FISHERIES AND OCEANS
***CANADIAN ENVIRONMENTAL ASSESSMENT ACT* (CEAA) 2012**

PROJECT EFFECTS DETERMINATION REPORT

GENERAL INFORMATION

1. Project Title: Alma, Dredging and Wharf Repairs/Expansion

2 Proponent: ☒ Fisheries and Oceans Canada - Small Craft Harbours Branch (DFO-SCH) ☐ **Other** _____ **(proponent's name)**

3. Other Contacts (Proponent, Consultant, Contractor or another DFO Sector):
n/a

4. Role of each contact:
n/a

5. Source of Project Information if project is a referral (DFO sector, company, organization, provincial or federal department):
Fisheries and Oceans Canada - Small Craft Harbours Branch

6. Project Review Start Date: 2015/05/01

7. PATH No.:

8. DFO-FPP File No: TBD

9. Other relevant file numbers: TC-**NPP File No.: TBD**

BACKGROUND

10. Background about Proposed Development (including a description of the proposed development):

The proposed infrastructure construction and dredging activities will take place at a developed and active Small Craft Harbour facility. The harbour is a Class C facility (Under 400 vessel metres) and is located in Southeastern New Brunswick on the Bay of Fundy. Alma is an active harbour servicing both the commercial and recreational fishery. The Alma Small Craft Harbour facility currently consists of a concrete-deck wharf, a steel sheet pile (SSP) wharf, a breakwater, boat ramp, and a parking/service area.

The proposed scope of the Project includes concrete encasement of the SSP wharf, extension of the existing SSP wharf by approximately 40m, new electrical, new fenders and ladders, and dredging to the east of the SSP wharf. Dredge material to be placed at the nearby provincial quarry pit #0029. The approximate coordinates of the project area are: Latitude: 45^0 35.99'N and Longitude: 64^0 56.69' W.

The proposed schedule for the construction activities is for the work to commence in the Fall of 2015 and is expected to be completed by the winter of 2018.

PROJECT REVIEW

11. DFO's rationale for the project review:
Project is on federal land ☒ and;

☒ DFO is the proponent
☐ DFO to issue *Fisheries Act* Authorization or *Species at Risk Act* Permit
☐ DFO to provide financial assistance to another party to enable the project to proceed
☐ DFO to issue licence or lease federal land to enable the project to proceed

12. Fisheries Act Section(s) (if applicable): TBD

13. Species at Risk Act Section(s) (If applicable): n/a

14. Primary Authority: DFO-SCH

15. Primary Authority's rationale for involvement: DFO-SCH is the proponent.

16. Other Authorities involved in review:	17. Each Authority's rationale for involvement:
Transport Canada	Approval Requirement: The *Navigation Protection Act* NPA approval and review process is being conducted for the proposed project. The proponent will comply with all/any conditions of the NPA approval.
DFO - Fisheries Protection Program	Permit Requirement: The project was referred to the DFO-Fisheries Protection Program (FPP) and is currently in review. The proponent will comply with all/any of the conditions of the FPP letter/approval.

18. Other Jurisdictions involved in review: n/a

19. Other Expert Departments Providing Advice:	20. Areas of Interest of Other Expert Departments:

21. Other Contacts and Responses:
n/a

22. Scope of Project (details of the project subject to review):

Project Description
The proposed scope of the Project includes concrete encasement of the SSP wharf (approximately 3m wide by 60m long, 180m^2) , extension of the existing SSP wharf by approximately 40m x 12.2m (488m^2), new electrical, new fenders and ladders, and dredging to the east of the SSP wharf (approximately 4,500m^2). Dredge material to be placed at the nearby provincial quarry pit #0029 located south of Route 114 approximately six (6) km northeast of the harbour. Refer to **Appendix A** for a plan of the proposed work and map depicting approximate disposal location.

Scheduling
The proposed schedule for the construction activities is for the work to commence in the Fall of 2015 and is expected to be completed by the winter of 2018.

23. Location of Project:
The approximate coordinates of the project area are: Latitude: 45^0 35.99'N and Longitude: 64^0 56.69' W. The proposed project occurs with the existing waterlot of the developed and active Small Craft Harbour facility in Alma, Fundy NB. Refer to **Figures 1 to 3** in **Appendix A** for maps and an aerial photo showing the proposed project location and surrounding area.

24. Environment Description:

Physical Environment:

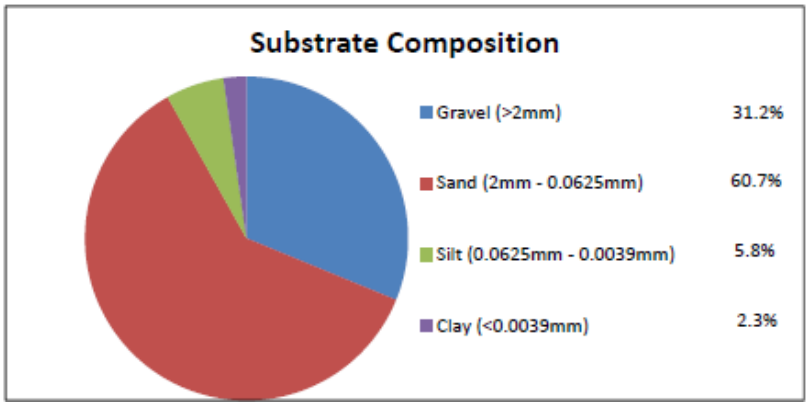
Alma Harbour is located in Albert County, on the southern shore of New Brunswick. The harbour opens into the Bay of Fundy and is situated at the headlands of the Upper Salmon River. The harbour is located adjacent to Fundy National Park. There is a salt marsh located at the mouth of the Upper Salmon River (outside the project area) where Saltwater Cordgrass *(Spartina alterniflora)* is the dominant vegetation. The coastline in the area consists of rocky shores, cliffs and sandy beaches. The Alma Beach tidal flat may extend more than one (1) km on a very low tide. The tides in the area range from 10 m to 12 m in height.

Sediment sampling was conducted in the harbour basin within the proposed dredge area on July 13, 2015. The marine sediment samples were sent to AGAT Laboratories for analysis. The marine sediment samples were analyzed for

parameters including: hydrocarbons, polychlorinated biphenyls (PCBs), pesticides, PAHs and metals. Samples analysis results were compared to the following guidelines:

- *Canadian Environmental Protection Act* (CEPA) Disposal at Sea Regulations (formerly the *Ocean Dumping Control Act*) – Lower Level Screening Criteria.
- Canadian Council of Ministers of the Environment (CCME) Sediment Quality Guidelines - Interim Sediment Quality Guidelines (ISQGs) and Marine and Estuarine Probable Effects Levels (PELs) (1999b).
- CCME Soil Quality Guidelines (SQGs) for the Protection of Environment and Human Health in agricultural, residential/parkland, and commercial/industrial applications (1999a).
- Atlantic Risk-Based Corrective Action (RBCA) Tier 1 Version 3.0 Risk-Based Screening Levels (RBSLs) and Sediment Ecological Screening Levels (SESLs) for the Protection of Freshwater and Marine Aquatic Life (2012).

Analysis of the marine sediment samples indicated that there were no exceedances of the above guidelines. The grain size consisted primarily of sand and gravel with lesser amounts of silt and clay.



Refer to **Appendix B** for the sediment sample locations and analytical results.

Canadian Climate Normals data (1971-2000) for Alma, NB indicates that the area receives an average of 1530.6 mm of precipitation annually and experiences measurable precipitation 162 days per year. Precipitation events of up to 162 mm have been recorded. Temperatures range from an extreme minimum of -31°C to an extreme maximum of 35.5°C with an annual daily mean temperature of 5.5°C (Environment Canada, 2012).

Biological Environment:

In the immediately adjacent waters of the Bay of Fundy, there are Lobster (*Homarus americanus*), Scallop (*Placopectin magellanicus*), and Rock Crab (*Cancer irroratus*) fishing grounds. Clam beds are noted as existing adjacent to the project site, while Periwinkles (*Littorina* sp.) are harvested along the coast, approximately 500m east of the harbour. The Upper Salmon River contains populations of a number of anadromus, catadromous and freshwater fish including: Brook Trout (*Salvelinus fontinalis*), American Eel (*Anguilla rostrata*), Rainbow Trout (*Oncorhynchus mykiss*), White Perch (*Morone americana*), and Rainbow Smelt (*Osmerus mordax*). In addition, Atlantic salmon (*Salmo salar*, endangered Inner Bay of Fundy (iBoF) population) smolts migrate from the Upper Salmon River to the ocean during the month of May, with the adult Salmon migrating back to the river from mid-August to the end of October where they will winter in the upper reaches of the Upper Salmon River.

The Atlantic Canada Conservation Data Centre (ACCDC) identified 53 species (17 Fauna, 36 Flora) within a 5km radius of the project site, of which 15 (3 Fauna, 12 Flora) are considered to be extremely rare (S1) throughout its range. There were no species observances records within the immediate proposed project area. A search was also conducted on the disposal pit area which identified 20 species of flora/fauna within a 5km buffer. Of these, only the Canada Linx (*Lynx Canadensis*) had an S1 designation. Similarly, there were no species observances at the immediate disposal pit area.

25. Scope of Effects Considered (section 5(1) and 5(2)):

Table 1: Potential Project / Environment Interactions Matrix

	As per Section 5(1)			*Section 5(1c)*				*Section 5(2)*			*Due Diligence*						
				Aboriginal Interest													
Project Phase / Physical Work/Activity	*Fish (Fisheries Act)*	*Aquatic Species (SARA)*	*Birds (MBCA)*	*Health and Socio economic*	*Physical and cultural heritage*	*Land use*	*HAPA* Significance*	*Health and Socio economic*	*Physical and cultural heritage*	*HAPA* Significance*	*Water (ground, surface, drainage, etc)*	*Wetlands*	*Terrestrial / Aquatic Species*	*Fish*	*Birds*	*Soil*	*Air Quality*
Construction and Dredging																	
Transportation of material and equipment	-	P	P	-	-	-	-	P	-	-	-	-	P	-	P	-	P
Construction and dredging	P	P	P	-	-	-	-	P	-	-	-	-	P	P	P	-	P
Operation / Maintenance	-	-	P	-	-	-	-	P	-	-	-	-	-	-	P	-	P
Decommissioning / Abandonment	-	-	-	-	-	-	-	P	-	-	-	-	-	-	-	-	P

structure, site or thing that is of historical, archaeological, paleontological or architectural significance

Evaluation of Environmental Effects

The VECs selected in Table 1 are addressed in Sections 26 and 27 of the PED. The physical works/activities and required mitigation measures are detailed. The following ratings are 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; and
- personal knowledge and professional judgment of the assessor.

The significance of project related impacts was determined in consideration of their frequency, the duration and geographical extent of the effects, magnitude relative to natural or background levels, and whether the effects are reversible or are positive or negative in nature. These criteria are indicated in Table 2.

Direct effects on navigation are not considered in the Project Effects Determination (PED) report, but any measures necessary to mitigate direct effects will be included as terms and conditions associated with any work approved or permitted pursuant to the *Navigation Protection Act*.

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	Effect 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

Methodology

The environmental effects evaluation methodology used in this report focuses the evaluation on those environmental components of greatest concern. The Valued Ecological Components (VECs) most likely to be affected by the project as described are indicated in Table 1. VECs were selected based on ecological importance to the existing environment (above), the relative sensitivity of environmental components to project influences and their relative social, cultural or economic importance. The potential impacts resulting from these interactions are described below.

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 of related impacts with mitigation.

26. Environmental Effects of Project:

Potential Project/Environment Interactions and their effects are outlined below.

Transportation of material and equipment:.

- Project activities may result in debris/material entering the marine environment.
- Potential adverse effects to migratory birds during site access.
- Use of heavy machinery may cause short-term elevated noise levels and emissions at the site.

Construction and dredging:.

- Project activities may result in debris/material entering the marine environment.
- Potential adverse effects to migratory birds during site access.
- Potential to enhance populations of predators in the harbour area for the duration of all project phases.
- Activities may result in construction related debris or toxic materials affecting marine water quality.
- Potential for suspended solids/sediments and turbidity immediately adjacent to the project site affecting fish/fish habitat.
- Potential impacts to adjacent watercourse at disposal site
- Potential for introduction of invasive species into the marine environment.
- Noise and dust generated as a result of the construction activities.
- Use of heavy machinery may cause short-term elevated noise levels and emissions at the site.
- Safety hazards to workers during construction.

Operation/Maintenance:

- Safety hazards to workers during operation/maintenance.

Decommissioning/Abandonment:

- Safety hazards to workers during decommissioning/abandonment.

27. Mitigation Measures for Project (including Habitat Compensation if applicable):

Potential Effect	Mitigation
Construction and dredging	
Reversible, **immediate** degradation of groundwater/marine water quality and fish/fish habitat occurring **once** and over the **short term** *MSSP results indicate the dredge material is not contaminated, and as such, the placement of dredge material within the existing disposal quarry site is not expected to impact the disposal area. The quarry pit has been historically used as a disposal area for harbour dredge sediment from Alma harbour already and has been utilized this way without incident to date.	• A request for review has been submitted to DFO-FPP. The project will incorporate the recommended mitigation once an approval/letter of advice is received. • Dredge material will be placed within the existing approved disposal area at the quarry pit #0029 and shaped to create a burmed perimeter to contain the material. • Any equipment that has been in the marine environment will be cleaned of any sediments, plants or animals and washed with freshwater and/or sprayed with undiluted vinegar prior to being mobilized to the project site. • If a marine mammal (specifically whales or porpoises) is identified within the vicinity of the project, work shall stop until the animal is gone. • Waste materials are not to be buried on site. Demolition debris and waste materials will be disposed of in accordance with Provincial Waste Management Regulations. • Activities must be completed in such a way as to minimize the amount of fines and organic debris that may enter nearby aquatic environments. • Marine equipment may be inspected by PWGSC or DFO to ensure invasive species are not introduced to the marine environment. • No construction or infill material may be obtained from any coastal feature, namely a beach, dune, or coastal wetland. • Onsite crews must have emergency spill clean-up equipment, adequate for the activity involved, must be on-site. Spill equipment will include, as a minimum, at least one 250L (i.e., 55 gallon) overpak 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). • Visual monitoring of the turbidity will be required in the vicinity of the project to ensure that the turbidity is limited. If excessive change occurs in the turbidity that differs from the existing conditions of the surrounding water body (i.e., distinct colour difference) as a result of the project activities, the work will stop and DFO-Fisheries Protection Program (FPP) will be contacted (506-851-2824).
Small, **immediate** disturbance of birds/bird habitat over the **short term**	• All machinery must be well muffled. If necessary, trucks may be required to avoid the use of “hammer” braking along specific sections of the route. • Adherence to the regulations set out by the *Migratory Birds Convention Act*. • Contractors must ensure that food scraps and garbage are not left at the work site. • Concentrations of seabirds, waterfowl, or shorebirds must not be approached when accessing the project site by water, or when ferrying supplies. • All equipment must be maintained in proper running order to prevent leaking or spilling of potentially hazardous or toxic products. This includes hydraulic fluid, diesel, gasoline and other petroleum products. • With the exception of blasting/dredging and related equipment, refueling operations will take place at least 30 metres from any watercourse and harbour and the refueling will take place on a prepared impermeable surface with a collection system.

	• 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. • Construction activities will be carried out during times acceptable to local authorities. • All construction waste material will be disposed of in a provincially approved manner.
Small, **immediate** disturbance to territorial/aquatic species over the **short term**	• Wetlands or sensitive coastal habitats (i.e., any area in which plant or animal life or their habitats are either rare or especially valuable) must not be accessed nor used as staging areas. • All vessels and machinery should be well muffled, and maintained in proper working order and must be regularly checked for leakage of lubricants or fuel. • Waste or any miscellaneous unused materials must be recovered for either disposal in a designated facility or placed in storage. Under no circumstances will materials be deliberately thrown into the marine or terrestrial environment.
Immediate reduction in air quality due to noise and dust occurring **once** and over the **short term**	• Construction activities must be carried out during times acceptable to local authorities and smaller, less disturbing equipment will be used where possible. • Dust suppression by the application of water must be employed when required. The project authority 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.
Significance of Adverse Environmental Effects: Although the potential exists for short-term environmental effects during the project, the implementation of recommended mitigation measures will result in insignificant impacts. DFO concludes that this project will not likely contribute to significant adverse environmental effects, provided that the above recommended mitigation measures are applied.	
Operation/Maintenance, Decommissioning/Abandonment	
Immediate worker health and safety hazards over the **short term**	• Site access must be restricted to construction personnel and authorized visitors. • All personnel involved with activities must be adequately trained and utilize appropriate personal protective equipment.
Significance of Adverse Environmental Effects: Although the potential exists for short-term environmental effects during the project, the implementation of recommended mitigation measures will result in insignificant impacts. DFO concludes that this project will not likely contribute to significant adverse environmental effects, provided that the above recommended mitigation measures are applied.	

28. Description of any Significant Adverse Environmental Effects of the project (after applying mitigation):

Significant adverse environmental effects are unlikely, taking into account mitigation measures.

29. Other Considerations (Public Consultation, Aboriginal Consultation, Follow-up)

Public Consultation

The harbor improvements at Alma Harbour will increase the overall operational capacity and safety of the harbour and for harbour users (harbour for fishers, aquaculture, recreational users, and tourists) to conduct harbour activities, allowing the harbour to continue being a viable resource to the commercial fishery. The proposed project will increase the sustainability

of the commercial fisheries at this location. No negative public concern is expected as a result of this project. In addition, the Harbour Authority consultation indicated that no fishermen, individuals, or groups disapprove of the proposed project.

Aboriginal Consultation

PWGSC, on behalf of DFO-SCH, carried out an Aboriginal Assessment at Alma Harbour 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 Aboriginal 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 Aboriginal 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 Aboriginal or treaty rights; and
3. The potential or established Aboriginal or treaty rights may be adversely impacted by the Crown

The Alma Harbour Authority advised that there are no Aboriginal vessels operating out of the harbour. The proposed project site was also reviewed for archaeological potential with known archeological sites (pre-contact, historic, burial) in the area of the site, the scope and type of work to be conducted to deduce a residual archaeological potential. The DFO Area Aboriginal Programs Coordinator was also consulted during the Duty to Consult (DTC) assessment process. As a result of the DTC assessment, aboriginal consultation was not pursued further for this proposed project as it is not predicted given the project scope and setting that there will be any impacts to archeological resources or impacts to potential or established Aboriginal or Treaty Rights.

Government Consultation

Federal and provincial authorities likely to have an interest in the project were consulted by Public Works & Government Services Canada, Environmental Services during the course of this assessment. A project description was distributed to the following federal and provincial authorities: Fisheries and Oceans Canada - Fisheries Protection Program, Transport Canada – Environmental Affairs and Aboriginal Consultation Unit, Transport Canada – Navigable Protections unit, New Brunswick Department of Environment – Environmental Impact Assessment group.

Accuracy and Compliance Monitoring

Site monitoring (accuracy and compliance monitoring) may be conducted to verify whether required mitigation measures were implemented. The proponent must provide site access to Responsible Authority officials and/or its agents upon request.

30. Other Monitoring and Compliance Requirements (e.g. *Fisheries Act* or *Species at Risk Act* requirements)

n/a

CONCLUSION

31. Conclusion on Significance of Adverse Environmental Effects:

The Federal Authority has evaluated the project in accordance with Section 67 of *Canadian Environmental Assessment Act (CEAA), 2012*. 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 mitigative measures as outlined.

32. Prepared by: **33**. **Date:** August 17, 2015

3**4. Name:** Jason Keys

35. Title: Environmental Specialist, PWGSC

36. Approved by: _____ **37. Date:** _____

38. Name: Raymond Losier

39. Title: DFO-SCH Senior Project Engineer, NB

DECISION

40. Decision Taken

☒ The project is not likely to cause significant adverse environmental effects, and DFO may exercise its power, duty or function.

☐ The project is likely to cause significant adverse environmental effects, and DFO has decided not to exercise its power, duty or function.

☐ The project is likely to cause significant adverse environmental effects, and DFO will ask the Governor in Council to determine if the significant adverse environmental effects are justified in the circumstances

41. Approved by: _____ **42. Date:** _____

43. Name: Raymond Losier

44. Title: DFO-SCH Senio–r Project Engineer, NB

46. References:

ACCDC (Atlantic Canada Conservation Data Centre). ACCDC data response for Alma, New-Brunswick. Accessed at PWGSC Atlantic region GIS http://gis2.gisatl.ca/ceaaflex/index.html in August 17, 2015.

Harbour Authority Consultation – Personal Communication with Terry Rossiter, May 25, 2015

Environment Canada. 2014a. Canadian Climate Normals 1971-2000. Moncton, New Brunswick. Accessed August 17, 2015 at: http://www.climate.weatheroffice.ec.gc.ca/climate_normals/index_e.html.

Environment Canada. 2014b. Species at Risk Registry. Accessed August 17, 2015 at http://www.sararegistry.gc.ca.

Appendix A

Figures

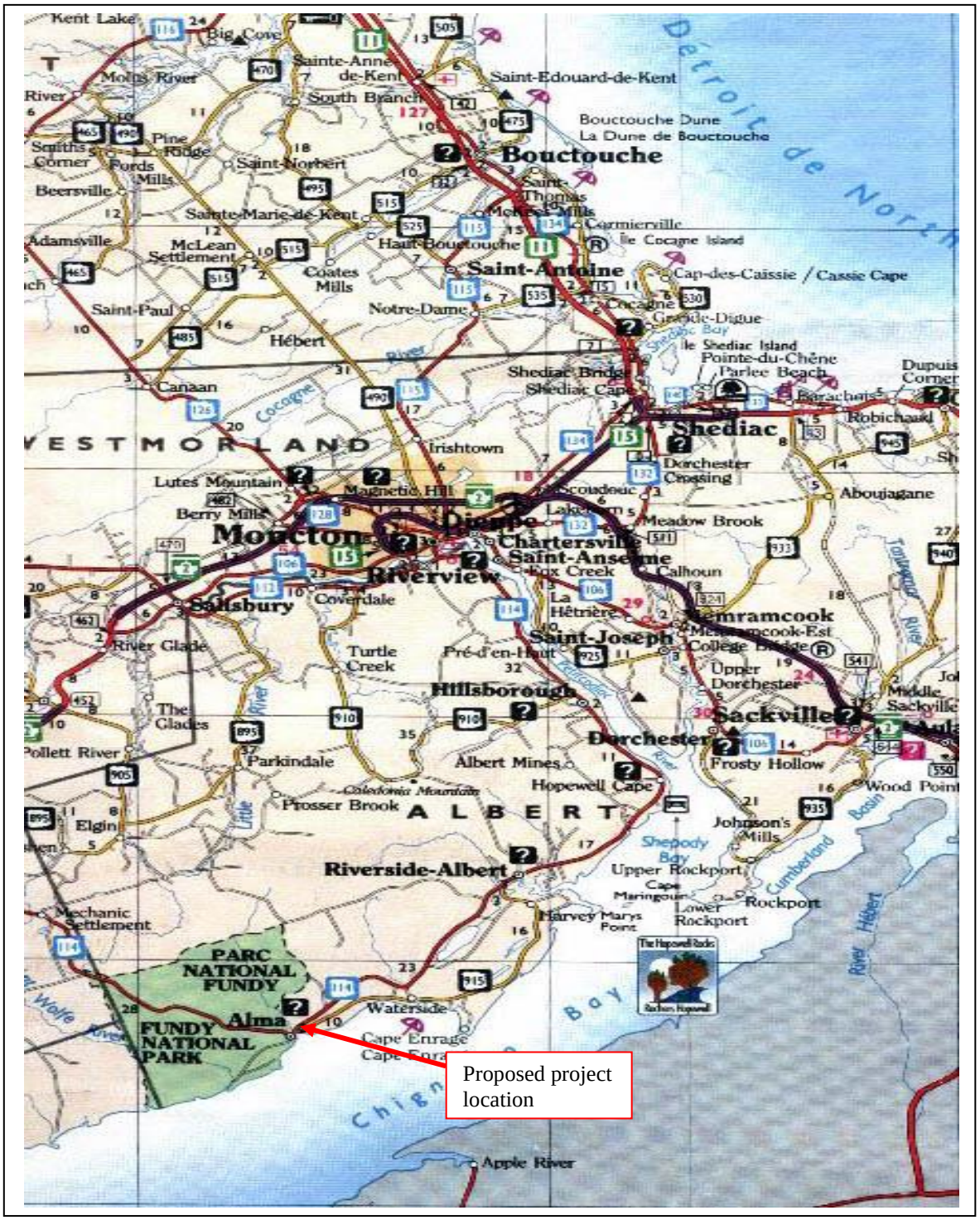


Figure No. 1 – Location of Alma Harbour, Albert Co., NB in relation to surrounding communities and coastline.

Figure No. 2 – Aerial Photo of DFO-SCH Alma Facility

Figure No. 3 - Aerial photo indicating proposed dredge disposal site at Provincial Pit 0029.

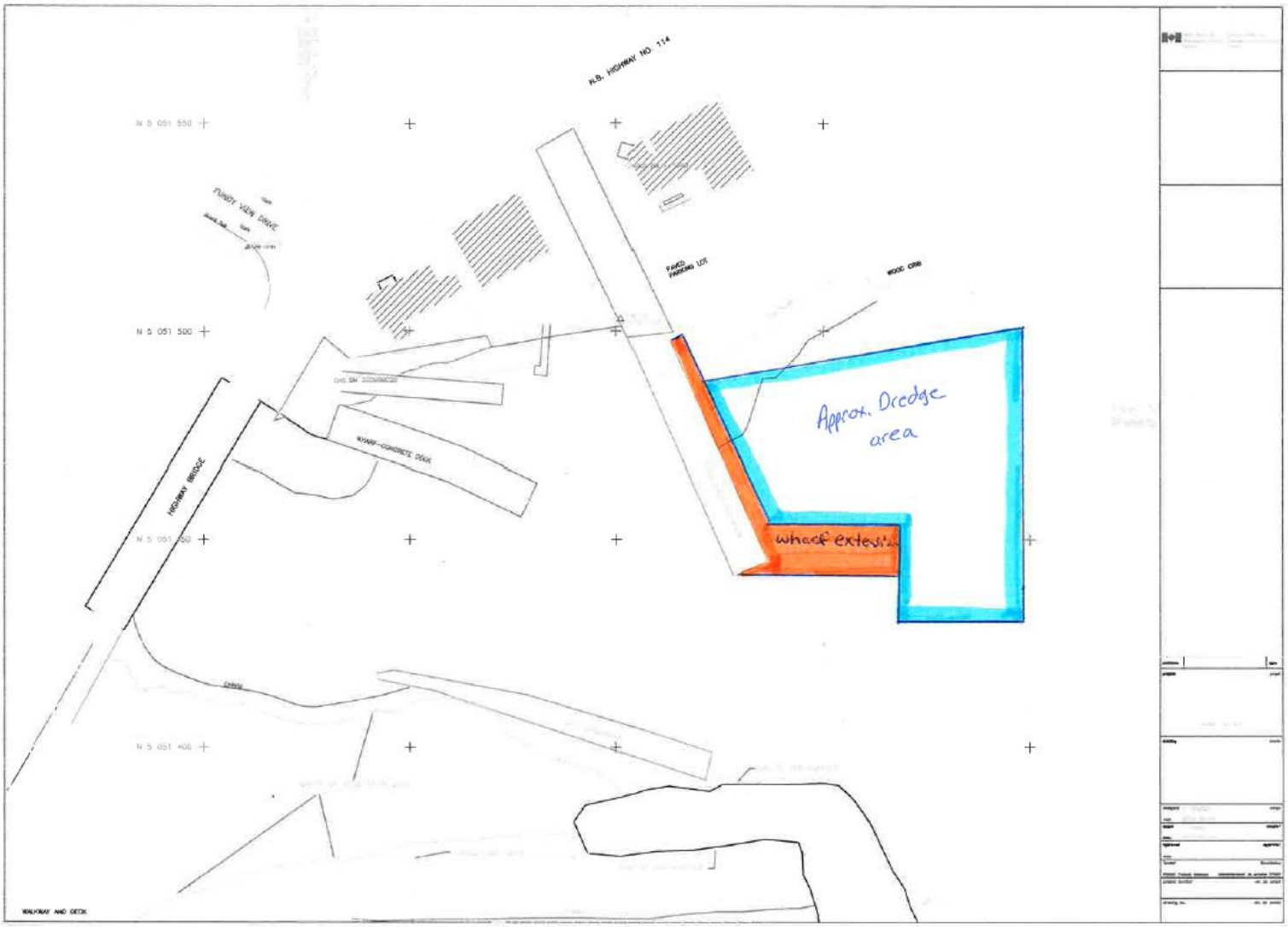


Figure No. 4 – Site plan depicting existing Alma infrastructure with the proposed wharf widening/extension highlighted in orange and the approximate dredge area outlined in blue.

Appendix B

Underwater Benthic Habitat Survey

Appendix C

Marine Sediment Sampling Program
Alma