

INTERIM GUIDE TO THE APPLICATION OF  
SECTION 35 OF THE *FISHERIES ACT*  
TO MARINE SALMONID CAGE  
AQUACULTURE

**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 federal Minister of Fisheries and Oceans Canada (DFO) is responsible for the administration and enforcement of Section 35 of the *Fisheries Act*. When reviewing project proposals, regional Habitat Management staff determines what effects the project may have on fish habitat. This is done in accordance with the *Policy for the Management of Fish Habitat* (DFO, 1986) and with Subsection 35(1) of the *Fisheries Act* which states that “no person shall carry on any work or undertaking that results in the harmful alteration, disruption or destruction (HADD) of fish habitat” except when authorized by the Minister, DFO, as contemplated in subsection 35(2) or through regulations under the *Fisheries Act*.

This document was developed in response to the rapid growth of the aquaculture industry to provide a practical and nationally consistent approach to the application of Section 35 to salmonid cage aquaculture developments. The determination by DFO Habitat Management assessors of whether a project has the potential to result in a HADD of fish habitat related to organic deposition is aided by the document, *Decision Framework for the Determination and Authorizations of Harmful Alteration, Disruption or Destruction of Fish Habitat* (DFO, 1998(a)). In the case of aquaculture, additional direction is required to assist assessors in determining whether an aquaculture project could cause a HADD of fish habitat.

The guide describes a strategy that incorporates:

- Performance-Based Standards (PBS) (Appendix 1) which are physical or chemical indicators that approximate and rank the quality of fish habitat in an area. The PBS approach advocated in this guide has been proven the most cost-effective method (Wildish, et al. 2001) in terms of speed and simplicity of use for monitoring benthic effects while providing sufficient information to assess the potential fish habitat effects relative to the section 35 requirements of the *Fisheries Act*. As scientific knowledge expands, these standards may be refined;
- risk assessment which combines knowledge of the existing pre-project site conditions and the operation itself to determine the appropriate instrument to ensure that mitigation and monitoring requirements are respected; and
- adaptive management which uses monitoring results to accommodate uncertainty with respect to the effectiveness of measures to prevent a HADD and ecosystem complexity to permit early intervention through additional mitigation or avoidance to control a potential HADD from developing.

The guide was developed from an in-depth examination of the issues by the National Habitat Management Working Group on Aquaculture (NHMWGA) and it captures many of the main concerns expressed in those discussions. In addition, it incorporates the experience of aquaculture monitoring in New Brunswick, British Columbia, and the work of DFO scientists.

It is an interim strategy which, over the longer term, may be replaced or complimented by other approaches such as: regulations under section 36 or 43 of the *Fisheries Act*, integrated management, ecosystem-based objectives, marine environmental quality (MEQ) criteria, class screenings, and siting guidelines, as the science associated with these develops. Therefore, DFO should review the guide after it has been in use for 24 months. The review should determine, among other things, the ongoing need for the document or specific sections of it.

There are several options available to DFO to ensure the mitigation, monitoring, and reporting requirements are met. They provide varying levels of assurance that these needs can be met. These options are discussed in Appendix 2.

This document is not intended to provide technical details of benthic monitoring. General guidance on this may be found in Wildish et al (1999). Specific details must be developed on a regional, ecosystem, or even a case-by-case basis.

## **2.0 THE STRATEGY**

### **2.1 Application of the Strategy**

The strategy focuses on the potential negative benthic effects of the project on fish habitat. Therefore, it will apply to all new projects, proposed expansions, and relocations of salmonid cage culture regardless of the size of the operation.

Cod grow-out sites, are not included in this strategy. It is believed that the risks associated with cod grow-out as presently conducted in Newfoundland and Quebec are substantially less than with more traditional types of operations such as salmonid cage aquaculture. This assumption is based on the type of feed used, the length of time the fish are held in cages, and the fact that the stock is captured wild instead of using hatchery stock. Cod grow-out may be included in subsequent versions of this strategy if research indicates the need.

### **2.2 Anticipated Benefits**

This strategy is expected to have several benefits:

- It should encourage proponents to seek out sites where the effects of aquaculture on fish habitat will be minimised.
- It will enable the acquisition of data to enhance the knowledge of the effects of aquaculture operations on fish habitat. This will, in turn, allow for more comprehensive and permanent solutions such as scientifically defensible siting guidelines, class screenings, and possibly regulations. It will also aid in the development of new tools that will more accurately predict impacts and effects.
- It will address the proponent's section 35 responsibilities with respect to the near-field effects on habitats.

### **2.3 Assumptions**

This strategy was developed around a number of assumptions.

The *Habitat Conservation and Protection Guidelines* (DFO, 1998) will be followed as appropriate with respect to assessing other options, such as project relocation and redesign, (3.0 and 3.1).

To make effective decisions on the likelihood of a HADD, it is necessary that the *Guide to Information Requirements for Environmental Assessment of Marine Finfish Aquaculture Projects* be followed to permit an accurate assessment of the risks to fish habitat as the result of the project as it includes requirements for baseline information.



### **3.0 PROJECT ASSESSMENT**

This section describes the process to identify the appropriate instrument to ensure that the principle of no net loss of the productive capacity of fish habitat is respected. The instrument identification will be based on benthic baseline conditions combined with risk assessment and an adaptive management approach to ensure that the principle of no net loss of the productive capacity of fish habitat is respected.

#### **3.1 Determining Benthic Baseline Conditions**

The initial step is to determine the pre-development benthic baseline site conditions, using a variety of physical or chemical proxies that rank the quality of fish habitat in an area. The results of this analysis should characterize the benthos within the scope of the project as oxic, hypoxic, or anoxic. Appendix 1 provides a more detailed explanation of determining benthic baseline conditions.

#### **3.2 Risk Assessment**

Risk assessment integrates the results of the baseline conditions with the information on the project and its operation. This information is obtained from the proponent through the *Guide to Information Requirements for Environmental Assessment of Marine Finfish Aquaculture Projects* (DFO, 2001) which the proponent will complete. As decisions at this point are very much on a case-by-case basis, additional information, such as local knowledge and expertise within DFO should be used as the assessor determines necessary.

Decisions at this point should be guided by the hierarchy of conservation and protection preferences of project relocation, redesign, mitigation, and compensation as outlined in the *Habitat Conservation and Protection Guidelines* (DFO, 1998(b)).

The result of this analysis will enable DFO to conclude that:

- a HADD is not anticipated to result from this project;
- there is uncertainty with respect to the effectiveness of measures to prevent a HADD;  
or
- a HADD will result from this project.

This initial risk assessment then determines the appropriate instrument (Table 1) to ensure that the mitigation and monitoring requirements are respected.

**Table 1: Risk assessment categories with proposed instrument**

<b>Assessed risk of a HADD</b>	<b>Proposee instrument</b>
HADD not anticipated to result	Letter of Advice
Uncertainty with respect to the effectiveness of measures to prevent a HADD	HADD Avoidance, Mitigation, and Monitoring Agreement
HADD will result	Subsection 35(2) Authorization (or reject as proposed)

## **4.0 PROPOSED INSTRUMENTS**

### **4.1 Letter of Advice**

In the case of salmonid aquaculture proposals where a HADD of fish habitat is not anticipated to result from organic enrichment, the preferred instrument would be a Letter of Advice (LOA) (see Appendix 4, templates 1A and B; Appendix 5, chart 1).

The LOA should clearly outline the proposed work or undertaking and the manner of carrying it out which led DFO to conclude that the project is not anticipated to result in a HADD. The LOA could also recommend regular monitoring and, based on evaluation of the monitoring report, additional mitigation measures, or changes in the operation's location or production levels. Site remediation may also have to be considered.

In all cases, the LOA should state that the document is not a subsection 35(2) Authorization. It should also reserve DFO's rights to take any appropriate actions under the *Fisheries Act*.

#### **4.1.1 Monitoring Results and LOAs**

If subsequent monitoring during the operational phase indicates that a HADD could be a concern in the future in spite of the original assessment, the proponent may apply for a subsection 35(2) Authorization as outlined in this document and Appendix 5, Chart 3. It is important to note that this is not a retroactive Authorization. Whether the proponent carried out the work or undertaking in the manner described in the LOA will be a factor considered in the decision to issue or not issue a s.35(2) Authorization. DFO is not obligated to issue an Authorization and will be guided by the *Decision Framework for the Determination and Authorization of Harmful Alteration, Disruption or Destruction of Fish Habitat* (DFO, 1998(a)).

### **4.2 HADD Avoidance, Mitigation, and Monitoring Agreement**

In the case of salmonid aquaculture proposals, where there is uncertainty with respect to the effectiveness of measures to prevent a HADD, the preferred option is a HADD Avoidance, Mitigation, and Monitoring Agreement developed between the proponent and DFO (see Appendix 4, template 2; Appendix 5, chart 2).

Aquaculture projects should be assessed and regulated in the same manner as projects in other industry sectors. However, there is often uncertainty about the effectiveness of measures to prevent a HADD. Marine ecosystems are complex and dynamic. Our understanding of them and our ability to predict how they might react to management actions especially on a larger scale is relatively limited. In addition, our experience with aquaculture perturbation in the far-field and cumulative effects is inadequate in many

instances. It is necessary to address this uncertainty in a manner that will ensure that there is no net loss of the productive capacity of fish habitat.

To compound this uncertainty, it is necessary to address the effects of the operational phase of the project. Unlike many other industry sectors where the operation is a consideration, aquaculture inputs of organics can vary greatly and irregularly depending on such variables as the season, fish size and type, chemical use and market conditions.

In these situations, a Letter of Advice is not adequate to address concerns, and a more responsive instrument, a HADD Avoidance, Mitigation, and Monitoring Agreement will be used as an adaptive management approach to deal with this uncertainty. The use of such agreements is a formal, systematic, and rigorous approach to learning from the outcomes of management actions, accommodating change, and improving management.

The Agreement should outline mitigation, monitoring and reporting, agreed upon by DFO-Habitat Management and the proponent and the possible need for remediation measures. Monitoring requirements should be detailed in the Agreement and based on performance-based standards. The Agreement should also indicate the need for regular monitoring reports to be submitted to DFO along with the supporting data and state that the document is not a subsection 35(2) Authorization. It should provide for a security of costs should the proponent fail to comply with the terms and conditions. The Agreement should also contain a statement that reserves DFO's rights to take appropriate actions under the *Fisheries Act*.

If a proponent does not wish to enter into an agreement, the Authorization option may be considered if the proponent files an application in the form set out in Schedule VI to the *Fisheries (General) Regulations*.

Assessors are advised to consult with DFO Legal Services when drafting agreements.

#### **4.2.1 Monitoring Results and Agreements**

Based on the results of the operational phase monitoring reports, additional mitigation measures or remediation may be required. Additional recommendations arising from the evaluation of these monitoring reports might include further mitigation, site remediation, or changes in the operation's location and/or production.

If the results of the monitoring confirm that the site is operating within the conditions of the Agreement, the Agreement may be continued and the monitoring cycle repeated at the agreed-upon interval. If the results indicate a change from baseline conditions that has not resulted in a HADD where enforcement action would be warranted, but a HADD could be a concern in the future, two options may be considered:

- The Agreement may be modified to reflect changes required in mitigation and the cycle of monitoring. This contingency would be stated in the original Agreement.
- The proponent may apply for a subsection 35(2) Authorization as outlined in this document and Appendix 5, Chart 3 if a HADD is likely to occur. This is not a retroactive Authorization. Whether the proponent has respected the terms and conditions of the Agreement will be a factor considered in the decision to issue or not issue a s.35(2) Authorization. DFO is not obligated to issue an Authorization and will be guided by the *Decision Framework for the Determination and Authorization of Harmful Alteration, Disruption or Destruction of Fish Habitat* (DFO, 1998(a)).

#### **4.3 Subsection 35(2) Authorization**

In the case of salmonid aquaculture proposals, when the risk assessment predicts that a HADD will, or is likely to, result from organic enrichment, the only option is to determine if a subsection 35(2) Authorization can be issued (see Appendix 4, template 3; Appendix 5, chart 3).

DFO is not obligated to issue an Authorization and will be guided by the *Decision Framework for the Determination and Authorization of Harmful Alteration, Disruption or Destruction of Fish Habitat* (DFO, 1998(a)) especially in situations where adverse effects to fish habitat are judged to be unacceptable. Examples of unacceptable HADDs are outlined in Appendix 6. In addition, an Authorization will not be considered until the options outlined in the *Habitat Conservation and Protection Guidelines* (DFO, 1998(b)) have been adequately considered.

If a decision is made to issue the Authorization, the Authorization could include the following conditions:

- the specific mitigation measures to be undertaken by the proponent;
- the specific limits of organic enrichment and the compensation required to offset the loss of habitat that will result as per the *Policy for the Management of Fish Habitat* (DFO, 1986). Compensation options, other than those on-site may have to be considered. The proponent is responsible to undertake compensation;
- the specific monitoring required and monitoring cycle; and
- the need to provide security for costs should the proponent fail to comply with the terms and conditions of the Authorizations (e.g. letter of credit).

To provide some measure of security to the proponent, the Authorization validation period should not exceed the period of time of the NWPA approval, if such approval is required for the proposed work or undertaking. If an NWPA approval is not required, the Authorization period should not exceed 5 years, but may be of shorter duration.

#### **4.3.1 Monitoring Results and Authorizations**

Monitoring is vital to determine if mitigation is working and to ensure the terms of the Authorization are being respected. If the results of the operational phase monitoring confirm that the site is operating within the conditions of the Authorization, the Authorization will continue and the monitoring cycle will be repeated at the interval determined in the Authorization. If the monitoring results indicate that the operation has exceeded the conditions of its Authorization, then appropriate enforcement action will be considered.

#### **4.4 Changes to Monitoring Cycle or Production Levels**

In cases of LOAs and HADD Avoidance, Mitigation, and Monitoring Agreements, where monitoring has repeatedly indicated no change of concern from baseline conditions, increasing the time between monitoring cycles could be considered. Alternatively, an increase in the production levels could be considered. These changes would be at the discretion of the assessor on a case-by-case basis. They are based on DFO's assessment of productive capacity.

## **APPENDIX 1: DETERMINING BENTHIC BASELINE CONDITIONS**

In determining benthic baseline conditions it is necessary to use a variety of physical and chemical proxies or indicators that approximate and rank the quality of fish habitat in a particular area. Indicators include parameters such as percent volatile organic solids in sediment, production of sulfides, and sediment redox potential. These are used to assess the quality (i.e. performance) of benthic receiving environments, rather than assessing what has been released into the environment and predicting the effects.

This information is then used in conjunction with information supplied on the operation of the site itself to determine the actual risk of a HADD occurring. It is based on the anticipated change in the benthic community at or near the site as defined by the presence of characteristic microfauna and/or geochemical measures of redox (Eh) or sulfides (S<sup>2-</sup>). Janowicz and Ross (2001) and Ross (2000) describe how these are used to monitor the effects of aquaculture on fish habitat in New Brunswick. From this assessment it is possible to determine which of the three instruments described in the strategy should be used. A guide to information requirements is currently being developed to ensure that this baseline data is collected (DFO, 2001) to conduct both fish habitat and CEAA assessments.

Realistic performance-based standards (PBS) provide regulators with a fair, accurate, and objective method of ensuring compliance with regulatory requirements. They also provide site operators with the opportunity to better understand the environmental conditions near their site and the potential consequences these could have on their operations.

The PBS advocated in this guide have been determined by Wildish et al. (2001) to be the most cost-effective method, in terms of speed and simplicity of use, for monitoring benthic effects while providing sufficient information to address issues related to fish habitat. The PBS determined for New Brunswick are provided in Appendix 3 as an example of the standards in use in the Maritimes Region.

Areas that naturally receive a heavy load of organic matter will quite often have anoxic sediments, but these will invariably be covered with at least a veneer of oxidized sediment. The infaunal benthic community will be effected, but epifaunal organisms do not experience unnatural habitat. This natural condition indicates that this system is already at or near its loading capacity for organic input. Therefore the incremental effects of loading from fish culture will be extreme and the potential for negative feedback on the culture operation is high.

### **PBS Related Monitoring**

PBS are used to understand the changes in the benthic conditions at a site as operations are underway. Based on the results of this monitoring, additional remediation may be

required. The key to effectively conserving and protecting fish habitat from the effects of aquaculture operations is through the application of an adaptive management approach, closely monitor effects, and mitigate those effects of concern and the specifics would be included in the Agreement or Authorization

The effects that result from the operation of aquaculture sites clearly depend on the pre-development conditions in the area where the site is located and how the site is operated. There is a substantial body of knowledge that allows operators to manage husbandry and operational variables to mitigate a significant proportion of effects. Measures, such as fallowing, can be used to accelerate the restoration process. There are several mechanical measures available that have unproven results. These measures should not be considered as substitutes for good site location and may be considered for existing sites only where permitted.

### **Validating PBS**

This technique must be validated for different geographic regions and ecosystems in areas where aquaculture is practised.

### **Adopting other PBS**

Where individual provinces have developed PBS strategies for monitoring these may be considered for use by DFO provided the data obtained meets DFO's requirements and DFO has unrestricted access to, and use of, all the data.



## **APPENDIX 2: PROPOSED INSTRUMENTS**

DFO-Habitat Management can use several instruments to pursue its section 35 requirements. These are discussed based on their relative ease-of-use; their appropriateness in a given situation; and the anticipated risks associated with the project.

### **Subsection 35(2) Authorization**

Under subsection 35(1) of the *Fisheries Act*, any harmful alteration, disruption or destruction (HADD) of fish habitat is prohibited unless authorized under subsection 35(2). The Authorization can provide the means and conditions with which the proponent can cause a HADD. These conditions could include methods of operation, mitigation measures, monitoring and reporting requirements, and the requirement to undertake remediation and compensation if required. The proponent would be in contravention of subsection 35(1) if these conditions are not met.

### **Subsection 36 and 43 Regulations**

Regulations can be enacted under the *Fisheries Act* for carrying out the purposes and provisions of the Act. Sections 36 and 43 provide the authority to make regulations for certain purposes. Under such regulations, DFO-Habitat Management could prescribe conditions to be followed for various fish and fish habitat related issues associated with the aquaculture operations.

### **Requests for Information**

Sections 37 and 61 of the *Fisheries Act* have provisions that oblige individuals to provide DFO, in certain situations, with information, data, and/or reports when requested to do so.

A request for information under section 37 of the *Fisheries Act* may be made when a work or undertaking results or is likely to result in a HADD. This authority is exercised by the Minister to determine if the HADD would constitute an offence under the Act and what measures could, if any, prevent that result or mitigate the effects.

Section 61 of the *Fisheries Act* also creates the obligation to provide information requested by a fisheries officer if regulations, or the terms and conditions of a lease or licence issued under the Act, requires keeping this information on record.

### APPENDIX 3: EXAMPLE OF THE USE OF PBS

The following are the redox and sulfide Performance-Based Standards (PBS) used in Maritimes Region to define benthic conditions under salmonid cages. This table is provided as an example only. Specific relationships between redox, sulfides, and biological resources must be developed to meet specific (e.g. site regional, geographic) conditions.

sediment condition	EMG* rating	redox (mV)	sulfides ( $\mu M$ )
Oxic 1	A	>+100	<300
Oxic 2	B	0 to 100	300 to 1300
Hypoxic	B-	0 to -100	1300 to 6000
Anoxic	C	<-100	>6000

\* EMG: Environmental Management Guideline (NBDFAFA, 2000)

The following is from the EMG for salmonid aquaculture in New Brunswick. It describes unacceptable habitat concerns that would trigger some level of enforcement action. The EMG also describes additional requirements such as remediation, mitigation, etc. that would apply at other levels of impact.

“For the purposes of salmonid aquaculture, unacceptable habitat concerns occur when the sediment becomes anoxic. This is defined by the absence of macrofauna, a change from aerobic to anaerobic microflora, or by geochemical measurements of sulfide in excess of  $6000\mu M$  and a negative redox potential (Eh). Hypoxic conditions, as defined either by the presence/absence of macrofauna, microflora or by geochemical measurements of sulfide and redox potential, would be of concern to DFO. In cases where hypoxic conditions are demonstrated, remediation measures would be indicated to mitigate the situation and to prevent further progression to anoxia.” (NBDFAFA, 2000, p17)

## APPENDIX 4: TEMPLATES FOR PROPOSED INSTRUMENTS

Template	Proposed instrument	Associated risk of a HADD	See chart
1A	Letter of Advice	HADD not anticipated to result	1
1B	Letter of Advice	HADD not anticipated to result with proposed modifications to the project	1
2	HADD Avoidance, Mitigation, and Monitoring Agreement	uncertainty with respect to effectiveness of measures to prevent a HADD	2
3	ss 35(2) <i>Fisheries Act</i> Authorization	HADD will result	3

## Template 1A      Letter of Advice (HADD not anticipated to result)



Fisheries  
and Oceans

Pêches  
et Océans

**DATE**

**NAME**

**ADDRESS**

**SUBJECT:**

Dear :

Fisheries and Oceans Canada (DFO) has received your proposal to [describe the aquaculture operation]. To expedite future correspondence or inquiries, please refer to your file number when you contact us.

**FILE # : FILE NAME**

It is our understanding that your proposal consists of:

- List proposed works or undertaking (e.g. size and number of cages, species cultured, stocking densities)
- List related activities (e.g. maintenance activities, harvesting, feeding)

as outlined in the following plans:

- List relevant documents, engineering diagrams, letters, faxes, conversations etc.

If these plans have changed since the time of your submission, the advice provided in this letter may not be applicable to your circumstances and you should consult with us to determine if further review is required.

DFO believes that your proposal, as set out above, does not require an Authorization at this time. This position does not constitute an Authorization to harmfully alter, disrupt or destroy fish habitat. DFO may revisit this position at any time if a harmful alteration, disruption or destruction of fish habitat occurs as a result of your proposal. Subsection 35(1) of the *Fisheries Act* states:

*"No person shall carry on any work or undertaking that results in the harmful alteration, disruption or destruction of fish habitat."*

To ensure that this operation does not result in a harmful alteration, disruption or destruction of fish habitat, DFO recommends that you undertake regular monitoring as described in the attached document and report the results to: [provide contact name and mailing address].

Please note that this Letter of Advice does not release you from the responsibility for obtaining any other approvals that may be required under federal, provincial or municipal legislation.

If you have any questions concerning the measures listed, or should there be any changes to the proposed work, please contact me directly at ( ) [redacted].

[redacted]  
Fish Habitat Biologist  
Fish Habitat Management

Copy:  
[redacted]

## Template 1B Letter of Advice with Mitigation (HADD not anticipated to result)



Fisheries  
and Oceans

Pêches  
et Océans

DATE

NAME

ADDRESS

SUBJECT:

Dear :

Fisheries and Oceans Canada (DFO) has received your proposal to [describe the aquaculture operation]. To expedite future correspondence or inquiries, please refer to your file number when you contact us.

**FILE # : FILE NAME**

It is our understanding that your proposal consists of:

- List proposed works or undertaking (e.g. size and number of cages, species cultured, stocking densities)
- List related activities (e.g. maintenance activities, harvesting, feeding)

as outlined in the following plans:

- List relevant documents, engineering diagrams, letters, faxes, conversations etc.

If these plans have changed since the time of your submission, the advice provided in this letter may not be applicable to your circumstances and you should consult with us to determine if further review is required.

Your proposal, as described above, is not adequate to avoid a harmful alteration, disruption or destruction (HADD) of fish habitat. However, if the following changes to the project are made and implemented, it is our opinion that a HADD will not occur.

1. Measure 1
2. Measure 2
3. Measure 3

With the additional measures outlined above, DFO believes that your proposal does not require an Authorization at this time. This position does not constitute an Authorization to harmfully alter, disrupt or destroy fish habitat. DFO may revisit this position at any time if a harmful alteration, disruption or destruction of fish habitat occurs as a result of your proposal. Subsection 35(1) of the *Fisheries Act* states:

*“No person shall carry on any work or undertaking that results in the harmful alteration, disruption or destruction of fish habitat.”*

To ensure that this operation does not result in a harmful alteration, disruption or destruction of fish habitat, DFO recommends that you undertake regular monitoring as described in the attached document and report the results to: [provide contact name and mailing address].

Please note that this Letter of Advice does not release you from the responsibility for obtaining any other approvals that may be required under federal, provincial or municipal legislation.

If you have any questions concerning the measures listed, or should there be any changes to the proposed work, please contact me directly at ( ) [redacted].

[redacted]  
Fish Habitat Biologist  
Fish Habitat Management

Copy:  
[redacted]

## **Template 2            HADD Avoidance, Mitigation, and Monitoring Agreement**

### **HADD HABITAT AVOIDANCE, MITIGATION, and MONITORING AGREEMENT**

BETWEEN: HER MAJESTY IN RIGHT OF CANADA as represented by  
THE DEPARTMENT OF FISHERIES AND OCEANS, CANADA  
("DFO")

AND            **PROPONENT NAME**, proponent's designation (e.g. a corporation  
incorporated pursuant to the laws of (Province)) ("PROPONENT")

HEREINAFTER REFERRED TO AS THE PARTIES

Whereas the proponent made representations to DFO to the effect that the proposed aquaculture facility is not likely to result into a harmful alteration, disruption or destruction of fish habitat (HADD);

Whereas DFO is uncertain of the effectiveness of measures to prevent a HADD;

Whereas the Parties wish to enter into an agreement setting out the terms pursuant to which an aquaculture site in **[proposed location]** can be established;

Now therefore, in consideration of the sum of one dollar (\$1.00), the receipt and sufficiency of which is hereby acknowledged, the Parties agree as follows:

- The Proponent can establish an aquaculture facility at **[lease number and location]** **once**:
  - a) the approval for that site has been issued by DFO pursuant to the *Navigable Waters Protection Act*;
  - b) the baseline studies, conducted by the Proponent, covering the area underneath the aquaculture structures have been completed to DFO's satisfaction, which will be acquiesced to in writing by DFO; and
  - c) the peripheral areas to the aquaculture facility that are requiring additional baseline studies have been identified by the Proponent to DFO's satisfaction, which will be acquiesced to in writing by DFO.

The aquaculture operation and the site location are more fully described in Schedule A to this Agreement.



The following points should be considered in developing individual agreements:

- the conduct, completion, and reporting of baseline studies;
  - the development of environmental management and monitoring requirements;
  - outline options if monitoring indicates a change from baseline conditions that is of concern;
  - letter of credit to ensure monitoring and mitigation;
  - provisions for contingency site if required;
  - provision to modify/amend contract;
  - any other points that may be required on an individual basis.
- 
- Nothing in this Agreement shall be construed or interpreted as limiting DFO's powers to enforce its legislation.
  - This Agreement is not an authorisation pursuant to subsection 35(1) of the *Fisheries Act* nor does it constitute a permission, advice or approval of any form regarding the alteration, disruption or destruction of fish habitat.
  - This Agreement shall come into force on the date on which it has been executed by both Parties and shall remain in force for a period of five years.
  - Any notice, report, request or order under this Agreement shall be in writing and shall be addressed to the appropriate Party as follows:
    - For DFO: [Name and mailing address of Regional Director General]
    - For Proponent: [Name and mailing address of the proponent's designate]
  - Neither Party may assign this Agreement without the prior written consent of both Parties.
  - The laws in effect in the Province of [province or territory where the aquaculture site is located] shall apply to the interpretation and administration of this Agreement.
  - The terms and conditions herein, together with Schedules A and [other schedules added], form the entire Agreement of the Parties with respect to this aquaculture site.

DFO has executed this Agreement by its duly authorised representative, and [proponent] has affixed its corporate seal under the hands of its duly authorised officer.

\_\_\_\_\_  
Witness (Signature)

\_\_\_\_\_  
The Department of Fisheries  
and Oceans, Canada (“DFO”)

\_\_\_\_\_  
(print name)

\_\_\_\_\_  
Date

\_\_\_\_\_  
Witness (Signature)

\_\_\_\_\_  
[Proponent]

\_\_\_\_\_  
(print name)

\_\_\_\_\_  
Date

## **Schedule A Site Description**

[Give a description of the operation and the location of the proposed site]. Site coordinates are as listed below.

- **Give the geographic coordinates of the site**

- **Specify the datum used.**

- **Give the area of the proposed site.**

## Template 3 Authorization

### ss 35(2) *Fisheries Act* Authorization

**[number]**  
Authorization No.

#### AUTHORIZATION FOR WORKS OR UNDERTAKINGS EFFECTING FISH HABITAT

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**Authorization issued to (herein referred to as the proponent):**

Name:  
Address:

Telephone No.: ( ) -  
Facsimile No.: ( ) -

---

#### Location of Project

- [description of location]
  - [geographic location]
- 

#### Valid Authorization Period

The valid authorization period for the harmful alteration, disruption or destruction associated with the operation of the finfish net cages is five years from the date of issuance.

---

#### Description of Works or Undertakings

- Describe the works or undertakings proposed. (e.g. size and number of cages, species cultured, stocking densities, maintenance activities, harvesting, feeding)
  - Describe the specific HADD(s) being authorized, including specific limits of organic enrichment.
-

## Authorization

The holder of this Authorization is hereby authorized under the authority of subsection 35(2) of the *Fisheries Act*, R.S.C., 1985, c. F. 14, to carry out the work or undertaking described herein.

**This Authorization relates only to those works and undertakings described in this authorization. Any changes, modifications, alterations to the aquaculture facilities (e.g. residences, net washing facilities, food storage barges, etc.) including structures that are required to service the facility, are not covered by this authorization and should be subject to another application for authorization under the *Fisheries Act*.**

---

## Conditions of Authorization

1. All debris and waste materials generated by the proponent shall be disposed of in accordance with applicable legislation, guidelines, and best management practices.

2. Mitigation Measures

[Specify all mitigation measures required.]

**If, while complying with the conditions of the current authorization, a HADD of fish habitat occurs other than the one currently authorized, as indicated by monitoring, the proponent shall apply forthwith for a new Authorization.**

3. Monitoring of the Site

- Outline the monitoring requirements for the proposed operation. This may include:
  - Defining the need for baseline data to be gathered before initiation of the operation;
  - Stipulating that existing provincial or regional monitoring programs or codes of practice be adhered to;
  - Prescribing the scope and detail of monitoring information to be provided and the frequency at which monitoring reports should be filed with DFO;
  - Prescribing sampling methodologies and the technologies to be used.
- Outlining the monitoring cycle, a description of the content of result reports, and designate an individual to receive monitoring results.
  - DFO should reserve the right to modify the monitoring conditions based on results

- Appendices may be used to outline detailed procedures and requirements
- Where possible, reference should be made to existing monitoring programs
- Monitoring may be required for areas adjacent to the proposed operation if those areas are deemed to be essential fish habitat that may be affected by the proposed operation.

### Conditions that relate to Compensation

4. [Describe specific compensation measures to be undertaken by the proponent.]
5. The proponent shall supply a letter of credit in a form acceptable to DFO, in the amount of [estimated cost of five (5) years of monitoring and compensation works] to be held as security to ensure the implementation of the mitigation measures and monitoring requirements set out in this Authorisation.

---

### General Conditions

1. This Authorization is valid only with respect to fish habitat and for no other purposes. It does not purport to release the applicant from any obligation to obtain permission from or to comply with the requirements of any other regulatory agencies.
2. Failure to comply with any condition of this Authorization may result in appropriate enforcement action pursuant to the *Fisheries Act*.
3. This Authorization should be held on site and work crews should be made familiar with the conditions attached.

---

Date of issuance: \_\_\_\_\_

Approved by: \_\_\_\_\_

Title:

---

The proponent acknowledges that DFO has consulted with it regarding the terms of this Authorization, and confirms that it has reviewed and understands the terms of this Authorization, and it will comply with them.

Executed by an authorized signatory of )  
the proponent on the \_\_\_\_\_ day of )  
\_\_\_\_\_, 200\_\_ in the presence of: )

[Proponent's name]

Per:

\_\_\_\_\_  
Witness (signature)

\_\_\_\_\_  
Authorized signatory

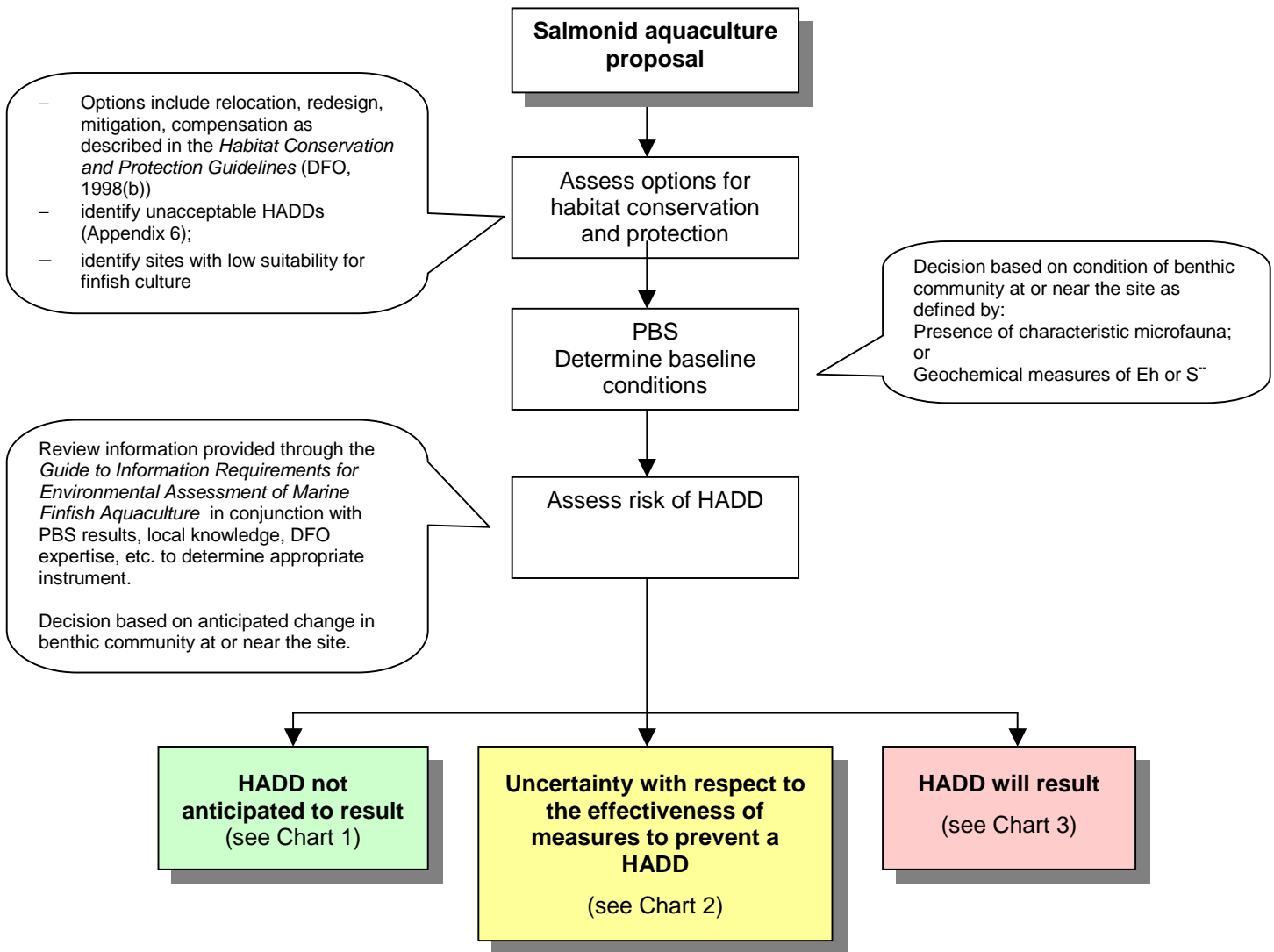
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(print name)

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Name:

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

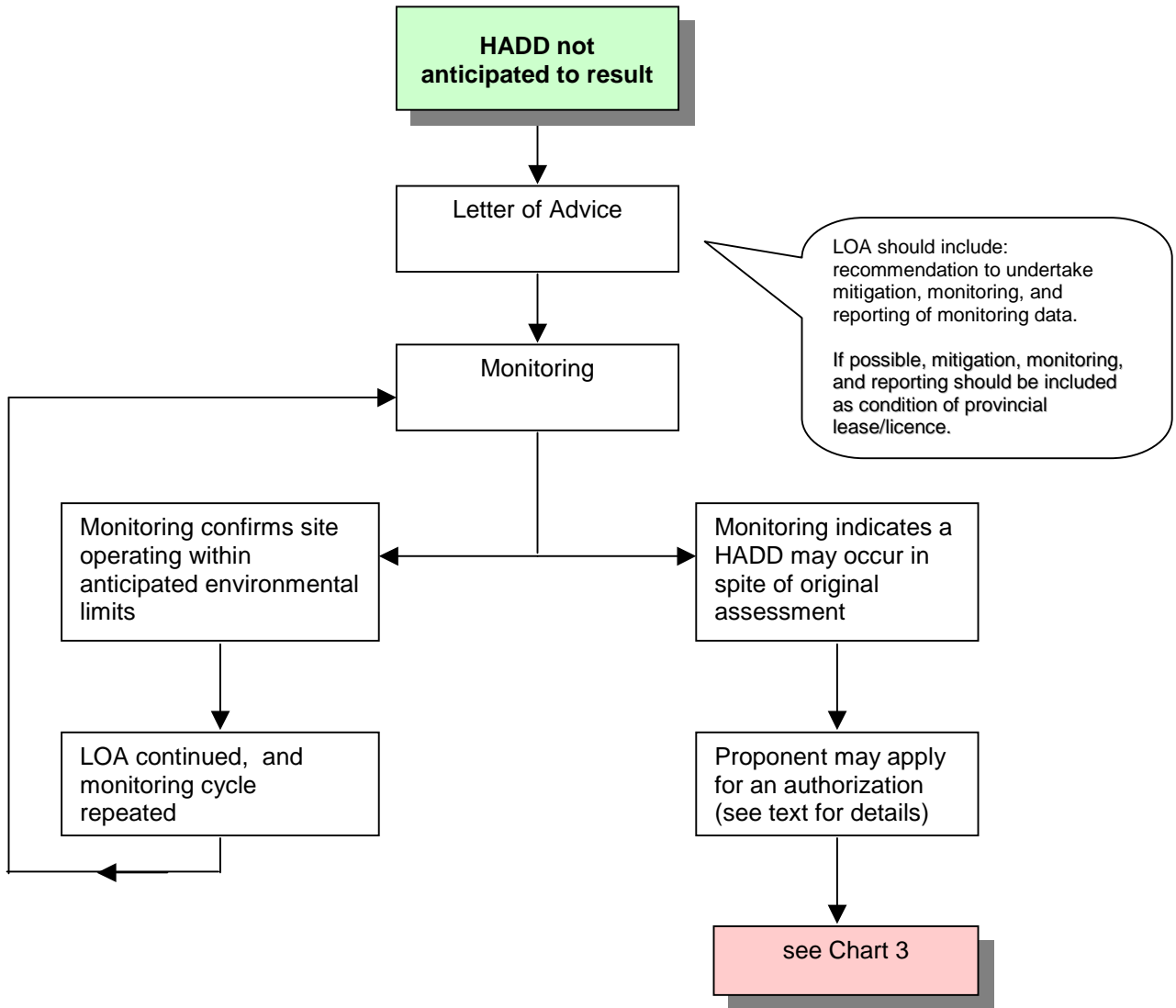
## APPENDIX 5: FLOWCHARTS

### APPLICATION OF S35 OF THE FISHERIES ACT TO SALMONID CAGE AQUACULTURE DEVELOPMENTS

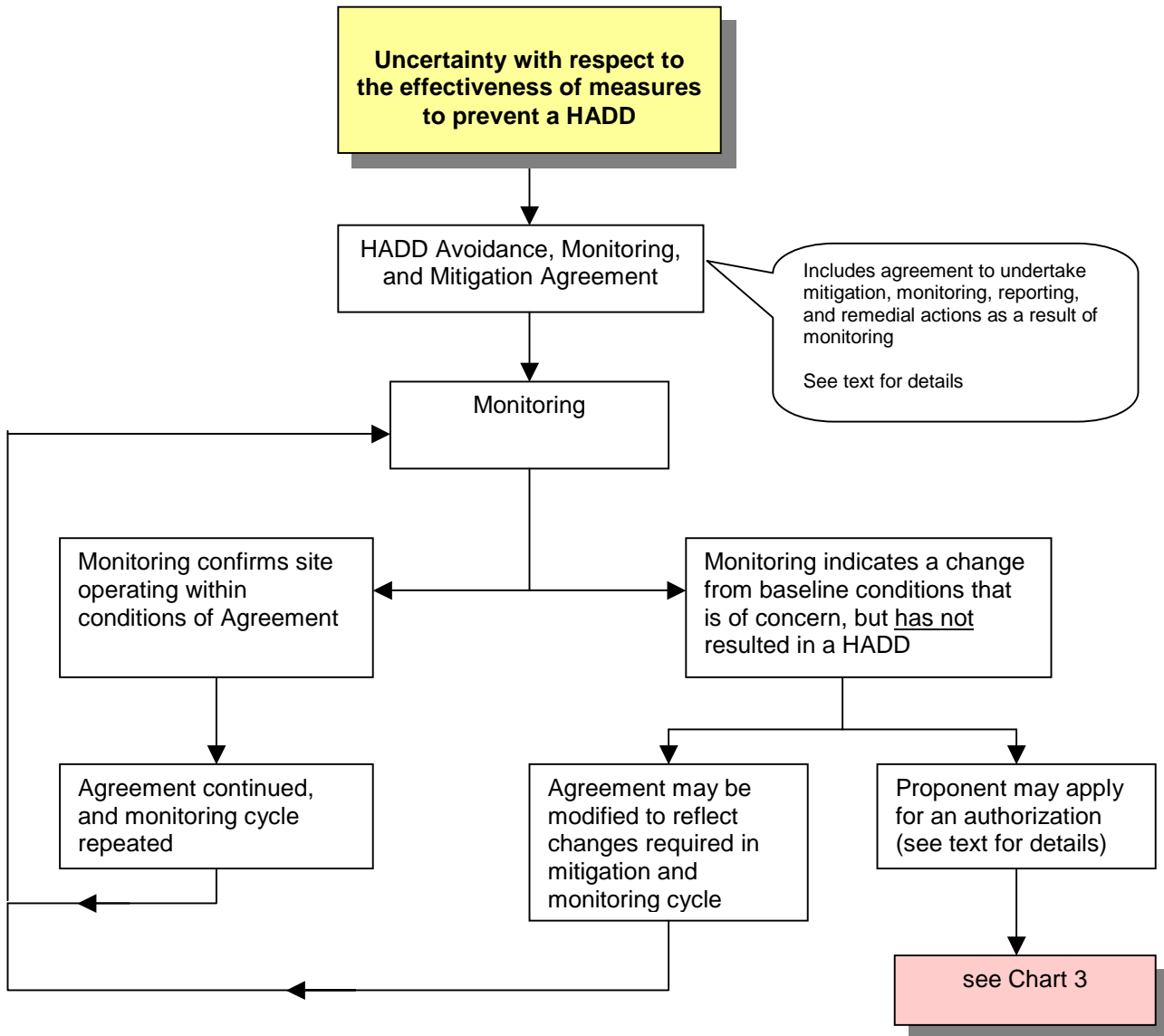




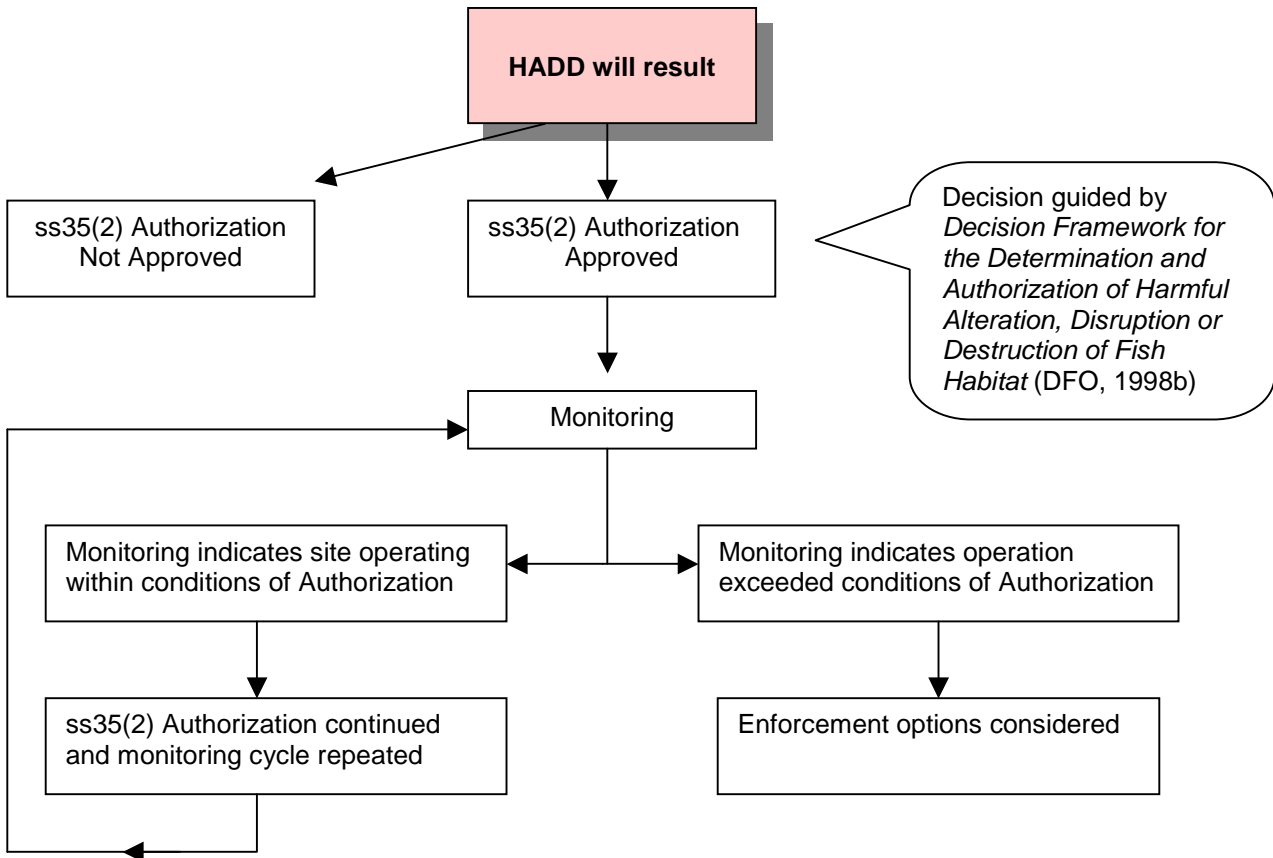
### CHART 1



### CHART 2



**CHART 3**



## APPENDIX 6: IDENTIFYING UNACCEPTABLE HADDs

One of the first tasks as outlined in the *Guide to the Application of S35 of the Fisheries Act to Salmonid Cage Culture Aquaculture Developments* is to identify unacceptable HADDs or “showstoppers” for which DFO would not issue a subsection 35(2) *Fisheries Act* authorization. These can be defined as specific overriding concerns related to both ecosystem and site-specific variables that, if one or more were present, would prevent an aquaculture operation from proceeding in that specific area as proposed.

DFO is not obligated to issue an Authorization in situations where adverse effects to fish habitat are judged to be unacceptable (DFO, 1998(a)). The discussions of the National Habitat Management Working Group on Aquaculture (NHMWGA, 2001) and the work done by DFO scientists have led to the development of the following list of areas that should be considered when determining unacceptable HADDs:

- The presence of **critical habitat** such as spawning areas, restricted migration routes, etc. at the site, or sufficiently close to the site that the effects cannot be mitigated adequately.
- **Prior history** of the site such as failure of an operation due to environmental causes, etc., where the situation remains essentially unchanged.
- Potential significant contribution of the proposed development to **cumulative effects on fish habitat**.
- **Low suitability** of the proposed site for aquaculture as determined by baseline benthic conditions which could have negative effects on the culture operation and possible implications for the fish habitat as a result.

**Note:** Considering it is not possible to develop an exhaustive list of showstoppers, proponents are reminded that it is important to contact DFO early in the process to determine if they have a situation where adverse effects to fish habitat are unacceptable.

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## GLOSSARY

**Anoxic sediment.** Benthic conditions characterized by very high sediment accumulation, depositional with a high silt/clay ration, O<sub>2</sub> absent at sediment/water interface, anaerobic respiration and gas bubbles are released from sediments, high sulfide accumulation, extensive bacterial mat cover, sediment colour is black.

**Benthos.** The aggregate of animals and plants living on or at the bottom of a body of water. Within this context, benthos also includes the characteristics of the physical and chemical environment on the sea or lake bed. (*Guide to Information Requirements for Environmental Assessment of Marine Finfish Aquaculture Projects*)

**Compensation.** The replacement of natural habitat, increase in the productivity of existing habitat, or maintenance of fish production by artificial means in circumstances dictated by social and economic conditions, where mitigation techniques and other measures are not adequate to maintain habitats for Canada's fisheries resources. (*Policy for the Management of Fish Habitat*)

**Critical habitat.** Environmentally sensitive habitat. Areas that require an added degree of caution owing to features and characteristics that support protected species and/or unique habitats (e.g., rearing or spawning habitat, migration corridors, protected areas or proposed protected areas, location of salmon streams, sensitive migratory bird habitat, etc.). (*Guide to Information Requirements for Environmental Assessment of Marine Finfish Aquaculture Projects*)

**Epifauna.** Benthic fauna living on the substrate (as a hard sea floor) or on other organisms (Merriam-Webster Dictionary)

**Fish.** Includes parts of fish, shellfish, crustaceans, marine animals and any parts of shellfish, crustaceans or marine animals, and the eggs, sperm, spawn, larvae, spat and juvenile stages of fish, shellfish, crustaceans and marine animals. (*Fisheries Act*, sec. 2).

**Fish habitat.** Spawning grounds and nursery, rearing, food supply and migration areas on which fish depend directly or indirectly in order to carry out their life processes (*Fisheries Act*, sec. 34)

**Hypoxic sediment.** Benthic conditions with high sediment accumulation, high silt/clay ratio, high diversity of infauna, O<sub>2</sub> penetration to a few millimetres, anaerobic respiration is greater than anaerobic respiration, unreleased gas bubbles, moderate sulfide accumulation, bacterial mats may occur in patches, sediment colour is brown to black.

**Infauna.** Benthic fauna living in the substrate and especially in a soft sea bottom (Merriam-Webster Dictionary)

**Mitigation.** Actions taken during the planning, design, construction and operation of works and undertakings to alleviate potential adverse effects on the productive capacity of fish habitats. (*Policy for the Management of Fish Habitat*)

**No net loss.** A working principle by which the department strives to balance unavoidable habitat losses with habitat replacement on a project-by-project basis so that further reductions to Canada's fisheries resources due to habitat loss or damage may be prevented. (*Policy for the Management of Fish Habitat*)

**Oxic sediment.** Benthic conditions with little sediment accumulation, erosional to variable seafloor, high diversity of epifauna and infauna, O<sub>2</sub> penetration to several millimetres or several centimetres, aerobic respiration is equal or is greater than anaerobic respiration, no or little sulfide accumulation, sediment is light brown to dark grey in colour.

**Productive capacity.** The maximum natural capability of habitats to produce healthy fish, safe for human consumption, or to support or produce aquatic organisms upon which fish depend. (*Policy for the Management of Fish Habitat*)

**Redox potential.** A measure of oxidation and reduction reactions in water, measured as the loss or gain of electrons. Elements that donate electrons are oxidants while those that accept electrons are reductants (or de-oxidizers). In neutral, fully oxygenated water in equilibrium with air, redox potentials slightly greater than 500 mv are obtained. Redox measurements in natural waters should not be quantitatively interpreted or compared. Qualitative or relative comparisons, however, can be helpful in defining the degree of change within a system. Within an oxygenated water column, oxidative reactions predominate. As oxygen concentrations approach zero and anoxic conditions appear, as happens near the sediment-water interface, the redox potential drops significantly. Within the sediments, it is common for reducing conditions to prevail and the redox potential to approach zero or even a negative value. (*Guide to Information Requirements for Environmental Assessment of Marine Finfish Aquaculture Projects*)

**Remediation (restoration of habitats).** The treatment or clean-up of fish habitat that has been altered, disrupted or degraded for the purpose of increasing its capability to sustain a productive fisheries resource. (*Policy for the Management of Fish Habitat*)

**Salmonid.** Of the family Salmonidae.