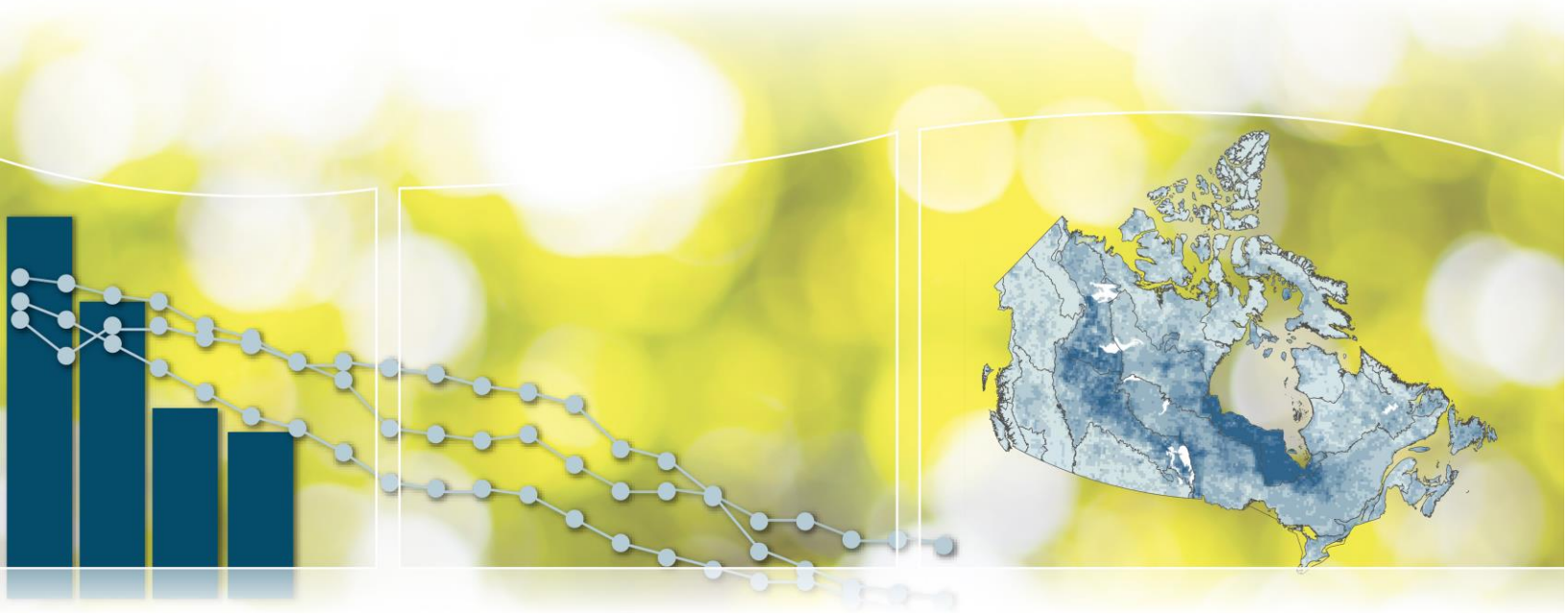
Environment and Climate Change Canada
Environnement et Changement climatique Canada

Canadian Environmental Sustainability Indicators

Management of Canadian aquaculture



Canada

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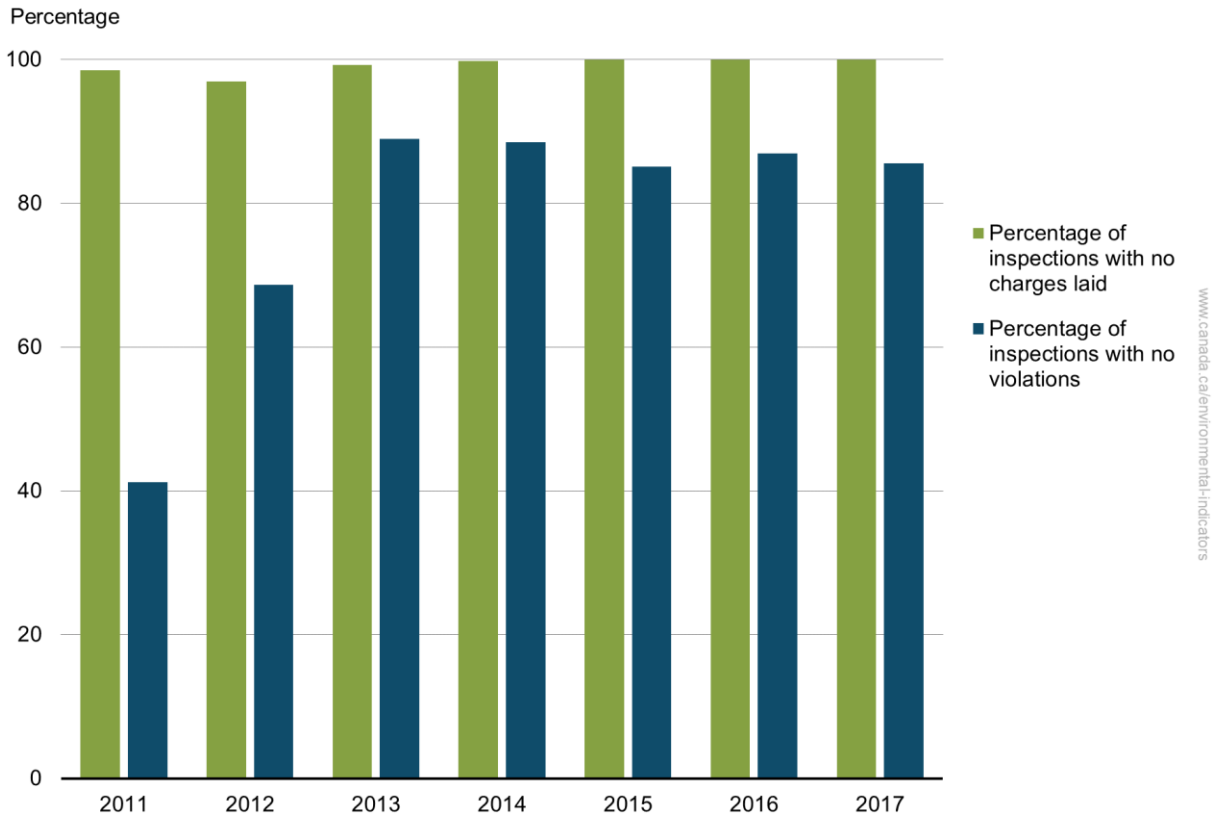
Management of Canadian aquaculture

Aquaculture operators' compliance with environmental standards helps to protect our aquatic environment. The indicator is the rate of compliance of aquaculture operators under *Fisheries Act* regulations. It provides a measure of how well aquaculture operators meet environmental protection standards related to the sector as set out in the *Fisheries Act* regulations.

Key results

- From 2011 to 2017, over 96% of inspections of aquaculture operations did not result in charges. For 2015 to 2017, 100% of inspections did not result in charges
- From 2013 to 2017, between 85 and 89% of inspections did not identify any violations, up from 41% in 2011 and 69% in 2012

Figure 1. Inspected aquaculture operations with *Fisheries Act* regulations, Canada, 2011 to 2017



Data for Figures 1

Note: A risk-management approach is used to determine the frequency of inspection and operations to be inspected. Individual operations may be inspected more than once per year.
Source: Fisheries and Oceans Canada (2018).

Some of the types of violations detected included inadequate record keeping, inadequate markings and signage, improper storage and tagging of equipment, feed, and chemicals, and deficiencies with nets, cage arrays, or other structures.

Violations do not always lead to charges. Based on the severity of the violation, enforcement can include education, warnings, required changes or charges.

Between 2011 and 2014, out of 1 138 inspections, 230 violations were found and 12 charges were laid. Since 2015, out of 996 inspections, 140 violations were found and no charges were laid.

Aquaculture represents about one third of Canada's total fisheries value and about 20% of total seafood production by weight. In 2017, by weight, salmon accounted for 80% of finfish aquaculture production and mussels accounted for 61% of shellfish aquaculture production.[1]

Different types of aquaculture operations have different environmental effects, ranging from local nutrient or chemical pollution into water systems to direct risks to wild species (habitat alteration and potential disease spread).

About the indicator

What the indicator measures

The indicator measures the percentage of aquaculture operation inspections where no violations were found and the percentage of aquaculture operation inspections where no charges were laid with respect to federal aquaculture regulations.

Aquaculture management in Canada is a shared responsibility. The federal government has jurisdiction over fisheries and fish habitat across the country under the *Fisheries Act*. The indicator includes all national and regional regulations under the Act that apply to aquaculture.

Fishery officers conduct inspections to validate licence reporting, and to determine whether there is compliance with aquaculture licences, conditions of licence, and other applicable legislation. When necessary, fishery officers respond to complaints and conduct investigations.

Why this indicator is important

Regulations are implemented to limit environmental damage caused by human activities. The degree to which facilities comply with regulations is an indication of their environmental impact.

Sustainable food

This indicator supports the measurement of progress towards the following 2016–2019 Federal Sustainable Development Strategy long-term goal: Innovation and ingenuity contribute to a world-leading agricultural sector and food economy for the benefit of all Canadians. It is used to assess progress towards the short-term milestone: Maintain high compliance rates with *Fisheries Act* regulations related to aquaculture.

It also contributes towards reporting on Target 8 of the 2020 Biodiversity Goals and Targets for Canada: "By 2020, all aquaculture in Canada is managed under a science-based regime that promotes the sustainable use of aquatic resources (including marine, freshwater and land based) in ways that conserver biodiversity."

Related indicators

The Status of major fish stocks and Sustainable fish harvest indicators present the condition and management of wild fish stocks.

The Shellfish harvest area quality indicator provides a partial measure of coastal marine water quality.

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[1] Fisheries and Oceans Canada (2018) Aquaculture: Production Quantities and Values. Retrieved on October 31, 2018.

Data sources and methods

Data sources

Data are from the Compliance and Enforcement Program of Fisheries and Oceans Canada, Fishery Enforcement Activities Tracking System and the Departmental Violations System.

More information

Aquaculture management in Canada is a shared responsibility. Under the *Fisheries Act*, the federal government has jurisdiction over fisheries and fish habitat across the country. Under this Act, the Minister of Fisheries, Oceans and the Canadian Coast Guard issues aquaculture licences in British Columbia and Prince Edward Island. In the rest of the country, the provinces and territories have this authority.

The Government of Canada established the Sustainable Aquaculture Program in 2008 to help develop an environmentally, economically, and socially sustainable aquaculture sector. Sustainability is improved by increasing scientific knowledge and fact-based decision-making, by developing and improving regulations, and by ensuring transparency through enhanced reporting.

For all mandated responsibilities under the *Fisheries Act* (whether for fishing or aquaculture), fishery officers conduct regular patrols on land, on sea and in the air for compliance and enforcement purposes. In their inspections, they validate licence reporting and determine whether there is compliance with the conditions of the aquaculture licences. When necessary, fishery officers respond to complaints and conduct investigations. In addition, Fisheries and Oceans Canada promotes compliance through public education and awareness activities to encourage all Canadians to protect fishery resources and habitats.

There are 2 key regulations under the *Fisheries Act* that are specifically related to compliance and enforcement activities for aquaculture: the *Pacific Aquaculture Regulations* and the *Aquaculture Activities Regulations*.

The *Pacific Aquaculture Regulations* only apply in British Columbia and require aquaculture operators to comply with a number of licence conditions, primarily to manage diseases and parasites and to prevent farmed fish escapes into the environment.

The second set of aquaculture regulations are under the pollution prevention provisions of the *Fisheries Act* (section 36). Before 2014, Environment and Climate Change Canada administered all of section 36 (pollution prevention) of the *Fisheries Act*. In 2014, responsibility for the administration and enforcement of all section 36 activities related to aquaculture, aquatic invasive species and pests was placed under the authority of Fisheries and Oceans Canada. The *Aquaculture Activities Regulations* came into effect in July 2015. They are the first national section 36 regulations adopted in order to manage aquaculture. Under these regulations, the aquaculture industry is authorized to deposit potentially deleterious substances into fish-bearing waters subject to environmental protection conditions. These measures or conditions include: submission of data to the federal government on the type and quantities of drugs and pesticides used to treat diseases and pests, organic loading monitoring in marine waters, actions to be taken if wild fish mortalities occur during pesticide treatments, and mitigation measures to minimize impact on fish and fish habitat. An operator must meet all of the conditions or loses the authority to deposit any prescribed deleterious substance, and faces possible prosecution under the *Fisheries Act*.

Methods

The indicator has 2 components: one is the percentage of inspections that did not detect a violation and the second is the percentage of inspections that did not lead to charges against the operator. It includes all national and regional regulations under the act that apply to aquaculture. Violations do not always lead to charges. Based on the severity of the violation enforcement can include education, warnings, required changes or charges.

More information

The Management of Canadian aquaculture indicator provides the number of inspections of aquaculture sites that have met *Fisheries Act* regulatory requirements divided by the number of inspections of aquaculture sites in a given year. The result is expressed as an annual percentage.

Through the *Fisheries Act*, Fisheries and Oceans Canada regulates the aquaculture industry in order to protect fish and fish habitat. The following are the current regulations under the *Fisheries Act* that apply to aquaculture:

- The *Aquaculture Activities Regulations* are the first national aquaculture regulations that clarify conditions under which aquaculture operators may install, operate, maintain or remove an aquaculture facility, or undertake measures to treat their fish for disease and parasites as well as deposit organic matter under sections 35 and 36 of the *Fisheries Act*.
- The *Atlantic Fishery Regulations*: the aquaculture industry is subject to these wild capture fisheries regulations.
- The *Fishery (General) Regulations* set out Canada's authorities for approving the release of fish into fish habitat and the transfer of live fish to fish rearing facilities, based on an assessment of genetic disease and ecological risk. These regulations support aquaculture management in British Columbia in conjunction with the *Pacific Aquaculture Regulations*.
- The *Management of Contaminated Fisheries Regulations* authorize Fisheries and Oceans Canada to close areas to fishing and to take other measures when biotoxins, bacteria, chemical compounds or other substances are present in fish habitat to a degree that may constitute a danger to public health.
- The *Marine Mammal Regulations* set out an authorization mechanism for the management and control of marine mammals that cause a nuisance to fisheries activities.
- The *Maritime Provinces Fishery Regulations* are similar to the *Atlantic Fishery Regulations*: the aquaculture industry is subject to wild capture fisheries regulations that impact farming practices.
- The *Pacific Aquaculture Regulations* set out Fisheries and Oceans Canada licensing and management authorities for aquaculture in British Columbia.
- The *Pacific Fishery Regulations* set out Fisheries and Oceans Canada authorities respecting fishing in the Pacific Ocean and the province of British Columbia.

Fisheries and Oceans Canada regularly inspects aquaculture operations, and keeps the results of these inspections in a database maintained by its Compliance and Enforcement Program. In addition, the *Aquaculture Activities Regulations* and the *Pacific Aquaculture Regulations* require annual reporting by the industry. These reports are tracked by Fisheries and Oceans Canada, and the results are posted on the department's website.

Recent changes

The indicator has been revised to include all violations detected during inspections and not only violations that led to charges being laid. The indicator is updated with 2017 data.

Caveats and limitations

The database used for reporting inspections, violations and charges is constantly being updated and data linked to inspections from previous years can be revised. In certain cases it can take a number of years before charges are laid and entered into the database. Therefore, the number of inspections, violations and charges reported in previous indicator releases may vary and comparisons between releases should be made with caution.

A risk-management approach is used to determine the frequency of inspection and operations to be inspected. Individual operations may be inspected more than once per year.

The indicator is limited to regulations under the *Fisheries Act*, whereby Canada regulates the aquaculture industry to protect fish and fish habitat. However, it does not include investigations of alleged violations.

Outside of British Columbia and Prince Edward Island, the provinces and Yukon manage aquaculture activities under their own acts and regulations, as well as manage potential environmental impacts, animal welfare, and fish health and/or pest control products.

In July 2015, Fisheries and Oceans Canada brought into force the *Aquaculture Activities Regulations* under the *Fisheries Act*. The regulations clarify conditions under which all licensed aquaculture operators in Canada may treat their fish for disease and parasites, as well as deposit organic matter, under sections 35 and 36 of the *Fisheries Act*.

Resources

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Annex

Annex A. Data tables for the figures presented in this document

Table A.1. Data for Figure 1. Inspected aquaculture operations with *Fisheries Act* regulations, Canada, 2011 to 2017

Year	Number of inspections	Number of violations detected	Number of charges laid	Violation type when charges are laid	Region in which charges occurred[A]
2011	204	120	3	Assault / obstruct Species / size limit Other	Gulf
2012	195	26	6	Reporting	Pacific
2013	245	27	2	Illegal transportation Reporting	Pacific
2014	494	57	1	Maximum allowable amount of biomass exceeded	Pacific
2015	296	44	0	n/a	n/a
2016	373	49	0	n/a	n/a
2017	327	47	0	n/a	n/a

Note: [A] Fisheries and Oceans Canada regions are Newfoundland and Labrador, Maritimes – Scotia-Fundy, Gulf, Quebec, Central and Arctic, and Pacific. n/a = not applicable. A risk-management approach is used to determine the frequency of inspection and operations to be inspected. Individual operations may be inspected more than once per year.
Source: Fisheries and Oceans Canada (2018).

Additional information can be obtained at:

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