

# **ANNEX A**

## **Environmental Screening Documentation**

Respect

Excellence

Integrity

Leadership



**DEPARTMENT OF FISHERIES AND OCEANS -  
SMALL CRAFT HARBOURS (DFO-SCH)  
NEWFOUNDLAND REGION**

**PWGSC NO. R.031066.001**

**ENVIRONMENTAL SCREENING  
BREAKWATER CONSTRUCTION PHASE II  
DANIELS HARBOUR, NEWFOUNDLAND**

**Prepared for DFO-SCH by  
Public Works and Government Services Canada (PWGSC)  
Environmental Services  
Corner Brook, NL  
January 2011**



Public Works and  
Government Services  
Canada

Travaux publics et  
Services gouvernementaux  
Canada

**Canada**

## SMALL CRAFT HARBOURS BRANCH ENVIRONMENTAL SCREENING

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**SMALL CRAFT HARBOURS BRANCH ENVIRONMENTAL SCREENING**  
**PART A DESCRIPTION OF THE PROPOSED PROJECT**

**A-1 Project Identification**

Date:	November 24, 2010	PATH Number:	
		GEAR Number:	10-01-59349
TC File No.:			
Harbour Code / Name:	Daniels Harbour		
Location:	Latitude : 50°14'28"N	Longitude: 57°35'20"W	
County/Province:	Canada/Newfoundland and Labrador		
Region:	Newfoundland		
Screening Title:	Breakwater construction		
Proposal Description:	The proposed project will involve extending an existing rubblemound breakwater along the seaward side of an existing concrete spray wall. The current concrete structure does not provide adequate protection to the boat basin, facility infrastructure and vessels. The heel of the rubblemound structure was previously repaired with armourstone (Phase I). This project is considered a continuation of those previous repairs. Construction of the breakwater extension will involve the placement of armourstone and toe stone directly atop a bedrock outcrop within 15 m of a waterbody.		
Primary Undertaking:	<input checked="" type="checkbox"/>	Physical Activity:	<input type="checkbox"/>
Assessor(s):	Mark McNeil, Environmental Officer, PWGSC-ES, Corner Brook, NL		
DFO Spokesperson:	Sharon Branton, Area Manager, DFO SCH Western, Corner Brook, NL		
Assessment Contact:	Mark McNeil, Environmental Officer, PWGSC-ES, Corner Brook, NL		
Public Registry Contact:	DFO-CEA Registry Office - Newfoundland and Labrador Region		
Lead RA:	Fisheries and Oceans Canada <ul style="list-style-type: none"> <li>• Small Craft Harbours Branch</li> </ul>		
Other RA's:	None		
Trigger:	Project proponent: <input type="checkbox"/>	Financial assistance: <input checked="" type="checkbox"/>	
	Interest in land: <input type="checkbox"/>	Law List or Issuing a Permit: <input type="checkbox"/>	
Type of Assessment:	Screening: <input checked="" type="checkbox"/>	Class Screening: <input type="checkbox"/>	

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### A-2 Project Justification

#### Purpose of the Project

The proposed project is required to provide additional protection for resident infrastructure and vessels utilizing the DFO SCH facilities in Daniel's Harbour, NL. The project will improve site conditions and provide a safer facility that will better meet the operational requirements of local facility users.

#### Alternative Sites and Options

Several additional breakwater designs were considered, including increasing the size of the existing concrete spray-wall. However, the currently proposed rubblemound structure will provide an effective level of protection for facility infrastructure in a more cost-effective manner.

### A-3 Description of the Proposed Project

#### Location

Daniels Harbour is a community located on the west coast of the Northern Peninsula, Newfoundland and Labrador at coordinates 50° 14' 28' N, 57° 35' 20' W. The project site is accessible via local roads which may be accessed from provincial route 430. The project site is characterized by marine wharf infrastructure consisting of a marginal wharf, slipways and several fishing sheds. There are permanent residences immediately adjacent to the project site. The upland area is characterized by exposed limestone bedrock, low-lying grass, shrubs and residential housing.

### A-4 Related Issues

Repairs to the heel of the existing rubblemound structure were completed in 2009. The project entailed the placement of additional armourstone to replace material which was removed as a result of wave and tidal activity. The breakwater repair project was assessed pursuant to the *Canadian Environmental Assessment Act (CEAA)*. No negative environmental impacts were anticipated or reported. Any additional projects carried out in the future at this site may require the completion of a separate *Canadian Environmental Assessment Act (CEAA)* screening. This project was considered in the context of past (i.e., dredging and construction activities), present, and future projects, and no potential negative cumulative environmental effects were predicted.

### A-5 Components of the Project

#### Construction Phase:

The proposed project will involve extending an existing rubblemound breakwater along the seaward side of an existing concrete spray-wall. The current concrete structure does not provide adequate protection to the boat basin, facility infrastructure and vessels. The heel of the rubblemound structure was previously repaired with armourstone and this project is considered a continuation of those previous repairs. Construction of the breakwater extension will involve the placement of armourstone and toe stone directly atop a bedrock outcrop within 15 m of a waterbody. No in-water work is required.

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### Operation Phase:

The Environmental Management System (EMS) with an integrated Environmental Management Plan (EMP) for the Harbour Authority of Daniels Harbour covers operational aspects of environmental management and is the mitigation measure for the environmentally responsible aspects of harbour operation (fueling, waste disposal, activities on the property and water).

### Decommissioning/Abandonment:

There are currently no plans to decommission this site. At the time of de-commissioning, Small Craft Harbours will develop a site-specific re-use or reclamation plan that is appropriate for the applicable environmental legislation and Fisheries and Oceans Canada policies.

#### **A-6 Time frame**

Commencement of this project is subject to DFO SCH operational priorities and funding. It is anticipated that the construction phase of the project would occur over a period of several months.

#### **Description of the Surrounding Environment**

##### **A-7 Description of the Natural Area**

Daniels Harbour is a community located on the west coast of the Northern Peninsula, Newfoundland and Labrador at coordinates 50° 14' 28" N, 57° 35' 20" W. The project site is accessible via local roads which may be accessed from provincial route 430. The project site is characterized by marine wharf infrastructure consisting of a breakwater, marginal wharf, slipway and several fishing sheds. There are permanent residences immediately adjacent to the project site. The upland area is characterized by exposed bedrock, low-lying grass, shrubs and residential housing.

The proposed project site is located on a limestone-lithoclast conglomerate deposited during the Middle Ordovician epoch of the Ordovician period approximately 472-461 million years BP. The rocks are the type locality for the Daniels Harbour member of the American Tickle Formation. This location was chosen as the type locality, in part, given its ease of accessibility for geologists. There are very few other places where this type of rock is as easily accessible, making the project area stratigraphically unique and important to geologists. The conglomerate also contains many flat angular slabs of dark grey limestone and large blocks of interbedded thin limestone and shale. These rock formations contain fossils assemblages containing brachiopods, bryozoans, echinoderms, cephalopods, conodonts, graptolites, sponges and trilobites. These fossils are identical to those found immediately north of Daniels Harbour in the Table Point Ecological Reserve. The 1.16 km<sup>2</sup> reserve was provisionally established in 1986 under the Newfoundland and Labrador Wilderness and Ecological Reserves Act to help preserve the fossils found in the limestone.

According to Fisheries and Oceans' Traditional Ecological Maps of the area, a variety of fish species may be found within or very near the project area, including flounder, catfish, blackback, turbot, halibut, mussels, skate and cod. Harp seals, Irish moss and lobster have also been observed within and near the general project area.

Daniel's Harbour is located within the Northern Peninsula ecoregion, Northern Peninsula Forest-Coastal Plain subregion. This maritime-influenced ecoregion occurs along the forested parts of the coastal lowlands of the Northern Peninsula of Newfoundland. It is marked by cool summers and mild winters

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with wind and fog. The mean annual temperature is approximately 3°C. The mean summer temperature is 11°C and the mean winter temperature is -4.5°C. The mean annual precipitation ranges 1000-1100 mm. The ecoregion is classified as having an Atlantic high boreal ecoclimate. Balsam fir is the dominant tree species on well- to imperfectly drained sites, but black spruce becomes an important codominant species at higher elevations. Black spruce thrives immediately adjacent to poorly drained depressions, which are predominantly covered by kalmia heath communities. Wind-exposed rocky outcrops are commonly vegetated by open, dwarf stands of black spruce and dwarf evergreen shrubs. Most of the ecoregion is less than 125 m asl in elevation, but it rises to about 450 m asl on the protected east side of the peninsula, which is composed predominantly of Archean igneous rock. On the west coast side of the ecoregion the geology is composed of a belt of soft, mainly unfolded, acidic, crystalline Palaeozoic strata. The surface of the ecoregion is covered by undulating to ridged, sandy morainal to loamy marine deposits. The ridged, rougher eastern side of the ecoregion is predominantly exposed bedrock with slopes ranging 15-30%. Soils are predominantly Humo-Ferric Podzols with significant inclusions of exposed rock outcrops, Ferro-Humic Podzols, Eutric Brunisols, and some Fibrisols.

Daniel's Harbour is located within the distribution range of the Monarch butterfly, Blue Whale, North Atlantic Right Whale, Harlequin Duck (Eastern Population), Red Crossbill (*perca* subspecies), Atlantic Wolffish, Northern Wolffish and Spotted Wolffish, placed on Schedule 1 of the Species at Risk Act by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC). However, it is unlikely that the immediate project site contains any critical, limiting, or sensitive habitat for any of the above noted species at risk.

#### A-8 Description of the Human Environment

Daniels Harbour is a Class "C" fishing harbour with an established local Harbour Authority. According to DFO 2009 statistics, Daniels Harbour serves multiple enterprises operating from 7 vessels with total vessel length of 52 metres. Vessels reported a total landed weight of 89,045 kgs, representing a landed value of \$243,891 in 2009.

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### **PART B ENVIRONMENTAL ASSESSMENT OF THE PROJECT**

(POTENTIAL ENVIRONMENTAL IMPACTS AND MITIGATION / COMPENSATION MEASURES)

#### **Boundaries:**

A boundary is a function of the extent and duration of potential interaction, physical and chemical, between the proposed undertaking and the Valued Environmental Component (VEC). Generally, these boundaries are defined by the temporal and spatial characteristics encompassing those periods and areas, during and within which, the VECs are likely to interact with, or be influenced by, the project.

#### **Project Boundaries:**

Project boundaries refer to the spatial and temporal extent of project activities, and are dictated primarily by project specific characteristics indicated in the information for each construction site. Temporal project boundaries include operation and decommissioning. Spatial project boundaries are defined as the specific site area that includes the areas of construction and the zones of influence around the construction site (biological and physical), specifically the construction area footprint and adjacent lands.

#### **Ecological Boundaries:**

Ecological boundaries refer to the temporal and spatial scales over which environmental components or populations function. Temporal ecological boundaries take into consideration the variety of relevant characteristics of environmental components or populations including: 1) Magnitude, frequency and trends in the natural variation of a population or ecological component. 2) Time required for a biological, physical and/or chemical response to an effect to become evident. 3) Time required for a population or ecological system to recover from an effect and return to its pre-impact state.

Temporal ecological boundaries for impact assessment need to consider biologically meaningful intervals with respect to the life cycle of the species being examined. The degree of a potential impact on a particular species or environmental component is also influenced by other temporal characteristics including: 1) the portion of the year that the species or component remains in the proposed project area. 2) The timing of sensitive life history periods (such as larval life phase or bird nesting periods) in relation to the schedule of proposed activities. 3) Whether the project activity cycle includes a period of dormancy.

The distribution, patterns of movement, and potential zones of interaction between a VEC and the project determine spatial ecological boundaries. Direct project-environment interactions are unlikely to occur beyond the spatial extent of the project boundary, however migratory species/stock ranges are considered in the assessment.



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### Socioeconomic Boundaries:

Socioeconomic boundaries refer to the temporal and spatial scales for economic systems and socioeconomic aspects of the environment, which include: 1) The time required for a response to a change in the socioeconomic environment to become evident. 2) The time necessary for a response to a project-related effect to become evident. 3) The time required for the socioeconomic environment to recover from an effect and return to its original state.

Only socioeconomic effects resulting from the direct impacts of a project on existing environmental conditions are considered. Spatial boundaries are established on the basis of the spatial characteristics of the socio-cultural and economic environment. These take into consideration resource harvesting activities, some of which are specific to particular places (e.g. fisheries resources) and times (e.g. fishing seasons).

### Definition and Evaluation of Significance of Effects:

Significance is established based on the extent, duration and magnitude of the potential impact, as well as the environmental component's sensitivity to, and ability to recover from, the potential impact.

For ecosystem VECs that are population based, the definitions of significance are defined as follows:

*Likely to have a significant effect* - affects a population or portion thereof in such a way as to cause a decline or change in abundance or distribution of the population over one or more generations; natural recruitment may not re-establish the population to its original level; or

*Not likely to have a significant effect* - affects a population or a specific group of individuals in a localized area over a short period of time in a manner similar to natural variation and has no measurable effect on the integrity of the population as a whole.

For socioeconomic VECs, the definition of significance is as follows:

*Likely to have a significant adverse effect* - has an adverse effect on a community as a whole in a localized area and has a duration sufficient to adversely affect a change in the economic, physical or psychological well-being or in the long established activity patterns of the community in question; or

*Not likely to have a significant adverse effect* - has a negligible effect on communities, is of very short duration, is extremely localized and/or affects communities in a manner similar to small random changes due to natural socioeconomic fluctuations.

This environmental assessment considers the full range of project/environmental interactions and the environmental factors that could be affected by the project as defined above. Potential interactions between the project and the environment were reviewed and are outlined in Table 2. Potential Project/Environment Interactions Matrix.

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**Table 1: Potential Project / Environment Interactions Matrix**  
*Breakwater construction, Daniels Harbour, Newfoundland*

P = Potential Effect of Project on Environment; ? = Not enough Information; ' - ' = No Interaction

Project Phase / Physical Work/Activity	Soil (Surface and Subsurface)	Groundwater Quality	Rivers/Lakes/Streams (and associated drainage) Quality	Marine/Estuary/Saltmarsh Water Quality	Wetlands (Bens, Fogs, Swamps)	Fish / Fish Habitat	Birds / Bird Habitat	Rare / Endangered Species / Species at Risk Act (SARA)	Aboriginal Interests	Socio-economic Environment	Agriculture/Aquaculture	Land Use	Archaeology / Palaeontology / Heritage	Air Quality / Noise	Health / Safety
Specific Work Activity															
Transportation of construction materials	P	-	-	-	-	-	-	-	-	-	-	-	P	P	-
Placement of armourstone material	P	-	-	P	-	P	-	-	-	P	-	-	P	-	-
Operation/Maintenance/ Decommissioning															
Operation/Maintenance	P	-	-	-	-	-	-	-	-	-	-	-	P	P	-
Decommissioning															
Accidents/Malfuctions, and Unplanned Events	P	-	-	P	-	P	-	-	-	-	-	-	-	-	-

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The selected VECs are addressed in Tables 3.1 – 3.6 in its entirety below. The residual effects of the project on the environment are defined. Similarly, the physical works / activities and required mitigation are detailed, and the significance of residual (post mitigation) effects are estimated.

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
- Own personal knowledge and professional judgement.

The significance of project related impacts were determined in consideration of their frequency, the duration and geographical extent of the effects, and 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 Tables 3.1 – 3-6.

**Table 2: Assessment Criteria for Determination of Significance.**

<b>Magnitude</b>	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
<b>Reversibility</b>	Reversible	Effect can be reversed
	Irreversible	Effects are permanent
<b>Geographic Extent</b>	Immediate	Confined to project site
	Local	Effects beyond immediate project site but not regional in scale
	Regional	Effects on a wide scale
<b>Duration</b>	Short Term	Between 0 and 6 months in duration
	Medium Term	Between 6 months and 2 years
	Long Term	Beyond 2 years
<b>Frequency</b>	Once	Occurs only once
	Intermittent	Occurs occasionally at irregular intervals
	Continuous	Occurs on a regular basis and regular intervals

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Table 3.1 – 3.6: Potential Project / Valued Ecosystem Interactions and Mitigation (S.16(1))

Table 3.1 Valued Ecosystem Component – Soil (Surficial bedrock)				
Potential Effect: Damage to bedrock outcrop				
Potential Interaction		Mitigation		
Disturbance and/or damage to limestone outcrop due to heavy equipment use on bedrock.		Quarrying of beach sediments or removal of surrounding bedrock for use in breakwater is not permitted. Breakwater material is to be obtained from a provincially approved/licensed quarry.		
Footprint of breakwater will render portions of bedrock inaccessible.		Standard Mitigation Practices		
		Contractors should minimize heavy equipment use on the bedrock, both temporally and spatially.		
		Contractor is to adhere to construction plans and ensure footprint of breakwater is constructed to specification.		
Magnitude	Reversibility	Geographic Extent	Duration	Frequency
Small	Irreversible	Immediate	Short-term	Once
Residual Effects:		Insignificant		
Monitoring / Follow-up:		None required.		
Comments: The bedrock is the type locality for the Daniels Harbour member of the American Tickle Formation. There are very few other places where this type of rock is as easily accessible, making the project area stratigraphically unique and important to geologists. However, construction of the breakwater to proper specification will provide continued access to the surrounding bedrock outcrop; significant impacts are unlikely.				

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Table 3.2 Valued Ecosystem Component – Marine/Estuary Water Quality				
Potential Effect: Sedimentation and contamination of marine environment				
Potential Interaction	Mitigation			
Accidental discharge of machinery fuel and/or fluids may migrate into nearby waterbody, degrading water quality.				
Minor sedimentation of waterbody during placement of breakwater materials.	<b>Standard Mitigation Practices</b>  Servicing should be carried out off-site on level terrain and 30 m from any water bodies.  The proponent and contractor should be aware of the CCME “Canadian Environmental Quality Guidelines” (1999), which recommend that for the protection of marine waters, human activities should not cause suspended solids levels to increase by more than 10% of the natural conditions expected at the time. The guidelines also recommend that no solid debris, including floating or drifting materials or settleable matter, be introduced into marine waters. Any material entering a water-body must be quickly removed and properly disposed of.  Refer to Table 4 – Accidents and Malfunctions for more information.			
Magnitude	Reversibility	Geographic Extent	Duration	Frequency
Small	Reversible	Immediate	Short-term	Once
<b>Residual Effects:</b> Insignificant				
<b>Monitoring / Follow-up:</b> None required.				
Comments: The implementation of effective mitigation measures can reduce potential effects to insignificant levels.				

Table 3.3 Valued Ecosystem Component - Fish / Fish Habitat				
Potential Effect: Harmful alteration, disruption or destruction of fish/fish habitat				
Potential Interaction		Mitigation		
Potential sedimentation as a result of breakwater construction may negatively affect nearby marine flora/fauna.				
Accidental discharge of machinery fuel and/or fluids may migrate into nearby waterbody, degrading the quality of potential fish habitat.				
		Standard Mitigation Practices		
		Servicing should be carried out off-site on level terrain and 30 m from any water bodies.		
		The contractor should be equipped with Emergency Response Spill Kits to respond to any accidental spills of deleterious substances in a quick and effective manner. Response equipment, such as absorbents and open-ended barrels for collection of cleanup debris, should be stored in an accessible location on-site.		
		Personnel working on the project should be knowledgeable about response procedures.		
		The proponent should consider developing a contingency plan specific to the proposed undertaking to enable a quick and effective response to a spill event.		
		All spills or leaks should be promptly contained, cleaned up, and reported to the 24-hour environmental emergencies report system (1-800-563-9089).		
		The proponent and contractor should be aware of the CCME "Canadian Environmental Quality Guidelines" (1999), which recommend that for the protection of marine waters, human activities should not cause suspended solids levels to increase by more than 10% of the natural conditions expected at the time. The guidelines also recommend that no solid debris, including floating or drifting materials or settleable matter, be introduced into marine waters. Any material entering a water-body must be quickly removed and properly disposed of.		
Magnitude	Reversibility	Geographic Extent	Duration	Frequency
Small	Reversible	Immediate	Short-term	Once
Residual Effects:		Insignificant		
Monitoring / Follow-up:		None required.		
Comments: The implementation of effective mitigation practices can reduce potential effects to insignificant levels.				

Table 3.4 Valued Ecosystem Component – Socio-economic environment						
Potential Effect: Potential loss of income						
Potential Interaction		Mitigation				
Destruction and/or disruption of fossils found within limestone conglomerate may decrease tourism potential for this location.		Quarrying of beach sediments or removal of surrounding bedrock for use in breakwater is not permitted. Breakwater material is to be obtained from a provincially approved/licensed quarry.				
		Standard Mitigation Practices				
		Contractors should minimize heavy equipment use on the bedrock, both temporally and spatially.				
		Contractor is to adhere to construction plans and ensure footprint of breakwater is constructed to specification.				
		Identifiable fossils should not be removed from the site and should be left undisturbed where possible.				
Magnitude	Reversibility	Geographic Extent	Duration	Frequency		
Small	Reversible	Immediate	Short-term	Once		
Residual Effects:		Insignificant				
Monitoring / Follow-up:		None required.				
<b>Comments:</b> PWGSC-ES, on behalf of DFO SCH, assessed the potential for the project to negatively impact the paleontological potential of this site. As a result of this assessment, the site was determined to be of no paleontological significance. The fossils found within the limestone conglomerate of the proposed project location may be found throughout much of the bedrock surrounding the Daniels Harbour area, including outside the breakwater footprint and within the ridge located immediately adjacent to the ridge on which the project is proposed to be constructed. Additionally, the fossils were determined to be identical to those already protected at the Table Point Ecological Reserve located approximately 14 km north of Daniels Harbour. It is therefore unlikely that the loss of fossils within the footprint of the proposed breakwater will significantly impact the fossil related tourism potential of the area.						

Table 3.5 Valued Ecosystem Component – Archaeology/Paleontology/Heritage					
Potential Effect: Destruction of surficial bedrock and fossils					
Potential Interaction		Mitigation			
Disturbance and/or damage to limestone outcrop due to heavy equipment use on bedrock.		Quarrying of beach sediments or removal of surrounding bedrock for use in breakwater is not permitted. Breakwater material is to be obtained from a provincially approved/licensed quarry.			
Footprint of breakwater will render portions of bedrock inaccessible.					
Any potential fossils within surficial layer of bedrock within footprint of structure will be destroyed or rendered inaccessible.		Standard Mitigation Practices			
		Contractors should minimize heavy equipment use on the bedrock, both temporally and spatially.			
		Contractor is to adhere to construction plans and ensure footprint of breakwater is constructed to specification.			
		Identifiable fossils should not be removed from the site and should be left undisturbed where possible.			
Magnitude	Reversibility	Geographic Extent	Duration	Frequency	
Small	Reversible	Immediate	Short-term	Once	
Residual Effects:		Insignificant			
Monitoring / Follow-up:		None required.			
Comments: PWGSC-ES, on behalf of DFO SCH, assessed the potential for the project to negatively impact the archeological, paleontological and stratigraphical potential of this site. As a result of this assessment, the site was determined to be of no archeological or paleontological significance. The area is considered stratigraphically unique. However, with proper construction techniques and adherence to standard mitigation practices, potential stratigraphic impacts can be reduced to insignificant levels. Additional information on this determination may be found in section C-5 of this document.					



Table 3.6 Valued Ecosystem Component – Noise/Air Quality						
Potential Effect: Increase in noise, emissions and odours.						
Potential Interaction		Mitigation				
Some minor disruptions and annoyance to facility users and residents who live in close proximity to the project site are anticipated.						
		Standard Mitigation Practices				
		Construction should be carried out during the daylight hours to avoid disturbances local users.				
		Machinery should be well muffled.				
		Local municipal construction by-laws must be adhered to.				
		The proponent and contractor are advised to discuss parking and traffic movement with the Town officials, Harbour Authority, and local facility users before implementation of the project.				
Magnitude	Reversibility	Geographic Extent		Duration	Frequency	
Small	Reversible	Immediate		Short-term	Once	
Residual Effects:		Insignificant				
Monitoring / Follow-up:		None required.				
Comments: Disruptions related to noise/air quality are expected to be minimal and insignificant.						

Table 4. Accidents and Malfunctions					
Potential Effect: Negative impacts on selected VBC's previously-listed					
Potential Interaction		Mitigation			
Accidents and/or malfunctions of heavy equipment fuel, engine oil, and hydraulic fluids may negatively impact: Soil Marine water quality Fish/fish habitat Socio-economic environment Archeology/paleontology/heritage Air quality/noise		Servicing should be carried out off-site on level terrain and 30 m from any water bodies.			
		The contractor should be equipped with Emergency Response Spill Kits to respond to any accidental spills of deleterious substances in a quick and effective manner.			
		Response equipment, such as absorbents and open-ended barrels for collection of cleanup debris, should be stored in an accessible location on-site.			
		Personnel working on the project should be knowledgeable about response procedures.			
		The proponent should consider developing a contingency plan specific to the proposed undertaking to enable a quick and effective response to a spill event.			
All spills or leaks should be promptly contained, cleaned up, and reported to the 24-hour environmental emergencies report system (1-800-563-9089).					
Magnitude	Reversibility	Geographic Extent	Duration	Frequency	
Small	Reversible	Immediate	Short-term	Once	
Residual Effects:		Insignificant			
Monitoring / Follow-up:		None required.			

Table 5. Potential Effect of the Environment on the Project						
Potential Effect: The climate (i.e. wind, ice, flood, etc.) could damage or cause loss of equipment/materials, which could have an immediate negative impact on the project.						
Potential Interaction		Mitigation				
Permanent damage and/or loss of equipment.		Weather conditions should be assessed on a daily basis to determine the potential risk on construction activities.				
Damage to, or reduction of, intended use of infrastructure.		The Contractor is encouraged to consult Environment Canada's local forecast at <a href="http://www.weatheroffice.ec.gc.ca/">http://www.weatheroffice.ec.gc.ca/</a> so that the construction work can be scheduled at an appropriate time.				
Magnitude	Reversibility	Geographic Extent	Duration	Frequency		
Small	Reversible	Immediate	Short-term	Once		
Residual Effects:		Insignificant				
Monitoring / Follow-up:		None required.				

Table 6. Cumulative Effects		
Potential Effect: Past, present and likely future project activities resulting in cumulative effects.		
Other Projects / Activities	Potential Cumulative Interaction	Mitigation
Past, present, and likely future projects and activities at this site have been considered in cumulative effects assessment.	Cumulative effects are not expected as a result of any past, present, and likely future activities.	Proper safety procedures must be followed for the duration of the project as per applicable municipal, provincial and federal regulations.  Mitigation for potential effects in Tables 3.1 - 5 in its entirety constitutes sufficient mitigation to deal with any potential cumulative effects.  Refer to Part D: Mitigation/Standard Mitigation Practices for more information.
Monitoring / Follow-up:	None required.	
Significance of Cumulative Effects: Insignificant		
Comments: The project under assessment is not projected to have a cumulative effect considering past and potential future projects. There are no other predicted effects that may result from the proposed project. With appropriate planning and implementation of effective mitigation measures, potential negative impacts can be avoided.		

## **PART C PUBLIC CONCERNS**

### **Public Opinion**

**C-1:** A breakwater is required to provide additional protection for infrastructure and vessels utilizing the DFO SCH facilities in Daniel's Harbour. At the time of writing this report, the Town of Daniels Harbour is opposed to the construction of a rubblemound breakwater. The two factors cited for opposition to the currently proposed structure include:

- 1) large storm surges on an open coast would increase the possibility of rock becoming dislodged from the breakwater and destroying surrounding infrastructure;
- 2) covering the existing rock outcrop with a rubblemound breakwater would negatively impact the tourism potential currently enjoyed in the area.

The Town of Daniels Harbour has indicated that they would support rebuilding and enhancing the current concrete structure as an alternative option to the proposed rubblemound structure.

### **Public Information**

**C-2:** A public notice of commencement of the environmental assessment of this project was posted on the Canadian Environmental Assessment Registry (CEAR) on November 24, 2010. Additionally, Fisheries and Oceans Canada, Small Craft Harbours held pre-planning meetings with the Harbour Authority of Daniels Harbour and the Town of Daniels Harbour prior to the commencement of this screening report to discuss the currently proposed project. Please refer to **Appendix B** and **Appendix C** for the *notice of commencement* posting and a record of the public participation process, respectively.

### **Local Planning**

**C3:** The project complies with the DFO mandate to provide safe harbour facilities for the small boat fishing fleet. Fisheries and Oceans Canada, Small Craft Harbours held pre-planning meetings with the Harbour Authority of Daniels Harbour and the Town of Daniels Harbour prior to the commencement of this screening report to discuss the currently proposed project.

### **Mitigation and Compensation Measures**

**C-4:** The project was referred to the Newfoundland and Labrador Department of Environment and Conservation, Environmental Assessment Division and Water Resources Division. The provincial EA division determined that registration of the project was not required under Section 47 of the *Environmental Protection Act*. The provincial Water Resources Division has determined that a permit under Section 48 of the *Water Resources Act* is not required in relation to the proposed project. All mitigation measures that are stipulated by any regulatory approvals (**Appendix D**) must be adhered to and should be sufficient to mitigate any potential negative impacts. There are no other anticipated environmental impacts that must be mitigated or compensated for.

## **Additional Concerns**

- C-5** PWGSC-ES, on behalf of DFO SCH, assessed the potential for the project to negatively impact the archeological, paleontological and stratigraphical potential of this site. As a result of this assessment, it was determined that there was no archeological potential for the site. Fossil assemblages containing brachiopods, bryozoans, echinoderms, cephalopods, conodonts, graptolites, sponges and trilobites may be found within the surrounding limestone bedrock. However, the fossils found within the limestone conglomerate of the proposed project location may be found throughout much of the bedrock surrounding the Daniels Harbour area, including outside the breakwater footprint and within the ridge located immediately adjacent to the ridge on which the project is proposed to be constructed. Additionally, the fossils are identical to those already protected at the Table Point Ecological Reserve located approximately 14 km north of Daniels Harbour. As such, it was determined that the location is not of any paleontological importance. However, any identifiable fossils should not be removed from the site and should be left undisturbed where possible. Given the prevalence of similar fossils throughout the general area, it is unlikely that the loss of fossils within the footprint of the proposed breakwater will significantly impact the fossil related tourism potential of the area. The bedrock is the type locality for the Daniels Harbour member of the American Tickle Formation. There are very few other places where this type of rock is as easily accessible, making the project area stratigraphically unique and important to geologists. The contractor should minimize heavy equipment use on the bedrock, both temporally and spatially. The contractor is to adhere to construction plans and ensure the footprint of the breakwater is constructed to specification. Quarrying of beach sediments or removal of surrounding bedrock for use in breakwater is not permitted. Breakwater material is to be obtained from a provincially approved/licensed quarry. Proper construction techniques and adherence to standard mitigation practices reduces potential stratigraphic impacts to insignificant levels.

## **Aboriginal Concerns**

- C-6:** There are no known sites of historical significance such as heritage buildings, archaeological sites, traditional hunting and fishing grounds or any important natural heritage areas at the project site. Should the project result in the discovery of any items or artefacts that might be of historical importance, work must be immediately suspended and the discovery reported to the NL Historic Resources archaeologist at 709-729-2462 for further assessment.

**PART D SUMMARY OF ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES  
- FOLLOW-UP PROGRAM**

**Residual Impacts**

**Impacts of the project and mitigation measures/standard mitigation practices**

**D-1:** The project is not predicted to have a negative environmental effect with the following mitigation/Standard Mitigation Practices measures:

**Soil (Surficial bedrock)**

**Mitigation:**

Quarrying of beach sediments or removal of surrounding bedrock for use in breakwater is not permitted. Breakwater material is to be obtained from a provincially approved/licensed quarry.

**Standard Mitigation Practices:**

Contractors should minimize heavy equipment use on the bedrock, both temporally and spatially.

Contractor is to adhere to construction plans and ensure footprint of breakwater is constructed to specification.

**Marine/Estuary Water Quality**

**Mitigation:**

Nil.

**Standard Mitigation Practices:**

Servicing should be carried out off-site on level terrain and 30 m from any water bodies.

The contractor should be equipped with Emergency Response Spill Kits to respond to any accidental spills of deleterious substances in a quick and effective manner.

Response equipment, such as absorbents and open-ended barrels for collection of cleanup debris, should be stored in an accessible location on-site.

Personnel working on the project should be knowledgeable about response procedures.

The proponent should consider developing a contingency plan specific to the proposed undertaking to enable a quick and effective response to a spill event.

All spills or leaks should be promptly contained, cleaned up, and reported to the 24-hour environmental emergencies report system (1-800-563-9089).

The proponent and contractor should be aware of the CCME "Canadian Environmental Quality Guidelines" (1999), which recommend that for the protection of marine waters, human activities should not cause suspended solids levels to increase by more than 10% of the natural conditions expected at the time. The guidelines also recommend that no solid debris, including floating or drifting materials or settleable matter, be introduced into marine waters. Any material entering a water-body must be quickly removed and properly disposed of.

## **Fish and Fish Habitat**

### **Mitigation:**

Nil.

### **Standard Mitigation Practices:**

Servicing should be carried out off-site on level terrain and 30 m from any water bodies.

The contractor should be equipped with Emergency Response Spill Kits to respond to any accidental spills of deleterious substances in a quick and effective manner. Response equipment, such as absorbents and open-ended barrels for collection of cleanup debris, should be stored in an accessible location on-site.

Personnel working on the project should be knowledgeable about response procedures.

The proponent should consider developing a contingency plan specific to the proposed undertaking to enable a quick and effective response to a spill event.

All spills or leaks should be promptly contained, cleaned up, and reported to the 24-hour environmental emergencies report system (1-800-563-9089).

The proponent and contractor should be aware of the CCME "Canadian Environmental Quality Guidelines" (1999), which recommend that for the protection of marine waters, human activities should not cause suspended solids levels to increase by more than 10% of the natural conditions expected at the time. The guidelines also recommend that no solid debris, including floating or drifting materials or settleable matter, be introduced into marine waters. Any material entering a water-body must be quickly removed and properly disposed of.

## **Socio-economic environment**

### **Mitigation:**

Quarrying of beach sediments or removal of surrounding bedrock for use in breakwater is not permitted. Breakwater material is to be obtained from a provincially approved/licensed quarry.

### **Standard Mitigation Practices:**

Contractors should minimize heavy equipment use on the bedrock, both temporally and spatially.

Contractor is to adhere to construction plans and ensure footprint of breakwater is constructed to specification.

Identifiable fossils should not be removed from the site and should be left undisturbed where possible.

## **Archeology/Paleontology/Heritage**

### **Mitigation:**

Quarrying of beach sediments or removal of surrounding bedrock for use in breakwater is not permitted. Breakwater material is to be obtained from a provincially approved/licensed quarry.



**Standard Mitigation Practices:**

Contractors should minimize heavy equipment use on the bedrock, both temporally and spatially.

Contractor is to adhere to construction plans and ensure footprint of breakwater is constructed to specification.

Identifiable fossils should not be removed from the site and should be left undisturbed where possible.

**Air Quality/Noise**

**Mitigation:**

Nil.

**Standard Mitigation Practices:**

Construction should be carried out during the daylight hours to avoid disturbances local users.

Machinery should be well muffled.

Local municipal construction by-laws must be adhered to.

The proponent and contractor are advised to discuss parking and traffic movement with the Town officials, Harbour Authority, and local facility users before implementation of the project.

**Accidents and Malfunctions**

**Mitigation:**

Nil.

**Standard Mitigation Practices:**

Servicing should be carried out off-site on level terrain and 30 m from any water bodies.

The contractor should be equipped with Emergency Response Spill Kits to respond to any accidental spills of deleterious substances in a quick and effective manner.

Response equipment, such as absorbents and open-ended barrels for collection of cleanup debris, should be stored in an accessible location on-site.

Personnel working on the project should be knowledgeable about response procedures.

The proponent should consider developing a contingency plan specific to the proposed undertaking to enable a quick and effective response to a spill event.

All spills or leaks should be promptly contained, cleaned up, and reported to the

24-hour environmental emergencies report system (1-800-563-9089).

## **Potential Effect of the Environment on the Project**

### **Mitigation:**

Nil.

### **Standard Mitigation Practices:**

Weather conditions should be assessed on a daily basis to determine the potential risk on project activities.

The Contractor is encouraged to consult Environment Canada's local forecast at <http://www.weatheroffice.ec.gc.ca/> so that the construction work can be scheduled at an appropriate time.

## **Other**

### **Mitigation:**

The project was referred to the Newfoundland and Labrador Department of Environment and Conservation, Environmental Assessment Division and Water Resources Division. The provincial EA division determined that registration of the project was not required under Section 47 of the *Environmental Protection Act*. The provincial Water Resources Division has determined that a permit under Section 48 of the *Water Resources Act* is not required in relation to the proposed project. All mitigation measures that are stipulated by any regulatory approvals (Appendix D) must be adhered to and should be sufficient to mitigate any potential negative impacts. There are no other anticipated environmental impacts that must be mitigated or compensated for.

PWGSC-ES, on behalf of DFO SCH, assessed the potential for the project to negatively impact the archeological, paleontological and stratigraphical potential of this site. As a result of this assessment, it was determined that there was no archeological potential for the site. Fossil assemblages containing brachiopods, bryozoans, echinoderms, cephalopods, conodonts, graptolites, sponges and trilobites may be found within the surrounding limestone bedrock. However, the fossils found within the limestone conglomerate of the proposed project location may be found throughout much of the bedrock surrounding the Daniels Harbour area, including outside the breakwater footprint and within the ridge located immediately adjacent to the ridge on which the project is proposed to be constructed. Additionally, the fossils are identical to those already protected at the Table Point Ecological Reserve located approximately 14 km north of Daniels Harbour. As such, it was determined that the location is not of any paleontological importance. However, any identifiable fossils should not be removed from the site and should be left undisturbed where possible. Given the prevalence of similar fossils throughout the general area, it is unlikely that the loss of fossils within the footprint of the proposed breakwater will significantly impact the fossil related tourism potential of the area. The bedrock is the type locality for the Daniels Harbour member of the American Tickle Formation. There are very few other places where this type of rock is as easily accessible, making the project area stratigraphically unique and important to geologists. The contractor should minimize heavy equipment use on the bedrock, both temporally and spatially. The contractor is to adhere to construction plans and ensure the footprint of the breakwater is constructed to specification. Quarrying of beach sediments or removal of surrounding bedrock for use in breakwater is not permitted. Breakwater material is to be obtained from a provincially approved/licensed quarry. Proper construction techniques and adherence to standard mitigation practices reduces potential stratigraphic impacts to insignificant levels.

## Residual Impacts

**D-2:** There are no projected residual environmental effects. This assessment considered the potential negative environmental effects resulting from the proposed project. The potential effects were considered in context of project, ecological and socio-economic boundaries and for ecosystem and socio-economic significance that are appropriate for this project.

Specific mitigation measures for each Valued Environmental Component (VEC) are addressed in Tables 3.1 – 3.6 in its entirety included in Part B.

## Cumulative Impacts

**D-3:** No significant cumulative effects (i.e., past, present, and likely future projects) are predicted to affect the water characteristics, fish habitat, and fishing activities in the long-term as a result of this project. There are no other predicted effects that may result from the proposed project activities.

Specific mitigation measures for each Valued Environmental Component (VEC) are addressed in Tables 3.1 – 3.6 in its entirety included in **Part B**.

## Monitoring Program

**D-4:** A site inspector will monitor this project during the project activities. DFO-SCH representatives or a PWGSC representative will also carry out a site inspection after the project has been completed.

Section 38 of the *Canadian Environmental Assessment Act (CEAA)* requires the RA to consider whether a follow-up program for the project is appropriate in the circumstances and, if so, shall design a follow-up program and ensure its implementation. A follow-up program would determine the accuracy of the conclusions of the environmental assessment and the effectiveness of the mitigation measures.

Follow-up program is not likely required for this project. However, site 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. Specific mitigation measures for each Valued Environmental Component (VEC) are addressed in Tables 3.1-3.6 in its entirety, included in **Part B**.

## **PART E     SIGNATURES, CONTACTS, AND RECOMMENDATIONS**

**E-1:            References - persons contacted and reports referred to during the screening process.**

### **Persons Contacted:**

Paul Curran	Regional Engineer, DFO SCH, Newfoundland
Don Samson	Program Officer, DFO SCH, Newfoundland
Doug Boyce	Project Geologist, NL Dept Natural Resources
Ian Knight	Project Geologist, NL Dept Natural Resources
Raul Rideout	Environmental Scientist, NL Dept Environment and Conservation
Delphina Mercer	Archaeological Resource Management Assistant, NL Dept Tourism, Culture and Recreation
Clyde Mclean	Manager Investigations, Water Resources, NL Department of Environment and Conservation
William J. Iams	Vice-Principal, Sir Wilfred Grenfell College

### **Reports References:**

- Billings, E. 1865: Palaeozoic Fossils. Volume I. Containing descriptions and figures of new or little known species of organic remains from the Silurian rocks. 1861-1865. Dawson Brothers, Montreal. Geological Survey of Canada, Separate Report, 426 pages.
- Environment Canada. 2009. Species at Risk Registry. Accessed November 30, 2010 at <http://www.sararegistry.gc.ca>.
- Fisheries and Oceans Canada. 2010. GeoPortal v6 Beta. Accessed November 30, 2010 at <http://geoportal.gc.ca/services-eng.asp>.
- Klappa, C.F., Opalinski, P.R. and James, N.P. 1980: Middle Ordovician Table Head Group of western Newfoundland: a revised stratigraphy. Canadian Journal of Earth Sciences, Volume 17, pages 1007-1019.
- Schillereff, S. and Williams, H. 1979: Geology of the Stephenville map area, Newfoundland. In Current Research, Part A. Geological Survey of Canada, Paper 79-1 A, pages 327-332.
- Schuchert, C. and Dunbar, C.O. 1934: Stratigraphy of western Newfoundland. Geological Society of America, Memoir 1, 123 pages.
- Stenzel, R.S., Knight, I., and James, Noel., P. 1990. *Carbona platform to foreland basin: revised stratigraphy of the Table Head Group (Middle Ordovician, western Newfoundland)*. Can J. Earth Sci. 27, 14-26.
- Whittington, H.B. 1965: Trilobites of the Ordovician Table Head Formation, western Newfoundland. Harvard University Museum of Comparative Zoology Bulletin, Volume 132, pages 277-442.

Whittington, H.B. and Kindle, C.H. 1963: Middle Ordovician Table Head Formation, western Newfoundland. Geological Society of America Bulletin, Volume 74, pages 745-758.

**E-2: Permits / Authorizations / Approvals**

**SUMMARY TABLE OF ENVIRONMENTAL PERMITTING**

***Daniel's Harbour, Breakwater construction – January 2011***

REQUIRED PERMITS	ISSUING DEPARTMENT	PERSON TO OBTAIN PERMIT
NL Quarry Permit	NL Department of Mines and Energy	If required, the successful contractor will be responsible for obtaining this permit.

The project was referred to the Newfoundland and Labrador Department of Environment and Conservation, Environmental Assessment Division and Water Resources Division. The provincial EA division determined that registration of the project was not required under Section 47 of the *Environmental Protection Act*. The provincial Water Resources Division has determined that a permit under Section 48 of the *Water Resources Act* is not required in relation to the proposed project.

It is the proponents' responsibility to ensure that the above-noted notification requirements are properly satisfied. Failure to properly submit the reports could result in permit revocation and the delay of future projects.

## Recommendations

This screening form:

Was completed by: \_\_\_\_\_

Print name:

Mark McNeil

Position/role:

PWGSC Environmental Officer

Comments:

Date:

Recommended rating: \_\_\_\_\_

Was reviewed by: \_\_\_\_\_

Print name:

Don Samson

Position/role:

DFO-SCH Program Officer

Comments:

Date:

Recommended rating: \_\_\_\_\_

Was reviewed by: \_\_\_\_\_

Print name:

Sharon Branton

Position/role:

DFO-Small Craft Harbours, Area Manager, Western NL

Comments:

Date:

Recommended rating: \_\_\_\_\_

### RATING DESCRIPTIONS:

- Significant adverse environmental effects unlikely, taking into account mitigation measures; project may proceed, ensure implementation of measures ..... 1
- Significant adverse environmental effects likely and not justified in the circumstances; project as presented cannot proceed ..... 2
- Uncertain adverse environmental effects, taking into account mitigation measures; refer the project to the Minister of the Environment for a referral to a mediator or review panel ..... 3
- Significant adverse environmental effects, but that can be justified in the circumstances; refer the project to the Minister of the Environment for a referral to a mediator or a panel review ..... 4
- Public concerns warrant a reference to the Minister of the Environment for a referral to a mediator or a panel review ..... 5

**PART F FINAL DECISION FOR BREAKWATER CONSTRUCTION, DANIEL'S HARBOUR, NL**

**Final Recommendation**

The SMALL CRAFT HARBOURS REGIONAL DIRECTOR, the REGIONAL ENGINEER, or the SMALL CRAFT HARBOURS REPRESENTATIVE WITH SIGNING AUTHORITY for the specific project under assessment must complete this section.

Decision rating: \_\_\_\_\_ (see previous page for rating descriptions)

**SCH REPRESENTATIVE, PLEASE CHECK (✓) ONLY ONE:**

\_\_\_\_\_ Project as presented can proceed:

- adverse environmental effects are unlikely or mitigable

\_\_\_\_\_ Project as presented must be abandoned:

- adverse environmental effects are likely and cannot be justified in the circumstances

\_\_\_\_\_ Project must be referred to the Minister of the Environment for referral to a mediator or a panel review:

- adverse environmental effects are uncertain
- adverse environmental effects are likely but justified in the circumstances
- public concerns warrant a reference to a mediator or a panel review

Approved by: \_\_\_\_\_ Date : \_\_\_\_/\_\_\_\_/\_\_\_\_.

Title: \_\_\_\_\_



**Table 7. PATH CEAR Environmental Interaction Summary**

<b>Environmental Management</b>	
Alteration of Flora, Fauna or Soil	
Dredging, Filling, Salvaging Dredge Spoil Disposal	
Hazardous Waste (excluding nuclear)	
Remediation of Contaminated Land	
Solid Waste	
Water Management	
<b>Infrastructure</b>	
Airport and Airfields	
Bridges and Culverts	
Building and Property Development	
Communications and Radar	
Dams, Weirs and Reservoirs	
Highways and Roads	
Industrial	
Other municipal infrastructure	
Ports and Harbours	<b>X</b>
Railways	
Recreation and Tourism	
<b>Natural Resources</b>	
Agriculture	
Alternative Energy	
Aquaculture	
Forestry	
Fossil Fuel Energy	
Hydroelectric Energy	
Mines and Minerals	
Nuclear Energy	
Seismic activities	

**Table 8. PATH CEAR Mitigation and Follow-up Summary**

<b>Mitigation</b>	<b>PATH-CEAR Intranet Page</b>	<b>Mitigation (select one or more)</b> Mitigation measures for this project addressed the following environmental components (select as many as may apply)
		<b>Biological</b>
		Amphibians and/or their habitat
		Birds and/or their habitat
		Fauna at risk (as defined under the Species at Risk Act)
	<b>X</b>	Fish and/or their habitat
		Flora at risk (as defined under the Species at Risk Act)
		Invertebrates and/or their habitat
		Mammals and/or their habitat
		Reptiles and/or their habitat
		<b>Human (effect of any change in the environment on ...)</b>
		Current use of land and resources for traditional purposes by aboriginal persons
		Human health and safety
		Physical and/or Cultural Heritage
	<b>X</b>	Socio-economic Impacts
	<b>X</b>	Structure, Site or Thing of Historic, Archaeological, Paleontological or Architectural Significance
		<b>Physical</b>
	<b>X</b>	Air Quality
		Climate change
	<b>X</b>	Noise Levels
	<b>X</b>	Sedimentation
	<b>X</b>	Soil Quality
		Surface and Bedrock Features
		Vegetation
	<b>X</b>	Water Quality
		Water Quantity
<b>Follow up Program</b>	<b>PATH CEAR Intranet Page</b>	Yes: _____ No: <b>X</b>