



Overview of Aquaculture in British Columbia

Association of
Vancouver Island and
Coastal Communities
Conference
April 14, 2019



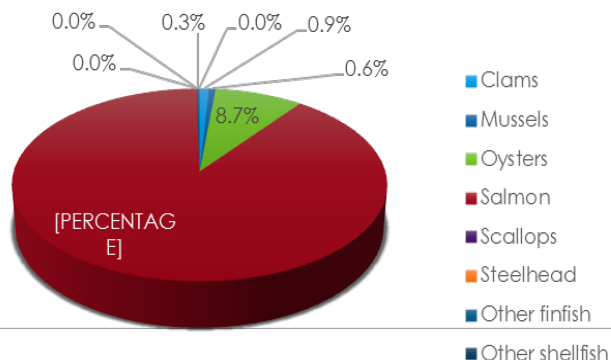
- Sector Overview
- Aquaculture regulation and governance
- DFO aquaculture management organization
- Application review and licencing
- Fish health, environmental management,& enforcement
- Public reporting and aquaculture science
- Indigenous relations
- Engagement

AQUACULTURE SECTOR OVERVIEW

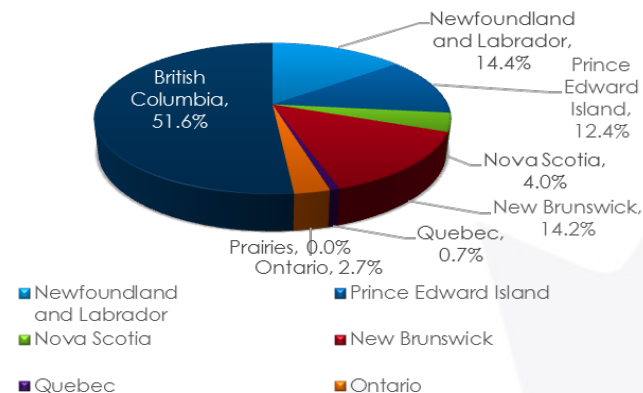
Aquaculture Production in BC

- **BC is the largest aquaculture producer in Canada**
- Approximately 52% of all aquaculture production (volume) nationally
- Salmon accounts for the majority of production volume (89.4%)
- Oysters represent the largest shellfish production sector (8.7%)

Aquaculture Production by Volume in British Columbia 2016

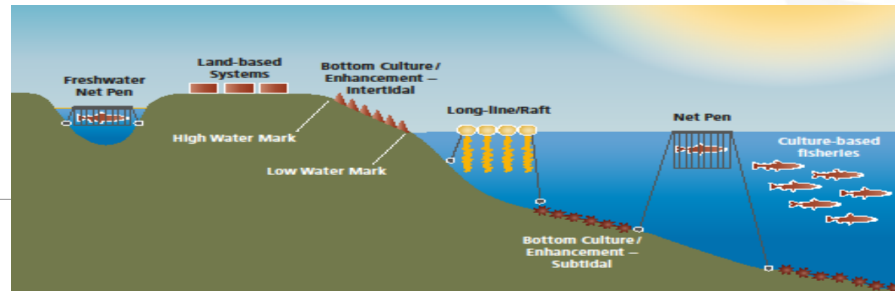


2016 Total Aquaculture Production Volume by Province, Total = 200,565 tonnes



Types of Aquaculture in BC

- **Marine finfish:** primarily Atlantic salmon – 116 licensed sites, concentrated close to Campbell River, Port Hardy and Tofino – with around 70 in production at any single time.
- **Shellfish:** mostly clams, oysters, mussels, scallops – approx. 480 licensed sites, high densities in Baynes Sound, Cortes Island and Okeover Inlet.
- **Freshwater and land-based:** culture of fish and shellfish which takes place within fresh water (lakes and ponds) and in facilities with tanks on land. This includes private hatcheries which provide juvenile fish and shellfish to the marine finfish and shellfish aquaculture industry – 109 licensed sites.

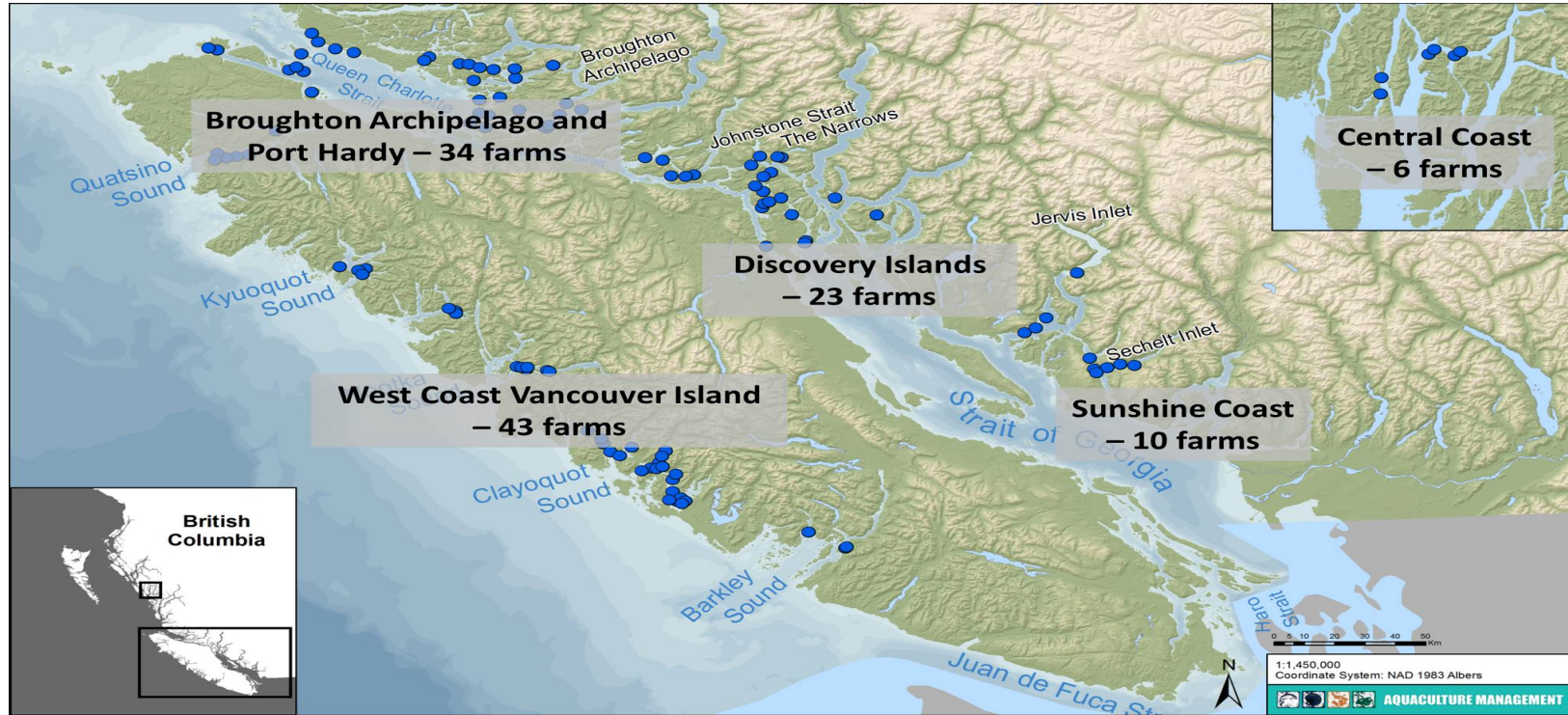


Types of Aquaculture in BC

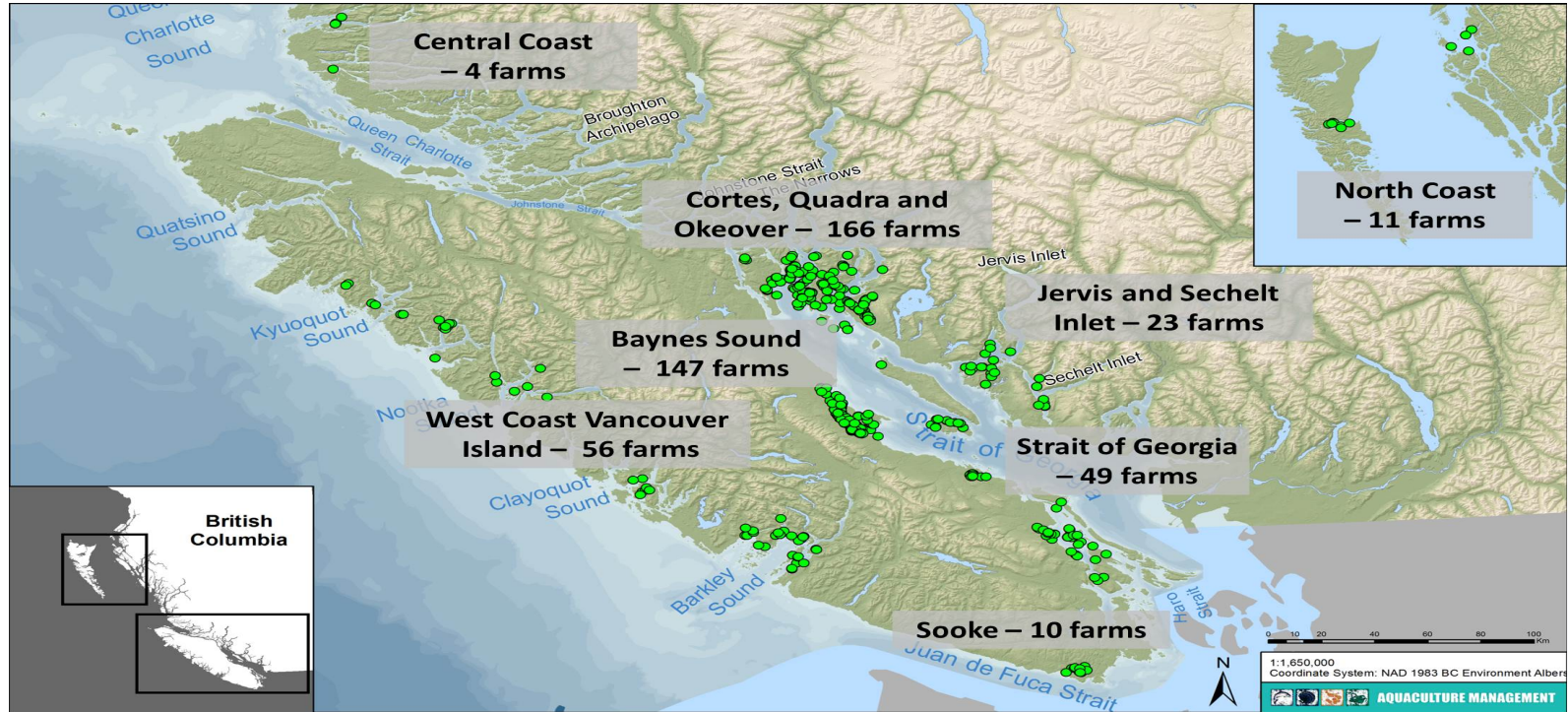
- **Fish stocking facilities:** fish stocking facilities: primarily freshwater species raised and released into the wild – 7 licensed sites (6 operated by Freshwater Fisheries Society of BC and 1 operated by Okanagan Nation Alliance)
- **Salmon enhancement facilities** Pacific salmon raised and released to enhance wild fish stocks under DFO's SEP – 130 licensed sites (18 major hatcheries and many community operations, including school programs)



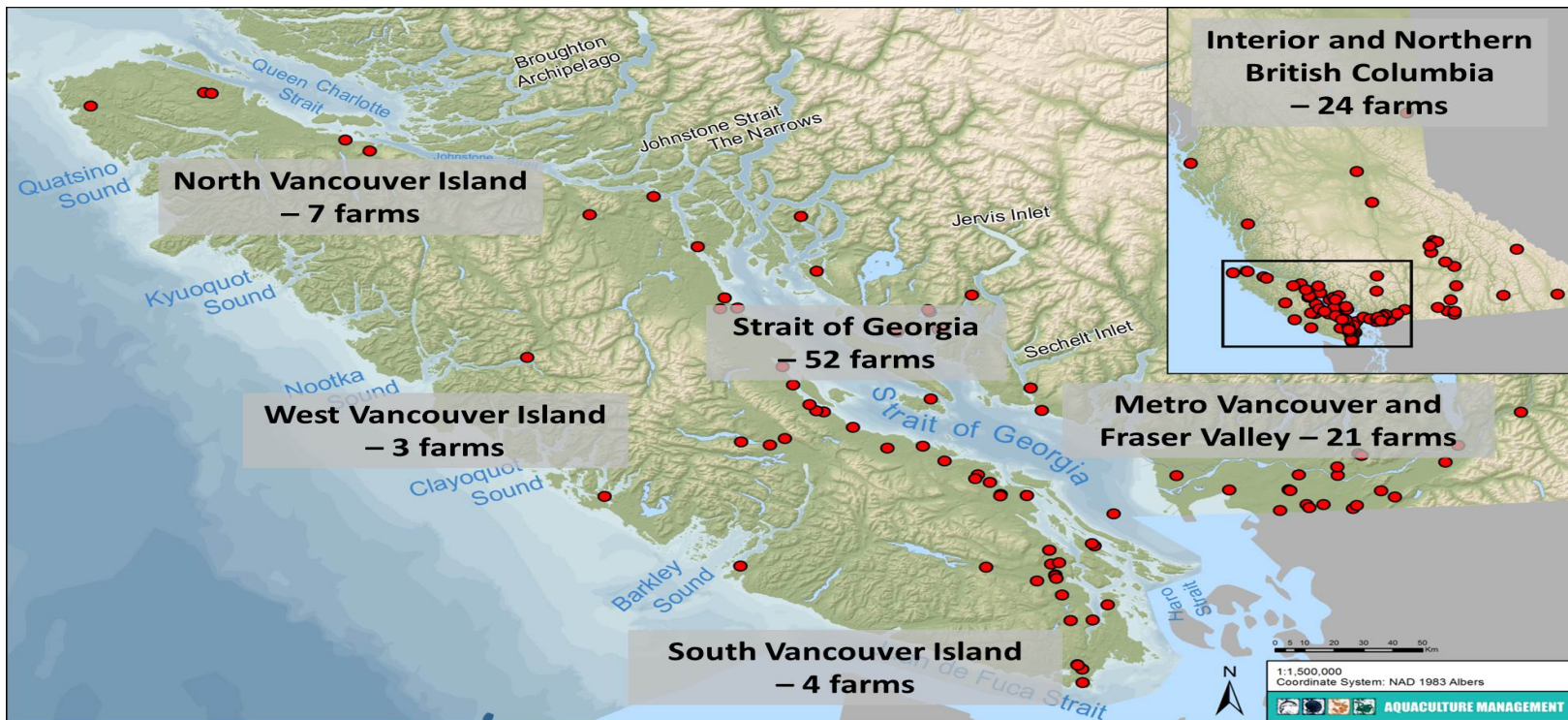
Distribution of Marine Finfish Facilities in BC



Distribution of Shellfish Facilities in BC



Distribution of Freshwater/Land-based & Enhancement Facilities in BC



AQUACULTURE REGULATION AND GOVERNANCE IN BC

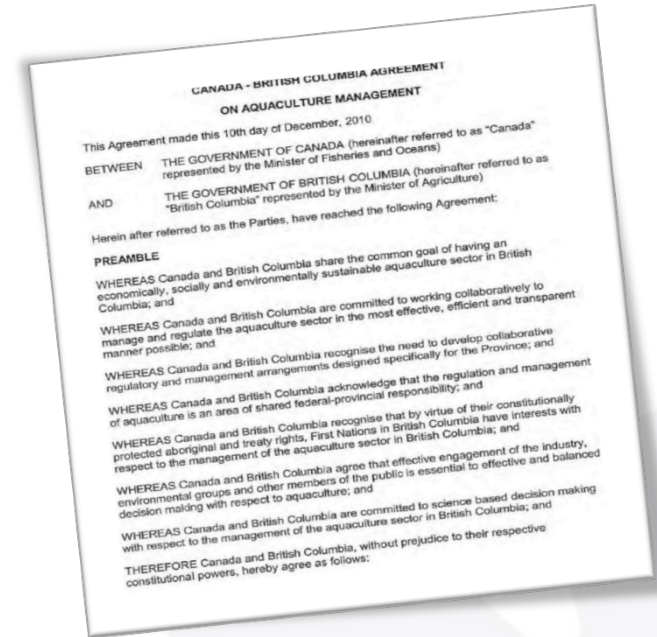
Aquaculture Regulation and DFO's unique role in BC

- *Fisheries Act*(1985)
- *Pacific Aquaculture Regulations* (2010)
- BC Aquaculture Regulatory Program
- *Aquaculture Activities Regulations* (2015)



Canada-BC Agreement on Aquaculture (2010)

- Canada-BC MOU sets out the responsibilities of both governments with respect to the management and regulation of the aquaculture sector in BC.
- Led to the establishment of a number of federal-provincial aquaculture committees to facilitate planning, consultation, decision making and data/information sharing.



Harmonized Application Process: Roles and Responsibilities

Fisheries and Oceans Canada	<ul style="list-style-type: none">• Issues licences for marine and freshwater aquaculture, including hatcheries• Assesses modifications to existing aquaculture sites• Establishes conditions of licence to conserve and protect fish and fish habitat• Enforces new aquaculture regulations• Conducts aquaculture research programs• Reports publicly on environmental and regulatory performance of industry
Transport Canada	Transport Canada's Navigable Waters Protection Program (NWPP) is responsible for the administration of the <i>Navigation Protection Act</i> and the Receiver of Wrecks Program
Canadian Food Inspection Agency	Agency has jurisdiction over animal health risks and plays an important role in minimizing and managing risk by protecting Canada's animals (including livestock, aquatic species and wildlife) from regulated diseases and from deliberate threats to the resource base. (e.g. NAAHP, etc.)
Provincial Government	<p>Issuance of tenures for marine or freshwater environment</p> <ul style="list-style-type: none">• Regulates business aspects of aquaculture (e.g., workplace health and safety)• Reports on seafood exports



DFO AQUACULTURE ORGANIZATION

Organization in Pacific Region

- Approx. 50 staff in the BC Aquaculture Regulatory Program (BCARP) between Aquaculture Management Division who is part of Fisheries Management and Conservation and Protection (Aquaculture specialized Fishery Officers)
- Staff are located in Port Hardy, Campbell River, Courtenay, Nanaimo and Vancouver with about 85% of staff on Vancouver Island
- Three key areas are: Policy, Licensing, Environmental Operations

DFO Aquaculture Offices

- Vancouver
- Nanaimo
- Courtenay
- Campbell River
- Port Hardy



APPLICATION REVIEW AND LICENSING PROCESS

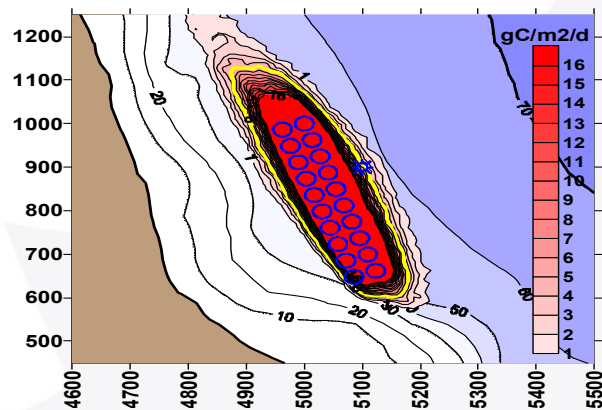
Application review and consultation

- DFO bases its decisions on the best available science advice; management approaches are developed or adjusted as new advice becomes available.
- The application review process can take up to a year and considers:
 - potential impacts to fish and fish habitat
 - potential interactions with wild stocks
 - Fish health and sea lice issues
 - introductions and transfers considerations
 - potential impacts to existing fisheries
 - consistency with government policy
- DFO engages with First Nations on aquaculture licensing decisions and assesses the possibility of infringements on established and potential rights & title.



Aquaculture Siting

- DFO updated the Siting Guidelines for New Marine Finfish Aquaculture Facilities in 2016.
- Primary objective is to locate aquaculture facilities in areas that are best suited to minimize risks to fish health and the aquatic ecosystem.
- The guidelines consider potential risks to:
 - the health of wild migratory salmon
 - existing fishery activities
 - sensitive seafloor habitat
 - Species at Risk
 - Marine Protected Areas
- Also ensure First Nations rights and title are respected and appropriate permits and authorizations obtained



Aquaculture Activities Regulation (AAR) requirements and conditions of licence

- The AAR and marine finfish aquaculture licences issued under the Pacific Aquaculture Regulations (PAR) set specific management and reporting requirements.

Management Measures include:

- Species and quantities of fish cultured
- Control and monitoring of pathogens
- Control and monitoring of pests
- Escape prevention measures
- Response plans for fish escapes
- Marine mammal interaction management plan
- Measures to reduce incidental catch

Reporting requirements include:

- Sea lice abundance
- Fish health and mortality
- Suspected or diagnosed disease outbreak
- Escape event details
- Inventory and stocking/harvesting plans
- Incidental catch
- Therapeutant usage

FISH HEALTH, ENVIRONMENTAL MANAGEMENT & ENFORCEMENT

Fish Health Management Plans

- Licence holders are required to develop, implement and follow a Health Management Plan which addresses the following:
 - Biosecurity
 - Keeping Fish Healthy
 - Fish Handling Techniques
 - Monitoring Water Quality
 - Keeping Pathogens Out
 - Minimizing Disease within the Site
 - Monitoring Fish Health
 - Fish Health Records
 - Fish Disease Outbreaks
 - Fish Escape
 - Handling Drugs & Chemicals



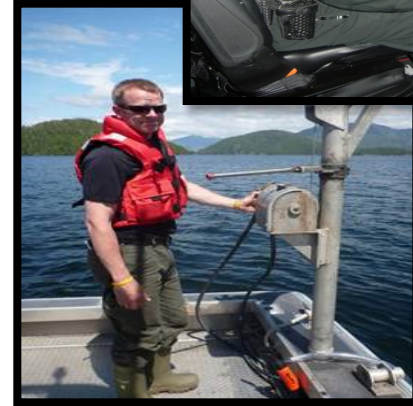
Fish Health Audit and Surveillance Program (FHASP)

- The primary objective of the program is to monitor compliance and minimize the potential risks of disease and disease transmission both to and from farmed fish
- Key activities include:
 - Sea lice audits
 - Diagnosis of endemic infectious disease
 - Surveillance for emerging disease
 - Surveillance screening for reportable diseases



DFO Environmental Monitoring Program

- Comprehensive field program to audit and assess the environmental performance of farm sites.
- Key activities include:
 - On-site benthic monitoring
 - Assessments of harvest and transfer activities



Inspection by Fishery Officers

- Specialized Conservation and Protection unit was created for aquaculture.
- Conduct inspections to validate licence reporting and determine compliance with aquaculture licence conditions and investigate reported concerns related to specific aquaculture facilities.
- Overall compliance with licence conditions in the marine finfish sector is high while shellfish aquaculture faces numerous challenges relating to debris and traceability recordkeeping.
- C&P conducts both scheduled and unplanned site visits to inspect facilities.

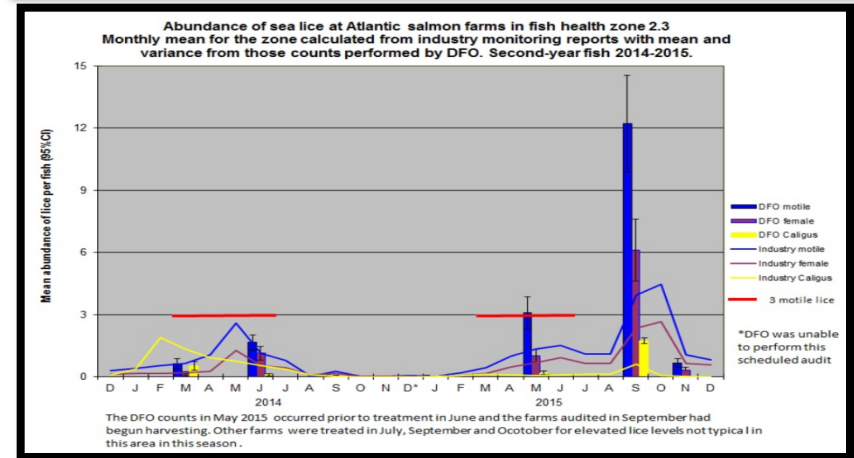


PUBLIC REPORTING AND AQUACULTURE SCIENCE

Public Reporting

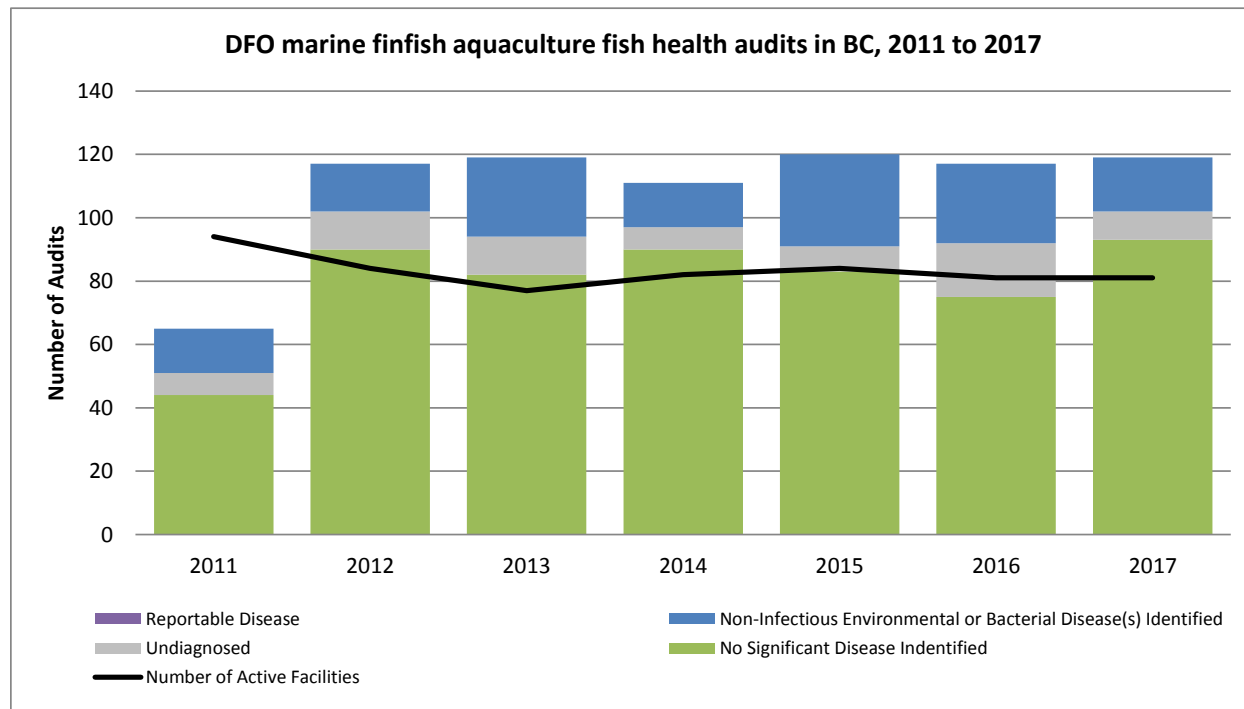
- DFO publicly reports on the aquaculture sector's environmental and operational performance.
- Information received through industry reporting and DFO audits are posted to the DFO website and shared on the Government of Canada's Open Data portal.
- Public reporting allows British Columbians to have confidence in how the aquaculture industry operates and is regulated.

Fish Health Zone	Q1 January-March		Q2 April-June		Q3 July-September		Q4 October-December	
	Monthly Mortality	Number of Farms	Monthly Mortality	Number of Farms	Monthly Mortality	Number of Farms	Monthly Mortality	Number of Farms
2.3	0.64%	13	1.08%	14	2.19%	12	1.35%	13
2.4	0.58%	11	4.32%	11	2.38%	10	1.83%	7
3.1 + 3.2	0.44%	10	1.25%	15	0.98%	15	0.93%	13
3.3	0.42%	13	0.83%	14	0.70%	11	0.77%	13
3.4 + 3.5	0.77%	11	2.56%	11	2.42%	9	0.86%	11
Pacific Species (all zones)	1.81%	7	1.57%	7	1.87%	7	1.28%	6

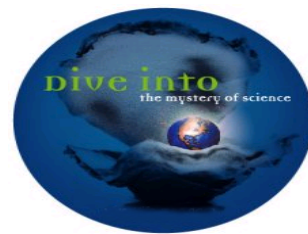


Public Reporting

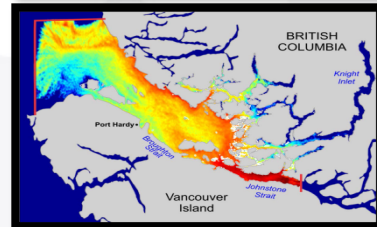
- Public reporting allows British Columbians to have confidence in how the aquaculture industry operates and is regulated.
- DFO is always looking for ways to improve transparency and accessibility of data.



Aquaculture Science at DFO



- DFO's management of aquaculture is science-based and will continue to evolve with new science advice and research outcomes.
- In Pacific Region much of DFO's aquaculture research is funded under the Aquaculture Collaborative Research and Development Program (ACRDP) or the Program for Aquaculture Regulatory Research (PARR).
- Co-funding of research initiatives may also be initiated with external groups such as the Pacific Salmon Foundation, Genome BC, the BC Salmon Farmers Association, the BC Shellfish Growers Association, or Indigenous groups.



INDIGENOUS CONSULTATION

First Nations and Aquaculture

- Active involvement by communities in shellfish, finfish and freshwater aquaculture and governance interests.
- Complex landscape with more than 200 FNs in BC with a variety of perspectives.
- About 70-80% of salmon farms, operate with some form of agreement in place with Indigenous communities.
- DFO consults with Indigenous groups where ever there is a risk of infringement on rights and title on a site by site basis.



First Nations and Aquaculture



- Recent policy announcements by BC related to finfish aquaculture have changed the landscape regarding FN and aquaculture.
 - June 20, 2018 - Policy re: future finfish tenures and BC's implementation of UNDRIP
 - December 14, 2018 - Broughton Announcement

ENGAGEMENT

Engagement - Multilateral

- When the program was established a multilateral engagement process was developed called the Aquaculture Management Advisory Committee process. The meetings are for appointed members, but are open to the public.
- DFO collaborated with the UBCM on the development of the Terms of Reference. Two seats are set aside on each committee for municipal government representation.
- The Marine Finfish committee has been suspended since 2016 and the format may be revisited.



Engagement - Bilateral

- Aquaculture engages frequently bilaterally as part of our regulatory and non-regulatory approaches including meeting with groups such as the:
 - First Nations Fisheries Council Aquaculture Coordinating Committee
 - Conservation Regulatory Working Group
 - Finfish/ Shellfish/ and Freshwater-Land-based Aquaculture Industry Advisory Panels
 - Shellfish Aquaculture Industry Advisory Panel
 - Aquaculture Management Committee (DFO and BC – executive level meetings)
 - Fish Health Advisory Committee

KEY PRIORITIES FOR 2019-20

Recent Ministerial Announcements



Minister Wilkinson has made several recent announcements:

- Area Based Aquaculture Management
- Alternative Technologies Study
- Risk Assessments to better understand the potential impacts of pathogens and interactions between farmed, wild and enhanced fish
- Aquaculture Act and General Aquaculture Regulations (GAR)

Area Based Aquaculture Management

- New approach to adaptive management on more refined geographic scales
- Better integration of information about local ecosystems and reporting on industry performance
- Development of collaborative governance approaches and improved monitoring partnerships with Indigenous communities
- Pilot on Northern Vancouver Island currently underway.



DFO/Municipal Government Engagement Opportunities

- Staff or political level engagement (and discussion about local interests, bylaws, etc.)
- Area Based Aquaculture Management
- Evolving multilateral processes (AMAC or next steps)
- New Aquaculture Act and General Aquaculture Regulations
- Development of enhanced bilateral engagement

