Environment and Climate Change Canada
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HARVEST LEVELS OF KEY FISH STOCKS

CANADIAN ENVIRONMENTAL SUSTAINABILITY INDICATORS

Canada

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CANADIAN ENVIRONMENTAL SUSTAINABILITY INDICATORS

HARVEST LEVELS OF KEY FISH STOCKS

May 2025

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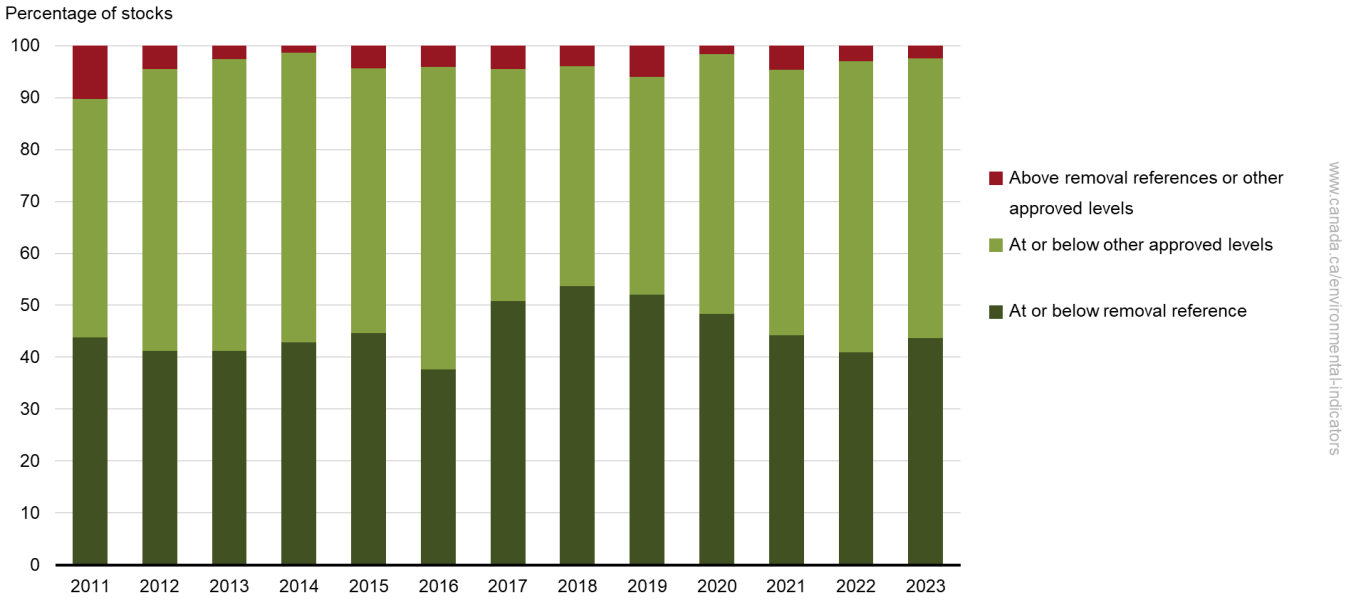
Harvest levels of key fish stocks

Harvest limits for wild fish and other marine animals are set to protect these stocks for the future. The indicator compares actual harvest rates with established harvest limits for key fish stocks and other marine animals. Some fish stocks have a removal reference, which is the maximum acceptable removal rate or level for the stock based on historical stock productivity data. When removal references are not available, actual harvest levels are compared to other approved levels such as total allowable catch.

Key results

- Of the 199 key stocks assessed in 2023:
  - 194 stocks (97%) were harvested at or below the removal reference or other approved level
  - 5 stocks (3%) were harvested above a removal reference or other approved level
- From 2012 to 2023, the percentage of stocks harvested above approved levels has been consistently low (below 5% of total stocks)

Figure 1. Harvest of key stocks relative to approved levels, Canada, 2011 to 2023



Data for Figure 1

Note: Comparisons between years should be made with caution as the list of key stocks has changed.
Source: Fisheries and Oceans Canada (2025) Sustainability survey for fisheries.

Stocks are populations of a species that are found in a particular area, are generally isolated from other stocks of the same species and are self-sustaining. For example, the Atlantic walrus has 6 stocks all representing different areas of the Arctic region.

Harvesting of stocks above the removal reference or other approved rates/levels is avoided through conservation and sustainable use policies. The key decisions in fisheries management are:

- how much of a stock should be harvested
- who should harvest

Harvest rates/levels include all removals by all types of fishing. Harvesting above the removal reference or approved rates/levels can occur when marine animals are accidentally caught as bycatch (that is, caught unintentionally while fishing for another stock or size class) or if fishers exceed their quotas/allowable catch on the stock.

Harvest rates/levels are reported against the removal reference when it is known. A removal reference can be determined when there is sufficient historical data on stock productivity. Approved levels for

stocks that do not have removal references are set using other scientific approaches. See the related Status of key fish stocks indicator for information on whether key stocks are in the Healthy, Cautious or Critical zone.

Table 1. Fish stocks harvested above removal reference or other approved levels, Canada, 2023

Stock name	Species group	Region	Reason
Beluga – Northern Quebec (Nunavik)	Marine mammals	Atlantic	Harvest exceeded removal reference for the season
Atlantic salmon – Gulf	Salmonids	Atlantic	Uncertainty in catch information
Elvers	Other	Atlantic	Uncertainty in catch information
Gaspereau	Small pelagics	Atlantic	Uncertainty in catch information
Snow crab – Crab Fishing Area 17	Crustaceans	Atlantic	Harvest exceeded approved level for the season

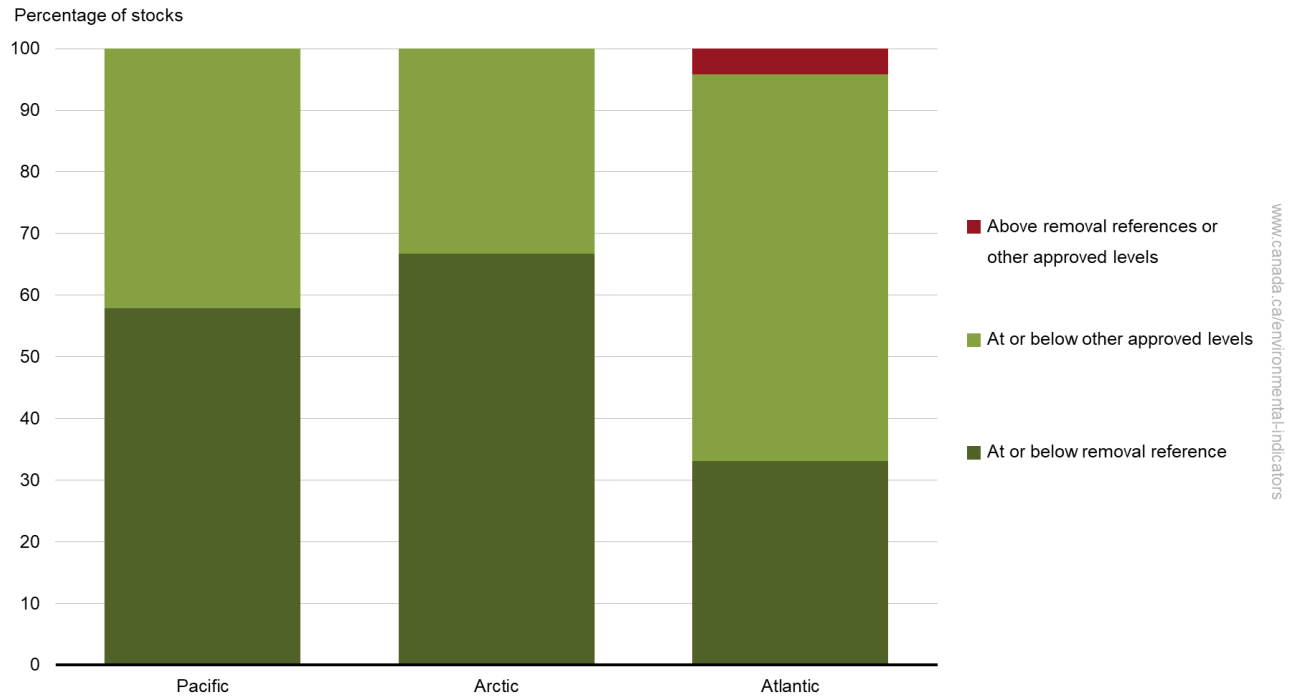
Note: For information on the species groups, refer to the Harvest levels by species group section.
Source: Fisheries and Oceans Canada (2025) Sustainability survey for fisheries.

Harvest levels by region

Key results

- In 2023, the Atlantic is the only region where stocks were harvested above their removal reference or other approved levels.

Figure 2. Harvest of key stocks relative to approved levels by region, Canada, 2023



Data for Figure 2

Note: Stocks were generally assigned to regions based on their respective Fisheries and Oceans Canada managing offices. Stocks managed from the central National office were allocated to Atlantic and Arctic regions as appropriate. Comparisons between years should be made with caution as the list of key stocks has changed.
Source: Fisheries and Oceans Canada (2025) Sustainability survey for fisheries.

In 2023, 5 stocks were harvested above a removal reference or other approved levels in the Atlantic management region (Table 1). The Arctic and the Pacific management regions had no stocks harvested above a removal reference or other approved level.

The Atlantic region includes the Gulf of St. Lawrence, the Atlantic coastline of Canada, and the Bay of Fundy. In the Atlantic region, groundfish, molluscs and large pelagics were the only species groups with no stocks harvested above their removal reference or other approved levels. Groundfish, which includes species such as Atlantic cod, redfish, and halibut, have long been the basis for important commercial fisheries in Atlantic Canada and they play an important ecosystem role as predators. Many groundfish populations, such as Atlantic cod, collapsed by the 1990s due to a combination of overfishing and changing environmental conditions. The total amount of groundfish remains lower than in the past across Atlantic Canada. Careful management of these stocks is necessary to prevent further declines due to fishing and support their recovery.

The Pacific Region consists of the Pacific coastline of western Canada, including the Georgia Strait and open water west of Haida Gwaii and Vancouver Island. Similarly to Atlantic groundfish stocks, Pacific groundfish stocks declined significantly between 1950 and 2000. Following management changes for trawl fishers, the stocks have remained relatively stable since 2000, demonstrating how management decisions are able to aid in stock recovery. Salmonid stocks in the Pacific have been facing challenges mainly due to changing environmental conditions in the ocean and freshwater ecosystems and habitat loss. In recent decades, Canada's Pacific salmon catch has fallen. Despite large reductions in the commercial catch, the number of spawning salmon is still declining for many stocks.

The Arctic Region consists of the Yukon North Slope, Northwest Territories, Nunavut, Nunavik, Nunatsiavut, Hudson Bay and James Bay. This region only has stocks from the marine mammals, groundfish, and salmonid species groups.

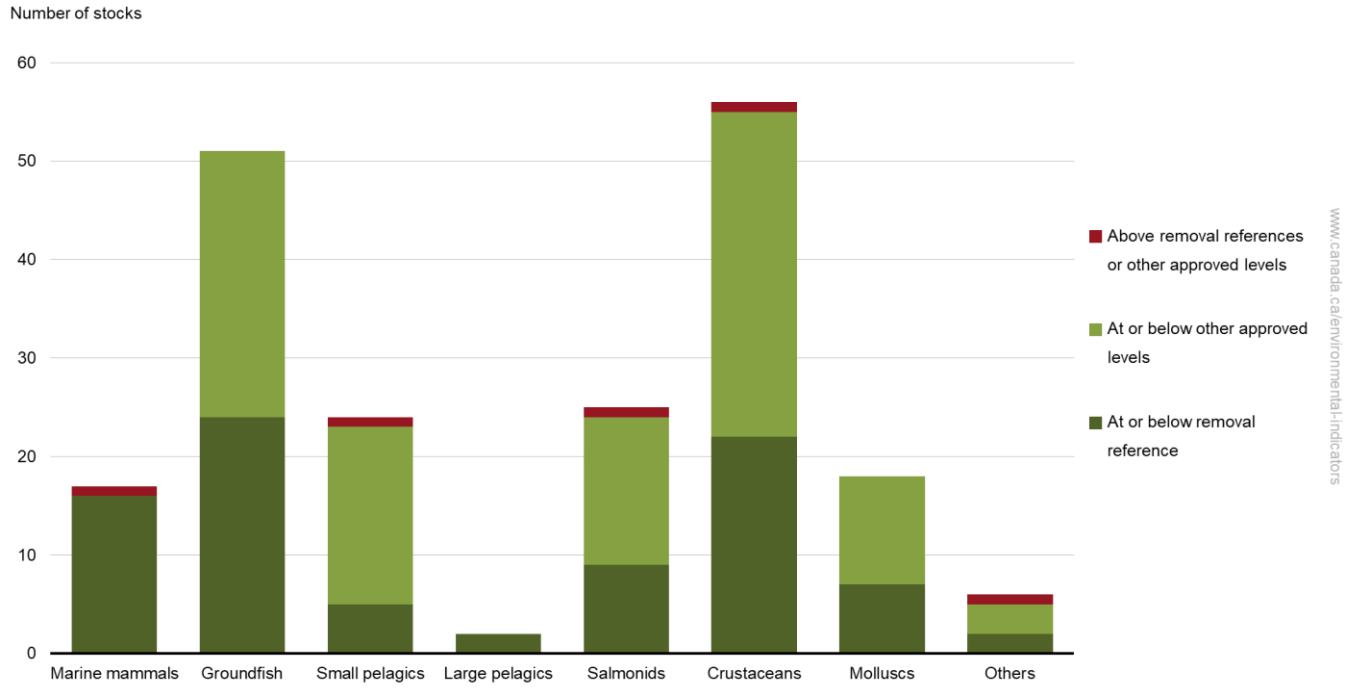
Harvest levels by species group

Key results

In 2023:

- All stocks of groundfish, large pelagics, and molluscs were harvested within acceptable limits
- The 5 remaining species groups – marine mammals, small pelagics, salmonids, crustaceans, and "others" (which includes eels and elvers, sea cucumber, and sea urchins) – each had 1 stock that was harvested above the removal reference or other approved levels

Figure 3. Number of key stocks harvested relative to approved levels by species group, Canada, 2023



Data for Figure 3

Note: Comparisons between years should be made with caution as the list of key stocks has changed.
Source: Fisheries and Oceans Canada (2025) Sustainability survey for fisheries.

Canada's key fish stocks have been grouped into 8 categories:

- Marine mammals are mammals that rely on the ocean for part or all of their existence. Marine mammals include seals, whales and narwhals
- Groundfish are usually caught near the ocean bottom. Groundfish include cod, halibut and flounder
- Pelagic fish live in midwater or close to the surface
    - Large pelagic fish include bluefin tuna and swordfish
    - Small pelagic fish include albacore tuna, herring, mackerel and sardine
- Salmonids are a family of ray-finned fish. Salmonids include salmon, char and trout
- Crustaceans are shelled animals with joints, such as lobster, crab and shrimp
- Molluscs are species we commonly think of as shellfish. Molluscs include clams, oysters and mussels
- Others include eels and elvers, sea cucumbers and sea urchins

About the indicator

What the indicator measures

The indicator compares harvest rates with established harvest limits. These limits are based on scientific information, providing a direct measure of whether we are managing the use of these resources within ecosystem limits. It is one measure of fishing pressure on wild fish stocks.

Why this indicator is important

The preservation of the ecological, social and economic value of fish stocks requires limiting harvest. Harvesting above the removal reference or other approved levels, along with other pressures, can reduce the size and productivity of fish stocks, and in the past has even led to their collapse. The harvest rate is the proportion of the stock that is taken from the water, either intentionally or as bycatch. Harvest rates must be adjusted to reflect changing conditions and to protect stocks for the future.

Related initiatives

This indicator supports the measurement of progress towards Goal 14 of the 2022 to 2026 Federal Sustainable Development Strategy: Conserve and protect Canada's oceans.

The indicator is also used for reporting on Target 5 of Canada's 2030 Nature Strategy: "Exploitation of species / wild species harvesting, use, and trade." This target is related to the Kunming-Montreal Global Biodiversity Framework Target 5: "Ensure that the use, harvesting and trade of wild species is sustainable, safe and legal, preventing overexploitation, minimizing impacts on non-target species and ecosystems, and reducing the risk of pathogen spill-over, applying the ecosystem approach, while respecting and protecting customary sustainable use by Indigenous peoples and local communities."

In addition, the indicator contributes to the Sustainable Development Goals of the 2030 Agenda for Sustainable Development. It is linked to the 2030 Agenda's Goal 14, Life Below Water and Target 14.4, "By 2020, effectively regulate harvesting and end overfishing, illegal, unreported and unregulated fishing and destructive fishing practices and implement science-based management plans, in order to restore fish stocks in the shortest time feasible, at least to levels that can produce maximum sustainable yield as determined by their biological characteristics."

Related indicators

The Status of key fish stocks indicator provides information on whether key stocks are in the healthy, cautious or critical zone.

Data sources and methods

Data sources

Data from 2015 to 2023 are from the annual Sustainability survey for fisheries (the survey). The survey replaces the Fishery Checklist, which was used from 2011 to 2014. The survey provides a systematic review of national progress towards conservation and sustainable-use objectives.

More information

The survey is conducted each spring/summer and captures data from the previous year. The same survey supports the Status of key fish stocks indicator.

The data provide a qualitative snapshot of how a fishery is addressing a range of factors for sustainable management. The data also give an indication of progress in implementing sustainable fisheries policies. Fisheries managers and scientists include results from the most recent stock assessments in their response for the survey year being reviewed.

The survey includes key stocks used by commercial, recreational and Indigenous fisheries. A fish stock is a population of individuals of a species found in a particular area. It is used as a unit for fisheries management purposes.

Key stocks are identified by regional fisheries managers within Fisheries and Oceans Canada and include stocks that are:

- an important economic stock, which have an:
  - annual landed value greater than $1 million
  - annual landed weight greater than 2 000 tonnes
- an important stock for:
  - cultural reasons
  - iconic value
  - ecosystem reasons
- an international stock, which is one that is:
  - straddling[1]

[1] Straddling fish stocks migrate across the outer limit of coastal states and the adjacent high seas. Examples include cod, flounder and turbot.

    - migratory
    - transboundary
    - managed by or subject to an international agreement
- included in an integrated fisheries management plan
- targeted in a fishery
- caught as bycatch and are economically important
- in a depleted state, but were part of a significant commercial fishery and thus are a candidate for or subject to a rebuilding plan under the Precautionary Approach policy

Fish stocks include marine mammals, finfish, shellfish and other marine invertebrates. A year is defined based on fishing seasons and closures for individual stocks. It may not align exactly with the calendar year and may vary between stocks.

Methods

The indicator compares harvest rates with harvest limits. These limits are based on scientific information and provide a direct measure of whether we are managing the use of these resources within ecosystem limits.

The indicator is a simple tabulation of stocks based on whether harvest levels are within removal reference levels, within other harvest limits, or over harvest limits.

More information

The Harvest levels of key fish stocks indicator classifies stocks based on 2 elements:

1. Approved harvest limit: this indicates the maximum sustainable harvest level established for a fish stock, and may be a removal reference or another approved level.
2. Actual harvest level: this indicates whether the actual harvest was above, at or below the approved harvest limit. Harvest includes all bycatch, whether it is retained or returned to the water.

Removal references and other harvest limits

A removal reference is the maximum acceptable removal rate for the stock. Harvest rates should not exceed the removal reference. All allowable harvest rates are based on scientific assessments, the condition of the stock, and economic and social considerations.

A removal reference is determined when there is sufficient historical data on stock productivity to allow the maximum acceptable removal rate to be estimated analytically. It is one element of a formal precautionary approach that uses a rigorous, risk-based analysis, common across stocks. In this approach, the harvest strategy for a fishery must contain a set of standard components including reference points, harvest decision rules, and other elements. Removal references vary with the stock's abundance and its location in the 3 stock status zones defined in federal policy (that is, Healthy, Cautious and Critical zones; see the Status of key fish stocks indicator for more information on stock status).

For stocks where the removal reference has not been set, actual harvest levels are compared to other approved levels established by Fisheries and Oceans Canada. Approved levels are determined on the basis of the best available information and knowledge of the biological, economic and social aspects associated with a given stock.

All limits are determined using a precautionary approach. When scientific information is insufficient, decisions must still be made. The absence of adequate scientific information should not be used as a reason to postpone or fail to take action that prevents serious harm to the resource. According to the Food and Agriculture Organization, the "precautionary approach to fisheries recognizes that changes in fisheries systems are only slowly reversible, difficult to control, not well understood, and subject to changing environment and human values."

Harvest rates

The harvest rate, also called the removal rate, is the ratio of all human-induced removals to the total exploitable stock size. Each year, managers report whether the harvest rate is above or below the acceptable level.

Regional information

For the purposes of this indicator, Fisheries and Oceans Canada's 7 regions have been grouped into 3: Stocks managed from the Pacific regional office of Fisheries and Oceans Canada are assigned the Pacific region. Stocks managed from the Arctic office are assigned to the Arctic region: this region contains some freshwater stocks. Stocks managed from the central National office were allocated to Atlantic and Arctic regions as appropriate. All remaining regional offices are assigned to the Atlantic region: Gulf, Maritimes, Newfoundland and Labrador, and Quebec.

Species groups

Species groups for reporting on this indicator are marine mammals, salmonids, groundfish, large pelagics, small pelagics, crustaceans, molluscs, and others. These are the groupings used in the Sustainability survey for fisheries. The same groupings are used in the Status of key fish stocks indicator.

Recent changes

The Sustainability survey for fisheries (the survey), previously called the Fishery Checklist, has been revised over time to improve its usefulness as a management tool. The Fishery Checklist was used from 2011 to 2014 and became the annual Sustainability survey for fisheries in 2015.

In 2011, the checklist and a set of 155 key stocks were finalized for the period 2011 to 2014, allowing comparability between years. Since then, stocks have been added to and removed from the list of key fish stocks due to a variety of reasons, such as fishing restrictions to protect stock health and splitting of stocks for more precise management. This resulted in a total of 199 stocks in 2023.

More information

Between 2015 and 2018, the number of stocks included in the survey increased to 177. Below are the detailed changes in the last 5 years to the list of fish stocks.

In 2019, the list of key stocks was revised to a total of 176:

- 1 intertidal clam stock was removed (-1)

In 2020, the list of key stocks was revised to a total of 180:

- Gulf shrimp was split into 4 stocks (+3)
- Herring was split into 2 units (Fall and Spring spawner) (+1)
- Red fish was previously 2 units and was split into 2 species (+0)

In 2021, the list of key fish stocks was revised to a total of 192:

- Inshore lobster was previously 2 units and was split into 11 (+9)
- 1 yellowtail flounder stock was added (+1)
- 1 chinook salmon stock was added (+1)
- 1 coho salmon stock was added (+1)

In 2022, the list of key fish stocks was revised to a total of 195:

- Herring (4VWX) was split into 4 stocks (+3)

In 2023, the list of key fish stocks was revised to a total of 199:

- Queen / snow crab stock was split into 5 stocks (+4)
- Intertidal clams – north coast Haida Gwaii razor was renamed to Pacific razor clam (+0)

The criteria for classifying harvest relative to removal references were tightened in 2015. Survey results are reviewed each year to track progress, gather information about key fish stocks and assist in setting priorities for improving fisheries management.

Caveats and limitations

A harvest level above the removal reference or other approved level in a single year does not mean that a stock is harvested unsustainably. Rather, it leads to a management response. Stocks managed through quotas, for

example, are subject to quota reconciliation, meaning that any stocks harvested above an approved level in one year is deducted from the harvest limit established for the following year.

The Sustainability survey for fisheries (the survey) is completed with the best available information. Since the oceans are wide and deep, and fish move between habitats, their populations are difficult to monitor.

The survey summarizes information across a wide variety of species, management regimes, types of fisheries, geographic regions, and socio-economic contexts. Small changes in the set of surveyed stocks occur due to changes in the way stocks are assessed or managed. Results should be interpreted with this in mind.

For most stocks, including all groundfish, quota reconciliation is implemented where there are seasonal harvests above approved levels. In-season transfers allow exchanges to be made between licence holders, such as a harvest above approved levels by one fisher being applied to the unused quota of another. When in-season transfers do not sufficiently cover harvests above approved levels, the harvest is deducted from the harvest limit established for the following year.

The indicator does not account for fished stocks that do not meet the criteria for “key” stocks. Seaweeds and other aquatic plants are also excluded.

Resources

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Related information

Aquatic species

Canada’s fisheries funds

Fisheries

Fisheries management

Integrated fisheries management plans

Policy on managing bycatch

Science Advisory Reports (includes Stock Status Reports)

Sustainable fish and seafood

Annex

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

Table A.1. Data for Figure 1. Harvest of key stocks relative to approved levels, Canada, 2011 to 2023

Year	At or below removal reference (number of stocks)	At or below other approved levels (number of stocks)	Above removal references or other approved levels (number of stocks)	Total (number of stocks)
2011	68	71	16	155
2012	64	84	7	155
2013	64	87	4	155
2014	66	86	2	154
2015	71	81	7	159
2016	64	99	7	170
2017	91	80	8	179
2018	95	75	7	177
2019	92	74	10	176
2020	87	90	3	180
2021	85	98	9	192
2022	80	109	6	195
2023	87	107	5	199

Note: Comparisons between years should be made with caution as the list of key stocks has changed.
Source: Fisheries and Oceans Canada (2025) Sustainability survey for fisheries.

Table A.2. Data for Figure 2. Harvest of key stocks relative to approved levels by region, Canada, 2023

Harvest level	Pacific (number of stocks)	Arctic (number of stocks)	Atlantic (number of stocks)
At or below removal reference	33	14	40
At or below other approved levels	24	11	72
Above removal references or other approved levels	0	0	5

Note: Stocks were generally assigned to regions based on their respective Fisheries and Oceans Canada managing offices. Stocks managed from the central National office were allocated to Atlantic and Arctic regions as appropriate. Comparisons between years should be made with caution as the list of key stocks has changed.
Source: Fisheries and Oceans Canada (2025) Sustainability survey for fisheries.

Table A.3. Data for Figure 3. Number of key stocks harvested relative to approved levels by species group, Canada, 2023

Species group	Species / stocks included	At or below removal reference (number of stocks)	At or below other approved levels (number of stocks)	Above removal references or other approved levels (number of stocks)
Marine mammals	Atlantic walrus, beluga, bowhead, grey seal, harp seal, narwhal	16	0	1
Groundfish	Cod, dogfish, flounder, haddock, hake, halibut, lingcod, ocean perch, plaice, pollock, redfish, rockfish, sablefish, skate, thornyhead	24	27	0
Small pelagics	Albacore tuna, capelin, eulachon, herring, gaspereau, mackerel, sardine, striped bass	5	18	1
Large pelagics	Bluefin tuna, swordfish	2	0	0
Salmonids	Char, north slope Dolly Varden, salmon, trout, whitefish	9	15	1
Crustaceans	Crab, krill, lobster, prawn, shrimp	22	33	1
Molluscs	Clam, geoduck, scallop, oyster, whelk	7	11	0
Others	Eel and elvers, sea cucumber, sea urchin	2	3	1
Total	**n/a**	**87**	**107**	**5**

Note: n/a = not applicable. Comparisons between years should be made with caution as the list of key stocks has changed.
Source: Fisheries and Oceans Canada (2025) Sustainability survey for fisheries.

Additional information can be obtained at:

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