

Guide for Experimental Marine Aquaculture Development Plans

INTRODUCTION

Purpose of this guide

The Nova Scotia Department of Fisheries and Aquaculture (the Department) has prepared this guide as a reference for proponents preparing a Development Plan for an experimental licence and/or lease application for marine finfish and/or marine shellfish and/or marine plant aquaculture.

The Development Plan fulfills part of the requirements for an application for a new experimental licence and/or lease. A completed application must consist of a Development Plan, which includes an Experiment Proposal, and an Application Form. Guidance for all of these requirements is available at the Department's website www.novascotia.ca/fish/aquaculture/

Before preparing a Development Plan for an experimental licence and/or lease, proponents should first complete a meeting with Department staff to discuss the intended experiment and to review Development Plan and Experiment Proposal requirements including the extent of scoping required (if applicable). If scoping is required, a Report on Public Engagement during Scoping must accompany the Application Form and Development Plan which includes an Experiment Proposal.

This guide is not a substitute for the Fisheries and Coastal Resources Act or regulations. Proponents should obtain copies of the Act and regulations for their reference (Appendix A). Where the process and time frames given in this document differ from the regulations, the regulations shall prevail.

Updated versions of this guide will be available on the Aquaculture Division website www.novascotia.ca/fish/aquaculture/

Background

The experimental licence and/or lease was included in the regulatory changes for aquaculture enacted on October 26, 2015 in Nova Scotia, including within Sections 46 through 53 of the Aquaculture Licence and Lease Regulations for Nova Scotia made under Section 64, Chapter 25 of the Acts of 1996, *the Fisheries and Coastal Resources Act*.

Aquaculture conducted under a special experimental licence must be in support of research and not be on a scale that exceeds the research purposes for which the experimental licence or experimental lease was granted.

This Development Plan is for an experimental licence and/or lease for marine sites. This may apply to a person who wishes to conduct aquaculture in the marine environment to do any of the following:

- test or develop new technology or methods;
- carry out basic research; or
- test the technical feasibility of the site.

An experimental licence or lease cannot be assigned. Proponents seeking a renewal, or amendment to an experimental licence and/or lease should contact the Department to determine Development Plan requirements for their request.

The completed Development Plan must provide information that will address the eight factors to be considered in decisions related to marine aquaculture sites according to the licencing or leasing process of the Province of Nova Scotia. These are:

- (a) the optimum use of marine resources;
- (b) the contribution of the proposed operation to community and Provincial economic development;
- (c) fishery activities in the public waters surrounding the proposed aquacultural operation;
- (d) the oceanographic and biophysical characteristics of the public waters surrounding the proposed aquacultural operation;
- (e) the other users of the public waters surrounding the proposed aquacultural operation;
- (f) the public right of navigation;
- (g) the sustainability of wild salmon;
- (h) the number and productivity of other aquaculture sites in the public waters surrounding the proposed aquacultural operation.

The Development Plan will also provide information for government network partners in order for them to fulfill their jurisdictional duties in advising the Department on the application.

For finfish applications, Aquaculture Activities Regulation (AAR) requirements, mandated by DFO (Fisheries and Oceans, Canada), must be submitted to DFO directly for site application assessment. Information on the baseline data required to meet the AAR requirements can be found at: <http://www.dfo-mpo.gc.ca/aquaculture/management-gestion/aar-raa-gd-eng.htm#section8> .

Information collection for the Development Plan

Information for completing the Development Plan will be acquired through whatever biological, ecological and social data collection and analysis the proponent deems necessary to acquire the requested information.

Submission format

In order to facilitate government review of submitted applications and to establish a standardized format for all applications, applicants must follow the submission format guidelines, as follows:

- All requested information, the minimum of which is the information as required in this document, is to be submitted to the Department in a durable format, such as a three-ring binder or spiral binding. An electronic copy must also be submitted.
- Each section of the Report must start on a new page and be labeled matching the sequence established in this guide.
- Each section of the Report must contain all information required for that section (including supporting information such as maps, diagrams, etc.).

Public notice and disclosure

As part of the process for deciding on an aquaculture application, the Nova Scotia Department of Fisheries and Aquaculture (“Fisheries and Aquaculture”) will disclose application information to other government bodies, including, if applicable, the Nova Scotia Aquaculture Review Board for use at an adjudicative hearing relating to the application.

In accordance with departmental policy, which seeks to promote public involvement in the process for deciding on aquaculture applications, Fisheries and Aquaculture may disclose application information – not including, however, personal or business confidential information – on the departmental website.

Privacy statement

The personal and business confidential information collected as part of an aquaculture application will only be used or disclosed by Fisheries and Aquaculture for the purpose of deciding on the application.

All application information collected is subject to the Freedom of Information and Protection of Privacy Act (“FOIPOP”) and will only be used or disclosed in accordance with FOIPOP.

For more information

If you would like further information, please contact the Nova Scotia Department of Fisheries and Aquaculture, Aquaculture Division.

Phone: 902-875-7439

Fax: 902-875-7429

Email: aquaculture@novascotia.ca

Mail: 1575 Lake Road,
Shelburne, NS
B0T 1W0

REQUIRED DEVELOPMENT PLAN CONTENT

Minimum content requirements for a Development Plan for an experimental licence and/or lease application for a marine site are as follows. (See below.)

SECTION 1: THE OPTIMUM USE OF MARINE RESOURCES

Provide a summary of the project and its proposed location. In addition, describe how outcomes of the experimental development will promote the optimum use of marine resources.

SECTION 2: THE CONTRIBUTION OF THE PROPOSED OPERATION TO COMMUNITY AND PROVINCIAL ECONOMIC DEVELOPMENT

2.1 Experimental stocking plan

Describe your experimental plan in terms of site stocking, if applicable. Include an explanation as to how the stocking numbers and scale of the development were determined based on the planned experiment.

For requests that involve finfish, and for each species to be reared, describe the following:

- Species and strain (if applicable);
- Maximum site biomass (kg);
- Maximum cage density (kg/m³);
- Size(s) of cages, including net volumes (m³);
- Maximum cage number, maximum total net volume (m³);
- Maximum number of fish per cage;
- Intended initial stocking date and seed source;
- Expected stocking period; and
- Expected fallow period (if applicable).

For requests that involve shellfish or marine plants, and for each species to be reared describe the following:

- If using suspended method (include spat or seed collection, if applicable):
 - Species;
 - Gear unit type (socks, lanterns, trays, etc.), including dimensions of individual gear units, and if using socks, whether they will be single or continuous;
 - Maximum number of gear units;
 - Maximum number and lengths of lines;
 - For shellfish: maximum shellfish introduced (number or mass) and maximum shellfish on site (number or mass);
 - For plants: maximum biomass on site (mass); and
 - Seed source

- If bottom culture with gear:
 - Species;
 - Gear unit type (bags, trays or cages), including dimensions of individual gear units ;
 - Maximum number of gear units;
 - Type and dimensions of frames used (including length, width ,depth and height off sea bed) (if applicable);
 - Maximum number of frames (if applicable);
 - Maximum shellfish introduced (number or mass) and maximum shellfish on site (number or mass); and
 - Seed source.

- If bottom culture without gear:
 - Species;
 - Maximum shellfish to be cultivated on site (number or mass); and
 - Seed source.

If depuration of shellfish is intended, you must obtain approval for your protocol from the Canadian Food Inspection Agency according to the Shellfish Sanitation Program (<http://www.inspection.gc.ca/food/fish-and-seafood/manuals/canadian-shellfish-sanitation-program/eng/1351609988326/1351610579883?chap=12>). Describe the status of this approval, if applicable.

2.2 Potential economic impact

Describe the impact potential of the outcomes of the experimental development in terms of economic development.

This should include what impacts could be expected, including:

- Benefits to current industry practices, economies, efficiencies, or scale;
- Potential for the development of new industry practices, new species, or expansion of suitable locations for aquaculture development;
- Other benefits that will promote economic growth.

This should also include the economic potential of these impacts in terms of

- Infrastructure;
- Services and suppliers;
- Employment; and
- Other economic contributions to the local community and the Province.

2.3 Adverse economic impacts

If applicable, describe possible adverse impacts of the outcomes of the experimental development on the economic development of the community and the Province and how these will be mitigated.

SECTION 3: FISHERIES ACTIVITIES IN THE PUBLIC WATERS SURROUNDING THE PROPOSED AQUACULTURAL OPERATION

3.1 Status of fisheries activities

Provide a description of the fishing activities (commercial, recreational, food, social and ceremonial) identified in the region of the proposed experimental development. Include a list of species fished, identify their relevant commercial or recreational fishing areas or zones (if applicable) and indicate the relative fishing effort identified per species (summarized by number of fishers, harvesters or boats, where appropriate and available). Include the source(s) of the information. (See Appendix C for possible resources for this information.)

For shellfish requests that include bottom culture with gear and/or bottom culture without gear, provide an assessment of the existing wild population of shellfish that is the same species as that to be cultured.

3.2 Impacts on fisheries activities

Describe what impacts the development may have on the fishery activities in the public waters surrounding the proposed aquacultural operation. This should include the fisheries activities described in Section 3.1 and for finfish, a description of what impacts the development may have on the habitat directly below the cages and what flora and fauna may be displaced. Provide a description of what measures will be taken in both the establishment and the operation of the proposed development that: reduce impacts, mitigate risks, and complement or benefit the fisheries activities listed above. All fisheries concerns raised during the scoping process (if applicable) should be addressed here.

SECTION 4: OCEANOGRAPHIC AND BIOPHYSICAL CHARACTERISTICS OF THE PUBLIC WATERS

4.1 Oceanographic environment

Describe the biophysical characteristics of the site environment by providing the information listed below, at a minimum. Provide the sources of the information.

- Annual maximum wind speed (km/hr);
- Maximum wave height (m);
- Direction of maximum wave;
- Annual minimum tide (m);
- Annual maximum tide (m);
- Current speed range and averages (cm/sec) (if available);
- Annual minimum salinity (ppt);
- Annual maximum salinity (ppt);
- Annual minimum temperature (°C);
- Annual maximum temperature (°C); and
- Depth of water at each corner of the site (m)

For shellfish sites, the following should also (in addition to the above) be provided at the time of application:

- Current location classification;
- Primary production information (if available); and
- Biotxin information (if available).

If some of the above information is not available at the time of application, it should be collected during the tenure of the experimental lease and/or licence. Describe how this will be done.

4.2 Baseline environmental monitoring

Include the information and results required for baseline monitoring as described within the latest version of Standard Operating Procedures for the Environmental Monitoring of Marine Aquaculture in Nova Scotia. Contact the Department for the latest version.

4.3 Site design

Describe how the oceanographic and biophysical characteristics of the waters of the location have been accounted for in the choice of the site location, the site design, and the experimental plan. Refer to maps, diagrams or other pertinent information described in others sections as required.

SECTION 5: THE OTHER USERS OF THE PUBLIC WATERS SURROUNDING THE PROPOSED AQUACULTURAL OPERATION

5.1 Description of other users

Provide a description of the other users identified in the region of the proposed development. This should include those in the area who may be affected by the proposed experimental development. Include a list of uses and the relative level of use per user group. You may use a map to indicate the location of these users relative to the proposed site.

Other users may include:

- Adjacent property owners;
- Pleasure craft and commercial boat traffic;
- Anchorages and moorings;
- Processing plants (within 10 km);
- Campgrounds;
- Communities (including cottage communities);
- Municipal, industrial and agricultural users which may be sources of effluent;
- Tourism or recreational operations;
- Private and government wharves;
- First Nations territories/reserves;
- Any known or suspected pre-contact or historic archaeological resources;
- Important habitats and conservation areas (refer to Appendix C for reference);

- Other known potential projects (confirmed or proposed) and activities;
- Other users who are relevant to the proposed development area, if applicable.

5.2 Significance of proposed area to wildlife

Provide a description of wildlife that use the proposed experimental development area. Include migratory birds, marine mammals and other animals that inhabit or migrate through the area. (See Appendix C for possible resources for this information.)

Identify local species at risk, if applicable (http://www.registrelp-sararegistry.gc.ca/sar/index/default_e.cfm). Permits are required for activities that may affect these species. (http://www.registrelp-sararegistry.gc.ca/sar/permit/permits_e.cfm#). Describe the status of this permit(s) (if applicable).

5.3 Impacts to other users including wildlife

Describe what aspects of this experimental development may affect other users of the public waters surrounding the proposed development; how they may affect other users; and how you will minimize these effects during both the establishment and the operation of the proposed experimental development.

Concerns raised during the scoping process (if applicable and if not previously described) should be addressed here.

Where applicable, describe how the experimental development may complement the other users.

Describe the impact potential of the outcomes of the experimental development in terms of environmental and/or social sustainability.

5.4 Impacts by other users including wildlife

If applicable, describe how other users may impact the proposed experimental development. Include how you will minimize interactions with and mitigate possible negative impacts by other users.

SECTION 6: THE PUBLIC RIGHT OF NAVIGATION

6.1 Navigation Protection Act (NPA) approval

The assurance of the public right of navigation is determined by Transport Canada through the Navigation Protection Act (NPA) (<http://www.tc.gc.ca/eng/programs-673.html>). Changes or additions of, or to, any structure, device or thing—temporary or permanent—made by humans that is in, on, over, under, through or across any navigable water may require an approval under this Act. To determine whether an NPA approval is required, include the following within this section:

- The current NPA approval (if applicable);

- A completed and signed “notice of works” form with all mandatory fields completed (https://www.tc.gc.ca/media/documents/marinesafety/Form-NOTICE_OF_WORKS_FORM.pdf);
- Location map (indicating the exact location of the work);
- Legal site description and work position (in latitude and longitude);
- Plan view drawings (top down) complete with all relevant dimensions;
- Profile view drawings (side view) complete with all relevant dimensions;
- Project description (detailing the project);
- Construction methodology (outlining how the work will be undertaken); and
- Anticipated start and end dates

The Department will submit this information directly to Transport Canada to allow assessment of the work and application for NPA approval, if required.

SECTION 7: THE SUSTAINABILITY OF WILD SALMON

7.1 Identification of local salmon populations

Identify any salmon run rivers in the region and their proximity to the site. These should include designated salmon rivers within the DFO Designatable Unit. Salmon rivers and Designatable Units are to be defined based on the latest DFO Canadian Science Advisory Secretariat Science Response for the Maritimes Region: Status of Atlantic salmon in salmon fishing areas (SFAs) 19-21 and 23; and the latest DFO Canadian Science Advisory Secretariat Science Response for the Gulf Region: Update of stock status of Atlantic salmon (*Salmo salar*) in DFO Gulf Region (Salmon Fishing Areas 15 to 18) (<http://science-libraries.canada.ca/eng/fisheries-oceans/>).

7.2 Support of the sustainability of wild salmon

Describe the measures, relating to the establishment and operation of the proposed experimental development that may have effects on the sustainability of wild salmon.

Describe any salmon recovery or restoration efforts that are underway or planned in the region.

SECTION 8: THE NUMBER AND PRODUCTIVITY OF OTHER AQUACULTURE SITES IN THE PUBLIC WATERS SURROUNDING THE PROPOSED AQUACULTURAL LOCATION

8.1 Identification of other aquaculture sites

Identify all other existing or known proposed aquaculture sites in the area. Include the species cultured and the culture method used. Include the distance of the proposed experimental development from each of the identified aquaculture sites.

Where possible and when of significance, include modelling results of currents, tides, vessel traffic, and other factors that help to define how these sites may interact with each other.

8.2 Interactions with other aquaculture operations

Provide the measures taken in the establishment or operation of the proposed experimental development that mitigate risk or support any benefit to the aquaculture activities identified above.

For finfish, include what mitigation measures will be used to reduce biosecurity risks if infrastructure is to be shared with others. If applicable, include also how production cycles will be synchronized with nearby farms to ensure biosecurity

SECTION 9: DEVELOPMENT VIABILITY

9.1 Financial ability

Describe your financial ability to carry out the proposed experimental development. This should include historical and projected financial resources; historical Income Statements including revenues, expenses, and EBITDA for the past three years (if applicable) and one projected production cycle forward. This could also include strategic relationships that can assist with the viability of the proposed development; or other relevant information to demonstrate the financial ability to execute the proposed experimental development.

9.2 Technical viability

Describe the experiment to be conducted within an Experiment Proposal. This proposal must be prepared according to Appendix B: Guide for Special Experimental Leases/Licences Experiment Proposal.

Describe the technical ability that will be available to ensure that the experimental protocol will be properly conducted. Identify and include the resumes, qualifications and specific knowledge of any people involved in the design, monitoring analysis and reporting the results of the experiment.

9.3 Compliance history

Describe your record of compliance in previous aquaculture operations or in other operations that required management and monitoring of environmental effects.

List any enforcement issues of the past and explain how they were resolved.

APPENDIX A

NOVA SCOTIA AQUACULTURE REGULATIONS

Fisheries and Coastal Resources Act S.N.S. 1996, c. 25:

<http://nslegislature.ca/legc/statutes/fisheries%20and%20coastal%20resources.pdf>

Aquaculture Management Regulations made under Section 64 of the *Fisheries and Coastal Resources Act*. S.N.S. 1996, c. 25 O.I.C. 2015-339 (October 26, 2015), N.S. Reg. 348/2015:

https://www.novascotia.ca/JUST/REGULATIONS/regs/fcraquamgmt.htm#TOC1_1

Aquaculture Licence and Lease Regulations made under Section 64 of the *Fisheries and Coastal Resources Act*. S.N.S. 1996, c. 25 O.I.C. 2015-338 (October 26, 2015), N.S. Reg. 347/2015:

<https://novascotia.ca/just/regulations/regs/fcraqualiclease.htm>

APPENDIX B

Guide for Special Experimental Aquaculture Leases/Licences Experiment Proposal

The Nova Scotia Department of Fisheries and Aquaculture (the Department) has prepared this guide as a reference for proponents preparing an Experiment Proposal for an experimental licence and/or lease application for aquaculture.

The Experiment Proposal fulfills part of the requirements for an application for a new experimental licence and/or lease. A completed application must consist of a Development Plan, an Experiment Proposal, an Application Form, as well as a Report on Public Engagement during Scoping (if applicable). Guidance for all of these requirements is available at the Department's website www.novascotia.ca/fish/aquaculture/

Before preparing an Experiment Proposal for an experimental licence and/or lease, proponents should first complete a meeting with Department staff to discuss the intended experiment and review Experiment Proposal and Development Plan requirements.

The intent of the Experiment Proposal is to demonstrate how the proposed development meets the definition of an experimental licence and/or lease.

An experimental licence and/or lease is applicable to a person who wishes to conduct aquaculture to do any of the following:

- test or develop new technology or methods;
- carry out basic research; and/or
- test the technical feasibility of an aquaculture site.

Aquaculture conducted under a special experimental licence must be in support of research and must not be on a scale that exceeds the research purposes for which the experimental licence or experimental lease was granted.

The Experiment Proposal must include the following sections: Title, Summary, Introduction, Methods, and Reporting to the Department. A description of what these sections must include follows:

Title: Provide a brief and descriptive project title

Summary: Provide a non-confidential summary of the work to be conducted (1-2 lines). This should be a public facing statement for release on the Department's website.

Introduction: Provide a background of the work being proposed by answering the following questions:

- What is the problem that is addressed or the question that is asked in the experiment?
- Why is this an important problem to address or question to answer?
- What background information is already available on the topic?

- Give an overview of the approach to be used - how will this problem be addressed or the question answered in the experiment?

Methods: Provide a description of the methods that will be used to conduct the research. This description must justify the scale of the aquaculture activities to be conducted and the location chosen for the research.

Include a schedule and time line for the experiment. Milestones must be identified as the project progresses towards to final goal(s). A special experimental licence/lease is valid for a term of one year and may be renewed annually for up to five years.

Reporting to the Department. Describe the reporting schedule and what information will be reported to the Department. Reporting will be required on an annual basis, at a minimum. A summary of the research results from the aquaculture conducted under the experimental licence must be made available to the Minister

For some projects, the scientific investigation to be undertaken may already be detailed in a proposal used for other purposes (e.g. application for funding). This proposal may be used as the Experiment Proposal for the application; but it is up to applicant to ensure that the above listed information is provided, at a minimum.

If you have any questions call the Aquaculture Division of the N.S. Department of Fisheries & Aquaculture for clarification at (902) 875-7439.

Public notice and disclosure

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Privacy Statement

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APPENDIX C

Additional Resources and Contact Information

Below is a list of reference websites or sources that the proponent may find helpful in gathering information relating to fisheries and wildlife:

- Nova Scotia Provincial Coastal Resources Coordinators (CRC): <https://www.novascotia.ca/fish/documents/crc-map.pdf>
- Fishermen & Scientists Research Society: www.fsrns.ca
- Nova Scotia Fisheries Sector Council: www.nsfsc.ca
- Fisheries and Oceans Canada: www.dfo-mpo.gc.ca
- Nova Scotia Salmon Association: www.nssalmon.ca
- Atlantic Salmon Federation: www.asf.ca
- Local salmon or angling associations
- SARA Registry: www.sararegistry.gc.ca
- Committee On the Status of Endangered Wildlife in Canada: www.cosewic.gc.ca
- Atlantic Canada Conservation Data Centre: www.accdc.com
- Atlas of Breeding Birds of the Maritime Provinces (1992): www.mba-aom.ca
- Important Bird Areas of Canada: www.ibacanada.com/
- Western Hemisphere Shorebird Reserve Network: www.whsrn.org/
- Wetlands of the Maritime Provinces: Revised Documentation for the Wetlands Inventory (1996): <http://publications.gc.ca/site/eng/65538/publication.html>
- Ducks Unlimited: www.ducks.ca
- RAMSAR Sites: www.ramsar.org/
- North American Waterfowl Management Plans: <http://nawmp.wetlandnetwork.ca/>
- Federal Policy on Wetland Conservation: <http://publications.gc.ca/site/eng/100725/publication.html>
- Environment Canada's Protected Areas Network: <https://www.ec.gc.ca/ap-pa/>
- Nature Conservancy of Canada: www.natureconservancy.ca
- Federation of Nova Scotia Naturalists: [www. http://naturens.ca/](http://naturens.ca/) Nova Scotia Nature Trust: www.nsnt.ca/
- Migratory Bird Regulations in Canada – July 2014: <https://www.ec.gc.ca/rcom-mbhr/default.asp?lang=En&n=F74028E2-1>
- Local naturalist groups
- Federal Science Library: <http://science-libraries.canada.ca/eng/fisheries-oceans/>
- Transport Canada Navigation Protection Program - Forms and Guidance Material: <https://www.tc.gc.ca/eng/programs-624.html>