

Factor 4.2 - Mitigation of Gear Impacts

NUNAVUT/CAMBRIDGE BAY

Barriers, Fences, Weirs, Corrals, Etc. | Canada

Strong Mitigation

Weirs have a very low spatial footprint because only one temporary weir is erected on a river at a given time. Char are primarily targeted in the spring and fall as they migrate to and from the ocean, so these structures are set up at the mouth of the river during these times; they are removed immediately after the runs (pers. comm., Tyler Jivan 2015).

Justification:

Traditional stone/rock weirs were used for millenia and appear to have not had an impact on riverine habitats (pers. comm., Les Harris 2016). Today, when using a weir, 1/3 of the width of the river is always left open (DFO 2014a). Past research was used to determine the optimal design for weirs targeting char (Kristofferson et al. 1986) and, given the short time that a weir occupies a site, there is no evidence to suggest that it poses a significant threat to the structure of the surrounding habitat (both the riverbank and riverbed). Furthermore, traditional ecological knowledge (TEK) surveys suggest that weir sites are not located near any of the identified spawning grounds in the surrounding Cambridge Bay area (Kristofferson 2002). Although these are likely not the only spawning grounds for these species, the fact that weirs are set up near the stream mouth suggests that they are likely not near nursery or overwintering habitats, which are located farther inland.

NUNAVUT/CAMBRIDGE BAY

Set Gillnets | Canada

Not Applicable

This gear does not pose any threat to the bottom habitat of the Cambridge Bay rivers, so no modifications are required.

Factor 4.3 - Ecosystem-Based Fisheries Management

NUNAVUT/CAMBRIDGE BAY

Barriers, Fences, Weirs, Corrals, Etc. | Canada

NUNAVUT/CAMBRIDGE BAY

Set Gillnets | Canada

Moderate Concern

The remote, small-scale nature of this fishery suggests that it poses little risk to the health and function of the greater ecosystem, and the release of an IFMP in 2014 shows an eagerness by managers and local stakeholders to ensure that this is the case. But presently there is insufficient information regarding the genetic composition of char runs and if/how this composition is affected by the commercial fishery.

Justification:

In 2009, DFO released its Sustainable Fisheries Framework, a series of documents with the goal of providing a foundation for ecosystem-based management and a precautionary approach to fisheries management in Canada (DFO 2009). As part of this initiative, the application of sustainable-use policies will be implemented into the fisheries management process through various planning and monitoring tools, including comprehensive integrated fisheries management plans (IFMPs), which take into account not only the health of the target species but also the impacts of the fishery on the surrounding environment and species. The size

and scope of these plans is still varied, because they are highly dependent on the magnitude of the fishery under assessment.

On Victoria Island in Nunavut, commercial fishing for Arctic char currently occurs in four of the dozens of waterways in the Cambridge Bay area. Although no specific marine protected areas have been formally designated, the necessity of having fishing sites that are accessible (i.e., close to communities) and the costs associated with transporting landed fish to the processing facility in Cambridge Bay currently limits the economic viability (and thus, spatial footprint) of this fishery. At 217,300 km², Victoria Island is the second-largest island in Canada and the eighth-largest in the world (Hund 2014). But with fewer than 2,000 inhabitants (of which ~80% live in Cambridge Bay), the overall direct human impacts on the marine ecosystem and environment in this area are low and likely do not inhibit ecosystem function.

Although there are few areas in which char fishing occurs commercially in Cambridge Bay, until there is a better understanding of genetic mixing and the genetic structure of the char in Nunavut, it is unknown if this fishery is having a greater impact on the larger ecosystem function of this population and what (if any) consequences the localized depletion of certain runs may have in the long term.

As with most marine species in the Arctic, the greatest uncertainty pertaining to the long-term health and viability of Arctic char (both in the Canadian north and more broadly speaking) is likely the indirect anthropogenic influence of climate change. Although ongoing research and independent studies have looked at the susceptibility and vulnerability of this species—and several others—to changing environmental conditions and contaminants, no holistic ecosystem study for the region currently exists.

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Scientific review does not constitute an endorsement of the Seafood Watch® program, or its seafood recommendations, on the part of the reviewing scientists. Seafood Watch® is solely responsible for the conclusions reached in this report.

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Appendix A: Extra By Catch Species

ARCTIC COD

Factor 2.1 - Inherent Vulnerability

NUNAVUT/CAMBRIDGE BAY

Set Gillnets | Canada

Medium

According to FishBase, Arctic cod has a moderate vulnerability (45 out of 100) to fishing (Froese and Pauly 2015).

Factor 2.2 - Abundance

NUNAVUT/CAMBRIDGE BAY

Set Gillnets | Canada

Moderate Concern

Because there are no current stock assessments for this species, current biomass estimates do not exist and abundance is unknown. This factor was scored "moderate" concern on a precautionary approach that took into account this absence of data and the species' inherent vulnerability to fishing.

Factor 2.3 - Fishing Mortality

NUNAVUT/CAMBRIDGE BAY

Set Gillnets | Canada

Very Low Concern

Overall, the Arctic char gillnet fishery generates very little bycatch (DFO 2014a). But there is no data currently available to support this assertion, or a stock assessment for this species, so this criterion was scored "low" concern based on a precautionary basis for the species known to be caught incidentally with Arctic char.

Justification:

(DFO 2014a) suggests that the ecological impacts of bycatch from the Arctic char are "negligible," and fishing mortality is believed to be very low. Furthermore, since no commercial fishery exists in this part of Nunavut for any of these species, the only other catch of some of these fish comes from local subsistence fishing. Thus, it is unlikely that the char fishery poses any threat to the health of these populations.

Factor 2.4 - Discard Rate

NUNAVUT/CAMBRIDGE BAY

Set Gillnets | Canada

< 20%

Although a small amount of bycatch is generated by the gillnet fishery, discarding is rare because many fish (typically lake whitefish, Arctic trout, and Arctic cod) that have been incidentally caught are kept for consumption by the fishers (pers. comm., Tyler Jivan 2015). No bait is used in this fishery.

ARCTIC SCULPIN

Factor 2.1 - Inherent Vulnerability

NUNAVUT/CAMBRIDGE BAY

Set Gillnets | Canada

Medium

According to FishBase, marine sculpin has a moderate inherent vulnerability (40 out of 100) (Froese and Pauly 2015).

Factor 2.2 - Abundance

NUNAVUT/CAMBRIDGE BAY

Set Gillnets | Canada

Moderate Concern

Because there are no current stock assessments for this species, current biomass estimates do not exist and abundance is unknown. This factor was scored "moderate" concern on a precautionary approach that took into account this absence of data and the species' inherent vulnerability to fishing.

Factor 2.3 - Fishing Mortality

NUNAVUT/CAMBRIDGE BAY

Set Gillnets | Canada

Very Low Concern

Overall, the Arctic char gillnet fishery generates very little bycatch (DFO 2014a). But there is no data currently available to support this assertion, or a stock assessment for this species, so this criterion was scored "low" concern based on a precautionary basis for the species known to be caught incidentally with Arctic char.

Justification:

(DFO 2014a) suggests that the ecological impacts of bycatch from the Arctic char are "negligible," and fishing mortality is believed to be very low. Furthermore, since no commercial fishery exists in this part of Nunavut for any of these species, the only other catch of some of these fish comes from local subsistence fishing. Thus, it is unlikely that the char fishery poses any threat to the health of these populations.

Factor 2.4 - Discard Rate

NUNAVUT/CAMBRIDGE BAY

Set Gillnets | Canada

< 20%

Although a small amount of bycatch is generated by the gillnet fishery, discarding is rare because many fish (typically lake whitefish, Arctic trout, and Arctic cod) that have been incidentally caught are kept for consumption by the fishers (pers. comm., Tyler Jivan 2015). No bait is used in this fishery.

LAKE WHITEFISH

Factor 2.1 - Inherent Vulnerability

NUNAVUT/CAMBRIDGE BAY

Set Gillnets | Canada

Medium

Lake whitefish has a moderate to high vulnerability (48 out of 100) according to FishBase (Froese and Pauly 2015).

Factor 2.2 - Abundance

NUNAVUT/CAMBRIDGE BAY

Set Gillnets | Canada

Moderate Concern

Because there are no current stock assessments for this species, current biomass estimates do not exist and abundance is unknown. Thus, it was scored as "moderate" concern on a precautionary approach that took into account this absence of data and the species' inherent vulnerability to fishing.

Factor 2.3 - Fishing Mortality

NUNAVUT/CAMBRIDGE BAY

Set Gillnets | Canada

Very Low Concern

Overall, the Arctic char gillnet fishery generates very little bycatch (DFO 2014a). But there is no data currently available to support this assertion, or a stock assessment for this species, so this criterion was scored "low" concern based on a precautionary basis for the species known to be caught incidentally with Arctic char.

Justification:

(DFO 2014a) suggests that the ecological impacts of bycatch from the Arctic char are "negligible," and fishing mortality is believed to be very low. Furthermore, since no commercial fishery exists in this part of Nunavut for any of these species, the only other catch of some of these fish comes from local subsistence fishing. Thus, it is unlikely that the char fishery poses any threat to the health of these populations.

Factor 2.4 - Discard Rate

NUNAVUT/CAMBRIDGE BAY

Set Gillnets | Canada

< 20%

Although a small amount of bycatch is generated by the gillnet fishery, discarding is rare because many fish (typically lake whitefish, Arctic trout, and Arctic cod) that have been incidentally caught are kept for consumption by the fishers (pers. comm., Tyler Jivan 2015). No bait is used in this fishery.

Appendix B: Updates to Arctic Char Report

This report was reviewed for any significant stock status and management updates to the fishery on December 10, 2019. None were found that would indicate the final ratings are no longer accurate.