
Public Works and Government Services Canada

Dredging

Glace Bay SCH

Cape Breton County, N.S.

R.112424.001

Appendix A

SCH IAA SEED Glace Bay Dredging



IMPACT ASSESSMENT ACT - SIGNIFICANCE OF ENVIRONMENTAL EFFECTS DETERMINATION (SEED) FORM NON-BASIC PROJECT

The purpose of this form is to summarize and document the significant adverse environmental effects of a project as per s.82 of the *Impact Assessment Act* (IAA). Consult the Basic/Non-Basic Project Requirements (s 3.6 of Departmental Procedure) for details and follow the SEED Guidelines (Entry Instructions & Linkages to PATH Record Keeping and IAA Registry). All completed and signed SEED documents shall be uploaded to PATH and the SCHED drive.

GENERAL INFORMATION

1. Project Title: Capital and Maintenance Dredging, Glace Bay DFO-SCH, Cape Breton County, Nova Scotia	
2. Proponent: Fisheries and Oceans Canada - Small Craft Harbours (DFO-SCH)	
3. Other Contacts: Public Services and Procurement Canada (PSPC) Scott Burley A/Senior Environmental Specialist Environmental Services 1713 Bedford Row, Halifax, NS B3J 3C9 (902) 237-5392 scott.burley@pwgsc-tpsgc.gc.ca	4. Role of each contact: OGD consultant
5. Source (Contact): Justin Benoit - Senior Project Engineer, DFO-SCH Justin.benoit@dfo-mpo.gc.ca	
6. Received Date or Assessment Start Date: November 18, 2020	
7. PATH No(s): 20-HMAR-00601	8. DFO File No: 20-HMAR-00601
9. EKME File No.: NA	10. Canadian Impact Assessment Registry Reference No.: 81158

PROJECT DESCRIPTION AND JUSTIFICATION

11. Project Location:

Glace Bay DFO-SCH (DFRP #03692) is located within the community of Glace Bay, Cape Breton County, Nova Scotia (Figure 1). The harbour property includes the east and west sides of Glace Bay Harbour, which is located at the mouth of Renwick Brook (see **Figures 1-4 in Appendix A**). The harbour can be accessed via Main Street or Bell Street off of Highway 28 on the west side, or Water Street on the east side. The harbour is close to downtown Glace Bay, just northeast of Commercial Street. The approximate coordinates of the project site are 46.197717 latitude, -59.948565 longitude.

12. Project Summary:

The proposed project includes capital dredging between the north breakwater and the training wall, which will result in the removal of approximately 3,700 m³ of sediment from an area of 2,731 m², and maintenance dredging in two sections of the entrance channel, which will result in the removal of approximately 6,825 m³ of sediment, from an area of 9,303 m². The capital dredge area has never been dredged, and the maintenance dredging area was previously dredged in 2013 (outer channel) and 2016 (inner channel).

13. Review of Alternatives:

Glace Bay DFO-SCH is an active harbour servicing the fishing industry in the area, therefore, the abandonment and displacement of the local fishing fleet is not considered a viable socio-economic alternative. The proposed dredging will ensure the safety and usability of the harbour by allowing safe movement of vessels in the SCH, allowing the continued viability of this harbour for use in the commercial fishery. The project is required to ensure continued operations within the harbour, so therefore, no other alternatives were considered.



PROJECT REVIEW

14. Rationale for the Application of Section 82 of IAA:

Project is on federal land and;

- DFO-CCG is proposing the project, as the proponent
- DFO-CCG is proposing to issue *Fisheries Act* Authorization, *Species at Risk Act* Permit or other regulatory approval
- DFO-CCG is proposing to provide financial assistance to another party to enable the project to proceed
- DFO-CCG is proposing to grant a license or interest in federal land to enable the project to proceed
- Other

15. Primary Authority and Rationale for Involvement:

DFO-SCH is the proponent.

16. Other Authorities and Rationale for Involvement:

- a) Fisheries and Oceans Canada – Paragraphs 34.4(2) (b) and 35(2) (b) of *Fisheries Act*, Fish and Fish Habitat Protection Program

17. Other Contacts and Nature of Response:

Nova Scotia Department of Lands and Forestry (NSDLF) - Project Notification sent via email on November 26, 2021.

- Received response from Liam MacNeil (NSDLF) via email on November 26, 2020 indicating DFO-SCH will be required to submit a permit application for this work. PSPC responded to this email on December 4, 2020 providing a copy of a Letter of Authority issued by NSDLF that permits the construction and maintenance of harbour facilities and dredging on federally owned submerged lands and coastal waters which is valid from April 1, 2019 to March 31, 2024.

Nova Scotia Environment (NSE) - Project Notification sent via email on November 26, 2020.

- Received response from Jeremy Higgins (Environmental Assessment Officer, Policy, Planning and Environmental Assessment, NSE) via email on November 27, 2020 indicating there are no requirements under the Environmental Assessment Regulations.

Environment and Climate Change Canada (ECCC) - Project Notification sent via email on November 26, 2021.

- Response received from Maryam Fazeli (Physical Sciences Officer, Environmental Protection Operations Directorate, ECCC) via email on December 11, 2020 requesting additional information on the project. PSPC responded providing the additional information on December 12, 2020. ECCC responded on March 4, 2021 providing a number of recommended mitigation measures to incorporate into the project planning and implementation. ECCC's recommended mitigation measures have been considered in this assessment and incorporated where applicable into Section 26 below.

18. Nature of Project:

- | | | |
|--|---|---|
| <input type="checkbox"/> Building and Property Development | <input type="checkbox"/> Remediation and conservation | <input type="checkbox"/> Airport and Airfields |
| <input type="checkbox"/> Mines and Minerals | <input type="checkbox"/> Maintenance Activities (fences, walls) | <input type="checkbox"/> Dams and Reservoirs |
| <input checked="" type="checkbox"/> Ports and Harbours | <input type="checkbox"/> Nuclear Energy | <input type="checkbox"/> Railways |
| <input type="checkbox"/> Oil and Gas | <input type="checkbox"/> Bridges | <input type="checkbox"/> Hydroelectric Energy |
| <input type="checkbox"/> Highways and Roads | <input type="checkbox"/> Waste Management | <input type="checkbox"/> Alternative Energy |
| <input type="checkbox"/> Water Management | <input type="checkbox"/> Agriculture | <input type="checkbox"/> Other, not otherwise specified |
| <input type="checkbox"/> Recreation and Tourism | <input type="checkbox"/> Forestry | |



19. Scope of Project and the Assessment (details of the project subject to review):

Project Description

Transportation of Materials and Equipment

The project will require the transportation of materials, workers and equipment throughout the federal property at Glace Bay DFO-SCH during the dredging process. This will be accomplished using a variety of vehicles such as haul trucks of various sizes; heavy equipment such as excavators; as well as light vehicles such as pick-up trucks and cars. This will also involve the use of marine vessels and barges to facilitate the in-water work components of the project. This activity will be coordinated with the Harbour Authority to ensure the safety of the harbour users and construction crew as well as to ensure access to the harbour is maintained where possible.

Dredging

The proposed work will involve capital dredging of the area between the north breakwater and the training wall to -2.5 m below chart datum (Area C), encompassing an area of approximately 2,731 m² for an approximate removal of 3,700 m³ of material. The project will also involve maintenance dredging of two sections of the entrance channel to -4.0 m below chart datum (Area A) and -3.0 m below chart datum (Area B), which will result in the removal of approximately 6,825 m³ of material from an approximate area of 9,303 m². Dredge area A (outer channel) was previously dredged in 2013 whereas dredge area B (inner channel) was previously dredged in 2016. The area between the north breakwater and the retaining wall has not been dredged previously.

The method of dredging would be determined by the successful contractor. Land-based dredging could be carried out from an excavator working off the shoreline or marginal service area. Dredging could also be carried out from an excavator working off a temporary rock access road, which would be installed within the proposed dredge area and removed at the end of the project. Dredging may also occur from an excavator working off a floating barge. Dredge material will be loaded onto haul trucks and transported to the federal containment facility located in Lingan, NS for disposal.

Schedule

The proposed project is anticipated to begin in summer/fall 2020 and is anticipated to be completed by March 31, 2022. The timeline is subject to DFO-SCH approvals and funding, which may extend the completion date to March 31, 2026.

Operation / Maintenance

DFO-SCH's Environmental Management Plan (EMP) and site-specific Emergency Response Plans cover operational aspects of environmental management at Small Craft Harbour facilities and constitute the basis for the environmentally-responsible management of harbour operations (i.e., fuelling, waste disposal, activities at the property and on the water). The proposed physical works will adhere to these environmental management standards established by DFO-SCH. The proposed project is intended to improve continued operations at the Glace Bay SCH.

Maintenance of the harbour dredging will be conducted on an as-needed basis and will undergo separate impact assessment and legislative review as future stand-alone project(s).

Environmental effects resulting from the operation and maintenance of the proposed physical works are not considered further in this assessment.

Abandonment / Decommissioning

There is currently no plan to decommission or abandon the Glace Bay SCH. The very nature of the proposed project is intended to ensure the viability and safety of the harbour facility primarily for commercial fisheries and navigation.

At the time of decommissioning, DFO-SCH will develop a site specific re-use or reclamation plan that is appropriate for the applicable environmental legislation and DFO policies. The decommissioning of facilities would undergo separate impact assessment and legislative review as future stand-alone project.

Environmental effects resulting from the abandonment or decommissioning of the proposed physical works or the SCH facility are not considered further in this assessment.

Accidents and Malfunctions



Accidents and malfunctions have the potential to occur when undertaking a physical activity. Potential environmental effects resulting from accidents and malfunctions over the course of the proposed project are, therefore, considered in this assessment.

ENVIRONMENTAL SETTING

20. Environment Description:

Physical Environment

Glace Bay is in the Northumberland/Bras d'Or ecoregion and the Bras d'Or Lowlands ecodistrict. Bedrock generally consists of Carboniferous period sedimentary rock, including various conglomerates, sandstones, siltstones, shales, mudstones, coal, limestone, gypsum, and salt. Dominant soils are derived from gravelly sandy loam till high in sandstone (Shulie/Springhill soils) (Neily, Basquill, Quigley, & Keys, 2017). The Geological Map of the Province of Nova Scotia (Keppie, 2000) indicates that the site is in the Sydney Mines Formation of the Morien Group, containing fluvial and lacustrine mudstone, shale, siltstone, limestone, and coal (700-1,000 m).

Canadian Climate Normals 1981 - 2010 data from the Sydney A station (46°10'00.000" N, 60°02'53.300" W), which is approximately 10 km west of the site, indicates an annual daily average temperature of 5.9°C, with the extreme minimum and maximum being -27.3°C and 35.5°C, respectively. Annual average precipitation is 1,517.2 mm, with an extreme daily precipitation of 128.8 mm being recorded (Government of Canada, 2020). The mean tidal range at Morien Bay, southeast of Glace Bay, is approximately 1.0 m and the maximum tidal range is approximately 1.5 m (Gregory, Petrie, Jordan, and Langille, 1993). Herb Nash (2020) of the Harbour Authority of Glace Bay indicated that water depth in the harbour is approximately 9-10 feet (2.7-3 m) at low tide and 12-14 feet (3.7-4.3 m) at high tide.

Marine sediment samples collected by AECOM in 2012 determined that the substrate within the capital dredging area (Area C, **Figure 5** in **Appendix A**) is primarily sand (83.9%), with lesser amounts of gravel (11.8%) and clay (3.7%), and trace amounts of silt (0.6%). Analytical results indicated the material exceeded the CCME soil quality guidelines for PAH and metal concentrations, as well as the CEPA Disposal at Sea Regulations for PAHs. Total petroleum hydrocarbons and BTEX were also found to exceed the Atlantic Risk-Based Corrective Action Tier 1 Version 2.0 Risk-Based Screening Levels. Polychlorinated biphenyls (PCBs) and dichloro-diphenyl-trichloroethane (DDT) were not detected in any of the samples collected in 2012 (AECOM, 2013).

According to the Harbour Authority (Nash, 2020), in addition to Renwick Brook flowing into the harbour, another unnamed stream flows into the east side of the harbour. The Atlas of Canada – Toporama also shows an unnamed stream flowing into the west side of the harbour (Natural Resources Canada, n.d.).

Biological Environment

Nash (2020) indicated that fish expected to be seen in the harbour include American smelt (*Osmerus mordax*), American eel (*Anguilla rostrata*), Atlantic mackerel (*Scomber scombrus*), and flounder. These species are sometimes fished recreationally off the wharf.

The underwater benthic habitat survey (Englobe, 2020) was completed within the proposed capital dredging area between the north breakwater and the training wall. The habitat varies between a sandy substrate (66%) and cobbles and boulders (34%) with a limited macrofloral cover. Macrofloral species observed included toothed wrack (*Fucus serratus*), *Phyllophora truncata*, and sea lettuce (*Ulva lactuca*). Macrofaunal species observed during the survey included green crab (*Carcinus maenas*), sand shrimp (*Crangon septemspinosa*), periwinkles (*Littorina* sp.), long horn sculpin (*Myoxocephalus octodecimspinosus*), moon snail (*Euspira heros*), American plaice (*Hippoglossoides platessoides*), Atlantic rock crab (*Cancer irrotus*), and unknown fish.

Information regarding bird species near Glace Bay DFO-SCH was obtained from the Maritime Breeding Bird Atlas. The second edition of the atlas was used (2006-2010) to acquire a summary of the 10 km by 10 km square that the harbour and proposed project area are situated in (21TM72). Breeding evidence was recorded for 46 different bird species in this summary. Of the 46 species, 11 were confirmed to use the 100 km² area as breeding grounds. There is probable cause to believe that another 22 species breed in the area, and 13 species were considered to possibly use the area based on observed evidence (Maritimes Bird Breeding Atlas, 2020).



A search of the Atlantic Canada Conservation Data Centre (ACCDC) database was conducted. The ACCDC provides a list of flora and fauna species observed within a 5 km radius (standard ACCDC procedure) of the site of the proposed work at the Glace Bay DFO-SCH, and provides an index of relative rarity. All species in the ACCDC database search results were cross-referenced with the *Species at Risk Act* (SARA) and *Nova Scotia Endangered Species Act* (NSESA). Three species included on Schedule 1 of SARA and/or NSESA were identified (ACCDC, 2020):

- The preferred habitat of the **Snapping Turtle** is characterized by slow-moving water with a soft mud bottom and dense aquatic vegetation. Established populations are most often located in ponds, sloughs, shallow bays, or river edges and slow streams, or areas combining several of these wetland habitats. Although individual turtles will persist in developed areas (e.g., golf course ponds, irrigation canals), it is unlikely that populations persist in such habitats. Snapping turtles can occur in highly polluted waterways, but environmental contamination is known to limit reproductive success. Snapping turtle habitat is diminishing in both quantity and quality in Canada with losses primarily due to conversion of wetlands to agriculture and urban development (COSEWIC, 2008).

The most recent recorded sighting of a snapping turtle near the project area was in 2016. Snapping turtle is a freshwater turtle and is not expected to be found in the project's marine environment. No interaction with the snapping turtle is anticipated.

- The **Bank Swallow** breeds in a wide variety of natural and artificial sites with vertical banks, including riverbanks, lake and ocean bluffs, aggregate pits, road cuts, and stock piles of soil. Sand-silt substrates are preferred for excavating nest burrows. Breeding sites tend to be somewhat ephemeral due to the dynamic nature of bank erosion. Breeding sites are often situated near open terrestrial habitat used for aerial foraging (e.g., grasslands, meadows, pastures, and agricultural cropland). Large wetlands are used as communal nocturnal roost sites during post-breeding, migration, and wintering periods (COSEWIC, 2013a).

The ACCDC search results yielded three observations of the bank swallow approximately 3.5 km from the SCH in 2009. There is habitat (e.g., ocean bluffs) located within a kilometer of the project site; however, taking into consideration the spatial and temporal extent of project activities, the nature of the work, as well as the lack of available habitat at Glace Bay DFO-SCH, effects of the proposed project on the bank swallow are considered highly unlikely.

- Across its breeding range, the **Piping Plover** nests on wide sandy beaches with little vegetation and a mix of substrates, such as pebbles, gravel, shells, and sticks. On the Atlantic Coast, the eastern subspecies most commonly nests on sandy beaches found on barrier islands, ocean fronts, bays, and sand bars, preferring early successional habitat that is most often free of dense vegetation (Environment Canada, 2012 as cited in COSEWIC, 2013b).

Any site with suitable habitat occupied by at least one nesting pair of piping plovers (*melodus* subspecies) in at least one year since 1991 (the year of first complete survey coverage) is critical habitat under the SARA. Glace Bay Bar, approximately 2.1 km southeast of the project site, has been identified as critical habitat for the piping plover (Environment Canada, 2012). Glace Bay Bar is located within the Big Glace Bay Lake migratory bird sanctuary. The proposed project will occur in an already developed area where the presence of piping plovers is not expected. However, with suitable habitat in close proximity, mitigation measures are outlined in section 26 to ensure there are no project related impacts to this species.

A search using the Fisheries and Oceans Canada Aquatic Species at Risk Map (Fisheries and Oceans Canada, 2019) found eight species at risk potentially located within a 5 km radius of the proposed project site:

- **North Atlantic Right Whale** (*Eubalaena glacialis*; SARA: **Endangered**);
- **White Shark** (*Carcharodon carcharias*; SARA: **Endangered**);
- **Atlantic Wolffish** (*Anarhichas lupus*; SARA: **Special Concern**);
- **Northern Wolffish** (*Anarhichas denticulatus*, SARA: **Threatened**);
- **Leatherback Sea Turtle** (*Dermochelys coriacea*; SARA: **Endangered**);
- **Spotted Wolffish** (*Anarhichas minor*; SARA: **Threatened**);
- **Blue Whale** (*Balaenoptera musculus*; SARA: **Endangered**) and
- **Fin Whale** (*Balaenoptera physalus*; SARA: **Special Concern**)



None of the area within this 5 km buffer zone has been designated as critical habitat. Mitigation measures will be implemented to minimize any potential impacts. As the project will be carried out at the water's surface in the interior of the harbour immediately adjacent to the shore, no interactions with aquatic species at risk is anticipated.

Fish habitat located within the proposed dredge areas will be altered as a result of the project, but it is expected to return to its pre-dredge condition. The proposed project site is not likely to provide critical or limiting habitat for these species and does not contain any environmental components considered to be sensitive, threatened, endangered, or likely to be affected by the construction activities, and the proposed project will not disrupt any wetlands

The Big Glace Bay Lake migratory bird sanctuary (16.9 km²) is located approximately 2.25 km southeast of the project area. It is considered significant habitat for species at risk (Nova Scotia, 2018). It is immediately adjoining the eastern border of the town of Glace Bay. The lake is actually a coastal lagoon enclosed by a barrier beach, with one tidal opening at the northwestern end. The barrier beach is comprised of gravel and sand, and sparse vegetation. More than half of the lagoon area is exposed at low tide as mud and sand flats or intertidal beds of eel grass. Atlantic Herring also spawn in the coastal areas just outside Big Glace Bay Lake in the fall. Spawning occurs in the fall and there has been a roe fishery in this area since 1996, which primarily operates in September and October. Herring are known to overwinter in coastal areas, however, unlike spawning locations the overwintering habitat is relatively variable (Stephen et al. 2009; Power et al. 2012; EBSA 2014). Canada geese from the Newfoundland and Labrador breeding population are found at Big Glace Bay Lake in significant numbers during the spring and fall migrations as well as in smaller numbers during the winter. Although this site is regularly used by ducks, shorebirds, and terns, high concentrations of these birds have not been recorded here. Willets and American black ducks frequent the salt marsh, and piping plovers have been recorded on the beach (IBA Canada, 2020). On the eastern side of Cape Breton, approximately 10 km east of the community of Glace Bay, is Morien Bay. This bay is enclosed by the Northern Head (also known as Cape Perce) and the South Head (also known as Cape Morien) and includes the Northern Head and South Head Important Bird Area (50.36 km²). The steep cliffs of the headlands of Morien Bay provide excellent nesting habitat for cormorants. Additionally, black-legged kittiwakes have begun nesting on Northern Head and during the winter the waters surrounding the heads are occasionally used by harlequin ducks (nationally endangered eastern population). Schooner Pond, just inland from Northern Head is an excellent location for finding vagrant landbirds (IBA Canada, 2020).

Dominion Beach Provincial Park is located approximately 7 km west of the project area. This area contains 317.2 ha of significant habitat and another 64.6 ha of significant habitat for migratory birds and species at risk. The closest wetland is a 16.8 ha bog or fen approximately 2.25 km west of the DFO-SCH (Province of Nova Scotia, 2018). The harbour authority (Nash, 2020) indicated that there is a beach off South Street (Glace Bay Beach) that has birds that he calls "snipes". This is the beach on Glace Bay Bar.

Human Environment

Glace Bay DFO-SCH is an 11.93 ha, irregular shaped property bordered by Glace Bay (waterbody) and Renwick Brook. The harbour consists of a combination of federal and private wharves, with a number of federal assets and privately owned fishing sheds/facilities. Approximately 65 commercial vessels and 7-8 recreational vessels operate out of the SCH. Fisheries operating from Glace Bay SCH include lobster, groundfish, halibut, and snow crab (Nash, 2020). There are several fish processing plants located at the SCH, including Highland Seafoods, Clearwater, Ka-ley Bay, and some that only operate during lobster season, including Kieser's Marine, Pitman's Seafood, and Argent Fisheries.

Historical Indigenous commercial fishing has occurred at the Glace Bay DFO-SCH, primarily for snow crab, ground fish and lobster, however no Indigenous fishers have commercially fished the harbour in the past three years. According to the Harbour Authority, there are two brothers who have three lobster tags each for personal use and who fish during lobster season (Nash, 2020).

The closest Indigenous community to the SCH is Membertou First Nation. The First Nation reserves of Sydney No. 28A, Membertou No. 28B, and Caribou Marsh No. 29 are located approximately 24, 24, and 32 km southwest of the project site, respectively.

Based on the Nova Scotia Department of Fisheries and Aquaculture site mapping tool, the closest aquaculture site is a land-based facility for Atlantic salmon and rainbow trout in Lingan (Nova Scotia Department of Fisheries & Aquaculture, n.d.), approximately 7.7 km northwest of the project site. The lease (0129) is held by Scotia Seafood Producers Inc.



According to Davis McIntyre & Associates (2013), no archaeological sites have been recorded in the Maritime Archaeological Resource Inventory within a 5 km radius of the Glace Bay DFO-SCH. The Canadian Register of Historic Places has four registered historic places within the 5 km core site radius. One site is the old Glace Bay Town Hall and a second site is a building associated with the early 20th century Black community in Glace Bay. The other two sites are areas associated with Guglielmo Marconi and early wireless technology. The Maritime Museum of the Atlantic's Marine Heritage Database has records for 18 possible wrecks near Glace Bay. Many have been listed as stranded or wrecked so it is not known if these vessels were refloated or salvaged. In addition, it is not known how many of those listed as being wrecked or sank remain on the sea floor today. They may have been removed shortly afterwards, or during more recent dredging activities or they may have simply partially or completely disintegrated and/or been washed away by currents. Based on both aerial photography and other available data, the potential for both historic period and First Nations resources is not known. Several marine incidences have been reported in the harbour. However, it is unknown what impact, if any, repeated dredging of the harbour may have had on any potential submerged resources.

A Phase I Archaeological Resource Impact Assessment (ARIA) was undertaken by Englobe within the proposed dredge area at the Glace Bay DFO-SCH. Video transects were recorded on October 27, 2020, with no indication of archaeological resources. The Phase I ARIA determined that although human occupation has occurred in this region for millennia, the potential for archaeological resources is low due to previous impacts of dredging and harbour improvements, and ongoing erosion of the coastline in the immediate area. Conclusions indicated that no further archaeological mitigation is needed (Englobe, 2020).



OTHER CONSIDERATIONS

21. Adverse Impact on the rights of Indigenous People of Canada:

PSPC, on behalf of DFO-SCH, carried out an Indigenous Assessment at Glace Bay SCH in accordance with DFO-SCH's Preliminary Duty to Consult Assessment Guide. This Guide is intended to provide basic information to DFO-SCH in the Maritimes and Gulf Regions and to assist its Program Managers in making informed, prudent decisions that take into account statutory and other legal obligations, as well as policy objectives, related to Indigenous and treaty rights. The Supreme Court of Canada has held that the Crown has a duty to consult and, where appropriate, accommodate when the Crown contemplates conduct that might adversely impact potential or established Indigenous or treaty rights. While there may be other reasons to undertake consultations (e.g., good governance, policy-based, etc.), three elements are required for a legal duty to consult to arise:

1. There is contemplated or proposed Crown conduct.
2. The Crown has knowledge of potential or established Indigenous or treaty rights.
3. The potential or established Indigenous or treaty rights may be adversely impacted by the Crown.

The closest Indigenous community to the SCH is Membertou First Nation. The First Nation reserves of Sydney No. 28A, Membertou No. 28B, and Caribou Marsh No. 29 are located approximately 24, 24, and 32 km southwest of the project site, respectively. Historical Indigenous commercial fishing has occurred at the Glace Bay DFO-SCH, primarily for snow crab, ground fish and lobster, however no Indigenous fishers have commercially fished the harbour in the past three years. According to the Harbour Authority, there are two brothers who have three lobster tags each for personal use and who fish during lobster season (Nash, 2020). The Phase I ARIA undertaken at the Glace Bay DFO-SCH indicated that the potential for archaeological resources within the proposed dredge area is low due to previous activities and ongoing erosion, and recommends that no further action is taken (Englobe, 2020).

The surrounding harbour substrate has been dredged and disturbed many times previously. Due to the developed nature of the project site as well as the project scope, adverse impacts to archeological resources or potential or established Indigenous or Treaty Rights are not expected.

22. Indigenous knowledge provided in respect of the project:

The use of Indigenous Knowledge (IK) collected during the course of the assessment in addition with information from available sources was incorporated in this assessment, however given the spatial and temporal scale of the project, an IK study was not completed as part of this assessment.

23. Community knowledge provided in respect of the project:

The Harbour Authority of Glace Bay was consulted to update the record on the current biological, physical, and human environment at the harbour. No environmental aspects that could negatively affect the proposed project were noted.

During the planning phase of the project, the Harbour Authority, which is made up of local fishers and community members, was consulted to determine the needs of harbour users and to solicit community feedback regarding the project. To date no negative public concerns have been received regarding this project. The dredging at Glace Bay DFO-SCH will improve the overall safety and capacity of the harbour for commercial fishing vessels and is essential for sustaining the harbour as a viable resource to the commercial fishery. No public concern is expected because of this project.

24. Summary of public notification:

The following Public Registries were completed for the proposed works:

- Canadian Impact Assessment Registry
- a) CIAA registry number: 81158
- b) Dates posted:
 - a. Notice of Intent: 2020-11-18
 - b. Notice of Determination: TBD

Comments received: No comments received to date.



ENVIRONMENTAL EFFECTS AND MITIGATION MEASURES

25. Evaluation of Environmental Effects and Determination of Significance:

Methodology

The environmental effects evaluation methodology used in this form focuses the evaluation of those environmental components of greatest concern. Other concerns identified should also added on to the existing form. The Valued Components (VCs) most likely to be affected by the project as described are indicated in *Table 1: Potential Project / Environment Interactions Matrix*. VCs were selected based on ecological importance to the existing environment, the relative sensitivity of environmental components to project influences, and their relative social, cultural or economic importance. The potential impacts resulting from the interactions are also identified in Table 1 as positive or negative in nature.

Gender-based Analysis Plus (GBA+) provides a framework to describe the full scope of potential positive and negative effects under the *Impact Assessment Act*. The application of GBA+ to impact assessment seeks to understand, describe and, where possible, mitigate adverse impacts on diverse populations. GBA+ is an analytical tool that will be utilized during the undertaking of this assessment as per the guidance provided by the IAA on *Gender-based Analysis Plus in Impact Assessment*. As such, the intention is to ensure that, as applicable, multiple community-relevant, diverse subgroups have been considered and proposed mitigation, where relevant, clearly addresses any issues identified.

The VC interactions identified in Table 1 must be supplemented with a determination of significance for each resulting effect in order to assign adequate measures to mitigate a negative effect if negative and, if possible, enhance a positive effect. The significance of project-related impacts is determined in consideration of the impact's frequency, duration, and geographical extent as well as magnitude relative to natural or background levels, and whether they are reversible in nature. These criteria are described in *Table 2: Assessment Criteria for Determination of Significance*.

A description of each potential effect, its' projected significance, and assigned mitigation measures are detailed in Table 3 of Section 25.

The evaluation of effects, the determination of significance of the environmental effects, and assignment of mitigation measures are all based on:

- information provided by the proponent;
- a review of project related activities;
- an appraisal of the environmental setting, and identification of resources at risk;
- the identification of potential impacts within the temporal and spatial bounds;
- community/indigenous knowledge;
- professional judgement of the assessor;
- specialist advice/knowledge from experts.

Scoping

This environmental effects evaluation considers the full range of project / environment interactions and the environmental factors that could be affected by the project as defined above and the significance. The proposed project is anticipated to commence within the aforementioned timeframe; however, this timeline is subject to approvals and funding. As such, the temporal scope for the proposed project cover a 5-year period from the time of this assessment in order to account for this uncertainty. This assessment should, therefore, be considered accurate until March 31, 2026 unless a review of the information presented in this assessment prior to the end of the 5-year period prompts a re-assessment to ensure accuracy (e.g., legislative changes, changes in physical, biological, socio-economic features, input from ongoing Indigenous consultations, etc.).

As previously noted, physical activities such as maintenance, repair, replacement, or decommissioning of the proposed physical works are subject to their own stand-alone assessment at the time of need, therefore, are not considered further in this assessment.

The development and operation of the disposal site located in Lingan, Nova Scotia underwent a separate environmental assessment prior to construction. The potential impacts for disposing of dredge sediment originating from Glace Bay were considered as part of this assessment and appropriate mitigation measures developed. As such the disposal of dredge sediment at the Lingan containment cell is not considered within the scope of this assessment.



Environmental effects of the project on navigation are taken into consideration as part of the SEED only when the effects are indirect, i.e. resulting from a change in the environment affecting navigation. Direct effects on navigation are not considered in the SEED, but any measures necessary to mitigate direct effects will be included as terms and conditions associated with work approved or permitted pursuant to the Canadian Navigable Waters Act (CNWA).



Table 1: Potential Project / Environment Interactions Matrix

Valued Components (VCs)	Section 7(1)(a) (Environmental Legislation)			Section 7(1)(c) and (d) (Indigenous Interests)				Other Impacts & Due Diligence											
	Fish (Fisheries Act)	SARA	Birds (MBCA)	Physical and Cultural Heritage	Land and Resource Use for Traditional Purposes	Structure, Site, or Thing of HAPA Significance	Health, Social or Economic Conditions	Physical and Cultural Heritage	Structure, Site, or Thing of HAPA Significance	Health, Social or Economic Conditions	Water (marine, ground, surface, drainage, water levels, flow etc.)	Wetlands	Terrestrial Species* and Habitat	Aquatic Species* and Habitat	Terrestrial Soils	Marine Sediments	Air Quality	Sensory Disturbance (air/water, noise and vibration)	Others (i.e. land/landscapes)
Capital and Maintenance Dredging, Glace Bay DFO-SCH, Nova Scotia																			
Transportation of Materials and Equipment										-				-	-	-	-	-	
Dredging	-								-	+/-	-			-	-	-	-	-	
Accidents / Malfunctions									-	-	-			-	-	-	-	-	

*Non-Species at Risk

HAPA = Historical, Archaeological, Paleontological or Architectural

N/A = Not Applicable

“+” = potential positive interaction; “-“ = potential negative interaction; “+/-“= potential positive and negative interactions.



Table 2: Assessment Criteria for Determination of Significance

Magnitude	Magnitude, in general terms, may vary among issues, but is a factor that accounts for size, intensity, concentration, importance, volume and social or monetary value. It is rated as compared with background conditions, protective standards or normal variability.	
	Small	Relative to natural or background levels
	Moderate	Relative to natural or background levels
	Large	Relative to natural or background levels
Reversibility	Reversible	Effects can be reversed
	Irreversible	Effects are permanent
Geographic Extent	Immediate	Confined to project site
	Local	Effects beyond immediate project site but not regional in scale
	Regional	Effects on a wide scale
Duration	Short-term	Between 0 and 6 months in duration
	Medium-term	Between 6 months and 2 years
	Long-term	Beyond 2 years
Frequency	Once	Occurs only once
	Intermittent	Occurs occasionally at irregular intervals
	Continuous	Occurs on a regular basis and regular intervals



26. Potential Environmental Effects and Mitigation Measures for the Project:

Table 3: Description and Significance of Potential Environmental Effects and Recommended Mitigation Measures

<u>Potential Environmental Effects</u>	<u>Mitigation Measures</u>
Valued Component: Fish and Fish Habitat	
<p>Transportation of Materials and Equipment:</p> <ul style="list-style-type: none"> Introduction of invasive species at the site from infested marine equipment if navigated to the site. Significance: <i>Moderate, Irreversible, Regional, Long-term, Once.</i> <p>Dredging:</p> <ul style="list-style-type: none"> Increased suspended solids/sediments and/or turbidity generated from removal of sediment from the seafloor via mechanical excavation, which can result in reduced habitat availability as fish may avoid turbid waters. Significance: <i>Small, Reversible, Immediate, Short-term, and Intermittent.</i> Increased suspended solids/sediments and/or turbidity generated from removal of sediment from the seafloor via mechanical excavation, which can result in reduced light availability and even smothering of aquatic vegetation. Significance: <i>Small, Reversible, Local, Medium-term, Intermittent.</i> Death of sessile benthic fish species (clams, mussels, etc.) and slow moving species during operation of equipment (mechanical injury, crushing or burial).. Significance: <i>Small, Irreversible, Immediate, Medium-term, and Once.</i> Introduction of invasive species at the site from infested land- and/or marine-based equipment. Significance: <i>Small, Irreversible, Local, Long-term, Once.</i> Disturbance of fish species from the movement and noise of equipment used in the marine environment. Significance: <i>Small, Reversible, Local, Short-term, and Intermittent.</i> Temporary disruption of sandy/silty benthic fish habitat from the removal of benthic sediments within the dredge footprint. Significance: <i>Small, Reversible, Immediate, Medium-term, and Once.</i> Removal of rocky/cobble/ bedrock substrate will alter the habitat structure and cover by removing some attachment points for some aquatic macrophytes. Significance: <i>Small, Irreversible, Immediate, Long-term, and Once.</i> <p>Accidents/Malfunxions:</p> <ul style="list-style-type: none"> Release of hazardous materials into nearby waterway(s) from equipment malfunction, accidental spills, or unplanned serious events such as collisions. Significance: <i>Moderate, Reversible, Immediate, Short-term, and Once.</i> 	<ul style="list-style-type: none"> Machinery will operate from land or infrastructure above the high water mark in a manner that minimizes disturbance. To minimize potential impacts to the Atlantic Herring spawning grounds located near the mouth of the harbour, dredging activities will avoid the spawning period from September 1 to October 31. If dredging is required to occur within this timing window (September 1 to October 31), additional mitigation as detailed in the Fisheries Act Authorization issued by DFO-FFHPP for this project (e.g. a silt curtain) will be employed to isolate the work area and prevent increased sediment from being deposited onto the spawning grounds. To minimize the possibility of fish habitat contamination and the spread of aquatic invasive (alien) species, all construction equipment which will be immersed into the water or has the possibility of coming into contact with such water during the course of the work, must be cleaned and washed to ensure that they are free of marine growth and alien species. Maintain an on-going log of past and present usage and wash downs of all equipment to illustrate mitigation measures undertaken against fish habitat contamination by alien species. Weather conditions are to be assessed on a daily basis to determine the risk of extreme weather in the project areas. Avoid work during periods which Environment and Climate Change Canada has issued rainfall or wave warning for the work area. An Erosion and Sediment Control Plan will be developed for the site that minimizes risk of sedimentation to the marine environment. Turbidity will be monitored in accordance with applicable Acts, regulations and permit requirements. Ensure that all in-water activities, or associated in-water structures, do not interfere with fish passage, constrict the channel width, or reduce flows. Any construction-related material used must be clean and non-toxic (i.e., free of fuel, oil, grease, and/or any contaminants). Construction material and debris are not to become waterborne. Do not dispose of any materials or waste into marine environment. All equipment to be used in or over the marine environment is to be free from leaks or coating of hydrocarbon-based fluids and/or lubricants harmful to the environment. Hoses and tanks are to be inspected on a regular basis to prevent fractures and breaks. On site, crews must have emergency spill clean-up equipment adequate for the activity involved, and it must be on site. Spill equipment will include, as a minimum, at least one 250 L (i.e., 55 gallon) overpack spill kit containing items to prevent a spill from spreading; absorbent booms, pillows, and mats; rubber gloves; and plastic disposal bags. All spills or leaks must be promptly contained, cleaned up, and reported to the 24-Hour Environmental Emergencies Report System (1-800-565-1633).
Valued Component: Structure, Site, or Thing of Historical, Archaeological, Paleontological or Architectural Significance	



<p>Dredging:</p> <ul style="list-style-type: none"> • Unearthing and/or potential destruction of historical, archaeological, paleontological, or architecturally significant artifacts. Significance: <i>Small, Irreversible, Immediate, Short-term, and Once.</i> <p>Accidents/Malfunctions:</p> <ul style="list-style-type: none"> • Release of hazardous materials into significant areas from equipment malfunction, accidental spills, or unplanned serious events such as collisions. Significance: <i>Moderate, Reversible, Immediate, Short-term, and Once.</i> 	<ul style="list-style-type: none"> • All construction personnel will be responsible for reporting any unusual materials unearthed during construction activities to the Construction Supervisor. • In those situations where the find is believed to be an archaeological resource, the Construction Supervisor will immediately stop work near the find and notify the PSPC Project Manager. • If an archaeological and/or historically significant item is discovered during the work activities, work in the area will be stopped immediately and the PSPC Project Manager will be contacted as well as the provincial Archaeological Services unit: • Nova Scotia Department of Communities, Culture and Heritage, Special Places Program - telephone: (902) 424-6475 • Work can only resume near the find when authorized by the PSPC Project Manager and Construction Supervisor, after approval has been granted by the Nova Scotia Department of Communities, Culture and Heritage. • In the event of the discovery of human remains or evidence of burials, the excavation work will immediately cease and nearest law enforcement agency will be contacted immediately by the PSPC Project Manager and/or the Construction Supervisor.
Valued Component: Health, Social or Economic Conditions	
<p>Transportation of Materials and Equipment:</p> <ul style="list-style-type: none"> • Temporary interruption of regular harbour activities during transport to site. Significance: <i>Small, Reversible, Immediate, Short-term, and Intermittent.</i> <p>Dredging:</p> <ul style="list-style-type: none"> • Interruption of regular harbour activities and potential interference with vessel traffic at the harbour site. Significance: <i>Small, Reversible, Immediate, Short-term, and Intermittent.</i> <p>Accidents/Malfunctions:</p> <ul style="list-style-type: none"> • Release of hazardous materials from equipment malfunction, accidental spills, or unplanned serious events such as collisions. Significance: <i>Moderate, Reversible, Immediate, Short-term, and Once.</i> 	<ul style="list-style-type: none"> • Site access must be restricted to authorized workers only. • Workers in contact with hazardous materials must be provided with and use appropriate personal protective equipment. • Proper safety procedures must be followed throughout the duration of the project as per applicable municipal, provincial, and federal regulations. • Employees must be trained in health and safety protocols (e.g., safe work practices, emergency response).
Valued Component: Water Quality and Characteristics (marine, ground, and/or surface)	
<p>Dredging:</p> <ul style="list-style-type: none"> • Increased suspended solids/sediments and/or turbidity generated from removal of sediment from the seafloor via mechanical excavation. Significance: <i>Small, Reversible, Immediate, Short-term, and Intermittent.</i> <p>Accidents/Malfunctions:</p> <ul style="list-style-type: none"> • Release of hazardous materials from equipment malfunction, accidental spills, or unplanned serious events such as collisions. Significance: <i>Moderate, Reversible, Immediate, Short-term, and Once.</i> 	<ul style="list-style-type: none"> • Machinery will operate from land or infrastructure above the high water mark in a manner that minimizes disturbance. • Employ suitable operational and engineering controls (e.g., silt curtain), as approved by the PSPC Project Manager, around the work area. • Weather conditions are to be assessed on a daily basis to determine the risk of extreme weather in the project areas. Avoid work during periods which Environment and Climate Change Canada has issued rainfall or wave warning for the work area. • An Erosion and Sediment Control Plan will be developed for the site that minimizes risk of sedimentation to the marine environment. • Turbidity will be monitored in accordance with applicable Acts, regulations and permit requirements. • Any construction-related material used must be clean and non-toxic (i.e., free of fuel, oil, grease, and/or any contaminants). • Construction material and debris are not to become waterborne. Do not dispose of any materials or waste into marine environment.



	<ul style="list-style-type: none"> • All equipment to be used in or over the marine environment is to be free from leaks or coating of hydrocarbon-based fluids and/or lubricants harmful to the environment. Hoses and tanks are to be inspected on a regular basis to prevent fractures and breaks. • On site, crews must have emergency spill clean-up equipment adequate for the activity involved, and it must be on site. Spill equipment will include, as a minimum, at least one 250 L (i.e., 55 gallon) overpack spill kit containing items to prevent a spill from spreading; absorbent booms, pillows, and mats; rubber gloves; and plastic disposal bags. All spills or leaks must be promptly contained, cleaned up, and reported to the 24-Hour Environmental Emergencies Report System (1-800-565-1633). • Vessels (including barges) should be compliant with all Canada Shipping Act, 2001 requirements for inspection, which includes certification of the vessel and adequate training and appropriate certificate of competency for the operators. • Ensure that all vessels will have procedures in place to ensure safeguards against marine pollution: awareness training of all employees, means of retention of waste oil on board and discharge to shore based reception facilities, capacity of responding to and clean-up of accidental spill caused by vessels involved in any particular project.
Valued Component: Terrestrial Soils	
<p>Transportation of Materials and Equipment:</p> <ul style="list-style-type: none"> • Introduction of invasive species at the site from infested marine equipment if navigated to the site. Significance: <i>Moderate, Irreversible, Regional, Long-term, and Once.</i> <p>Dredging:</p> <ul style="list-style-type: none"> • Degradation of terrestrial soil quality resulting from contaminated sediment. Significance: <i>Small, Reversible, Immediate, Short-term, and Intermittent.</i> <p>Accidents/Malfunctions:</p> <ul style="list-style-type: none"> • Release of hazardous/contaminated materials from equipment malfunction, accidental spills, or unplanned serious events such as collisions. Significance: <i>Moderate, Reversible, Immediate, Short-term, and Once.</i> • Spills during refueling or regular equipment maintenance. Significance: <i>Moderate, Reversible, Immediate, Short-term, and Once.</i> 	<ul style="list-style-type: none"> • Do not bury any debris or waste materials on-site. • Any debris or waste material will be disposed of in a provincially approved manner. • Transport hazardous materials and hazardous waste in compliance with the Transportation of Dangerous Goods Act. • Eliminate free board spillage when excavating, loading, and hauling excavated material. • Trucks transporting excavated material will have watertight boxes. • Do not overload trucks when hauling excavated material. • Maintain trucks clean and free of mud, dirt, and other foreign matter. • Secure contents against spillage. Avoid potential release of contents and of any foreign matter onto highways, roads, and access routes used for the work. Immediately clean any ground spills and soils to extent directed by authority having jurisdiction. • Ensure that machinery arrives on-site in a clean condition and is maintained to be kept free of fluid leaks. • Comply with Federal (CEPA Storage Tank Systems for Petroleum Products and Allied Petroleum Products Regulations) and Provincial regulations, codes, standards, and guidelines for the storage of fuel and allied petroleum products on-site. • Do not dump petroleum products or any other deleterious substances on the ground. • Be diligent and take all necessary precautions to avoid spills and contamination of the soil (both surface and subsurface) when handling petroleum products on-site and during fueling and servicing of vehicles and equipment. • Develop a response plan that is to be implemented immediately in the event of a sediment release or spill of a deleterious substance and keep an emergency spill kit on-site consisting of at least one 250-litre overpack spill kit for containment and cleanup of spills. • In the event of a petroleum spill, immediately notify the PSPC Project Manager and the Canadian Coast Guard at 1-800-565-1633 (24 hour report line). Perform cleanup in accordance with all regulations and procedures stipulated by authority having jurisdiction.
Valued Component: Marine Sediments	



<p>Transportation of Materials and Equipment:</p> <ul style="list-style-type: none"> • Introduction of invasive species at the site from infested marine equipment if navigated to the site. Significance: <i>Moderate, Irreversible, Regional, Long-term, and Once.</i> <p>Dredging:</p> <ul style="list-style-type: none"> • Increased suspended solids/sediments and/or turbidity generated from removal of sediment from the seafloor via mechanical excavation. Significance: <i>Small, Reversible, Immediate, Short-term, and Intermittent.</i> • Potential to disturb debris buried at the project site. Significance: <i>Small, Irreversible, Immediate, Long-term, and Once.</i> <p>Accidents/Malfunctions:</p> <ul style="list-style-type: none"> • Release of hazardous materials from equipment malfunction, accidental spills, or unplanned serious events such as collisions. Significance: <i>Moderate, Reversible, Immediate, Short-term, and Once.</i> 	<ul style="list-style-type: none"> • Machinery will operate from land or infrastructure above the high water mark in a manner that minimizes disturbance. • Any construction-related material used must be clean and non-toxic (i.e., free of fuel, oil, grease, and/or any contaminants). • Construction material and debris are not to become waterborne. Do not dispose of any materials or waste into marine environment. • All equipment to be used in or over the marine environment is to be free from leaks or coating of hydrocarbon-based fluids and/or lubricants harmful to the environment. Hoses and tanks are to be inspected on a regular basis to prevent fractures and breaks. • An Erosion and Sediment Control Plan will be developed for the site that minimizes risk of sedimentation to the marine environment. • Turbidity will be monitored in accordance with applicable Acts, regulations and permit requirements.
<p>Valued Component: Air Quality / Sensory Disturbance (air/water, noise, and/or vibration)</p>	
<p>Transportation of Materials and Equipment:</p> <ul style="list-style-type: none"> • Temporary sensory disturbance along transport route. Significance: <i>Small, Reversible, Local, Short-term, and Once.</i> <p>Dredging:</p> <ul style="list-style-type: none"> • Short-term increased noise levels, dust, and emissions at the site from use of heavy machinery. Significance: <i>Small, Reversible, Local, Short-term, and Intermittent.</i> • Temporary disturbance to the aquatic environment from use of heavy machinery. Significance: <i>Small, Reversible, Immediate, Short-term, and Intermittent.</i> <p>Accidents/Malfunctions:</p> <ul style="list-style-type: none"> • Release of hazardous materials from equipment malfunction, accidental spills, or unplanned serious events such as collisions. Significance: <i>Moderate, Reversible, Immediate, Short-term, and Once.</i> 	<ul style="list-style-type: none"> • Keep airborne dust and dirt resulting from the work on-site to an absolute minimum. • Dust suppression by the application of water must be employed when required. Apply dust control measures to roads, parking lots, and work areas. The PSPC Project Manager shall determine locations where water is to be applied, the amount of water to be applied, and the times at which it shall be applied. Waste oil must not to be used for dust control under any circumstances. • Spray surfaces with water or other environmentally approved product. Use purposely-suited equipment or machinery and apply in sufficient quantity and frequency to provide effective results and continued dust control during the entire course of work. • To reduce emissions of air contaminants and greenhouse gases, implement a vehicle idling policy. • All machinery should be well muffled and maintained in proper working order and must be regularly checked for leakage of lubricants or fuel.



27. Description of any Significant Adverse Environmental Effects of the project (after considering the application of mitigation measures):

Although the potential exists for short-term and/or medium-term environmental effects during the project, with the implementation of recommended mitigation measures no significant adverse effects are anticipated.

28. Cumulative Effects:

Individual projects and/or project components may produce residual environmental effects that are not significant, but when combined with the effects of other project components or other projects and activities, these effects may become a concern, as they may cause a cumulative adverse effect.

Over the past 10 years, the main projects completed at Glace Bay SCH to maintain/improve the harbour in serving the commercial fishing industry was basin and channel dredging.

Environmental effects resulting from maintenance dredging projects were similar to what can be expected from the proposed dredging project and include:

- Alteration/disruption of fish habitat;
- Potential death of sessile fish species;
- Temporary disturbance to pelagic fish species;
- Temporary disturbance to terrestrial wildlife and birds;
- Potential degradation of marine water quality;
- Potential impacts on marine sediment/soils;
- Potential disturbance/destruction of culturally significant artifacts;
- Temporary reduction in air quality (dust and noise) and increased emissions from construction equipment.

With proper implementation of mitigation measures, significant environmental effects resulting from these past projects were avoided and habitat compensation was provided for residual loss of fish and fish habitat resulting from the projects listed above.

All potential environmental impacts resulting from any future projects will be assessed separately under the IAA; however, there are no additional planned future projects for the Glace Bay DFO-SCH at this time.

The project under assessment is not projected to have a significant cumulative adverse effect considering past and potential future projects. There are no other predicted effects that may result from the proposed construction activities. With appropriate planning and implementation of effective mitigation measures, such negative impacts can be avoided.

29. Climate Change/Sustainability:

DFO SCH has taken into consideration the effects of sea ice cover, sea level rise, wind, wave, ocean currents, coastal erosion and other changes that can occur within a dynamic climate and the potential impacts they may impose on the project. Potential interactions include the climate (i.e. wind, ice, flood, etc.) which could damage or cause loss of equipment/materials or damage to, or reduction of, intended use of infrastructure.

Impacts to the construction phase of this project could potentially result from storm events and storm surges impacting construction schedule and potentially damage construction equipment. Proper planning and monitoring weather warnings issued by Environment and Climate Change Canada will help mitigate these potential impacts.

30. Fisheries Act, Species at Risk Act and/or Migratory Birds Convention Act permits or authorizations) and general follow-up of the Mitigation Measures:

- a) *Fisheries Act*: The dredging project was submitted to the DFO-Fish and Fish Habitat Protection Program (DFO-FFHPP) for its review under the *Fisheries Act*. DFO-FFHPP determined that the proposed project will result in the harmful alteration, disruption, or destruction of fish habitat which is prohibited under subsections 34.4(2)(b) and 35(2)(b) of the *Fisheries Act*, and as such a *Fisheries Act* Authorization will be required.



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CONCLUSION

32. Conclusion on Significance of Adverse Environmental Effects (Sections 82-83):

The DFO-SCH has evaluated the project in accordance with Section 82 of the *Impact Assessment Act*, 2019. On the basis of this evaluation, the department has determined that the project is not likely to cause significant adverse environmental effects with mitigation and therefore can proceed using mitigation measures as outlined.

Prepared by: _____

Date: June 3, 2021 _____

Name: Scott Burley

Title: A/Senior Environmental Specialist - PSPC

Approved by: _____

Date: _____

Name: Justin Benoit

Title: Senior Project Engineer – DFO-SCH



DECISION

33. Fisheries and Oceans Canada – Small Craft Harbours

- The project is not likely to cause significant adverse environmental effects, and DFO-SCH may exercise its power, duty or function.
- The project is likely to cause significant adverse environmental effects, and DFO-SCH has decided not to exercise its power, duty or function.
- The project is likely to cause significant adverse environmental effects, and DFO-SCH will refer the project to the Governor in Council to determine if the significant adverse environmental effects are justified in the circumstances

Approved by: _____

Date: _____

Name: Justin Benoit

Title: Senior Project Engineer, DFO-SCH



34. Fisheries and Oceans Canada – Fish and Fish Habitat Protection Program

Project Title:	Capital and Maintenance Dredging, Glace Bay DFO-SCH, Cape Breton County, Nova Scotia	
DFO File No.:	20-HMAR-00601	
Environmental Review Decision:	The DFO-FFHPP has reviewed the Significance of Environmental Effects Determination (SEED) Report (Impact Assessment Act (IAA) 2019), and in considering the implementation of mitigation measures that are included as a requirement in the DFO Section 35(2) Fisheries Act Authorization, DFO concludes the project is not likely to cause significant adverse environmental effects and, as such, DFO may exercise any power or perform any duty or function that would permit the project to be carried out in whole or in part.	
Recommended by:	Matt Beyer	
Title:	Biologist, Fish and Fish Habitat Protection Program	
Signature:		Date:
Mailing Address:	PO Box 1006, Dartmouth, NS B2Y 4A2	
Tel:	902-266-8721	
Email:	Matthew.Beyer@dfo-mpo.gc.ca	
Approved by:	Colleen Smith	
Title:	Senior Biologist, Fish and Fish Habitat Protection Program	
Signature:		Date:
Approved by:	Michael Wambolt	
Title:	Regional Manager, Fish and Fish Habitat Protection Program	
Signature:		Date:
Approved by:	Rhea King	
Title:	Regional Director, Aquatic Ecosystems	
Signature:		Date:



APPENDIX A

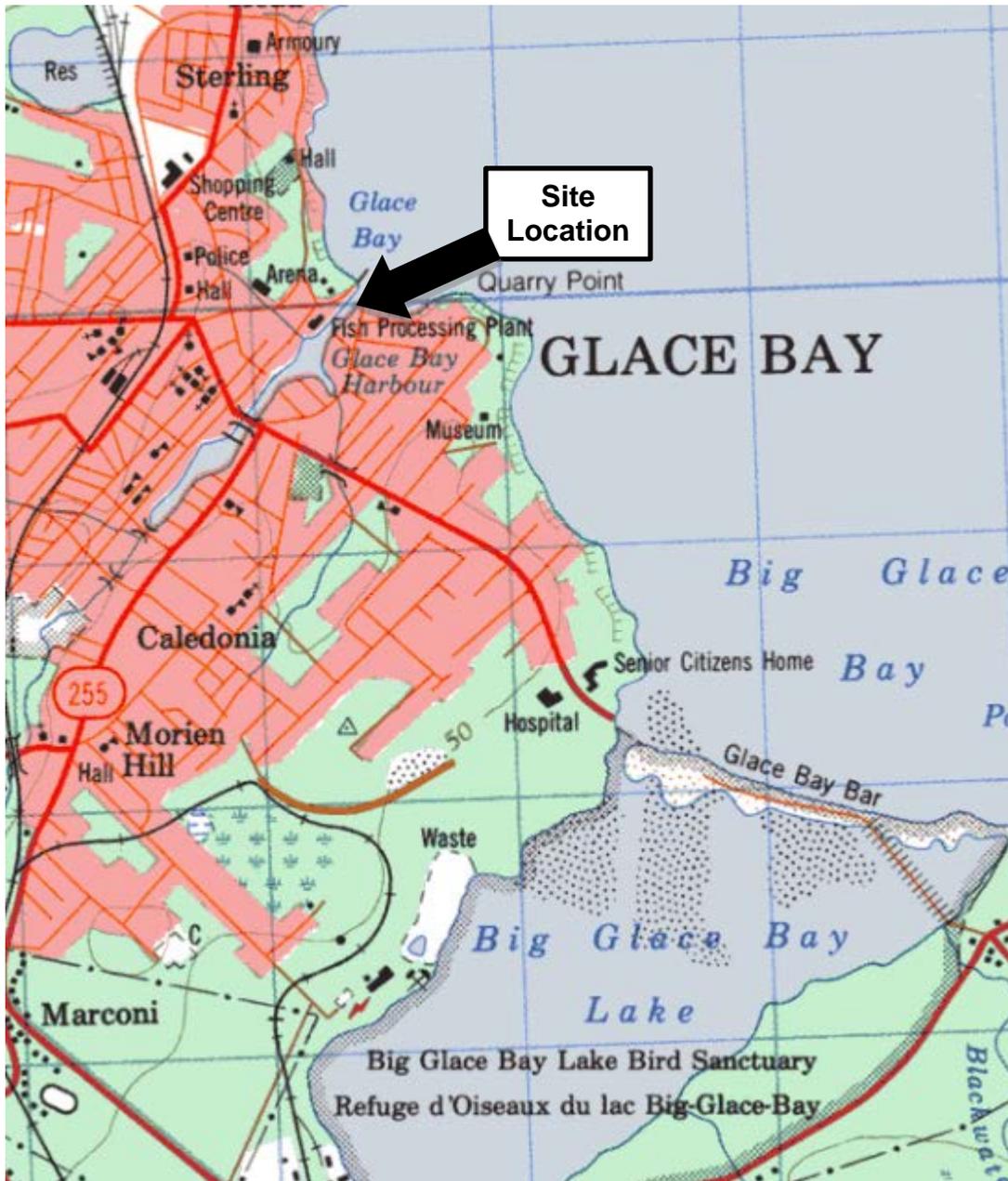


Figure 1:

Topographic map indicating proposed project site at Glace Bay DFO-SCH, Cape Breton County, Nova Scotia. Each square represents one square kilometer (1 km²).

NTS: 11-J/04

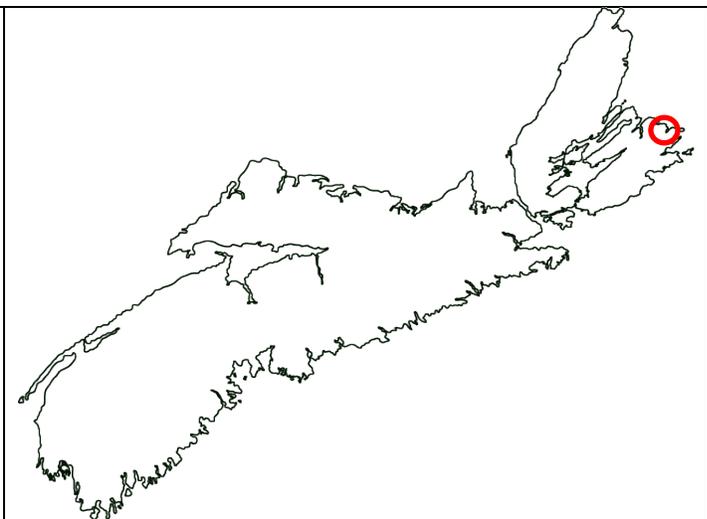
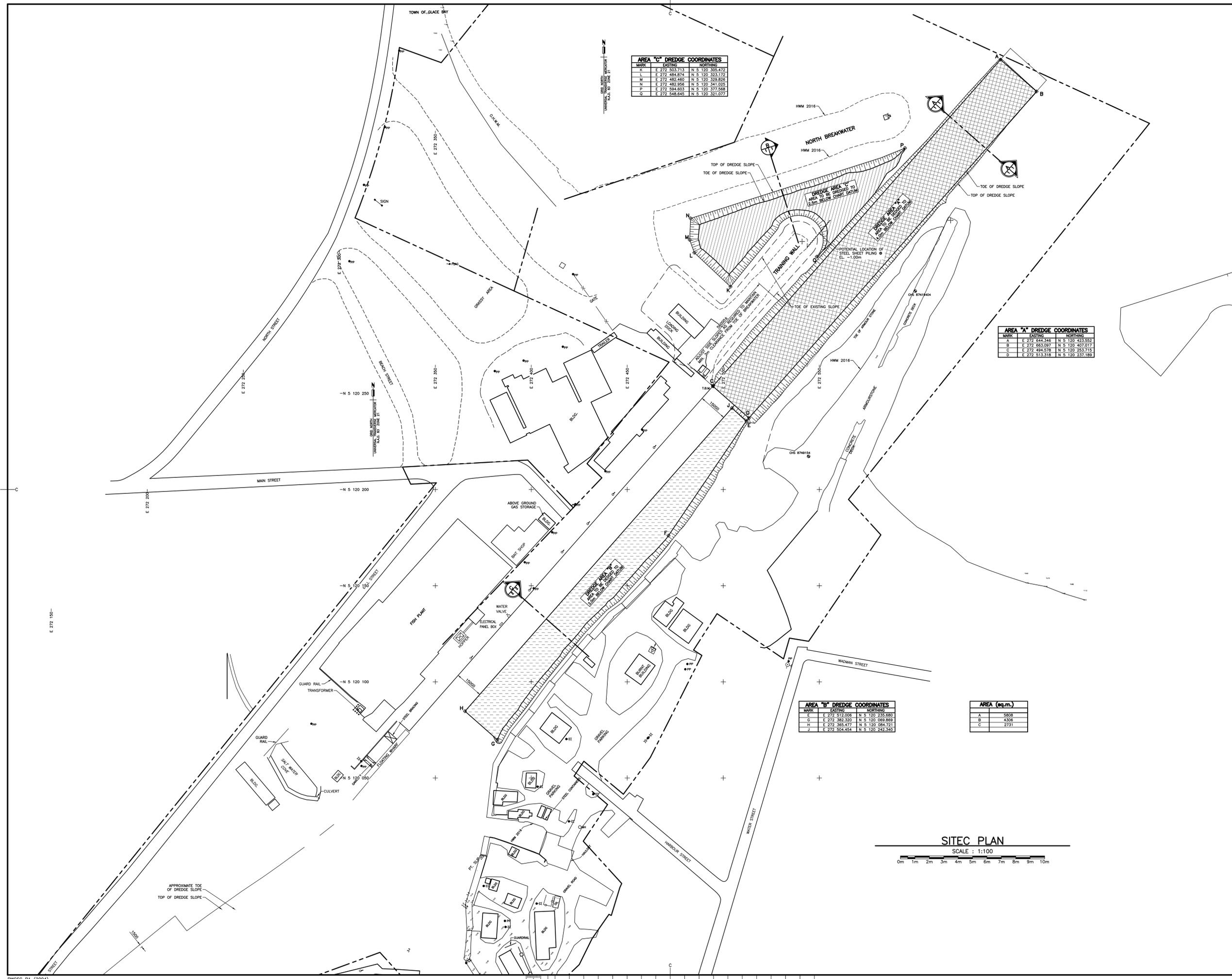




Figure 2: Oblique aerial photograph of Glace Bay DFO-SCH, Cape Breton County, Nova Scotia



Figure 3: Overhead aerial photograph of Glace Bay DFO-SCH, Cape Breton County, Nova Scotia



0		
revisions		date
project	<p align="center">DREDGE GLACE BAY CAPE BRETON COUNTY NOVA SCOTIA</p>	
drawing	<p align="center">DREDGE PLAN AREA "A" AREA "B" AREA "C"</p>	
designed	conçu	
date		
drawn	dessiné	
date	SEPTEMBER 2020	
approved	approuvé	
date		
Tender	Soumission	
PWGC Project Manager	Administrateur de projets TPSGC	
project number	no. du projet	
drawing no.	no. du dessin	
	FIGURE 5	