

## **West Coast Soft Shell Clam Farms**

Stephenville Crossing Estuary (Reg. 1829)  
Seal Cove (Reg. 1830)  
Piccadilly Bay (Reg. 1831)

### **ENVIRONMENTAL IMPACT STATEMENT (EIS) GUIDELINES FOR 1829-30-31**

#### **Executive Summary**

The Executive Summary will contain the following information: identification of the Proponent; a project description; identification of valued ecosystem components (VECs); an outline of the component studies completed; predicted environmental effects (both biophysical and socio-economic); mitigative measures; cumulative environmental effects; residual environmental effects; proposed monitoring programs; and response plans and a summary of the fundamental conclusions of the Environmental Impact Statement (EIS).

It will also provide a list of all commitments to be made in the EIS regarding environmental mitigation, monitoring and follow-up. A list will be provided with a reference to the section of the EIS where the commitment(s) are made.

The summary will be written in terms understandable to the general public and in such a manner as to allow reviewers to focus on items of concern.

#### **Chapter 1 - Introduction**

##### *1.1 Name of Undertaking*

The undertaking has been assigned the name "West Coast Soft Shell Clam Farms." The Proponent should identify the name which it proposes to use for the undertaking.

##### *1.2 Identification of Proponent*

Name the corporate body and state the mailing address.

Name the chief executive officer and state the official title, telephone number, fax number and e-mail address.

Name the principal contact person for purposes of environmental assessment and state the official title, telephone number, fax number and e-mail address.

##### *1.3 Purpose of the Environmental Impact Statement*

The purpose of the EIS shall be described.

Each of the three projects requires an EIS. However, each project may have an impact on migratory birds and their habitat specific to each proposed site but also on the regional scale. For this common concern, the three EISs will be combined into one EIS to review site-specific concerns and to conduct a cumulative

effects assessment (CEA) focused on migratory birds and their habitat in the region. The result will be an EIS with an introductory chapter, three chapters (one for each proposed site), a chapter on CEA, a chapter on residual effects, and a concluding chapter as follows:

- Chapter 1 – Introduction
- Chapter 2 – Stephenville Crossing Estuary Soft Shell Clam Farm
- Chapter 3 – Seal Cove Soft Shell Clam Farm
- Chapter 4 – Piccadilly Soft Shell Clam Farm
- Chapter 5 – Component Study – Migratory Birds and Migratory Bird Habitat
- Chapter 6 – Cumulative Effects Assessment
- Chapter 7 – Residual Effects
- Chapter 8 - Conclusions

### **Chapters 2, 3 and 4**

For Chapters 2, 3 and 4, follow the guidance outlined in Sections 1 – 5 for each chapter. For example, Chapter two is to begin with Section 2.1 entitled *The Proposed Undertaking* with *Subsection 2.1.1 being The Prospective Site and Study Area* and so on to Section 2.5.

#### *1. The Proposed Undertaking*

##### *1.1 The Prospective Site and Study Area*

In each of the three chapters, a precise description of the boundary of each proposed site is to be presented, accompanied by maps and site plans of an appropriate scale showing the entire project with any principle structures and appurtenant works. If there are no principle structures and appurtenant works then state that there are none. The clam relay site should also be identified here as clams from all three farm sites will be transported to and from this site. Maps should be at a scale of 1:30,000 or larger (e.g. 1:20,000) or as appropriate to show features.

The information on the boundary and extent of the project area is also required to be presented in a digital format suitable for incorporation in a Geographic Information System (GIS). As a minimum, the information is to consist of sufficient number of geographic coordinates of point locations, line locations and/or spatial extent, as appropriate, of the features at the selected map scale and projection to either re-create the hard-copy versions provided as part of the EIS or to accurately display the features digitally. The information must be organized and labeled such that each unique feature is distinguishable from all others. Appropriate descriptive parameters of each data set such as projection, UTM Zone, datum and data collection method (e.g., GPS, aerial survey, etc.) must also be included.

##### *1.2 Rationale/Need/Purpose of the Project*

The rationale for the project will describe its perceived benefits, both local and provincial. If the undertaking is in response to an established need, this should be clearly stated.

##### *1.3 Alternative Means of Carrying Out the Project*

The EIS shall contain an analysis of technically and economically feasible alternative means of addressing the need for the project, including alternative farm locations. The environmental effects of such alternative means must be provided with supporting argument.

A summary is required of the possible alternatives to individual project components which were or could have been considered. If only one alternative is viable or possible, a statement will be made to this effect with supporting argument.

#### *1.3.1 Effects Evaluation and Selection of Preferred Alternative*

This section (as compared to Section 1.3) is intended to provide a detailed discussion and comparison of the residual effects relative to the preferred option and viable alternatives (as applicable).

All selection criteria, including biophysical, socio-economic and technical, shall be presented and discussed in sufficient detail to allow a comparative analysis with regard to costs, benefits and environmental risks associated with both the preferred and alternative options.

#### *1.4 Relationship to Legislation, Permitting, Regulatory Agencies and Policies*

The EIS shall identify and discuss the project within the context of all existing relevant legislation and policies (municipal, provincial and federal). The proponent will provide a comprehensive list of permits and regulatory approvals required for the undertaking. The list will include the following details:

- Activity requiring regulatory approval, permit, licence, authorization or other instrument under provincial or federal legislation;
- Name of permit and/or regulatory approval, permit, licence, authorization or other instrument under provincial or federal legislation (e.g. authorization);
- Legislation requiring compliance; and
- Regulatory agency.

#### *1.5 General Project Description*

The EIS shall describe the scope of each project for which an assessment is being conducted.

The EIS shall provide a written and graphic description (e.g. maps and drawings) of the physical features (e.g. spat mats) of the undertaking particularly as it is planned to progress through the construction (or installation) and operation phases of its lifespan. If these details are not yet known (e.g. farm layout and harvest schedule) then a model shall be presented to serve as an example. The description should also address other phases of the project as can reasonably be foreseen, including modification, decommissioning and abandonment. Any assumptions which underlie the details of the project design shall be described, including effects avoidance opportunities inclusive of pollution prevention, and adherence to best management practices. Where specific codes of practice, guidelines and policies apply to items to be addressed, those documents shall be cited and included as appendices to the EIS. Physical features include, but are not limited to:

- Descriptions of the land-water interface including topography, barrier geomorphology and sedimentology, intertidal and subtidal characteristics, and nearshore bathymetry;
- Local nearshore water currents;
- Current and projected sea level changes;
- Major streams or brooks inputs in or near each site;
- Pollution sources into receiving fresh or marine water resources (potential sewerage from Harry's River, sewage outfall for Stephenville Crossing, oil seeps, and any other known potential sources);

- Exposure and aquaculture gear dislodgment such as spat mats (large waves, storm surge, high stream discharge)

### *1.6 Construction or Installation*

The details, materials, methods, schedule, and location of all planned construction (or installation) activities related to the physical features (e.g. spat mats) will be presented including estimates of magnitude or scale where applicable. This is to include, but not be limited to, the following:

- General installation practices incorporating erosion and sedimentation control;
- Proposed installation schedule, including proposed time frames for initial site access, and site preparation;
- Detailed installation information on measures to prevent clam predation (e.g. netting, selective cull, etc.);
- Transport, storage and use of hazardous materials, fuels, and lubricants;
- Solid waste disposal as well as identified opportunities for waste recycling;
- Water body alteration or any instream activities;
- Power sources (e.g. handheld powered digging tools, mechanical harvester);
- Estimate all significant emissions during operation;
- Site rehabilitation and stabilization measures.

The proponent is encouraged to add to this list as necessary or to make statements of how one or more do not apply to the project with supporting arguments.

The employee positions with the specific numbers by National Occupational Classification (NOC-2006) and period of employment will be provided.

### *1.7 Operation and Maintenance*

All aspects of the operation and maintenance of the proposed development will be presented in detail, including information on operation and maintenance positions by National Occupational Classification (NOC-2006), including period of employment.

Provide an overview of the normal operation procedures for the proposed clam farm, including the source of clam spat, site security measures, biosecurity measures, inventory monitoring, predator control methods, alternating use of farm plots, fallow periods, transfer of clams to the relay site and transfer of clams from the relay site to the proposed existing land-based facility. This should include a discussion of:

- Planned and potential harvesting methods such as the potential use of a mechanical harvester including operating water depth and operating substrate depth;
- Proposed harvesting schedule including how many visits in a week, duration of each visit, portion of site harvested (where and when), and a clear annual calendar of activities;
- Operation and maintenance of predator control (e.g. anti-predator netting) or other methods; and
- Describe all sources of waste including mortalities and discuss how and where waste will be disposed.

Discuss all aspects of the project regarding the transport of clams from each farm to the relay site and from the relay site to the land-based holding facility. This includes the water supply, volumes, source water treatment and disposal of water used to transport clams.

Describe beach access to sites including the frequency of use and types of use.

## *2. Valued Ecosystem Components (VEC, Component Study and future environment*

### *2.1 Valued Ecosystem Components (VEC)*

The identified VECs for each farm site are:

#### Stephenville Crossing Estuary

- Migratory Birds and Migratory Bird Habitat
- Eel Grass
- Atlantic Salmon
- Banded Killifish

#### Seal Cove

- Migratory Birds and Migratory Bird Habitat
- Eel Grass
- Herring spawning and feeding areas
- Lobster fishery

#### Piccadilly

- Migratory Birds and Migratory Bird Habitat
- Eel Grass

Migratory birds and migratory bird habitat is identified as the main VEC at all three sites. Existing and collected baseline information on migratory birds and habitat shall be presented in Chapters 2, 3 and 4 for each site. This information will provide the basis for the Component Study on Migratory Birds and Migratory Bird Habitat (Chapter 5) and be valuable for the Cumulative Effects Assessment (Chapter 6).

The other identified VECs should be described and discussed by site relative to regulatory advice and mitigation measures to limit or prevent adverse effects or state any residual effects. Such advice would have been provided during previous consultations or can be provided through the Environmental Assessment Committee.

### *2.2 Data Gaps*

Information gaps from a lack of previous research or practice shall be described.

### *2.3 Future Environment*

The predicted future condition of the environment described for each project within the expected life span of the undertaking, if the undertaking were not approved, will be described. This information is required when attempting to distinguish project-related cumulative environmental effects from environmental change due to natural processes.

### *3. Environmental Effects*

The EIS shall contain a comprehensive analysis of the predicted environmental effects of each project alternative for the selected VECs. If the impacts are attributable to a particular phase of the project (operation, maintenance or decommissioning) then they shall be designated as such.

The EIS shall also assess the effects of the environment on the clam farms (e.g. high fluvial discharge events, large waves, storm surge). In particular the EIS must identify the vulnerability of the clam farms to climatic and meteorological elements (including ice and wave conditions, wind, weather, storm events and climate change) and describe the provisions for minimizing any identified risk.

Available data, survey results and detailed mitigation measures that demonstrate a special emphasis on avoidance of adverse environmental effects shall be provided.

Predicted environmental effects (positive and negative, direct and indirect, short and long-term) will be defined quantitatively and qualitatively for each project alternative and for each VEC. Environmental effects predictions shall be explicitly stated and the theory or rationale upon which they are based shall be presented in terms of the following parameters as appropriate:

- Nature;
- Magnitude (qualitative and quantitative);
- Geographic (spatial) extent;
- Timing, duration and frequency
- Degree to which effects are reversible or mitigable;
- Ecological context;
- Cultural heritage and social context;
- Level and degree of uncertainty of knowledge;
- The capacity of renewable resources that are likely to be significantly affected by the Project, to meet the needs of present and future generations;
- The extent to which biological diversity is potentially affected by the project; and
- Environmental protection goals and objectives as set out in applicable legislation, regulations, policies, plans and programs.

The Proponent will identify and describe the potential accidents and malfunctions related to the project, including an explanation of how those events were identified, potential consequences (including potential environmental effects), the worst case scenarios and the effects of these scenarios. The Proponent will explain the potential quantity, mechanism, rate, form and characteristics of the contaminants and other materials likely to be released into the environment during potential malfunctions and accident events.

Potential accidents and malfunctions may include, but not be limited to, those associated with the following occurrences:

- Migratory bird nest destruction from site access activities on the beaches (access to the farms from land)
- Clam loss during transfer to and from the relay site;
- Predator control activities;
- Harvesting activities causing turbidity which may impact fish or benthic organisms;
- Waste management, treatment and disposal (plan to deal with potential culls);
- Use, handling or spills of chemicals and hazardous materials on site.

The Proponent shall assess the likelihood of occurrence of the accidents and malfunctions and shall pay special attention to the VEC's that may be affected in the event of an accident or a major malfunction.

A discussion of environmental effects on estuarine and marine water quality is required as part of the assessment for all water bodies within the project footprint or influence zone of the project. A discussion of the potential effects on nutrient levels in receiving waters shall be included.

A discussion of the potential effects on migratory birds and migratory bird habitat (including waterfowl) including but not limited to: habitat loss or degradation due to installation (e.g. spat mats) and operation of the project; disruption of feeding, food quality and quantity, breeding and brood rearing, and movement and migration shall be included.

Environmental effects on the health and biodiversity of aquatic species and their habitat in the freshwater and marine environment; including but not limited to fish and fish habitat, invertebrates, and marine mammals; and any existing or potential commercial, recreational or aboriginal fisheries that occur in the area of the proposed clam farms must be evaluated. As part of the evaluation, the potential effects on any beach habitat must be examined.

#### *4. Environmental Protection*

##### *4.1 Mitigation*

Mitigative measures that are technically and economically feasible, that have or will be taken, to avoid, minimize or eliminate the negative, and enhance the positive environmental effects, shall be described and discussed with emphasis on best management practices to avoid adverse environmental effects. Mitigation includes the elimination, reduction or control of the adverse effects or the significant environmental effects of the project and may include restitution for any damage to the environment caused by such effects through replacement, restoration, compensation or any other means.

Mitigation shall be evaluated based on the use of best available and economically achievable technologies (BAEAT) and best management practices (BMPs) to minimize adverse environmental effects.

Mitigative measures specific to the following must be addressed:

- Flora species: discuss measures to be taken to minimize effects for both terrestrial and aquatic flora species; including barrier and benthic vegetation.
- Fauna species: describe measures to be taken to minimize effects on terrestrial and aquatic fauna (including avifauna). Include any plans for preservation of existing habitat and compensation for loss or degradation of aquatic and terrestrial habitat (i.e., habitat rehabilitation or replacement);
- Wetlands (Eelgrass beds considering the Policy for Development in Wetlands under *Water Resources Act* and the *Federal Policy on Wetland Conservation*);
- Aquatic species and habitat: describe measures to be taken to minimize effects on ecosystem health and biodiversity, aquatic species and habitat in the estuarine and the marine environment. This includes but is not limited to: fish and fish habitat, marine mammals, invertebrates.

Proposed mitigative strategies integral to the phases of the project (construction (installation), operation, maintenance and decommissioning) shall be clearly identified and addressed. The effectiveness of the proposed mitigative measures shall be discussed and evaluated. Where possible and appropriate, the compensation for losses that cannot be mitigated by any other means shall be examined. Mitigation failure will be discussed with respect to risk and severity of consequence.

There must be full consideration for the precautionary principle which states, “where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation”. The best available technology and best management practices must be considered.

#### *4.2 Environmental Protection Plan and Emergency Response/Contingency Plan*

An Environmental Protection Plan (EPP) is a field-ready document describing applicable environmental protection measures associated with activities at a project location. It is intended to be a reference document for project personnel for the planning and execution of project-specific activities, as well as a guidance document for contingency planning. The specific purposes of the EPP are to:

- Document environmental concerns and appropriate protection measures;
- Provide concise and clear instructions to project personnel regarding procedures for protecting the environment;
- Provide a reference document for personnel when planning and/or conducting specific activities and working in specific areas;
- Communicate changes in the program through the revision process; and
- Provide a reference to applicable legislative requirements and guidelines.

The proponent must develop and submit an EPP for each proposed site prior to any site preparation or operations. As a part of the EPP, an emergency response plan shall be outlined that details measures to be taken to effectively respond to any foreseeable mishap that may occur as a result of the undertaking.

#### *4.3 Environmental Effects Monitoring Plan (EEMP) and Follow-up Programs*

Environmental compliance, effectiveness and effects monitoring programs for site preparation, operation and decommissioning phases of the project shall be described. Compliance monitoring is conducted to ensure compliance with appropriate legislation and/or ensure commitments made in the EIS are fulfilled. Monitoring and follow-up programs must allow for testing of the accuracy of effects prediction and effectiveness of mitigation measures. Programs must support an adaptive management approach and demonstrate preparedness for a range of potential outcomes to be confirmed through follow-up.

- Migratory Bird Monitoring

Important components of monitoring programs include:

- Elements of the environment including bodies of water as defined under NL *Water Resource Act* that are to be monitored;
- Where monitoring will occur;
- Frequency and duration of monitoring;
- Identification of resource agencies that will review program design and results;
- Detailed statement of objectives;
- Submission of results, and
- Protocols for the interpretation of results and subsequent actions to be taken based on findings.

The EEMP will be required prior to the start of operations.

#### 4.4 Decommissioning and Rehabilitation

The predicted lifespan of the clam farms will be indicated. Details regarding decommissioning and abandonment shall be presented.

A plan of proposed rehabilitation measures for the activities associated with the project shall be given with an explanation of how the measures will reduce or eliminate various negative effects during operation and decommissioning.

### Chapter 5 – Component Study

A component study is required for Migratory Birds and Migratory Bird Habitat.

The study will include:

Migratory birds and migratory bird habitat (including waterfowl) at each site considering:

- Species that are listed under the NL *Endangered Species Act* (ESA) and the *Species at Risk Act* (SARA) and any species recommended for legal listing by COSEWIC and ranked by the Atlantic Canada Conservation Data Centre (ACCDC) as S1, S2, or S3,
- Species descriptions and information, including baseline information (existing and required new baseline data collection) on species at risk and species of conservation concern in the project areas,
- Species descriptions and information, including baseline information (existing and required new baseline data collection) on shorebirds and waterfowl at each site (in each Chapter above),
- Description of the Sensitive Wildlife Area (SWA) and Municipal Wetland Stewardship Zone/Management Unit (Stephenville Crossing),
- Identification and description of suitable habitat within the project areas and regionally,
- Descriptions of the three barriers systems (beaches) including
  - Geomorphology and sedimentology;
  - Flora and fauna;
  - Extent of intertidal areas including sediment type, water level at normal high water, low water and mean sea level; and
  - Subtidal to a depth of 2 m below normal low tide.

The component study must be completed including all three sites with, where applicable, the information listed above.

Component Studies generally have the following format: (i) Rationale/Objectives, (ii) Study Area, (iii) Methodology, and (iv) Study Outputs.

#### (i) Rationale/Objectives

In general terms, the rationale for a component study is based on the need to obtain additional data to determine the potential for significant effects on a valued ecosystem component due to the proposed undertaking, and to provide the necessary baseline information for monitoring programs.

#### (ii) Study Area

The boundaries of the study area will vary depending on the valued ecosystem component being investigated.

(iii) Methodology

Methodology will be proposed by the proponent, in consultation with resource agencies, as appropriate. The methodologies for each component study will be summarized in the EIS.

(iv) Study Outputs

Study outputs will be proposed by the proponent. Information and data generated will be sufficient to adequately predict the effects on the valued ecosystem component.

The study outputs will be used to discuss the current state of migratory birds and their habitat at the three sites and to inform the Cumulative Effects Assessment (Chapter 6)

**Chapter 6 - Cumulative Effects**

The cumulative effects of harvesting at all three sites must be discussed in-depth relating to the availability and use of similar regionally rare habitats in the area by shorebirds, including the *Endangered* Piping Plover and Red Knot.

**Chapter 7 – Predicted Residual Effects**

All remaining effects after mitigation has been applied shall be presented. The residual effects shall be defined in terms of nature, spatial extent, frequency, duration, magnitude (qualitative and quantitative), and significance and level of certainty. Those effects that cannot be mitigated or avoided shall be clearly distinguished from those effects that can be mitigated or avoided.

**Chapter 8 - Conclusion**

Provide a summary of all major points including:

- A list of all commitments,
- Results from the component study,
- Results from the Cumulative Effects Assessment, and
- A list of all submitted plans.