

INTERIM GUIDE TO CONSIDERATION OF
CUMULATIVE ENVIRONMENTAL EFFECTS
UNDER CEAA RELATIVE TO AQUACULTURE
PROJECTS

OPERATIONAL POLICY GUIDANCE

Fisheries and Oceans Canada

February 15, 2002

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This guide will be reviewed and updated on a regular basis to reflect recent research findings, changes in aquaculture technologies and practices, and new legislative and policy initiatives.

Comments or feedback on the content and format are welcome and will be incorporated into future versions, as appropriate. Please send any comments to:

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1.0 INTRODUCTION

The following **Operational Policy Guidance** is provided to guide DFO regional staff in the consideration of cumulative environmental effects relative to aquaculture projects under the *Canadian Environmental Assessment Act* (CEAA) to clarify:

- What other projects and activities should be considered in an assessment of cumulative environmental effects?
- What environmental effects should be considered as cumulative?
- How can cumulative environmental effects be assessed when limited information is available?

This guidance applies in situations where DFO is asked to provide federal support in the form of a regulatory decision as identified on the *Law List Regulations*.

2.0 BACKGROUND

Fisheries and Oceans Canada (DFO) becomes a responsible authority (RA) and is required to ensure that an environmental assessment of an aquaculture project is conducted under the *Canadian Environmental Assessment Act* (CEAA) when DFO proposes to issue one or more of the following¹:

- a paragraph 5(1)(a) or subsection 6(4) approval under the *Navigable Waters Protection Act* (NWPA);
- a subsection 35(2) *Fisheries Act* authorization.

Section 2 of CEAA defines “environmental effect” as including:

“any change that the project may cause in the environment, including any effect of any such change on health and socio-economic conditions, on physical and cultural heritage, on the current use of lands and resources for traditional purposes by aboriginal persons, or on any structure, site or thing that is of historical, archaeological, paleontological or architectural significance, and any change to the project that may be caused by the environment, whether any such change occurs within or outside Canada.”

Environment is defined by CEAA as:

“the components of the Earth, and includes land, water and air, including all layers of the atmosphere, all organic and inorganic matter and living organisms, and the interacting natural systems that include the above-noted components.”

The environmental assessment for an aquaculture project will usually be in the form of a screening. Section 16 of CEAA indicates that every screening of a project must include a consideration of the environmental effects of the project, including a consideration of “any cumulative environmental effects that are likely to result from the project in combination with other projects or activities that have been or will be carried out”.

¹ The above assumes that a determination has been made that the aquaculture proposal in question is a “project” under CEAA.

3.0 ASSESSMENT OF CUMULATIVE ENVIRONMENTAL EFFECTS

It has been acknowledged by many that there are difficulties in assessing cumulative environmental effects for many projects and activities. Key questions arise, such as:

- What other projects and activities should be considered?
- What environmental effects should be considered as cumulative?
- How can cumulative environmental effects be assessed when limited information is available?

This last issue can be problematic because most environmental assessment processes (such as CEAA) apply to individual projects rather than to a region or area (and the projects and activities within). Assessing the cumulative environmental effects associated with aquaculture projects is no exception.

The following direction is provided to DFO assessors to assist them in answering the above questions in order to carry out the assessment of cumulative environmental effects as required under CEAA. How the assessor addresses each of these questions in conducting the cumulative effects assessment should be explained in the CEAA screening report, including the rationale for including or not including certain projects/activities or environmental effects, the information considered, assumptions made and conclusions reached.

3.1 What other projects and activities should be considered in an assessment of cumulative environmental effects?

Cumulative environmental effects are environmental effects that result from the project under review, in combination with other projects or activities. Thus, an assessor must determine what other projects and activities to consider.

Under CEAA, there must be a consideration of cumulative environmental effects of other projects and activities that have been (existing) or “will be carried out”, i.e., that are “certain” or “reasonably foreseeable”. This implies that, at a minimum, projects or activities that have already been approved, but not yet carried out, must be considered. It would also be prudent to consider projects or activities that are in a government approvals process.

3.2 What environmental effects should be considered as cumulative?

During an environmental assessment, potential environmental effects relative to the project under review and mitigation measures to minimize/reduce these effects are

identified in order to assess whether the project is likely to cause significant adverse environmental effects. Consideration of cumulative environmental effects in an assessment is an exercise by which the environmental effects of a project are reviewed in light of the environmental effects of other projects and activities that may have affected or will affect the same aspect(s) of the environment.

Only those environmental effects of other projects and activities that are cumulative with the environmental effects of the project under review should be included in the cumulative effects assessment. For example, if a finfish aquaculture project is likely to cause adverse effects to local water quality, and local water quality is also affected by an nearby processing plant, then this effect is cumulative and should be considered in the assessment.

If the environmental effects of other projects or activities are not likely to act in combination, then it is not necessary to include them in the assessment. For example, if migratory bird habitat is not affected by a proposed aquaculture project but is affected by an existing project, then this effect is not cumulative as a result of the project under review and would not be considered in the assessment.

3.3 How can cumulative environmental effects be assessed when limited information is available?

Fisheries and Oceans Canada (DFO) is developing various scientific tools, as well as working with industry and provincial agencies, to understand the environmental issues associated with aquaculture better and to facilitate the assessment of cumulative environmental effects. Monitoring results associated with provincial licencing and federal monitoring requirements are providing additional information. However, not all of these tools are currently available and direction is required on how to proceed in the absence of some information.

Based upon the project- and site-specific information provided by the proponent for an individual project, as well as any available information relative to other projects or activities in the area or region, an assessment of cumulative environmental effects can be undertaken.

Such an assessment should include the following:

- Quantitative assessment, based upon relevant modeling or other tools, if they exist. Where possible, consider the carrying capacity, tolerance level or assimilative capacity of the natural system(s) and/or comparison with existing environmental standards, guidelines and objectives and regional or area management plans appropriate to the situation.

- Qualitative analysis, based upon available information, scientific understanding and professional judgement. Include an analysis of risk and probability. An analysis of worst case and best case scenarios can also be useful.
- Consideration of the following:
 - severity of the effects;
 - the geographic extent of such effects;
 - the duration and frequency of such effects;
 - the degree to which such effects are reversible; and
 - fragility of ecological area.
- Implementation of mitigation.

Regardless of the method(s) of assessment of cumulative environmental effects, an assessor should provide clear indication in the CEAA screening report of the information considered, the quantitative and/or qualitative assessment, any assumptions made and conclusions reached.

An adaptive management approach should be adopted to ensure that results of any relevant monitoring or studies are analysed and that adjustments are made to the project and/or its operation to maintain the adverse effects on the environment below the significance threshold..

The adaptive management approach should include:

- the follow-up (monitoring) program required by DFO under section 35 of the *Fisheries Act* relative to potential impacts to fish habitat (details of this program will be addressed through an agreement between DFO and the proponent);
- any required follow-up (monitoring) program specific to the project relative to other potential environmental effects;
- results of ongoing scientific research or studies relative to the geographic area or results which are extrapolable to the area; and
- analysis of these data to identify the need for additional mitigation and/or changes to the project or its operation.

The results of any follow-up program and research and studies will contribute to the ongoing analysis of cumulative environmental effects of aquaculture by DFO, industry and provincial agencies.

To ensure the implementation of any follow-up program, a proponent will be required to implement aspects of a monitoring program specific to the project. At this time, the project proponent will only be required to report on aspects of the effects of his own project on the environment, including conducting scheduled monitoring, reporting the findings, and in addition, implementing identified mitigation measures should cumulative environmental effects associated with the project be identified that are unexpected or more extensive than expected. In addition, security for costs may be required should the proponent fail to comply with the terms and conditions for the implementation of the follow-up program and required mitigation measures.

Such a follow-up program *should* be incorporated as a condition of the project proceeding in several ways:

- as a condition of a DFO authorization (e.g., subsection 35(2) *Fisheries Act* authorization), should one be required; or
- a Monitoring Agreement between DFO and the proponent (which may extend beyond monitoring of cumulative environmental effects); or
- other federal tools available that would enable DFO to ensure that the follow-up program is implemented.

The assessor is also encouraged to work with provincial authorities in determining the extent to which follow-up program requirements could be reflected in the provincial aquaculture licence.

In addition to the results of the monitoring program(s) conducted by the proponent, other available and applicable information will be used in applying the adaptive management approach arising from:

- regional/area or bay-wide studies;
- results of ongoing scientific research relative to the geographic area or results which are extrapolable to the area; and
- other relevant available information pertinent to cumulative environmental effects.

It should be acknowledged that the assessment of cumulative environmental effects can be facilitated by several means, including:

- individual aquaculture proponents coordinating their monitoring programs individually or collectively, possibly through a recognized body;

- a regional/area of bay-wide review of aquaculture development to address cumulative environmental effects - such a review need not be constrained to individual projects and their effects, would not be limited by lease boundaries and could consider cooperative or complementary approaches to development and minimize environmental effects within the region; and
- the establishment of an integrated monitoring program (by DFO, industry, provinces, and other federal departments) which encompasses aquaculture projects, other projects and activities within geographic and temporal boundaries of the cumulative effects assessment.

Note: The Habitat Management Program is reviewing the assessment requirements with respect to cumulative environmental effects under CEAA. This review will inform DFO in this important issue and may result in adjustments to this guidance document.

4.0 ADDITIONAL INFORMATION

Additional information on the assessment of cumulative environmental effects under CEAA is provided in guidance material provided by the Canadian Environmental Assessment Agency:

- Reference Guide: Addressing Cumulative Environmental Effects at http://www.ceaa.gc.ca/0011/0001/0008/guide1_e.htm;
- Operational Policy Statement (March 1999) - Addressing Cumulative Environmental Effects under the *Canadian Environmental Assessment Act* at http://www.ceaa.gc.ca/0011/0002/cea_ops_e.htm; and
- in the Responsible Authority's Guide.