

Regulating and Monitoring British Columbia's Marine Finfish Aquaculture Facilities 2020



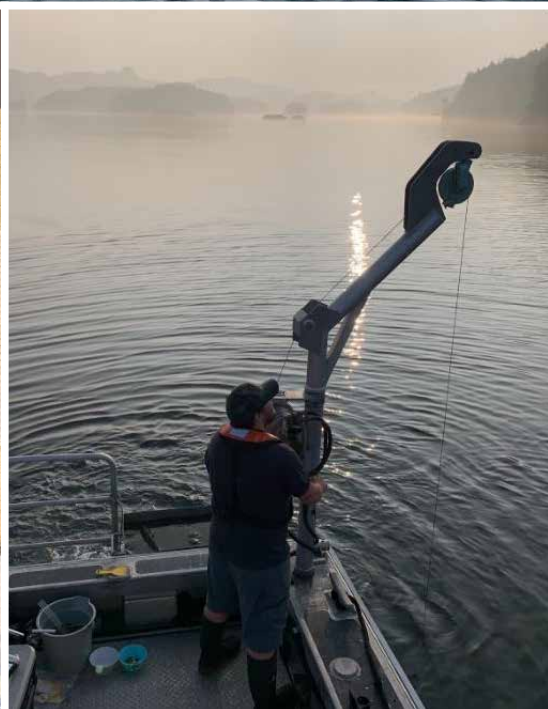
**AQUACULTURE
MANAGEMENT**



Fisheries and Oceans
Canada

Pêches et Océans
Canada

Canada



Marine Finfish Aquaculture in BC

LOCATIONS OF MARINE FINFISH AQUACULTURE FACILITIES

Marine finfish aquaculture facilities are mainly located around northern and western [Vancouver Island](#). There are clusters of sites in several areas, such as [Clayoquot Sound](#), the [Port Hardy](#) area, the [Broughton Archipelago](#), and the [Discovery Islands](#). All marine finfish aquaculture facilities with a valid licence as of December 31, 2020 are shown in the map on the following page.

MARINE FINFISH SPECIES CULTIVATED IN BC

Atlantic salmon (*Salmo salar*) are the most commonly farmed fish in BC. Chinook salmon (*Oncorhynchus tshawytscha*) and Sablefish (*Anoplopoma fimbria*) are also cultivated on a smaller scale. Atlantic salmon is the preferred species for cold water marine finfish cultivation around the world because these fish feed well on pellets, are efficient at converting food to body mass, grow quickly, and are well adapted to the confines of a net pen.

PRODUCTION BIOMASS BY SPECIES

Atlantic salmon
96.7%

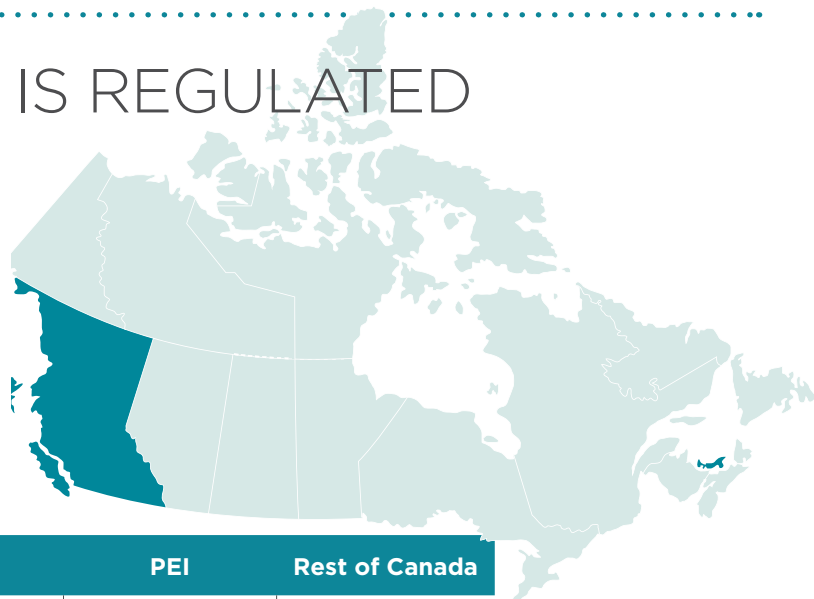
Chinook salmon
2.8%

Sablefish
0.5%

HOW FISH FARMING IS REGULATED IN CANADA

Fish farming is jointly managed among federal, provincial, and territorial governments. How it's managed varies between provinces and territories.

Across Canada, fish farming is managed sustainably under the *Fisheries Act*. Federal partners work together to make sure fish are healthy and safe to eat.



	BC	PEI	Rest of Canada
Site Approval	Shared	Shared	Provincial
Land Management	Provincial	Federal	Provincial
Day-to-day Operations & Oversight	Federal	Federal	Provincial
Introductions & Transfers	Shared	Shared	Shared
Drugs & Pesticide Approvals	Shared	Shared	Shared
Food Safety	Federal	Federal	Federal

2020 Active and Inactive Marine Finfish Aquaculture Sites in British Columbia



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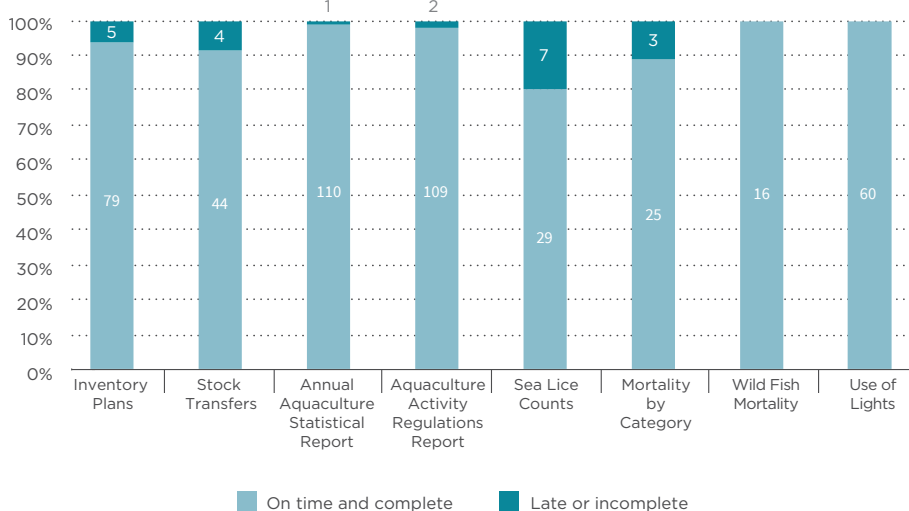


AQUACULTURE MANAGEMENT

Reporting Requirements

Under the *Pacific Aquaculture Regulations* and the *Aquaculture Activities Regulations*, licence holders are required to submit reports to Fisheries and Oceans Canada (DFO) that fall into two broad categories: scheduled reports and event-based reports. All reports are reviewed by DFO to validate content, to ensure that they contain all elements required by the licence conditions, and to determine if they were submitted on time. When a report contains only minor administrative omissions or errors and the licence holder corrects these in a timely manner, the reports may be considered complete and on time. Some event-based reports such as mortality events, escapes and marine megafauna interactions include both an initial notification and follow up report(s).

2020 Scheduled Reports Submitted to DFO

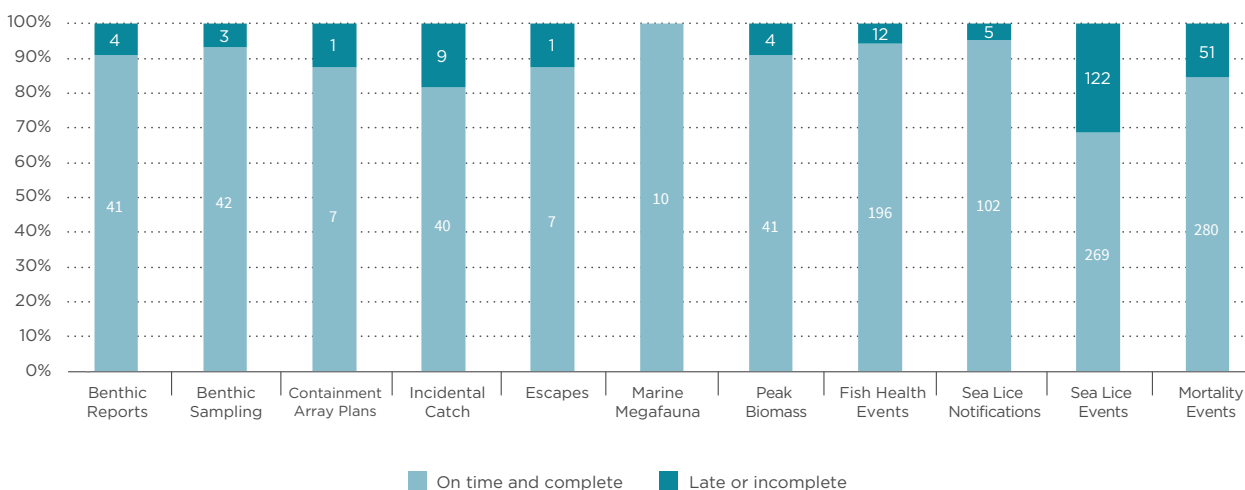


“Wild Fish Mortality” in **Scheduled Reporting** (left) refers to wild fish caught when collecting farmed fish mortalities.

“Incidental Catch” in **Event-based Reporting** (below) refers to wild fish caught during transfer, harvest, treatment or handling.

“Sea Lice Events” in **Event-based Reporting** (below) includes threshold exceedance notifications, pre/post treatment counts and all follow-up reporting.

2020 Event-based Reports Submitted to DFO





MONITORING AND AUDITS

What Happens During a Fish Health Audit?

DFO requires operators of marine finfish aquaculture facilities to follow strict measures to keep fish healthy and conducts routine, random site inspections to ensure compliance.

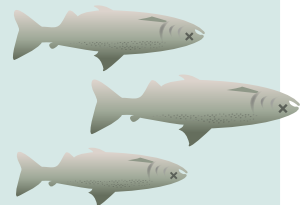
In BC, facility operators must follow a DFO-approved [Health Management Plan](#) (HMP). This plan outlines how operators will assess environmental factors such as water quality, implement biosecurity tools, and treat fish to maximize fish health. Industry must monitor the health of their fish and report their findings to DFO.

In addition to the regular audit program, DFO began conducting targeted audits at marine finfish aquaculture facilities in 2020. Targeted audits are not randomly selected; they are conducted when a need has been identified. This could include reports of unusual mortality or disease, if a transfer has been requested and the facility has not been visited in several months, or at the discretion of the Minister or DFO. Additionally, DFO has committed to auditing every facility producing Chinook salmon on a quarterly basis. On average, DFO conducts ten targeted audits each year.

1

SAMPLING AND OBSERVATION

A team of 2 or 3 DFO biologists spend about 4 hours on each site. Auditors observe fish in each pen, noting any behaviour or signs that might indicate poor health, such as slow or abnormal swimming or visible abnormalities. They then select up to 10 recently deceased fish (called “silvers”) for sampling.



2

TISSUE COLLECTION

Tissue samples are taken on site and then sent to a laboratory accredited by the Standards Council of Canada and the American Association of Veterinary Laboratory Diagnosticians.

3

LAB ANALYSIS

The lab analyzes samples for specific bacteria and viruses, and health conditions of concern, including infectious salmon anaemia virus (ISA), Infectious Hematopoietic Necrosis virus (IHNV), and heart and skeletal muscle inflammation (HSMI).



4

REVIEW AND PUBLISH RESULTS

Results are reviewed by DFO veterinarians and reported on DFO's website at: www.dfo-mpo.gc.ca/aquaculture/protect-protege/reduce-disease-reduire-maladie-eng.html

!

Certain serious infectious diseases, such as ISA and IHNV, are listed under the *Health of Animals Act*. If found, they must be reported immediately to the Canadian Food Inspection Agency, which investigates and develops a plan to prevent the disease from spreading.

HOW DFO INSPECTS FISH HEALTH AT BC AQUACULTURE SITES



Auditors use a checklist of 60 items to ensure a farm is operating as licensed and following its HMP. Any deficiencies are noted and reviewed with the farm operator so that improvements can be made. Non-compliance with the HMP may result in further investigation and possible charges.



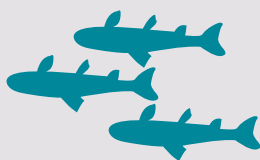
FISH BEHAVIOUR AND HEALTH
are monitored



WATER QUALITY
is monitored routinely and can be addressed if needed



BIOSECURITY PROTOCOLS
such as equipment disinfection, visitor restriction and the use of footbaths, are followed



COLLECTION & CLASSIFICATION
of deceased fish is frequent and acceptable

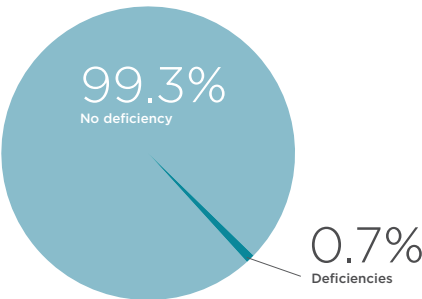


FEED, NUTRITION & MEDICATION RECORDS
are complete and up-to-date

Results are reviewed by DFO veterinarians and reported on DFO's website at:
www.dfo-mpo.gc.ca/aquaculture/protect-protege/reduce-disease-reduire-maladie-eng.html

2020 DFO FISH HEALTH MANAGEMENT PLAN INSPECTIONS

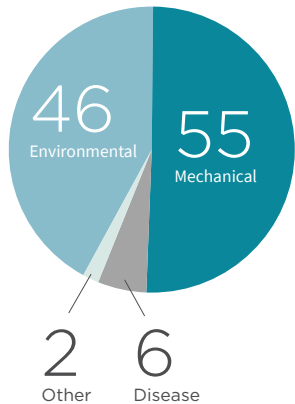
This figure summarizes the 17 deficiencies observed during fish health management plan inspections by DFO in 2020. A total of 93 health management plan (HMP) inspections were completed. These deficiencies may not be determined to be “non-compliant” and only need some corrective actions or improvements. Fewer site visits took place in 2020, compared to past years, due to restrictions imposed as a result of the Covid-19 pandemic.



- Carcass retrieval protocol or record keeping needs improvement (4)
- Husbandry or record keeping needs improvement (1)
- Lice protocol or lice records needs improvement (9)
- Nutritional or medicated feed protocol concerns (2)
- Transfer records are not complete or up-to-date (1)

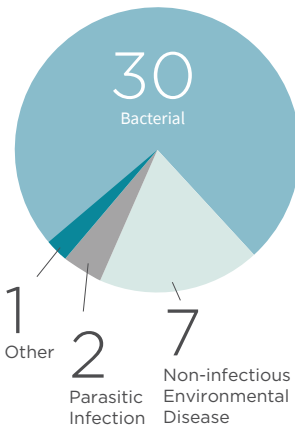
INDUSTRY REPORTED EVENTS

Fish health and mortality events are reported by industry when they occur, as well as any mitigation or treatment response. DFO reviews whether the conclusions are reasonable and assesses the response against the HMPs and standard operating procedures for the facility. If there are concerns with the report or event, DFO will attempt to resolve the issue by engaging with the industry veterinarians and, if necessary, will prioritize the facility for a targeted audit.



2020 Mortality Events

A mortality event occurs if the amount of dead fish at a marine finfish aquaculture facility exceeds thresholds outlined in conditions of licence. Environmental events include mortality caused by naturally occurring conditions such as harmful algae blooms or low oxygen. Mechanical events describe mortality resulting from stressful procedures such as transport, harvest, or treatments. Disease events describe mortality as a result of veterinarian-diagnosed disease, either infectious or non-infectious, some of which do not require treatment and often resolve naturally.



2020 Fish Health Events

A fish health event is any suspected or confirmed disease that occurs within an aquaculture facility, requires the involvement of a veterinarian, and warrants mitigation measures. Bacterial events are the result of easily treatable diseases caused by naturally occurring bacteria. The majority of these are caused by a bacteria that naturally lives in the ocean and causes a disease to Atlantic salmon called “mouth rot” or “yellow mouth”. Non-infectious environmental events are those that farmed fish contract from their environment, such as environmental toxins, fungal infections, or poor gill health. Parasitic events are those where farmed fish are infected with parasites common in the ocean environment; this does not include the routine management of the salmon louse (*Lepeophtheirus salmonis*).



Fish Health

SEA LICE

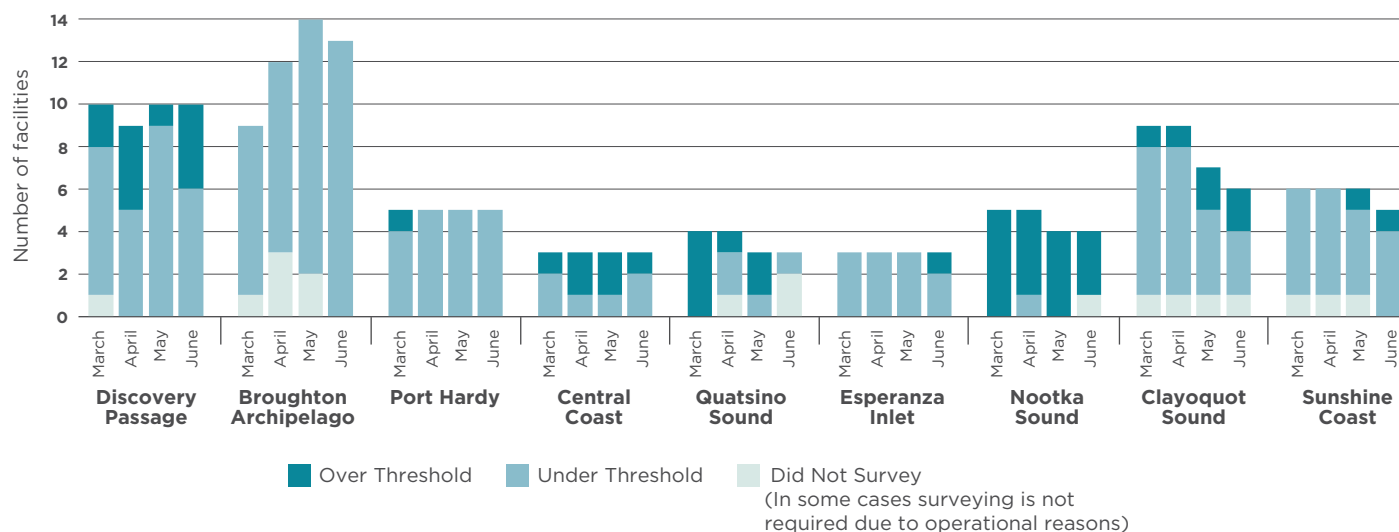
Minimizing the sea lice levels on farms is a critical component of sustainable aquaculture management. DFO manages this through mandatory monitoring, mitigation, treatment, and reporting; as well as audits to ensure compliance. DFO assesses sea lice abundance in farmed salmon and verifies the accuracy of industry-submitted data. This provides DFO with timely information regarding the operational performance and compliance of aquaculture facilities.

Licence holders must routinely count and report sea lice at active Atlantic salmon facilities. To protect vulnerable juvenile wild salmon, sea lice monitoring and mitigation at aquaculture facilities is increased from March to June when wild salmon smolts are out-migrating from freshwater systems. Licence holders must report to DFO within 48 hours if the average number of motile *Lepeophtheirus salmonis* (a species of sea lice found primarily on salmon) exceeds three sea lice per fish. When this occurs, mitigation actions must be taken action to reduce lice levels, and pre- and post-treatment counts must be done to assess treatment efficacy. These actions can include in-feed medication, medicinal or non-medicinal bath treatments, mechanical removal, or harvest.

Instances of sea lice abundance threshold exceedances have been relatively minimal since 2011. However, in recent years, threshold exceedances have become more common in some areas due to treatment challenges or environmental conditions. To allow for more timely management and enforcement of sea lice abundances and mitigative actions, DFO made changes to the sea lice conditions of licence in 2020 including additional requirements to:

- increase sampling in the month leading up to the juvenile salmon out-migration period;
- have facilities enter the wild juvenile salmon out-migration window under the sea lice threshold of three lice/fish;
- bring sea lice abundances back under threshold within 42 days when exceedances occur during the juvenile salmon out-migration period;
- perform pre- and post- treatment sea lice counts to assess treatment efficacy and minimize treatment resistance;
- submit sea lice counts to DFO in a more timely manner; and
- collect and dispose of sea lice during mechanical removal.

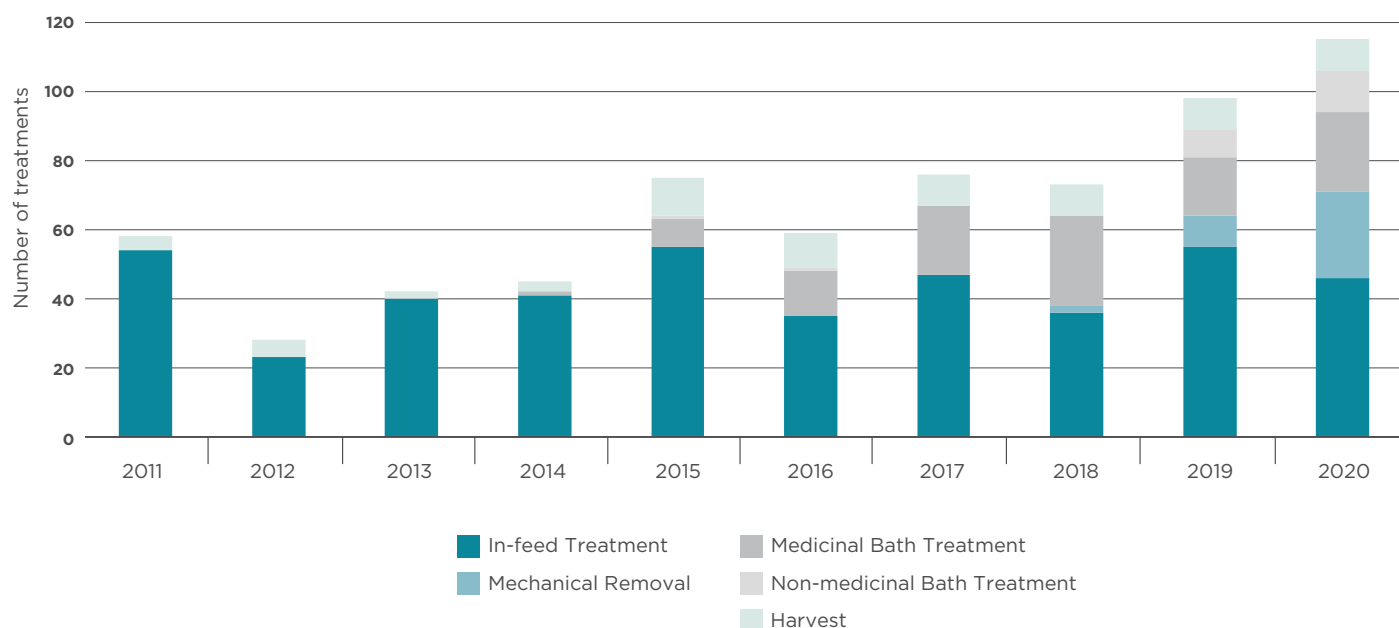
2020 Sea Lice Over Threshold by Area During Wild Salmon Out-migration Window



INTEGRATED PEST MANAGEMENT

In 2020, Atlantic salmon farming companies used multiple types of sea lice treatments to manage infestations. This is a key feature of integrated pest management, as having numerous methods to control sea lice reduces the reliance on chemotheraputants, reduces the likelihood of resistance developing, and allows the use of the most appropriate tool for different situations. Until recently, an in-feed medication called SLICE® (*emamectin benzoate*) was the most commonly used treatment option for sea lice in BC. SLICE® resistance has emerged in some farmed Atlantic salmon populations, necessitating the development of alternative treatments for lice management to prevent wide-spread resistance. Some other treatment examples that are used more frequently in BC include hydrogen peroxide or freshwater baths, mechanical sea lice removal (a “hydrolicer”), or simply harvesting in a timely fashion.

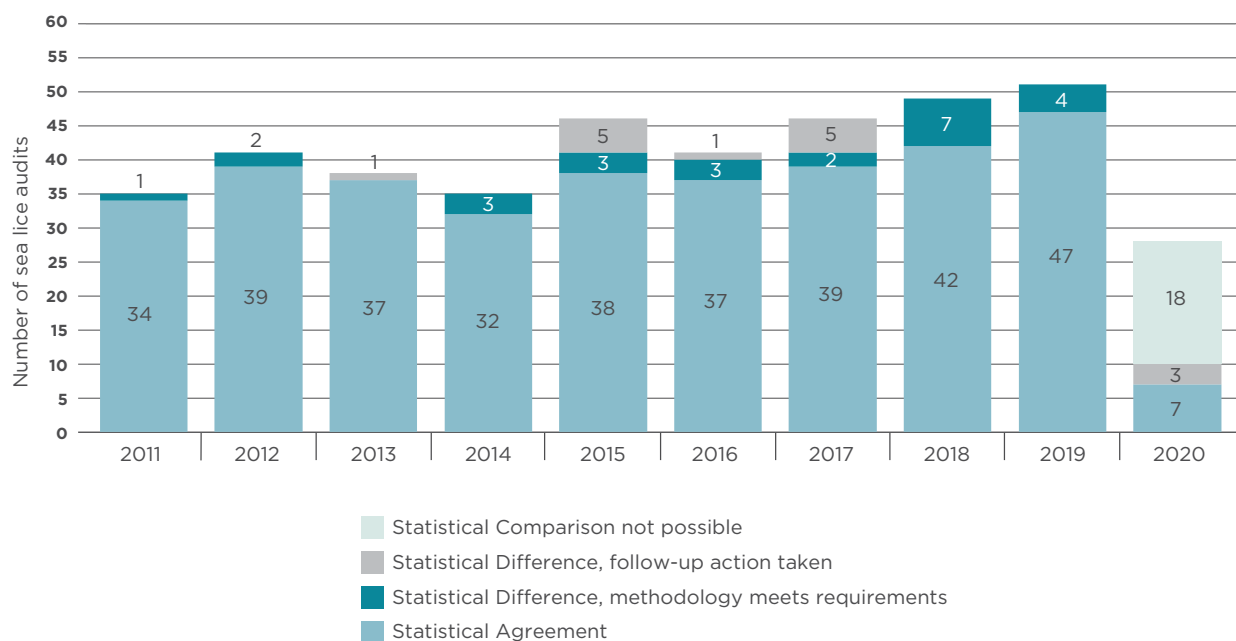
Sea Lice Mitigation Treatments at Marine Finfish Aquaculture Sites in BC, 2011 to 2020



SEA LICE AUDITS

DFO audits aquaculture facilities to verify the accuracy of industry procedures and reporting. On the day of a sea lice audit, DFO and industry conduct sea lice counts on an equal number of fish. The results of DFO and industry counts are compared to determine statistical agreement. DFO also assesses industry's counting procedures. In some cases where DFO and industry counts do not agree, the difference may be attributed to sample selection and not methodology. In these cases no follow up action is required. If methodology is incorrect, it is documented by DFO and the company is expected to provide training for their staff. In 2020, due to the COVID-19 pandemic, only DFO counts were performed and a desk audit of sampling methodology was completed to assess compliance.

DFO Marine Finfish Aquaculture Sea Lice Audits in BC, 2011 to 2020



DFO PERFORMS ABOUT

120 FISH HEALTH AUDITS EACH YEAR



98% IS THE INDUSTRY'S AVERAGE COMPLIANCE RATE



EVERY 3 MONTHS

DFO RANDOMLY SELECTS 30 ACTIVE* SALMON FARMS IN BC FOR AUDIT

*An active farm is one that has had at least three full pens of fish for at least 30 days of a calendar quarter.

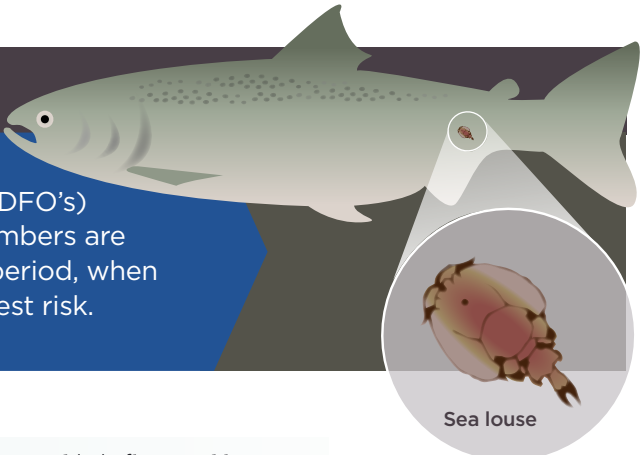
*DFO can also conduct targeted audits when needed.



Learn more at www.pac.dfo-mpo.gc.ca/aquaculture/index-eng.html

SEA LICE MANAGEMENT AT BC SALMON FARMS

Sea lice management at BC salmon farms



WHAT ARE SEA LICE?

Sea lice are parasites that have lived in BC's coastal waters for thousands of years. Farmed fish are free of sea lice when they enter the ocean but can pick them up in the marine environment.

The species of sea lice that predominantly infects wild and farmed salmon is called *L. salmonis*.

Sea lice generally do not harm adult Pacific salmon, but can harm small juvenile salmon.

Fisheries and Oceans Canada's (DFO's) requirements ensure that lice numbers are lowest during the outmigration period, when wild juvenile salmon are at greatest risk.

YEAR ROUND

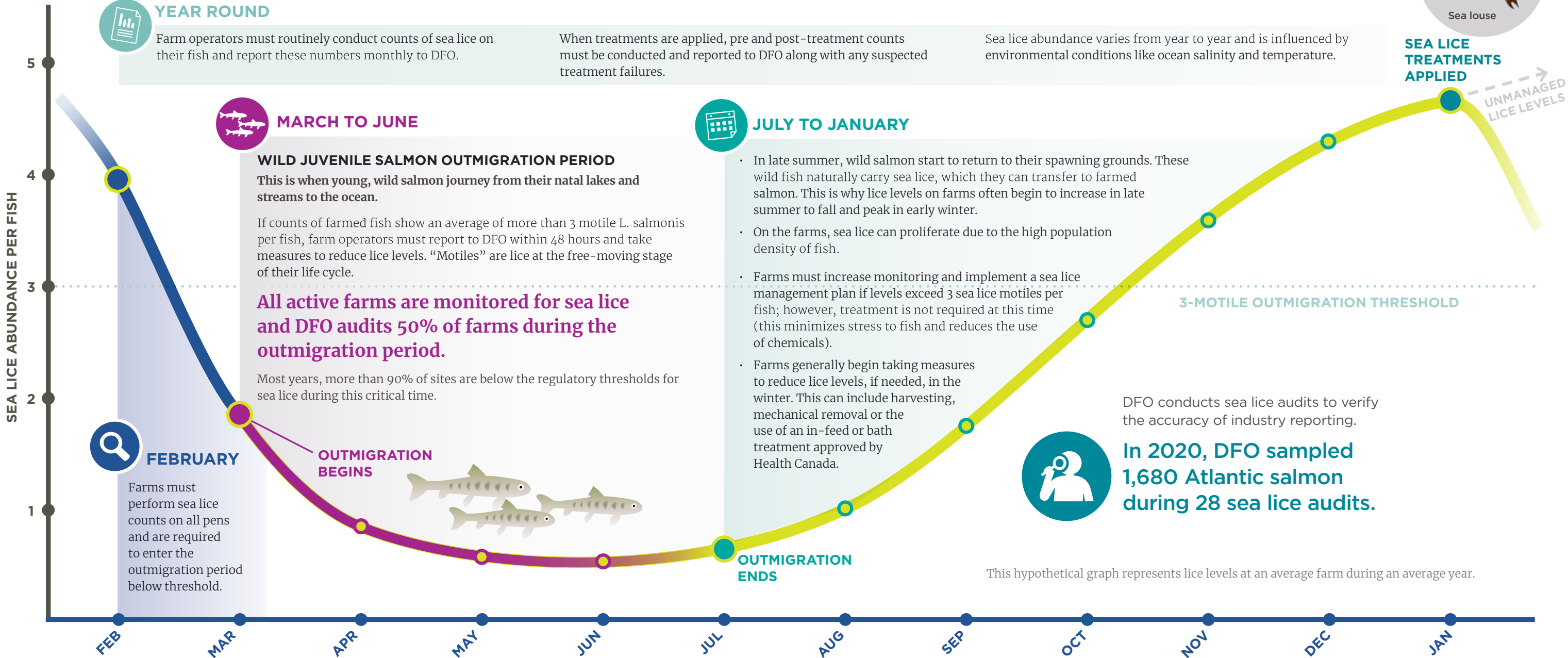
Farm operators must routinely conduct counts of sea lice on their fish and report these numbers monthly to DFO.

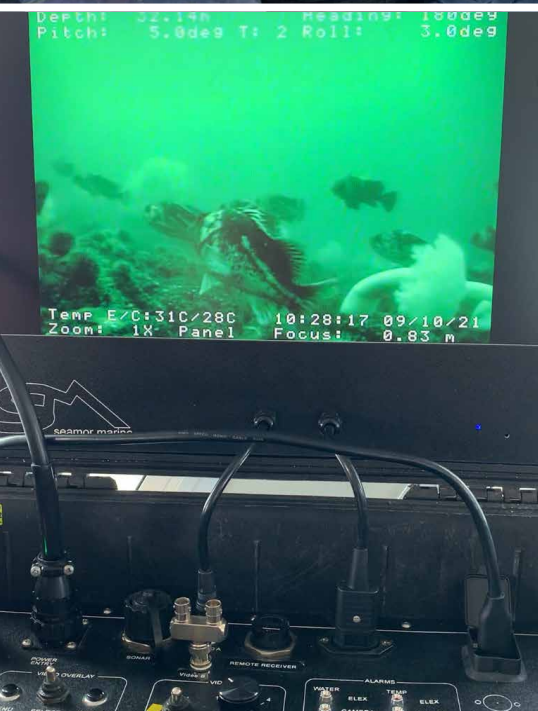
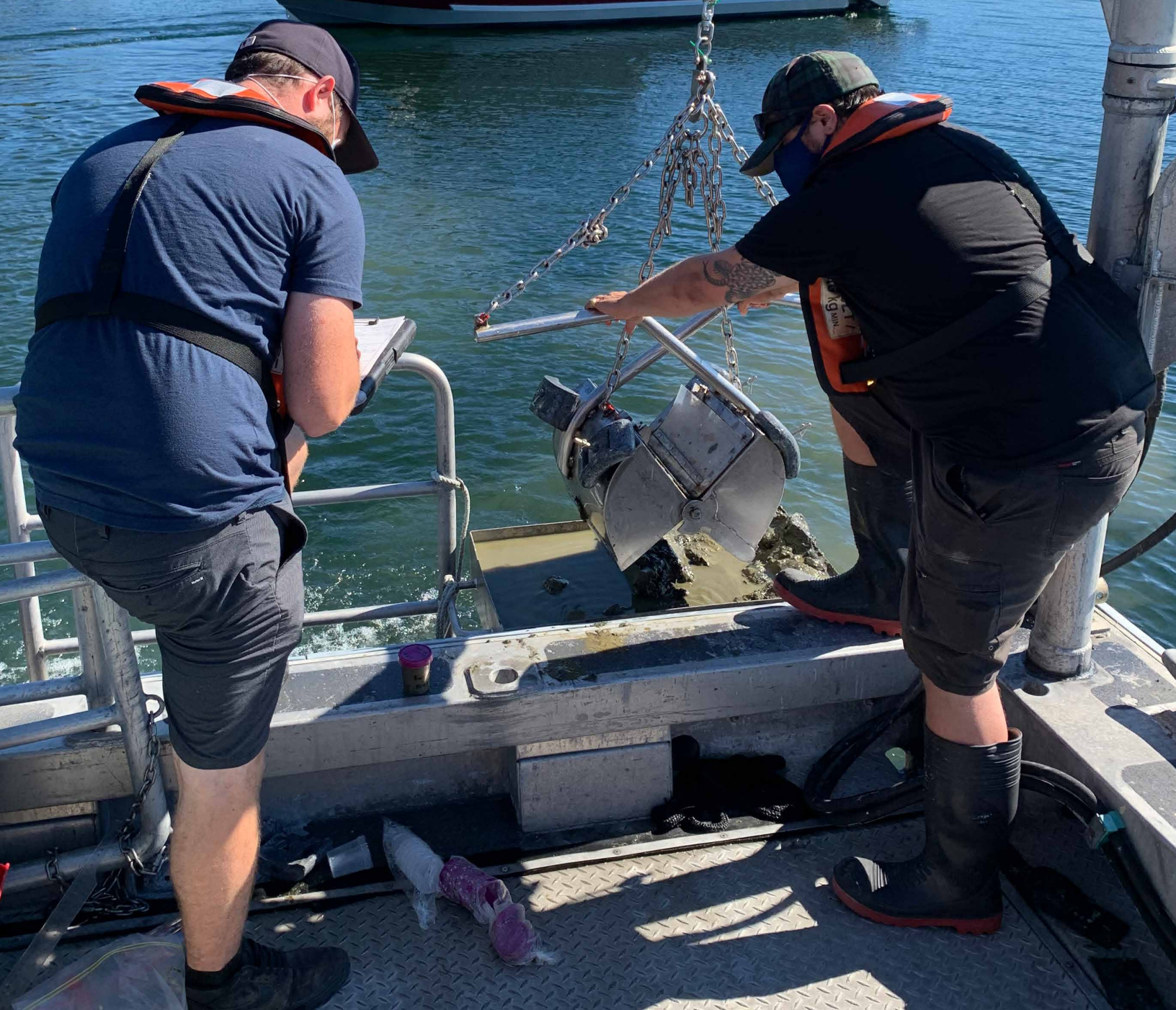
When treatments are applied, pre and post-treatment counts must be conducted and reported to DFO along with any suspected treatment failures.

Sea lice abundance varies from year to year and is influenced by environmental conditions like ocean salinity and temperature.

SEA LICE TREATMENTS APPLIED

UNMANAGED LICE LEVELS



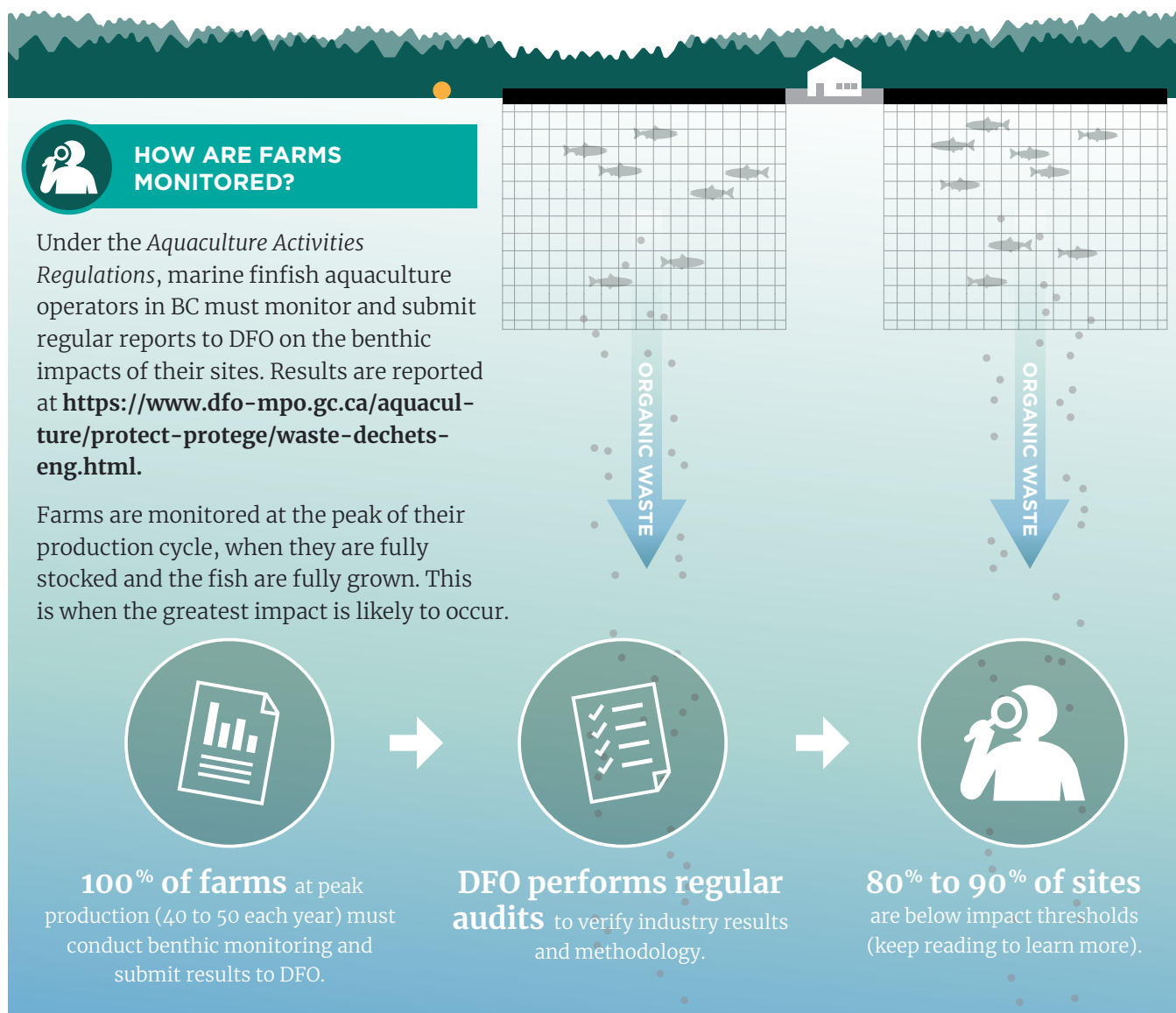


Environmental

WHAT IS BENTHIC (SEABED) MONITORING?

Benthic means “of, or relating to, or occurring at the bottom of a body of water.” In BC, DFO’s comprehensive benthic monitoring, auditing and regulation framework restricts the effects of aquaculture facilities on the surrounding environment. Benthic monitoring requirements for marine finfish aquaculture facilities are regulated under the *Aquaculture Activities Regulations* (AAR). More information on these requirements can be found here: <https://www.dfo-mpo.gc.ca/aquaculture/management-gestion/aar-raa-eng.htm>.

Organic waste from aquaculture facilities, including feces and excess food, falls to the seabed below and around aquaculture sites. In small amounts, this provides food for species living below, but if too much accumulates, organisms can be smothered or the seabed altered. With time, the seabed will recover.



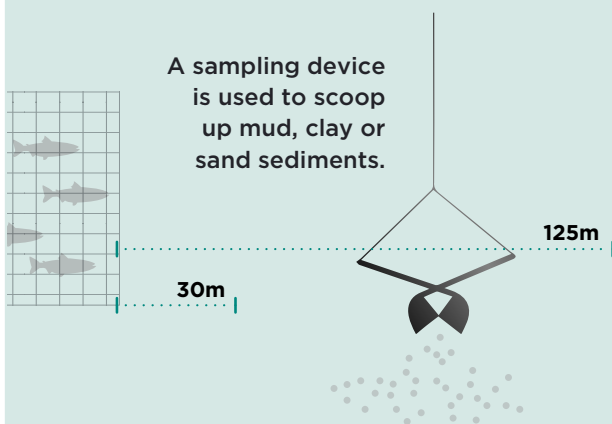
SOFT AND HARD BOTTOM SITES

Benthic monitoring activities depend on the seabed beneath the farm. In BC, the seabed is generally defined as **soft bottom** or **hard bottom**. Soft bottom facilities are regulated via sediment monitoring while hard bottom facilities are regulated via video monitoring using underwater cameras. Some facilities have a mix of hard and soft bottoms and in these cases, both types of monitoring are used.

These are benthic monitoring procedures that the industry must follow. DFO biologists follow these same procedures during benthic audits:



SOFT-BOTTOM SITES



A sampling device is used to scoop up mud, clay or sand sediments.

Sediment samples are taken at 30 and 125 metres from both sides of the cage edge.

Samples are brought to the surface and analyzed for their level of free sulphides.

A healthy seabed with plenty of oxygen will have low levels of sulphides.

At 30m stations, the threshold is 1300µmol free sulphides.

At 125m stations, the threshold is 700µmol of free sulphides.

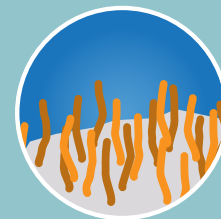


HARD-BOTTOM SITES

Underwater cameras take video of gravel, boulder or bedrock seabeds. The video is reviewed in-office for presence of *Beggiatoa* and opportunistic polychaete complexes (OPCs).



Beggiatoa are bacteria that form visible white mats



OPCs are organisms that look like orange shag carpeting

These species can survive where others can't and help break down accumulated waste. Their presence is also an indicator of elevated sulphide levels.

Video of the area from 100 to 124 metres from the cage edge is assessed for impact.

This area is broken into 6 segments. If more than 4 have more than 10% cover of *Beggiatoa* or OPC, the threshold has been exceeded.



If thresholds are exceeded, the site cannot be restocked with fish until further monitoring shows that sufficient recovery has occurred.

INDUSTRY-REPORTED BENTHIC MONITORING EVENTS

Benthic Monitoring Data

This is a summary of the seabed sampling reports submitted in 2020. 12 site audits were conducted by DFO and these audits indicated that 100% of results were consistent with industry-submitted reports.

	Industry - below threshold at all stations	Industry - exceeding threshold at one or more station
Visual monitoring	10	0
Sediment monitoring	29	3
Visual and sediment monitoring	3	0

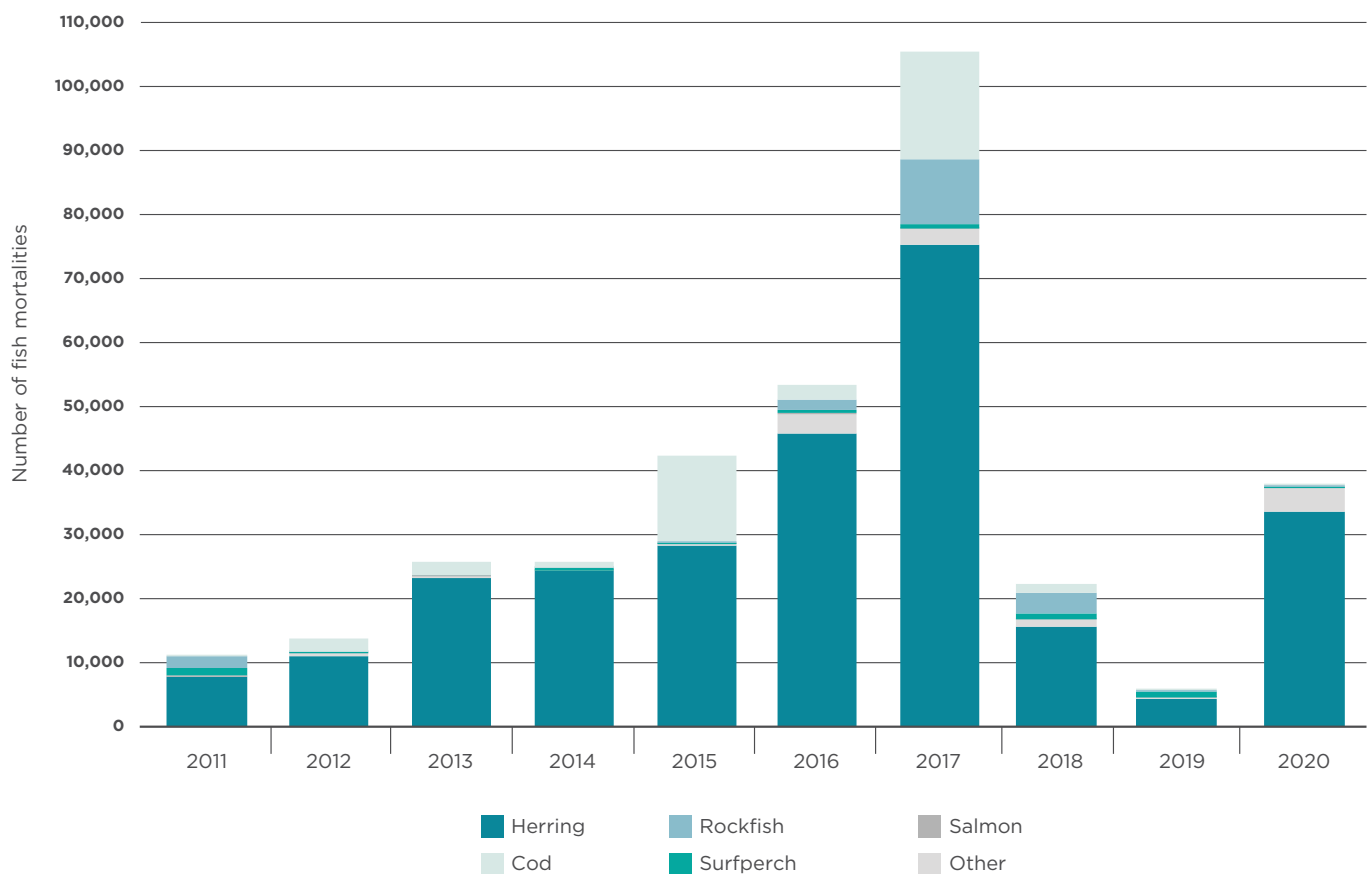
In 2020, DFO began reaching out to First Nations to assess interest in partnering with DFO to perform benthic audits at aquaculture facilities in their traditional territories. Unfortunately, the COVID-19 pandemic significantly impacted the ability to perform this work and only three field days were completed. However, DFO plans to continue this initiative in the coming years.

ENVIRONMENTAL REPORTS

Incidental Catch

Incidental catch are any wild fish that are caught or found dead within a facility as a result of aquaculture activities such as harvesting, transfer or treatment. Efforts must be made to release live fish with the least harm. All incidental catch must be recorded and reported to DFO at the end of each production cycle.

As compared to a percentage of Total Allowable Catch (TAC) in the commercial fisheries, the amount of dead incidental catch related to aquaculture in BC is negligible. For example, the 2017 herring incidental catch represents the estimated equivalent of less than 0.001% of the commercial TAC for the Strait of Georgia herring fishery.




INCIDENTAL CATCH AT BC AQUACULTURE FACILITIES

At marine finfish facilities in British Columbia, the nets used to contain farmed fish can allow wild fish to pass in and out of the farm. If wild fish are caught during aquaculture related activities, such as the harvest or transfer of fish, they are referred to as **incidental catch**. To manage this, Fisheries and Oceans Canada (DFO) has strict requirements that facility operators must follow.


WHAT DOES DFO REQUIRE?

BEFORE HARVEST



Facilities must have mitigation measures in place to **sort wild fish from farmed fish** as well as limit harm to wild fish.


DURING HARVEST



Facilities must **maintain records** of all incidental catch.

Dead incidental catch must be disposed of by following **established protocols**.

Living incidental catch must be immediately released in a manner which causes the least harm.



DFO Fishery Officers, or Fishery Guardians, **perform inspections** to observe and confirm that mitigation measures are properly implemented and appropriate records are maintained.

AFTER HARVEST

Facilities must **submit reports** after harvest is complete. Facilities that grow fish year-round must **submit reports annually**. **Data is summarized and publicly reported online**. Overall, instances of incidental catch are very low and considered negligible in comparison to the allowable catch of BC's other fisheries.



ON AVERAGE, PACIFIC HERRING ACCOUNT FOR THE MAJORITY OF ANNUAL INCIDENTAL CATCH MORTALITIES WHILE PACIFIC SALMON ACCOUNT FOR THE LEAST

PACIFIC HERRING

78%

PACIFIC SALMON

0.2%

THE TYPES OF INCIDENTAL CATCH

HERRING



Clupea pallasii (Pacific Herring)

COD



Gadidae (Pacific cod, Pacific tomcod, and walleye polluck)

SALMON



Oncorhynchus sp. (pink, sockeye, chum, chinook and coho)

SURFPERCH



Embiotocidae (shiner perch, striped seaperch, pile perch, etc.)

ROCKFISH



Sebastidae (black rockfish, copper rockfish, yellowtail rockfish, etc.)

OTHER



Includes fish belonging to many different groups but all were reported in low quantity (Northern anchovy, sablefish, sculpin species, etc.)

2020 Escapes

All reasonable measures must be taken to prevent the escape of farmed fish from marine finfish aquaculture facilities. Licence holders are required to have an escape prevention and response plan in place. If an escape occurs, licence holders must take immediate action to stop further escapes, correct the issue, and report the event. DFO staff perform regular inspections to ensure compliance with licence conditions. The number of escaped fish has decreased over time due to improved netting and anchoring systems.

4

ESCAPE EVENTS WERE RECORDED



1,076

FISH ESCAPED

2020 Megafauna Interactions

Megafauna refers to marine mammals including seals, sea lions, sea otters, dolphins and whales, along with turtles and sharks. Licence holders are required to have a megafauna interaction management plan in place and all reasonable measures must be taken to prevent marine megafauna from coming into conflict with facility infrastructure and farmed fish.

In 2020, DFO made changes to the conditions of licence related to megafauna to align with the *National Marine Mammals Regulations*. These changes included:

- additional guidance around encounters with Species at Risk (including sea turtles and sharks); and
- prohibiting the lethal removal of nuisance seals and sea lions

If a live, entangled marine megafauna is discovered, licence holders must attempt to free the animal with least harm and report to DFO within 24 hours of discovery. In cases where large whales or sharks are entangled, licence holders must seek guidance from DFO prior to attempting release or removal of the animal and report additional information. Interactions that results in a death must be reported within 24 hours and the animal must be disposed of following methods outlined for each species. DFO staff perform regular inspections to ensure compliance with licence conditions.



5

MARINE MEGAFAUNA
INTERACTIONS WERE
RECORDED

3

HARBOUR SEAL
ACCIDENTAL DROWNINGS

2

CALIFORNIA SEA LION
ACCIDENTAL DROWNINGS

LOOKING FORWARD

2021 and Beyond

Marine finfish aquaculture will continue to evolve in British Columbia as new science, tools, and social values emerge.

INDIGENOUS AND MULTI-STAKEHOLDER ADVISORY BODY AND TECHNICAL WORKING GROUP PROCESS

In 2019, DFO established an Indigenous and Multi-stakeholder Advisory Body (IMAB) comprised of representatives from the Province of British Columbia, Indigenous communities, environmental organizations, the aquaculture industry, and other key stakeholders. Under the IMAB, [three Technical Working Groups were asked to provide recommendations to DFO for the improvement of aquaculture management in BC in three main areas: area based management, alternative production technologies, and fish health.](https://www.dfo-mpo.gc.ca/aquaculture/publications/summary-sommaire-eng.html) These recommendations are available here: <https://www.dfo-mpo.gc.ca/aquaculture/publications/summary-sommaire-eng.html>.

The Minister is now considering the recommendations. Once complete, the Minister's response will be posted here: <https://www.dfo-mpo.gc.ca/aquaculture/publications/publications-eng.htm>.

AREA-BASED AQUACULTURE MANAGEMENT

DFO is committed to exploring an area-based aquaculture management (ABAM) approach that considers managing facilities at the best geographic scale. In 2020, \$3 million over two years was committed to pilot ABAM. It is anticipated that [this approach will enable environmentally and socially sustainable aquaculture development in suitable areas where First Nations and local communities are supportive of the industry.](#) Initial work on this project will focus on:

- starting conversations with the Province of British Columbia, First Nations rights & title holders, and Indigenous communities to seek partnerships in regional and area-based governing bodies;
- discussing principles of ABAM with governments and stakeholders to seek interest and support;
- creating criteria for a “pilot” area; and
- seeking partners within that area to create a governance structure and stakeholder engagement process, and consider aquaculture management in a way that respects the unique social, cultural, environmental, and economic values in that area.

The expected result of this approach is [improved social licence, increased Indigenous participation in aquaculture management, increased investor certainty, and improved environmental management while enhancing food security and sustainability.](#)

GENERAL AQUACULTURE REGULATIONS

DFO is developing the General Aquaculture Regulations (GAR) to improve and consolidate DFO's diverse regulatory provisions pertaining to aquaculture into one comprehensive set of regulations. The proposed GAR is an initiative identified in the Agri-food and Aquaculture Regulatory Roadmap, a product of the first round of Targeted Regulatory Reviews coordinated by the Treasury Board of Canada Secretariat. The Roadmap lays out a regulatory modernization plan in support of innovation and economic growth in the agri-food and aquaculture sector.

For more information on the development of the GAR visit: <https://www.dfo-mpo.gc.ca/acts-lois/initiatives/rule-reglement-eng.htm#reg10>.

AQUACULTURE ACT

DFO has begun development of a [proposed national Aquaculture Act](#). Public comment on the proposed Act, based on a discussion paper posted online (<https://www.dfo-mpo.gc.ca/aquaculture/act-loi/discussion-eng.html>), will close in February 2021 and engagement with Indigenous communities will continue. Based on the recommendation of the Canadian Council of Fisheries and Aquaculture Ministers, DFO intends to develop legislation of limited scope that would:

- foster national consistency, while respecting federal, provincial, and territorial jurisdiction;
- improve clarity and certainty for the industry;
- enhance environmental protection; and
- help sustainably grow the industry for the benefit of Indigenous and rural communities.

Also proposed is the amendment and consolidation of all aquaculture-related regulatory provisions under the *Fisheries Act*, including those of the *Pacific Aquaculture Regulations* and *Aquaculture Activities Regulations*, into one set of regulations under the proposed Act. These new regulations would help operationalize the proposed Aquaculture Act.

TRANSITION PLAN FOR NET PLANS MANDATE

To support the transition of marine net-pen salmon aquaculture in coastal BC, DFO has [established a strategic oversight committee and technical working group to oversee and lead the development of the transition](#). As announced on November 12, 2020, the Parliamentary Secretary, Terry Beech, will engage with First Nations in BC, the aquaculture industry, and environmental stakeholders on this initiative and present the results in an interim report in spring 2021. [The Parliamentary Secretary's](#)

[interim report](#) will guide further engagement and research efforts to inform the transition of marine net-pen salmon farming in BC. DFO will take the time necessary to ensure that broad consultations and research inform the basis of an environmentally responsible, sustainable, and economically feasible transition in BC.

PHASE-OUT OF MARINE FINFISH AQUACULTURE IN THE DISCOVERY ISLANDS

In response to the 2012 Cohen Commission recommendations, [DFO completed nine risk assessments examining the impacts of marine finfish farms in the Discovery Islands on the health of migrating Fraser River sockeye, determining no more than minimal risk](#). In fall 2020, DFO consulted with the seven First Nations in the Discovery Islands area and on December 17, 2020, in consideration of information gathered through those consultations, the Minister announced an intention to phase out existing salmon farming facilities in the Discovery Islands by June 30, 2022. DFO will be working with licence holders in the Discovery Islands and its federal and provincial partners on the phase-out process over the course of the next year.

FINFISH LICENCE REVIEW FOR REISSUANCE DECISIONS IN 2022

In 2020, as a part of the scheduled licence reissuance process, [DFO began engaging with partners and stakeholders on ways to improve the marine finfish aquaculture licence conditions which form part of licences expiring on June 30, 2022](#). Engagement and consultation will continue through 2021 and early 2022, as DFO gathers information, and solicits feedback on new proposed licence conditions all of which will inform licence reissuance decisions in spring 2022.

Important Web Links

DFO aquaculture page (National)

<http://www.dfo-mpo.gc.ca/aquaculture/aquaculture-eng.html>

DFO aquaculture page (Pacific Region)

<http://www.pac.dfo-mpo.gc.ca/aquaculture/index-eng.html>

BCARP public report directory

<http://www.pac.dfo-mpo.gc.ca/aquaculture/reporting-rapports/index-eng.html>

Aquaculture public reporting (national)

<http://www.dfo-mpo.gc.ca/aquaculture/management-gestion/apr-rpa-reporting-eng.htm>

Aquaculture regulations and compliance (Pacific Region; annual reports, compliance and monitoring, management plans)

<http://www.pac.dfo-mpo.gc.ca/aquaculture/regs-eng.html>

Aquaculture licensing (Pacific Region; applications, conditions of licence, reporting templates)

<http://www.pac.dfo-mpo.gc.ca/aquaculture/licence-permis/index-eng.html>

BC aquaculture maps

<http://www.dfo-mpo.gc.ca/aquaculture/bc-cb/maps-cartes-eng.html>

CFIA reportable diseases

<http://www.inspection.gc.ca/animals/aquatic-animals/diseases/eng/1299156296625/1320599059508>

Statistics Canada aquaculture production

<https://www.dfo-mpo.gc.ca/stats/aquaculture-eng.htm>

LINKS TO DFO AQUACULTURE PUBLIC REPORTS

1. **Aquaculture Activities Regulations (AAR) drugs and pesticides**
<https://open.canada.ca/data/en/dataset/288b6dc4-16dc-43cc-80a4-2a45b1f93383>
2. **Mortality by category, by facility (open data)**
<https://open.canada.ca/data/en/dataset/0a8c5505-ecb3-4d8b-8120-462bd7def6bb>
3. **Mortality by category, by area (graph)**
<http://www.pac.dfo-mpo.gc.ca/aquaculture/reporting-rapports/carcass-health-zone-sante/2020/index-eng.html>
4. **Audit activities - fish health, sea lice, benthic (graphs)**
<http://www.pac.dfo-mpo.gc.ca/aquaculture/reporting-rapports/mer-mar-audit-verif/index-eng.html>
5. **Fish health events, by facility (open data)**
<https://open.canada.ca/data/en/dataset/deefd1d7-7184-44c7-83aa-ec0db91aad27>
6. **Fish health events, annual (graph)**
<http://www.pac.dfo-mpo.gc.ca/aquaculture/reporting-rapports/health-events-sante/index-eng.html>
7. **Mortality events, by facility (open data)**
<https://open.canada.ca/data/en/dataset/7fbb2662-391a-4df7-99b4-3343fa68fc93>
8. **Mortality events, annual (graph)**
<http://www.pac.dfo-mpo.gc.ca/aquaculture/reporting-rapports/episodes-mort-events/index-eng.html>

9. **Fish health audits, by facility (open data)**
<https://open.canada.ca/data/en/dataset/6c891715-317c-4d4d-9fe8-ea425e01d9d2>
10. **Sea lice abundance, by facility (open data)**
<https://open.canada.ca/data/en/dataset/3cafbe89-c98b-4b44-88f1-594e8d28838d>
11. **DFO sea lice audits, by facility (open data)**
<https://open.canada.ca/data/en/dataset/5cfd93bd-b3ee-4b0b-8816-33d388f6811d>
12. **Sea lice abundance, by area (graph)**
<http://www.pac.dfo-mpo.gc.ca/aquaculture/reporting-rapports/lice-ab-pou/index-eng.html>
13. **Use of antibacterials (graph)**
<http://www.pac.dfo-mpo.gc.ca/aquaculture/reporting-rapports/therapeut/index-eng.html#antibacterials>
14. **Use of anti-lice therapeutants (graph)**
<https://www.pac.dfo-mpo.gc.ca/aquaculture/reporting-rapports/therapeut/index-eng.html>
15. **DFO benthic audits, by facility (open data)**
<https://open.canada.ca/data/en/dataset/c1a54a0c-4eb0-4b50-be1f-01aee632527e>
16. **Industry benthic monitoring, by facility (open data)**
<https://open.canada.ca/data/en/dataset/7e76fdc8-c36a-491a-9afb-4f9280c929e8>
17. **Industry benthic performance,, annual (graph)**
<http://www.pac.dfo-mpo.gc.ca/aquaculture/reporting-rapports/benth/index-eng.html>
18. **Incidental catch, by facility (open data)**
<https://open.canada.ca/data/en/dataset/0bf04c4e-d2b0-4188-9053-08dc4a7a2b03>
19. **Incidental catch, annual (graph)**
<http://www.pac.dfo-mpo.gc.ca/aquaculture/reporting-rapports/incidental-catch-captures-fortuites/index-eng.html>
20. **Marine megafauna interactions, by facility (open data)**
<https://open.canada.ca/data/en/dataset/a7b3fdfb-5917-4ca6-b29c-093e3f65d6ba>
21. **Marine megafauna fatalities, annual (graph)**
<http://www.pac.dfo-mpo.gc.ca/aquaculture/reporting-rapports/mar-mam/index-eng.html>
22. **Escapes, by facility (open data)**
<https://open.canada.ca/data/en/dataset/691dd994-4911-433d-b3b6-00349ba9f24e>
23. **Escapes, annual (graph)**
<http://www.pac.dfo-mpo.gc.ca/aquaculture/reporting-rapports/escapes-evasions/index-eng.html>
24. **Atlantic Salmon Watch Program (open data)**
<https://open.canada.ca/data/en/dataset/f0299fb3-73b9-4977-b96a-c83bd84ebdc4>
25. **Salmon transfer licences (open data)**
<https://open.canada.ca/data/en/dataset/700fe290-7653-49e1-b961-741dc1ead924>
26. **Regulating and monitoring British Columbia's marine finfish aquaculture facilities, annual**
<https://www.pac.dfo-mpo.gc.ca/aquaculture/regs-eng.html>
27. **Current Licence holders, all sectors**
<https://open.canada.ca/data/en/dataset/522d1b67-30d8-4a34-9b62-5da99b1035e6#wb-auto-6>



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