regulatory approaches could be “piloted” in specific locations, and regulations could be phased in progressively across different locations. This would also apply to areas where watershed or other ecosystem objectives do not exist or outdated, or where ecosystem vulnerability to further human impacts have not been assessed, and it is necessary for DFO to undertake or cooperate to develop appropriate information. Given the urgent need to protect and restore fish habitat in many locations across Canada, it is important that DFO begin immediately to address the consequences of its own historical inattention to cumulative effects, and implement its now legislated mandate.

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6. *Friends of The West Country Association v. Canada (Minister of Fisheries and Oceans)*, 1997 CanLII 5107 (FC),

7. <https://cwf-fcf.org/en/news/magazines/canadian-wildlife/Habitat-Loss-Time-to-Act.pdf>

## **APPENDIX: FISHERIES ACT PROVISIONS THAT SUPPORT A STRATEGIC APPROACH TO FISH HABITAT PROTECTION, AND THE MANAGEMENT OF CUMULATIVE EFFECTS**

Section 34.1(1) specifies factors that must be considered in the development of regulations concerning fish and fish habitat, as well as in the exercise of many Ministerial powers, including:

- an overarching requirement to consider the cumulative effects on fish and fish habitat of authorizations or orders (d);
- “Indigenous knowledge of the Indigenous peoples of Canada that has been provided to the Minister” (g);
- Productivity of fisheries and fisheries management (a)&(b); and
- Measures and standards that can be employed to protect fish and fish habitat (c), and in the case of compensation, to prioritize the restoration of degraded fish habitat (f)).

Section 34.3 gives the Minister specific powers related to assessing, preventing and addressing obstructions to fish passage and harm to fish and fish habitat”, including orders to protect flows of water necessary for fish passage and fish and fish habitation protection.

Section 37.1 allows the Governor in Council to designate ecologically significant areas, and to establish regulations setting objectives for the conservation and protection of fish and fish habitat within them, while the Minister is required to prepare a fish habitat restoration plan to meet the objectives, if necessary.

Section 2.1(b) confirms that the purpose of the Act, in addition to fisheries management, is the conservation and protection of fish and fish habitat.

Section 2.4 requires the Minister to consider adverse effects on the rights of Indigenous peoples when making decisions under the Act.

Section 2.5 provides a list of factors that the Minister shall consider when making a decision under the Act, such as:

- a precautionary approach and an ecosystem approach;
- scientific information and Indigenous knowledge;
- the sustainability of fisheries;
- community knowledge;
- cooperation with other bodies, including Indigenous governing bodies
- social, economic and cultural factors related to fisheries

Section 4.1 (1) now specifically enables the Minister to enter into agreements with Indigenous governing bodies to facilitate cooperation, joint action, and information sharing.

Sections 42.2 and 42.3 require the Minister to establish a public registry that includes records relating to matters under the Fish and Fish Habitat Protection and Pollution Prevention provisions of the Act, including authorizations for HADD and others.