



Fisheries and Oceans Canada (DFO) thanks the Working Group for the opportunity to provide responses to the Ring of Fire Regional Assessment September 25, 2025 call for information. DFO is providing responses with respect to its mandate of safeguarding Canada's waters and managing Canada's fisheries and oceans resources. DFO helps to ensure healthy and sustainable aquatic ecosystems through habitat protection and sound science. In this submission, DFO compiled responses from its relevant sectors and programs, including of the Fish and Fish Habitat Protection Program (FFHPP), Species at Risk Program (SARP), Aquatic Invasive Species, Indigenous Relations Unit (IRU), and Science.

## **Request #1: Projects and Initiatives relevant for the Ring of Fire Area**

- a) *Provide a list of the projects and initiatives in which you are involved in that relate to the Ring of Fire Assessment Area. For each item, include: i. project name, description, timeframe; ii lead organization, iii other collaborators, iv your role, v geographic location (include maps if applicable).*

DFO compiled projects and initiatives relevant for the Ring of Fire Area into two categories: research and contribution support.

### **Research**

#### **Abundance Estimate of the South and East Hudson Bay Walrus (*Odobenus rosmarus rosmarus*) Stock from an Aerial Survey Flown in September 2022**

Description: DFO conducted this study as a precautionary approach due to poor data availability for walrus in the South and East Hudson Bay (SEHB) area. DFO used a tool to quantify the maximum annual number of animals that may be removed from a stock, that would allow the population to have a 95% probability of being above the Maximum Net Productivity Level in 100 years. This study presents results from a coastal photographic aerial survey targeting haul-out areas in between August and October 2022. From September 1 to 13<sup>th</sup>, 2022, an aerial photographic survey was flown to estimate the abundance of walrus from the SEHB Stock. A second abundance estimate was calculated from satellite photographs within the survey area between August 11<sup>th</sup> and October 15<sup>th</sup>, 2022.

Lead organization: DFO

Other collaborators: The survey was financially supported by the DFO National Survey Fund, the Implementation fund of the Nunavik Inuit Land Claims Agreement, and the Nunavik Marine Region Wildlife Board.

DFO's role: DFO scientists lead on these projects and engage with communities, hire local observers in the survey planes or for other tasks during other types of field work, and report back to communities with results.

Geographic location: See location below, additional maps can be found in 1iii Sauve, 2024 in the Appendix.

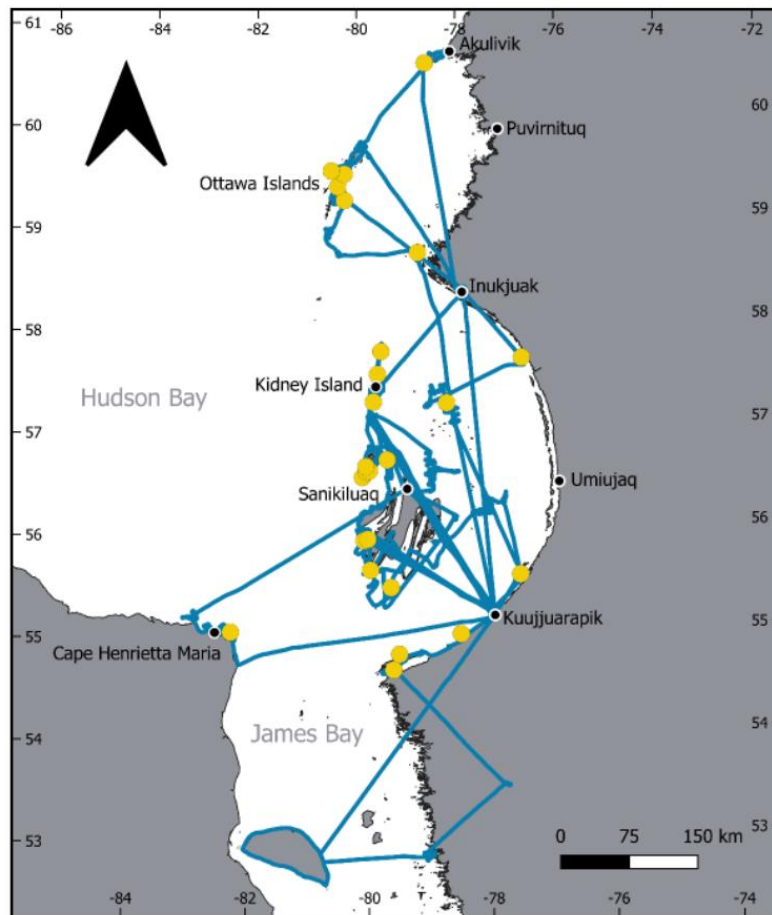


Figure 2. Locations of known walrus haul-out sites (yellow circles) from previous surveys, discussion with Inuit hunters, and historical reports, along with survey tracks (blue lines) flown by the aircraft during September 2022. Latitude and longitude in degrees are indicated along the x- and y-axes.

### **Abundance Estimates for Beluga (*Delphinapterus leucas*) in James Bay and the Belcher Islands-Eastern Hudson Bay Area in Summer 2024**

Description: Four beluga stocks are recognized to inhabit or migrate along the Nunavik coasts: Ungava Bay, James Bay, Western Hudson Bay and Belcher Islands-Eastern Hudson Bay (BEL\_EHB). A historically abundant species, commercial whaling resulted in a sharp decline in abundance. A stock assessment conducted in 2021 estimated that harvest levels would need to be reduced in order to prevent extinction within two to three decades of the BEL-EHB belugas. Beluga stock abundance estimation is conducted by visual aerial surveys and are conducted every 5 years. This survey was conducted from July 18<sup>th</sup> – September 23<sup>rd</sup>, 2024.

Lead organization: DFO

Other collaborators: The survey was financially supported by the DFO National Survey Fund, the Implementation fund of the Nunavik Inuit Land Claims Agreement, the Nunavik Marine Region Wildlife Board, and the Eeyou Marine Region Wildlife Board

DFO's role: DFO scientists lead on these projects and engage with communities, hire local observers in the survey planes or for other tasks during other types of field work, and report back to communities with results.



Geographic location: See location below, additional maps can be found in 1iv. Sauve, 2025 in the Appendix.

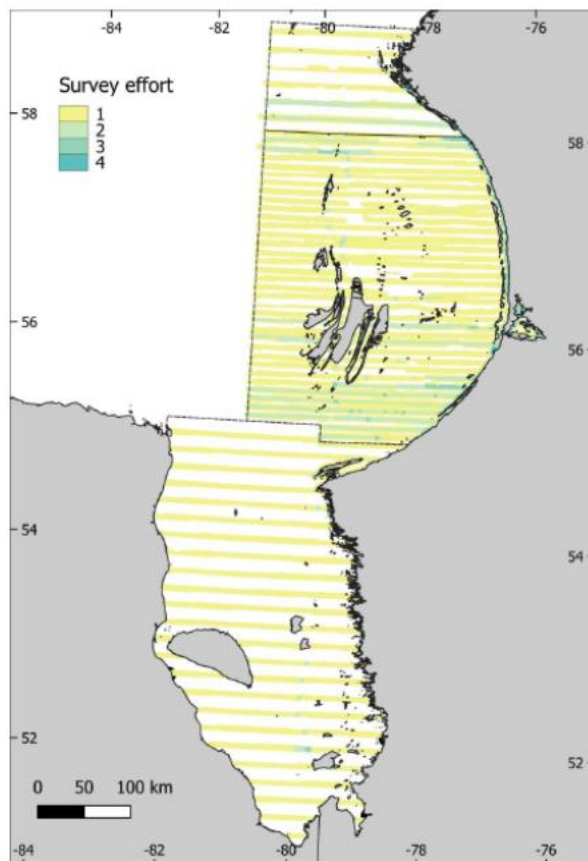


Figure 3. Realized survey effort in James Bay and the Belcher Islands-eastern Hudson Bay area for the systematic line-transect aerial beluga survey, as well as along the eastern Hudson Bay coastline, Long Island, Tasiujuaq Lake, Nastapoka River and Little Whale River in summer 2024. Survey effort was derived from survey tracks and observer logs, and calculated as the area from the track line to one effective strip half width (ESHW) on primary observer's side of the aircraft while each primary observer was on effort.

b) Explain if and how Indigenous Nations and communities in the Ring of Fire Area collaborated in these projects and initiatives:

So far, these projects have been developed in collaboration with the Nunavik communities (Inuit of northern Québec) and with the Cree of Eeyou Istchee. Communities in the Ring of Fire have not yet collaborated to these projects. Nunavik and Cree communities have collaborated on this work due to the project location being within their Traditional Territories.

There is also a planned ring seal survey in the area in spring 2026, in which the Muschkegowuk Council is directly involved. As this is forward-looking, a summary is not provided. Should the Muschkegowuk Council wish to share information on this work, DFO would be supportive.

c) Would you be willing to give a public presentation about any of these initiatives to the working group, and if so which ones?

The lead scientists can present on both DFO-led research projects if it is of interest.

### **Contribution support**



### **Impacts of land-use change on Lake Sturgeon habitat use, feeding ecology, contaminant exposure, and health in the James Bay Lowland (3 years from 2021-22 to 2023-24)**

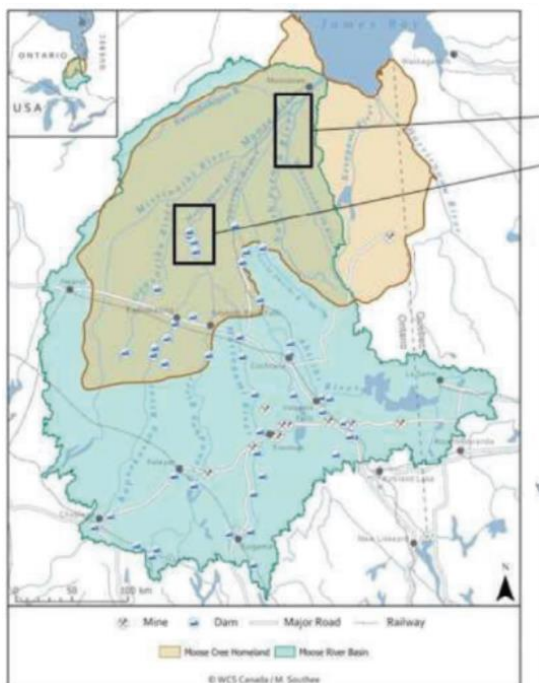
Description: This project supports DFO's priority of freshwater habitat science through the establishment of a science-based fisheries monitoring program in the remote ecozone of the Hudson Bay Plains in Northern Ontario, based on a First Nation community-led fisheries monitoring program.

Lead organization: Wildlife Conservation Society Canada (WCS)

Other collaborators: Co-created by WCS Canada and Moose Cree First Nation (MCFN). Throughout the project, the Elders Advisory Group has guided research and since 2018, has included the MCFN youth in the field research and programming. The research project's objectives are to fill scientific gaps in habitat characteristics associated with lake sturgeon movements and fish condition and to examine the implications of changes in habitat through data collection on habitat, trophic ecology and measures of fish health and condition (e.g. mercury and arsenic accumulation and speciation, two known contaminants of concern in sturgeon from this region). This will provide information about how land-use changes across the James Bay Lowland influence the relationships between fish habitat and fish health. The project builds on an existing joint monitoring project co-created by WCS Canada and Moose Cree First Nation (MCFN) and initiated in 2016.

DFO's role: Contribution support provided through DFO's Freshwater Habitat Science Initiative (FHIN)

Geographic location: See location below, Mattagami River and the North French River in the James Bay Lowlands and into James Bay, Northern Ontario.



### **Status and dynamics of Lake Sturgeon in the pristine Severn River, Ontario (ongoing-completion scheduled for March 2026)**



Description: This project consists of a comprehensive survey of the status of the lake sturgeon population in the pristine Severn River. Specifically, it will report on stock status, evaluate stresses on fish populations and habitats, offer management recommendations and facilitate information sharing and participation among all stakeholders to promote sustainable fisheries. The project monitors, collects data and carries out research that supports sustainability of Canada's lake sturgeon fisheries, including sturgeon stock assessments in the Severn River. This project contributes knowledge toward ensuring capacity to accommodate increasing demand for science-based analysis and advice regarding sustainable management of lake sturgeon in the Severn River. It involves the training of highly qualified personnel and the joint collection of Traditional Knowledge, demographic and genetic data from the Severn River population. An additional purpose of the research on the lake sturgeon in the Severn River is to document the state of the fishery before any impacts from potential development projects/proposals (e.g., mining and infrastructure in the Ring of Fire) that might take place in the territory.

Lead organization: Anishinabek/Ontario Fisheries Resource Centre (AORFC)

Other collaborators: The work has been conducted in co-ordination with the communities situated along the Severn River, including Sandy Lake FN, Muskrat Dam FN, Bearskin Lake FN and Fort Severn FN. The project includes capacity building in the form of training fisheries technicians in each community to assist with the field portions of the research.

DFO's role: Contribution support provided through DFO's Freshwater Habitat Science Initiative (FHIN)

Geographic location: Severn River, Ontario, Sandy Lake FN, Muskrat Dam FN, Bearskin Lake FN and Fort Severn FN

### **Building Community Capacity in Fisheries: Establishing a Comprehensive Fish Habitat Database, Centered on Indigenous Knowledge, 2019-2020.**

Description: Increased participation in DFO regulation/policy development opportunities; development of a comprehensive Fish Habitat Database; community involvement in the collection of fish habitat assessment field data and its inclusion in the established Fish Habitat Database.

Lead organization: Matawa First Nations, Matata member First Nations

Other collaborators: Matawa Nations Four River team

DFO's role: Contribution support provided through DFO's Indigenous Habitat Protection Program (IHPP)

Geographic location: Traditional territory of the Matawa member First Nations, 300,000 square kilometers within the central portion of northern Ontario, in the Ring of Fire area

### **Expanding Constance Lake/Long Lake #58/Webequie/Ginoogaming First Nation's Capacity to Monitor Fish & Fish Habitat within the Homelands, 2021-2023**

Description: Individual projects with the same milestones/project name per each of the four communities noted above. Activities included: office set up; participation in DFO regulation engagement opportunities and research; procurement of field equipment; fish and fish habitat IK collection; community priorities workshop; regional training of fish habitat and CABIN field work; development and implementation of fish and fish habitat survey and data compilation; community engagement; regional database training and organization.

Lead organization: Various communities (Constance Lake First Nation; Long Lake #58 First Nation; Webequie First Nation; Ginoogaming First Nation)



Other collaborators: N/A

DFO's role: Contribution support provided through DFO's Indigenous Habitat Protection Program (IHPP)

Geographic location: Indigenous traditional territories of identified First Nations.

### **Matawa First Nation Aboriginal Funds for Species at Risk, 2023-2026 (ongoing)**

Description: Gathering of pre-existing data regarding lake sturgeon, development and refinement of sampling protocol for lake sturgeon and training video for community environmental monitors, attending road access community gathering (water quality profiles collected and lake sturgeon sampled), road-access community environmental monitoring training, canoe trip with youth on the Upper Albany and Little Current Rivers, continuation of subsistence harvest sample collection and development, and distribution of outreach materials.

Lead organization: Matawa First Nation, Four Rivers Group

Other collaborators: Matawa member First Nation communities (Aroland First Nation, Constance Lake First Nation, Long Lake 58 First Nation, Eabametoong First Nation, Ginoogaming First Nation, Marten Falls First Nation, Neskantaga First Nation, Nibinamik First Nation, Webequie First Nation)

DFO's role: Contribution support provided through DFO's Aboriginal Funds for Species at Risk (AFSAR)

Geographic location: Traditional territory of the Matawa member First Nations, 300,000 square kilometers within the central portion of northern Ontario, in the Ring of Fire area

### **Hudson Bay Consortium/Arctic Eider Society Coastal Resilience Fund (CRF) Agreement, 2018**

Description: Funding provided to host a workshop to consult on community priorities for coastal issues and restoration across the greater James Bay and Hudson Bay region. Workshop outcomes were intended to provide a foundation for coastal restoration planning, develop proposals for coastal restoration funding, and coordinate among communities and jurisdictions on coastal issues. Linkages from coastal restoration to long term stewardship through establishing protected areas at restoration sites was also explored. Common themes and issues mentioned in the workshop included: debris removal from shipwrecks, barrels and tanks, pollution due to chemical and oil contamination, negative effects of shipping (pollution and noise), erosion, and negative impacts of hydroelectric development. Communities also identified concerns regarding the impacts of mining on contaminants in the water affecting fish health and abundance, and drinking water; and lack of seals and belugas due to disturbance from tankers and ships (mineral ships and icebreakers).

Lead organization: Hudson Bay Consortium, Arctic Eider Society

Other collaborators: Akulivik, Arviat, Attawapiskat, Baker Lake, Chesterfield Inlet, Chisasibi, Coral Harbour, Eastmain, Fort Albany, Inukjuak, Ivujivik, Kashechewan, Kangiqsujuaq, Kuujjuaraapik, Moose Cree, Naujaat, Peawanuck, Puvirnituk, Rankin Inlet, Sanikiluaq, Umiujaq, Waskaganish, Wemindji, Whapmagoostui, York Factory

DFO's role: Contribution support provided through DFO's Coastal Resilience Fund (CRF)

Geographic location: Hudson Bay and James Bay

### **Coastal Restoration Nunavut, 2017-2022**

Description: The Coastal Restoration Nunavut (CRN) project draws on Inuit Qaujimajatuqangit (IQ) to document and address the health and condition of marine species and their habitats. The



objective of the research project was to identify and implement physical interventions to mitigate the stressors impacting aquatic species in each of Nunavut's 25 communities. Feasibility studies of potential projects were conducted, and nine physical interventions identified as priorities by communities were implemented. The project also aimed to strengthen capacity at the community level via local training on data collection; to document IQ; and to support each community in environmental restoration and stewardship initiative, hunters and other community members shared their knowledge on the health and condition of coastal ecosystems and identified restoration needs within their communities. Communities identified important management interventions needed to address Arctic char fisheries issues, explore potential fisheries development, lessen the impact of rockfalls and address access road issues, alleviate the impact of sewage and contaminants on the lake and wider watershed, and assess the potential risks of proposed diamond mining. Concerns were also expressed relating to the effects of increased shipping on marine mammals.

Lead organization: Dalhousie University Marine Affairs Program, Government of Nunavut

Other collaborators: N/A

DFO's role: Contribution support provided through DFO's Coastal Resilience Fund (CRF)

Geographic location: Kitikmeot (Cambridge Bay, Gjoa Haven, Kugaaruk, Kugluktuk, Taloyoak); Kivalliq (Arviat, Baker Lake, Chesterfield Inlet, Coral Harbour, Nauyasat, Rankin Inlet, Whale Cove); and Qikiqtaaluk (Arctic Bay, Kinngait, Clyde River, Grise Fiord, Sanirajak, Iqaluit, Igloodik, Kimmirut, Pangnirtung, Pond Inlet, Qikiqtarjuaq, Resolute, Sanikiluaq).

b) *Explain if and how Indigenous Nations and communities in the Ring of Fire Area collaborated in these projects and initiatives:*

Indigenous Nations in the Ring of Fire area either applied through a competitive process to DFO's grant and contribution programs and were directly responsible for executing the approved activities, or they participated in the activities led by other organizations in support of grant and contribution program objectives. The strong applications had connections to program objectives including conservation and protection of fish and fish habitat, described deliverables, and had connection to the Ring of Fire.

c) *Would you be willing to give a public presentation about any of these initiatives to the working group, and if so which ones?*

DFO can speak to the programs (FHIN, IHPP, AFSAR, CRF, etc.) and updated priorities to the Working Group. For project-specific presentations and associated deliverables, DFO would defer to the recipients (listed as lead organizations) to provide detailed project summaries. DFO could support these presentations as needed.

**Request #2: Priority topics identified by the Working Group – Information and Gaps. Referring to the priorities and issues listed in Table 3, based on your expertise, provide advice on [(a) through (e)].**

**Request #2, Priority theme #2: Cultural and spiritual wellbeing (i.e. enacting and protecting rights, ways of life)**



- a) *The best sources of existing data, including means to access it:* DFO's view is that Indigenous communities are the best sources of existing data, including means to access it, as it relates to cultural use and spiritual wellbeing of First Nations and Métis individuals/communities on the land.
- b) *Adequate spatial and temporal boundaries to assess impacts:* DFO uses accepted Government of Canada tools and principles including the Aboriginal Treaty Rights Information System (ATRIS) in addition to Crown knowledge and any provided Traditional Knowledge/use information shared for this use by local Indigenous groups to determine cultural and spiritual use in identifying adequate spatial and temporal boundaries to assess impacts, key indicators to describe potential impacts.
- c) *Key indicators to describe potential impacts:* Key indicators to describe potential impacts to cultural and spiritual wellbeing include submissions by Indigenous groups that identify such impacts. DFO relies on potentially impacted Indigenous groups to identify and provide this information on a project-by-project basis.
- d) *Known data gaps or uncertainties:* DFO relies on local Indigenous communities to identify potential impacts to Aboriginal and Treaty rights during Crown consultation processes. Limited community capacity can create data gaps and uncertainties, and DFO works to address capacity constraints through existing capacity building programs.
- e) *Suggestions for studies or other ways to fill those gaps:* Comprehensive traditional use and knowledge studies, and land use planning maps would support addressing data gaps as it relates to traditional use and potential impacts. DFO recommends that these studies are established during the Regional Assessment in collaboration with Indigenous partners. Doing so would advance anticipated Crown consultation processes for proposed Ring of Fire projects in a manner that could not be undertaken by DFO during regulatory review(s).

**Request #2, Priority theme #3: Social and economic equity (i.e. current use of lands and resources for traditional purposes, including access to lands and resources; on-the-land activities, harvesting).**

- a) *The best sources of existing data, including means to access it:* DFO's view is that Indigenous communities are the best sources of existing data, including means to access it, as it relates to social and economic equity including the current use of lands and resources for traditional purposes, harvesting, access and on-the-land activities. Additionally, communities are best placed to identify potential impacts to harvesting, on-the-land activities, access and traditional land use in the areas proposed for resource development.
- b) *Adequate spatial and temporal boundaries to assess impacts:* DFO uses accepted Government of Canada tools and principles including the Aboriginal Treaty Rights Information System (ATRIS) in addition to Crown knowledge and any provided Traditional Knowledge/use information shared for use by local Indigenous groups to determine cultural and spiritual use in identifying adequate spatial and temporal boundaries to assess impacts,



- c) *Key indicators to describe potential impacts:* Key indicators to describe potential impacts, to social and economic equity include submission by Indigenous groups that identify such impacts. DFO relies on potentially impacted Indigenous groups to identify and provide this information on a project-by-project basis.
- d) *Known data gaps or uncertainties:* DFO relies on local Indigenous communities to identify potential data gaps or uncertainties as they relate to Aboriginal and Treaty rights during Crown consultation processes.
- e) *Suggestions for studies or other ways to fill those gaps:* Comprehensive traditional use and knowledge studies, and land use planning maps would support addressing data gaps as it relates to traditional use and potential impacts. DFO recommends that these studies are established during the Regional Assessment in collaboration with Indigenous partners. Doing so would advance anticipated Crown consultation processes for proposed Ring of Fire projects in a manner that could not be undertaken by DFO during regulatory review(s).

**Request #2, Priority theme #4: Healthy Environment Relationships (water and river systems including flows; wildlife and habitat including species at risk, and fish and fish habitat, peatlands and other unique environments, climate change and change in species composition, change in biodiversity)**

- a) *The best sources of existing data, including means to access it:*

DFO has led two studies on walrus and beluga in the James Bay and lower Hudson Bay area (1iii Sauve, 2024, 1iv Sauve 2025, attached). DFO does not lead any studies on the freshwater environment in this region. However, DFO is aware of the below studies that may be relevant to the Ring of Fire area and regional assessment:

- Priority areas for conservation in the Far North: <https://www.facetsjournal.com/doi/10.1139/facets-2020-0015>;
- State of knowledge for aquatic ecosystems in the Far North: <https://streamecologylab.wordpress.com/wp-content/uploads/2020/04/marshall-and-jones-2011-aquatic-ecosystems-of-the-far-north.pdf>;
- Fish sampling in the Hudson Bay Lowlands: <https://streamecologylab.wordpress.com/wp-content/uploads/2021/04/srb-tr-41-patterson-et-al-final-2020dec18.pdf>;
- Aquatic Ecosystem Classification for Ontario (see Table 2 on rivers): <https://geohub.lio.gov.on.ca/maps/76aa2ffb0ae74368b1d245d50726ae24/explore?location=48.653100%2C-83.139150%2C4>; and
- Province of Ontario's Aquatic Resource Area database: <https://geohub.lio.gov.on.ca/datasets/lio::aquatic-resource-area-survey-point/about>

Additionally, when DFO conducts regulatory reviews of proposed works, undertakings, or activities near or in fish or fish habitat, baseline data are sometimes provided by proponents. This is discussed in DFO's response to Request #4, below.

For b) to d) *spatial and temporal boundaries; key indicators; data gaps or uncertainties:* DFO has



relevant expertise but needs more clarity (e.g., development scenarios, valued ecological components to be tracked such as specific species). Spatial and temporal boundaries and key indicators rely heavily on first identifying both the characteristics of development (e.g., temporal lifecycle for the potential projects like mines or roads, potential, for additional infrastructure such as rail and port, energy infrastructure, etc. ), as well as the characteristics of species within the assessment area (e.g., migratory distances, habitat preferences). And, DFO would appreciate further clarification on what is meant by “key indicators to describe potential impacts”.

For e) *suggestions for studies*: DFO recommends that a process similar to the State of Fish and Fish Habitat (SOFFH) series be undertaken to identify indicators and key thresholds in the Ring of Fire assessment area. DFO Canadian Science Advisory Secretariat (CSAS) provided advice on how to complete this type of assessment for the Lower Great Lakes and the Alberta East Slopes areas (Document 2i). Proceedings from the peer-review meetings are provided in the Appendix (2ii and 2iii), as well as research documents that outline methods for establishing classification schemes and thresholds for reporting on the state of fish and fish habitat (2iii) and a preliminary assessment of the state of fish and fish habitat in the focal areas (2iv). Due to the geographic differences, indicators cannot be used interchangeability, but the categories and processes described may be procedurally relevant. Once more detailed information is specified, DFO will be able to provide a more targeted response to the request.

DFO concurs with the Working Group that it should be an objective of this Regional Assessment to bring together all the information and then identify gaps in order to suggest studies to fill gaps. Collaboration with Indigenous partners in compiling available information and identifying gaps is integral to achieving this objective.

**Request #4: River systems – Scale of studies, existing information and gaps. The Working Group is interested in baseline studies and analyses of potential impacts at a river-system scale related to geochemistry, hydrogeology, hydrology, water quality and quantity, fish and aquatic wildlife, and navigability.**

- a) *Identify existing studies at the spatial scale of the major river systems in the Ring of Fire Assessment Area, i.e.: Abitibi River, Attawapiskat River, Ekwan River, Kenogami River, Mattagami River, Missinabi River, Moose River, the Lower and Upper Albany Rivers, and the Winisk River.*
- b) *If this information does not exist, advise on how it would be possible to obtain portraits of these river systems, including if there are plans underway to conduct these studies.*
- c) *Based on your experience in project-level impact assessments, advise whether there are standard mitigation measures that may be applicable to protect the water systems in the Ring of Fire assessment area from potential impacts for development activities in general.*
- d) *Include a discussion of the key sources of uncertainty unique to this assessment area related to the effectiveness of these measures, and what your role might be in reducing these*



*uncertainties.*

For a) and b): See DFO's Response to Request #2, Healthy Environment Relations, regarding best sources of existing data. DFO has not led any river-system scale studies in the Ring of Fire area. DFO requires additional information regarding what elements of a river system are of priority to the Working Group. Considerations from a DFO perspective may include, but are not limited to: fish distributions, habitat use, habitat productivity, water quality and quantity, etc. As there are numerous methods to study these river characteristics, further information on what type of information is a priority would enable DFO to recommend methods for future studies. Development scenarios are required to scale any proposed baseline studies in accordance with the risks to fish and fish habitat.

For a), b), and c): If a *Fisheries Act* authorization was issued on the river systems listed above, DFO and the Working Group may have access to various sources of pre-construction (e.g. baseline), during-construction, and post-construction data. For example, DFO was a Responsible Authority under the *Canadian Environmental Assessment Act* and co-led the environmental assessment of the Victor Diamond Mine Project (VDMP) near Attawapiskat. Baseline information was collected to inform the environmental assessment, which may be found in the Comprehensive Study Report (CSR), among other sources. For VDMP, the infilling of Muskeg Lake, two watercourse crossings, and the realignment of Granny Creek required *Fisheries Act* authorizations. Therefore, during-construction and post-construction data may be found in the VDMP Follow-up Agreement (FUPA), and within monitoring reports on the Granny Creek diversion channel submitted to DFO between 2008 and 2026 (anticipated). Ongoing reporting is required to validate the effectiveness of mitigation and offsetting measures associated with mine closure. These may be relevant sources to inform parties' understanding of the effectiveness of mitigation measures applied in a similar environment to the Ring of Fire area. The environmental assessments or regulatory reviews of other mines, transportation (all-season roads, rail, ports, shipping, etc.), and dams and hydroelectric facilities in the vicinity of the Ring of Fire may contain baseline information and/or information about the effectiveness of applied mitigation measures.

For c): Prior to providing specific mitigation measures, DFO recommends the Working Group provides parties with a structured approach to identifying potential impacts, for example by using the [Pathway of Effects \(PoE\)](#) model. PoE provides a good starting point to identify key datasets necessary to collect, to identify mitigation strategically, then using mitigation measures to 'break' pathways. Once development scenarios are provided, the Regional Assessment is the opportunity for parties to apply PoE models to the assessment. This would lead to an organized and comprehensive mitigation list, allow the sufficient time to accomplish this objective, and help ensure the value of the regional assessment outcome. An important consideration is to ensure that the data collected at both project and regional scales can be used to evaluate the effectiveness of mitigation measures identified to address both project-specific and cumulative impacts. Standardizing an effects assessment framework and information requirements would help ensure this. In addition to the PoE document, a list of DFO's standard avoidance and mitigation (A&M) measures to protect fish and fish habitat, and a list of general A&Ms to protect fish and fish habitat relevant to anticipated Ring of Fire development scenarios (e.g. hard rock mining, transportation, other supporting infrastructure) can be found in the attached Appendix.



For d): Currently, key sources of uncertainty include: an assessment framework, development scenarios, valued components, identification of regional objectives, baseline data and habitat characteristics in the proposed resource development area, effectiveness of mitigation and offsetting measures from previous developments, climate change, and cumulative effects.

## Request #8: Species at Risk

a) *Provide summaries of knowledge on species at risk and their habitat in the assessment area, including but not limited to threats, mitigation options, and knowledge gaps.*

At present, no fish or marine mammals are federally listed as endangered or threatened in the Ring of Fire study area. The below species or populations are under consideration to be listed under the *Species at Risk Act* and could be considered 'sensitive'.

Freshwater environment:

- Lake Sturgeon, Southern Hudson Bay - James Bay populations have been listed as Special Concern and could be impacted by activities related to the ROF. Threats within Designated Unit 3 (Ontario and Manitoba portion) include dams, overharvest, mining, and pollution. Knowledge gaps include: distribution of Lake Sturgeon in the potentially impacted watersheds and population estimates are unavailable or limited to relatively short river sections.

Marine environment:

- Beluga, Belcher Islands-Eastern Hudson Bay population, Special Concern: Threats include overharvesting. James Bay is known to provide summer habitat;
- Ringed Seal, Special Concern: Threats include climate change, ice-breaking, and vessel noise;
- Atlantic Walrus, Special Concern: Threats include unsustainable hunting and commercial shipping related to industrial development; and
- Lumpfish, Special Concern: Threats include overfishing, coastal development, climate change, oil and gas activities, aquaculture, pollution, invasive species, and infectious agents.

b) *Comment on how Indigenous knowledge is braided in this knowledge.*

DFO follows the Committee on the Status of Endangered Wildlife in Canada (COSEWIC)'s [Aboriginal Traditional Knowledge: process and protocols guidelines](#), which outlines how Traditional Knowledge (TK) is collected and incorporated into the COSEWIC assessments to identify and manage species at risk. When a species is considered for listing under the *Species at Risk Act*, DFO reaches out to implicated communities to hear their feedback on what it means to them in support of whether to list a species and this feedback is considered in the decision to list a species under the *Species at Risk Act*. Generally, Indigenous communities are best placed to identify presence/absence of species and DFO works closely with communities in the consideration of species at risk work. If it is listed, DFO engages with Indigenous partners in the development of



species recovery attempts including Recovery Documents and implementation of recovery and monitoring activities. This process is the same for marine mammals and fish.

c) *Identify any plans for conservation and protection measures focused on the species at risk in the assessment area.*

Planning is in the very early stages regarding conservation and protection measures focused on lake sturgeon in the regional assessment area. Possible future measures include the development and implementation of a long-term population monitoring plan and collaboration with Indigenous groups to understand the extent and levels of harvest by Indigenous peoples, and the extent and levels of illegal harvest (i.e., harvest by non-Indigenous persons).

### **Request #9: Protected Areas**

a) *Provide an overview of the various conservation and protection measures and that could contribute to protection of sensitive areas in the assessment area. Include a description of their purpose, how they complement each other, the lead organisations, and current and future priorities related to the assessment area.*

Tools that help protect sensitive areas within DFO's mandate include:

- Standard fish and fish habitat protection provisions (Ref. *Fisheries Act* section 35(1) prohibition against works, undertakings or activities, that result in harmful alteration, disruption or destruction of fish habitat unless authorized by DFO via the Fish and Fish Habitat Protection Program);
- Critical Habitat for species at risk (Ref. *Species at Risk Act* section 32(1) prohibition against harassing an endangered or threatened species, and section 33 the destruction of critical habitat or harassment of Endangered or Threatened species, implemented by DFO's Species at Risk Program);
- Ecologically Significant Areas (Ref. *Fisheries Act* section 35(2) DFO may establish Ecologically Significant Area regulations). No Ecologically Significant Areas (ESAs) are planned or established in Ontario at this time. The purpose of an ESA is to provide long-term enhanced conservation and protection of aquatic areas that are highly productive, sensitive, rare, and/or unique and to ensure effective restoration of these areas when restoration is needed (these terms are defined in DFO's Framework for Identifying, Establishing, and Managing ESAs, attached). Specific types of prescribed works or activities may be permitted in the ESA, depending on the objectives for the ESA, which are developed with input from, or in partnership with, Indigenous Peoples, provinces and territories, and stakeholders;
- Marine Protected Areas (Ref. *Oceans Act* section 35, DFO may establish Marine Protected Area (MPA) regulations). The purpose of an MPA is to provide conservation and protection of commercial and non-commercial fishery resources, endangered or threatened marine species, unique habitats, and/or highly biodiverse or productive areas. Similar to ESAs, specific types of prescribed works or activities may be permitted, depending on the objectives, which are developed with input from, or in partnership with, Indigenous Peoples, provinces and territories, and stakeholders;



- Indigenous Protected and Conserved Areas (IPCAs). DFO supports Parks Canada Agency in Indigenous-led marine conservation through the creation of IPCAs which may be co-designated with ESAs or MPAs identified above.
  - DFO understands Indigenous protected areas and national marine conservation areas (IPA-NMCA) are proposed for Weenebeg (western James Bay) and Winnipaakw (eastern James Bay). DFO understands the Mushkegowuk Council are leading on both proposed agreements with Parks Canada; and
- Other effective area-based conservation measures (OECM): Marine refuges (fisheries-area closures) are examples of OECMs in Canada's oceans.

DFO's role in the conservation and protection of fish and fish habitat includes:

- Apply the fish and fish habitat protection provisions of the *Fisheries Act*, in combination with the relevant provisions of the *Species at Risk Act* (SARA) and the *Aquatic Invasive Species Regulation* to regulate works, undertakings, or activities that could result in harmful impacts to fish and fish habitat. In managing those responsibilities, on-site meetings and monitoring as well as Indigenous engagement and Crown consultation is often a critical part of the regulatory process.
- Monitor works, activities and undertakings to assess effectiveness of mitigation measures and conformity with advice, standards, codes of practice, and conditions of SARA permits, *Fisheries Act* authorizations (FAAs), and FAAs with SARA permit conditions. Compliance and enforcement of the conditions of FAAs and SARA permits, including the use of enforcement tools to compel compliance with the *Fisheries Act*, such as warnings, directions, and prosecutions among others.
- Collaborate and where possible, partner with Indigenous Peoples, provinces and territories, and stakeholders to develop frameworks, management objectives, regulations, and monitoring plans for area-based conservation and protection with the tools outlined above.

b) *For each measure, identify how federal agencies and departments achieve conservation and protection goals in partnership with other organizations, including First Nations and environmental groups.*

DFO partners with First Nations, Inuit and Métis groups to support capacity-building through our various grant and contribution programs (Indigenous Habitat Participation Program, Aboriginal Fund for Species at Risk, Habitat Stewardship Program, Canada Nature Fund, Aquatic Habitat Restoration Fund for marine areas).

During regulatory review, DFO supports and encourages Indigenous groups and project proponents to work together, along with other government departments to develop, participate in regulatory processes, and/or carry-out monitoring activities.

## **Request #12: Treaty Rights and Wildlife Management**

a) *Explain whether and how you obtain information about non-Indigenous land users on traditional territories for hunting, fishing, and harvesting purposes without consent.*



- b) *Explain whether and how this information factors into federal responsibilities related to: i) protection of wildlife and their habitat; and ii) documenting any action related to protection of Aboriginal and Treaty Rights.*

DFO does not obtain information about non-Indigenous land users on traditional territories for hunting, fishing, and harvesting without consent. The Province of Ontario's Ministry of Natural Resources and Forestry is responsible for fisheries management and issuing fishing licenses.

### **Request #13: Cumulative Effects Assessment**

- a) *Identify programs and initiatives related to describing or quantifying cumulative effects within the assessment area.*
- b) *For each, summarize the focus of the assessment, the approach used to assess cumulative effects, key assumptions and limitations, and any key findings to date as well as future plans to continue or conduct new studies.*

DFO is required to consider cumulative effects on fish and fish habitat prior to issuing a decision (ref., *Fisheries Act* section 34.1(1), DFO must consider “the cumulative effects of the carrying on of the work, undertaking or activity referred to in a recommendation or an exercise of power, in combination with other works, undertakings or activities that have been or are being carried on, on fish and fish habitat”). On an individual project basis, the combined effects of a proposed project in relation to other projects and threats over defined temporal and spatial boundaries are identified, and their impacts on fish and fish habitat are determined. A project's contribution to cumulative effects is then weighed in the context of avoidance, mitigation, and offsetting measures that could address the project's impacts, what role climate change may play, and if fisheries management objectives may be compromised as a result of the project's contribution to cumulative effects.

The guidance outlined below will be important for DFO's future decisions or recommendations, particularly with respect to defining spatial and temporal scope, indicators, and regional thresholds. The consideration of cumulative effects in regulatory decision-making continues to evolve, and the development of guidance and tools for implementation is on-going.

DFO has developed the below guidance, research, and tools related to describing or quantifying cumulative effects on fish and fish habitat. These documents are outlined below and provided in the Appendix.

- DFO's Position Statement on the Consideration of Cumulative Effects in Support of Decision Making on *Fisheries Act* authorizations concerning Fish and Fish Habitat Protection, March 2025;
- 2vi Hodgson et al. (2022) Information needs for considering cumulative effects in fish and fish habitat decision-making;
- 2vii. Cormier et al. (2022) Cumulative effects considerations for integrated planning in DFO; and
- DFO's model, Cumulative Effects Spatial Data ([CICADA](#)), is in-development. The model's objective is to help inform DFO's regulatory decision-making and planning processes. Tools like



this could be leveraged to support analysis, once developed, and once indicators and thresholds for the Ring of Fire area are identified.

As discussed in DFO's response to Request #2 (priority theme #4), we recommend a process similar to the State of Fish and Fish Habitat (SOFFH) series be undertaken for the Ring of Fire area. Additionally, the attached documents (e.g. 2vi Hodgson et al., 2022 and 2vii Cormier et al., 2022) highlight information needs for studying cumulative effects, including notes on the spatial and temporal scales relevant to activities that have the potential to impact fish and fish habitat. DFO requires more details (e.g. development scenarios, valued components, etc.) in order to provide a more targeted response.

DFO supports the development and implementation of a cumulative effects framework to the Ring of Fire area in collaboration with Indigenous partners. While DFO must consider cumulative effects when making specific recommendations and decisions, DFO does not have the mandate to broadly implement assessments such as these. It is the Department's view that the regional assessment is the appropriate avenue to conduct this work.