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# The Federal Role in Regulating Fin Fish Aquaculture in BC

Presentation to:  
Special Committee on Sustainable Aquaculture

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## Purpose of Today's Presentation

- Outline DFO's regulatory role in managing fin fish aquaculture.
  - Areas of authority: Review and Operational
- Highlight the legislative levers and procedures that guide DFO's actions.
- Provide an historical perspective of the regulatory changes since the mid-1990's.



# Fisheries and Oceans Mandate

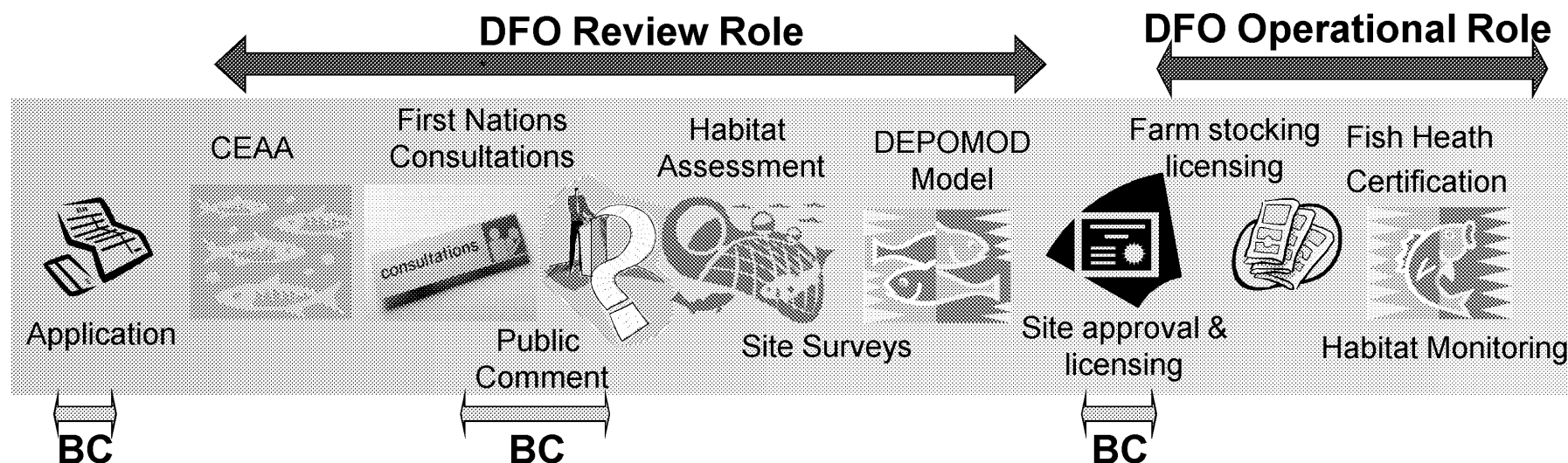
- Develop and implement policies and programs in support of Canada's scientific, ecological, social and economic interests in oceans and fresh waters.
- Operate under Government of Canada direction via:
  - Legislation
    - » Fisheries Act
    - » Oceans Act
    - » Canadian Environmental Assessment Act
    - » Species at Risk Act
  - Policies
    - » Habitat Policy
    - » Aquaculture Policy Framework
  - Strategies
    - » 2005-2010 National Strategic Plan - "Our Waters, Our Future"

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# BC Aquaculture Regulatory Regime - 2006





## DFO Regulatory Role - Historical Look 1980s – 1990s

- Applications subject only to review under the *Fisheries Act* and mainly exempt under the NWPA
- First Nations advised
- No Environmental Assessment
- No specific monitoring programs
- Poor harmonization with provincial regulations
- Pre-and during moratorium (1995-2002)



## DFO Regulatory Role - Historical Look Post Moratorium

- DFO, BC and industry unfamiliar with CEAA and finfish aquaculture = steep learning curves for all parties.
- Little guidance as to how to conduct aquaculture CEAs, resulting in very subjective evaluations.
- Time frame 2-3+ years for completion.
- Evolving habitat information requirements.
- Improved harmonisation with BC, but far from perfect.



## DFO Regulatory Role – Historical Look Current Day

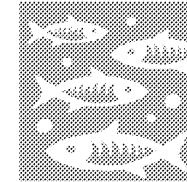
- CEAAAs conducted with a standardised scoring matrix to improve repeatability.
- Habitat Assessments use DEPOMOD as a predictive impact tool.
- Authorization Threshold established based upon benthic deposition of waste (carbon).
- Compliance monitoring harmonized with BC Waste Prevention Regulations.
- New 'Introductions and Transplant' regulations.
- Joint First Nations consultations.

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## DFO Review Role - CEAA

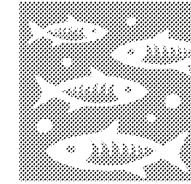


- Canadian Environmental Assessment Act screenings are triggered by:
  - Federal Lands
  - Federal Funding
  - Legislation
    - Navigable Waters Permit
    - Sec 35(2) Habitat Authorization





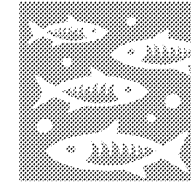
## DFO Review Role - CEAA



- CEAA reviews look at all potential environmental effects of the project, including:
  - Public comment phase
  - Whether a project is likely to cause a significant environmental effect.
- Two main aspects of the CEAA review:
  - Valued Ecosystem Components (VEC) Tables
  - Cumulative Effects Assessment



## DFO Review Role - CEAA



### Valued Ecosystem Component (VEC) Tables

A summarized report on potential effects such as:

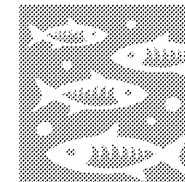
- Water quality, fish habitat (e.g., benthic)
- Fisheries resources (e.g., lingcod, rockfish, anadromous)
- Biodiversity (species of concern)
- Human health, recreational/commercial fisheries
- Tourism

VEC table also identifies mitigation measures to minimise/avoid these effects:

- Determinations are made based on the overall potential for environment changes resulting from the residual effects.



## DFO Review Role - CEAA VEC Example



Project component or activity	Potential project-environment interaction	VECs	Mitigation Measures	Significance of residual effect
Net cleaning and use of anti-foulants	Release of toxic and biological waste into the environment resulting from net cleaning and use of anti-foulants could impact fish and fish habitat through water quality change, waste deposition and toxic substance release.	<ul style="list-style-type: none"><li>• Marine water quality</li><li>• Fish habitat: benthic habitat</li><li>• Fish resources: wild fish populations</li></ul>	Nets will be transported by truck to a land based net cleaning facility.	Low

- Determinations are made more transparent, consistent, and defensible through a structured scoring approach
- Each effect has a significance ranking derived from the same five attributes; intensity, geographical extent, duration, frequency, reversibility
- The attribute scores evaluate the predicted effect after all avoidance and mitigation measures– the residual effect.

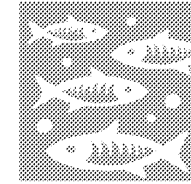
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## DFO Review Role - CEAA

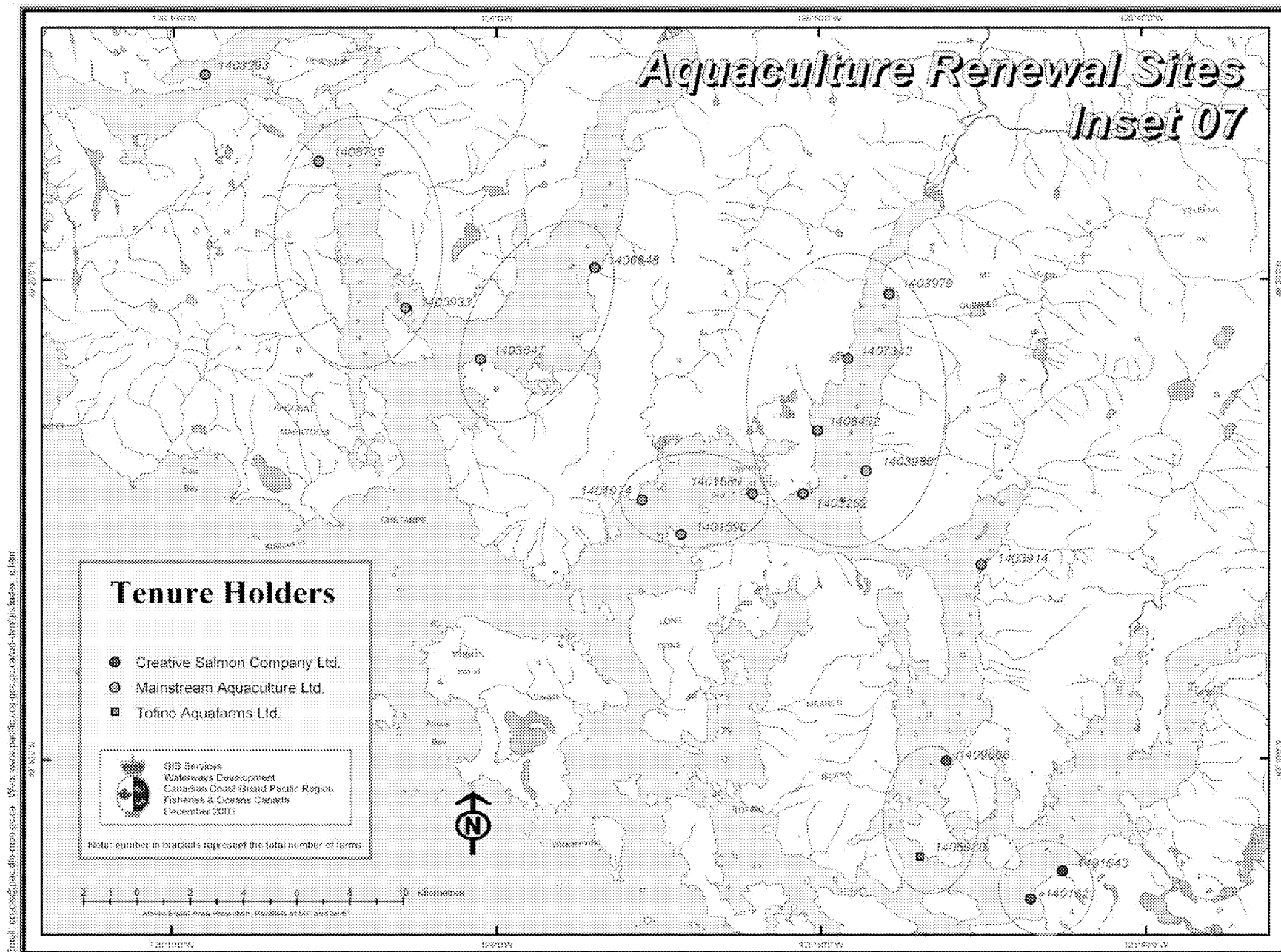
### Cumulative Effects Assessment



- CEAA includes 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.
  - (i.e. certain or reasonably foreseeable).
- These include effects that are additive, interactive or synergistic with the environmental effects of the project under review.
- Inclusion of all VECs / VSC ( Valued Social Components) for which significance of residual adverse effects have been determined to be more than negligible.

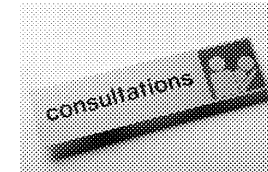
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## DFO Review Role - First Nations Consultations



- The Crown has a responsibility to consult on any issue that potentially impacts Aboriginal rights and/or title.
- In the case of finfish aquaculture, consultations historically have taken place, but at various levels.
- More recently, federal and provincial governments have been making concerted efforts to consult in a harmonized manner.
- This is further being strengthened through the negotiation of a MOU on FN consultations which will be used in cases where CEAA is triggered.

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## DFO Review Role - Habitat Assessment



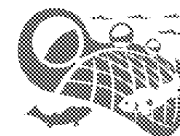
- Habitat Site reviews are carried out to assess any impacts to fish habitat.
- Projects are assessed for their likelihood to cause a HADD = Harmful Alteration Disturbance or Destruction of Fish Habitat
- Guided by policy of “No Net Loss” of productive capacity of fish habitat supporting Canada’s fisheries resources

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## DFO Review Role - Habitat Assessment



1. Predicting severity of impact:
  - DEPOMOD to predict benthic footprint
    - Particle tracking model
    - Predicts flux and accumulation of particles to the seabed from aquaculture operations
2. Bathymetry (surrogate for habitat productivity/sensitivity)
3. Evaluating sensitivity of habitat:
  - Site Specific Habitat Information
    - Critical and Sensitive Habitats

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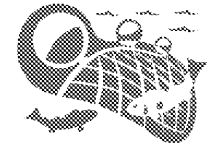
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## DFO Review Role - Habitat Assessment

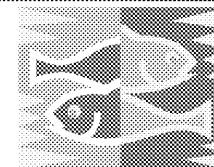
### Habitat types



- Critical-requires a high level of protection
  - For sustaining subsistence, commercial or recreational fisheries, their rareness, high productive capacity, high sensitivity e.g. Anadromous spawning areas, Kelp beds, Eelgrass beds, Lingcod Spawning habitats, Herring spawn areas, Abalone habitat
- Sensitive-requires a moderate level of protection
  - May include areas for feeding, growth, and migration areas, usually contain a large amount of similar habitat available to the stock e.g. Anadromous rearing areas, Rockfish rearing/nursery areas, Shellfish beds, Unique features, sponge complexes



# DFO Review Role - DEPOMOD



## INPUT

- CAGE POSITIONS
- STATION POSITIONS
- BATHYMETRY

## GRID GENERATION MODULE

*sea surface*

## INPUT (IN-FEED TREATMENTS)

- Conc. of compound on food; % excreted

## PARTICLE TRACKING MODULE

- FOOD/FAECES WITH DIFFERENT SETTLING VEL.
- ADVECTION OF PARTICLES BY CURRENTS
- REPRESENTATION OF CURRENT SHEAR
- TURBULENCE (RANDOM WALK)

## INPUT

- VARY FOOD INPUT *via* FISH GROWTH MODEL
- PARTICLE ATTRIBUTES
- VELOCITY DATA

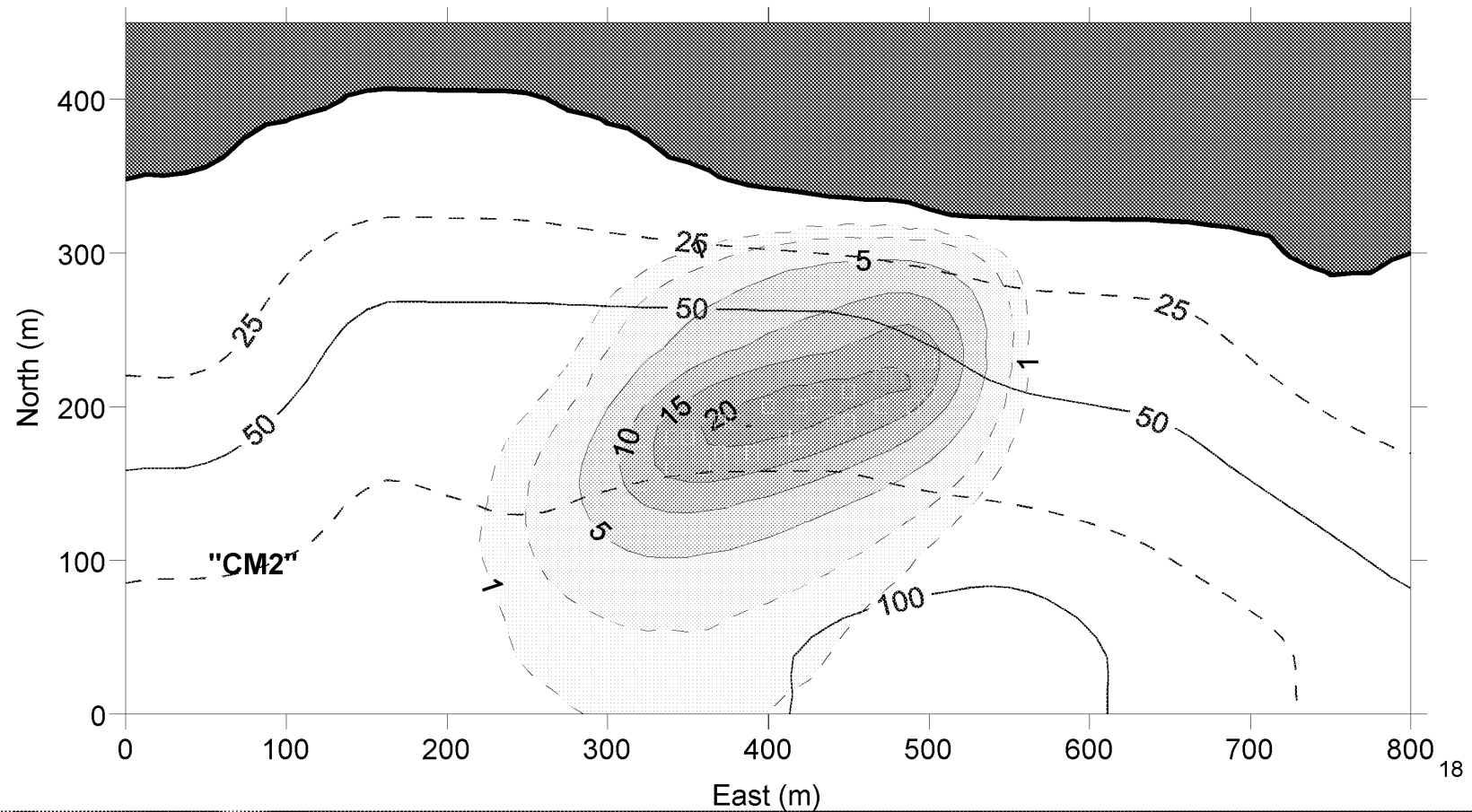
*water column*

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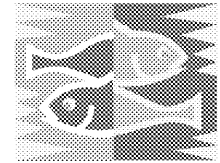
## DEPOMOD OUTPUT: Carbon Flux at Maximum Production



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# DFO Review Role – Habitat Assessment



- If 1 g C/m<sup>2</sup>/day contour overlaps Critical Habitats
  - Applicant must redesign, relocate, mitigate (example: reduce production numbers) and re-run DEPOMOD
- If 1g C/m<sup>2</sup>/day contour overlaps Sensitive habitats
  - Authorization: WLAP monitoring + Additional DFO benthic monitoring sites + Sensitive habitat monitoring required
- If 1g C/m<sup>2</sup>/day contour doesn't overlap Sensitive habitats
  - Authorization: WLAP monitoring + Additional DFO benthic monitoring sites
- No 5 g C/m<sup>2</sup>/day footprint, and no 1g C/m<sup>2</sup>/day overlap on 30 m contour or 1g C/m<sup>2</sup>/day overlap on 30 m contour but no critical or sensitive habitat
  - Letter of Advice

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## DFO Operational Role – Farm Stocking Licensing



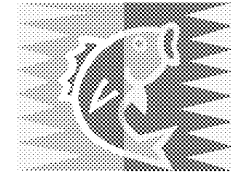
- All movements must be approved through a Sec 56 license, issued by DFO. Licenses are in two categories. Routine and Individual
- Reviews conducted by Provincial / Federal ITC
- Guided by the National Code on Introductions and Transfers and conducted under the Fish Health Protection Regulations.
- ITC considers ecological, disease and genetic impacts

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# DFO Operational Role – Habitat Compensation



## Compensation for Impacted Habitat:

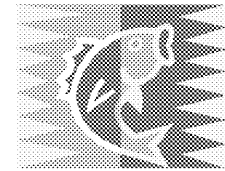
- Proposed by the client
- Intended to replace productive capacity
- Monitoring and reporting is required to demonstrate that the compensatory habitat is functioning as intended
- Order of preference for compensation (Habitat Conservation and Protection Guidelines 1998):
  - Create similar habitat within the same ecological unit
  - Increase productive capacity of existing habitat within the same ecological unit
  - Increase productive capacity for a different stock or fish offsite

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# DFO Operational Role – Habitat Monitoring



## Benthic Monitoring of Footprint – Baseline and Operational

- *Provincial Finfish Waste Control Regulations* (registration, pre-stock and peak production sampling)
- Additional DFO Benthic Sampling Sites to ensure authorized area is not exceeded for operational monitoring

## DFO Sensitive Habitat Monitoring on a Site Specific Basis

- Specific to DFO defined *Sensitive Habitats*. (i.e. shellfish beds, unique features, sponge complexes, rockfish rearing areas)
- Monitor for potential impacts to sensitive habitats
  - Required if 1g C/m<sup>2</sup>/day (or higher) overlaps Sensitive Habitats



## Comparisons to other Jurisdictions in Canada

	ATLANTIC REGION	PACIFIC REGION
<b>CEAA</b>	<ul style="list-style-type: none"><li>• Subjective Assessments</li></ul>	<ul style="list-style-type: none"><li>• Standardized scoring matrix</li><li>• Standardized CEA</li></ul>
<b>Habitat</b>	<ul style="list-style-type: none"><li>• No standard HADD determination</li><li>• DEPOMOD not in use</li><li>• Authorizations not required</li></ul>	<ul style="list-style-type: none"><li>• Standardized HADD threshold</li><li>• DEPOMOD to predict impact</li><li>• Sec 35 (2) Authorizations and Compensations</li></ul>
<b>Introductions and Transfers</b>	<ul style="list-style-type: none"><li>• N/A</li></ul>	<ul style="list-style-type: none"><li>• Salmonid Importation Policy specific to British Columbia</li></ul>

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## In Summary

- Fisheries and Oceans Canada has a complex and robust regulatory role for managing aquaculture in BC.
- CEAA and Habitat assessment are conducted prior to site installation.
- The Federal regulatory regime is:
  - based on the best available science, and
  - continuously improved as new information and tools become available.

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# Questions?

