

TAKING STOCK

SUSTAINABLE SEAFOOD
IN CANADIAN MARKETS

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photo: Grant Stirton

SEACHOICE VISION FOR 2020

All Canadian fisheries and aquaculture operations will be ranked green or yellow, consistent with SeaChoice standards, to support healthy ocean ecosystems and human communities. All seafood will be properly labelled and only green and yellow species will be available in Canadian seafood businesses. Fisheries, aquaculture and traceability policies and regulation will be in place to support these goals.

Working in collaboration with the Monterey Bay Aquarium's acclaimed Seafood Watch program, SeaChoice undertakes science-based seafood assessments, provides informative resources for consumers and supports businesses through collaborative partnerships. The organization's easy-to-use tools help consumers make informed seafood choices.

The SeaChoice program is operated by the David Suzuki Foundation, Ecology Action Centre and Living Oceans Society. Past coalition members include the Canadian

Parks and Wilderness Society and Sierra Club BC. Our work is funded primarily by the David and Lucile Packard Foundation, with organizational support for sustainable seafood work from funders including the Donner Canadian Foundation, Disney Conservation Fund, and Marisla Foundation.

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photo: Colleen Turlo

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LIST OF ACRONYMS

AIP	Aquaculture improvement project
ASC	Aquaculture Stewardship Council
BAP	Best Aquaculture Practices
CBSA	Canadian Border Services Agency
CFIA	Canadian Food Inspection Agency
COSEWIC	Committee on the Status of Endangered Wildlife in Canada
DFO	Department of Fisheries and Oceans Canada
ENGO	Environmental non-governmental organization
FADs	Fish aggregating devices
FFMC	Freshwater Fish Marketing Corporation
FIP	Fisheries improvement project
Fish, NES	Fish not elsewhere specified
IATTC	Inter-American Tropical Tuna Commission
IOTC	Indian Ocean Tuna Commission
MBA	Monterey Bay Aquarium
MSC	Marine Stewardship Council
NOAA	National Oceanic and Atmospheric Administration
NGO	Non-governmental organization
RFMO	Regional fisheries management organization
SFP	Sustainable Fisheries Partnership
SFW	Seafood Watch
Statscan	Statistics Canada
UNGA	United Nations General Assembly
WCPFC	Western and Central Pacific Fisheries Commission

EXECUTIVE SUMMARY

Fishery and aquaculture operations in Canada are important contributors to the ecological, economic, social and cultural fabric of Canada. To ensure continued or increased supply of seafood for domestic consumption and export, exploitation and production of these foods must be carried out in a manner that does not degrade their ecosystems. Canada also has a responsibility to ensure products it imports do not contribute to ecosystem degradation elsewhere and are obtained in ways that are respectful of human rights.

Market-based approaches, such as Canada's SeaChoice program, promote better fishing and aquaculture practices and help reduce or eliminate unsustainable practices by influencing demand in the seafood supply chain. *Taking Stock* was written to provide a better understanding of seafood sustainability in Canada and to evaluate Canadian market-based approaches. It includes a comprehensive assessment of imported and domestic fishery and aquaculture products in Canadian markets.

The report is based on seafood consumption and trade data collected by government agencies. *Taking Stock* is the first report in Canada to evaluate these products against sustainability ranking and certification standards commonly used in North America. Understanding the sustainability of Canadian seafood consumption, exports and imports provides focus to improve seafood production, government regulation and engagement with seafood purchasers.

Taking Stock is a compilation of data on seafood production and seafood trade in Canada in 2014 (the most recent year for which complete data are available). Seafood volumes, by product or species, are assigned sustainability rankings from the Monterey Bay Aquarium's Seafood Watch program. Combined seafood sales by SeaChoice's retail partners are highlighted to evaluate the effectiveness of sustainable seafood procurement policies in relation to seafood trade and consumption in Canada.

The report identifies specific problems with data reporting and areas where the seafood supply chain can best work to improve seafood sustainability in Canada.



photo: Colleen Turlo

KEY RESULTS:

- A lack of government-required labelling and tracking for exported and imported seafood makes assessing the sustainability of many seafood products impossible.
- Over 30 per cent (by volume) of seafood imported into Canada is reported with insufficient specificity to allow for sustainability rankings.
- Sixteen per cent of all seafood (by volume) produced in Canada is ranked green (Best Choice), 61 per cent is ranked yellow (Some Concerns), 14 per cent is red (Avoid) and nine per cent is unranked.
- Canada assesses 48 per cent of its fish stocks to be “healthy”, a significantly different finding from this analysis.
- Red-ranked seafood produced by volume in Canada is primarily farmed open-net pen salmon (72 per cent), with the remaining 28 per cent from fisheries including Atlantic cod; Atlantic hake; Manitoba freshwater pickerel, whitefish and perch; Atlantic Pollock; Atlantic swordfish; tuna and Atlantic cusk.
- Canada has a trade surplus when it comes to sustainable seafood. We export more sustainable seafood than we import.
- Only 11 per cent of seafood available in Canada is listed as green.
- Imported red-ranked seafood includes farmed shrimp, farmed salmon and skipjack tuna.
- SeaChoice retailer partner sales data indicate that 23 per cent of seafood is from green sources, 66 per cent from yellow and nine per cent from red-ranked sources. This shows that SeaChoice retail partners source a higher percentage of green-ranked seafood than is available, on average, across Canada.
- Approximately 80 per cent (by value) and 67 per cent (by volume) of Canadian wild-caught fisheries are certified by the Marine Stewardship Council (MSC) and have conditions in place to improve sustainability.
- Aquaculture Stewardship Council (ASC) certifications are growing on the Pacific and Atlantic coasts, with five farms certified and seven within the certification process as of April 2016.



photo: Kathaleen Milan and Ron Neufeld

RECOMMENDATIONS

1. To improve seafood sustainability tracking in Canada and the effectiveness of market-based approaches:

- Canada should require government agencies to improve seafood labelling and reporting of fisheries and aquaculture products by requiring species-level identifications.
- ENGOs assisting with sustainable seafood procurements should adopt a shared data gathering tool to track program effectiveness.

2. To eliminate red-ranked seafood and increase availability of green-ranked seafood as well as address human rights abuses in seafood production:

- Canadian retailers, food-service companies and restaurants should continue to avoid buying red-ranked seafood.
- Canada should support traceability requirements as a part of sustainability assessments and examine human rights abuses in the seafood supply chain.
- Focus should be on improving practices or restricting imports from red-ranked fisheries within and outside of Canada.

3. To ensure that eco-certification programs are credible, aligned with Canadian law and policy and result in improved fisheries sustainability, including impacts on target species and impacts of fishing on the ecosystem, we recommend:

- Canadian fisheries certified by the MSC meet conditions within a reasonable timeframe, with MSC conditions that are consistent with Canadian laws and policies relating to sustainable fisheries and marine biodiversity protection, and with a particular focus on species assessed by COSEWIC and considered at risk.
- ASC certifications, particularly with reference to the *Salmon Standard*,¹ should not undermine wild salmon management and must uphold a high standard for disease and pathogen control.

¹ Aquaculture Stewardship Council (ASC). (2012). Version 1.0 Salmon Standard. Accessed March 2016:

http://www.asc-aqua.org/upload/ASC%20Salmon%20Standard_v1.0.pdf



photo: Raymond Plourde

1.0 INTRODUCTION

As of 2014, Canada was the seventh-largest seafood-exporting country, with a seemingly robust set of laws and policies governing fisheries and aquaculture management. Environmental organizations, retailers and certification programs are also actively engaged in sustainable seafood markets initiatives. Canada, therefore, is an ideal place to evaluate the success of market-based incentives for seafood sustainability.

If sustainability initiatives were successful – including government law and policy implementation, credible and effective eco-certification programs and sustainable seafood purchasing commitments by seafood suppliers and retailers – Canadian fisheries should be among the most sustainable in the world. However, Canada’s internal auditing system identifies that fewer than half of Canada’s major fish stocks are considered “healthy”, and 63 marine fish populations caught by Canadian fisheries are also at some level of risk, according to the Committee on the Status of Wildlife in Canada (COSEWIC).²

Established in 2006, SeaChoice has worked to increase seafood sustainability, primarily through seafood supplier and retailer partnerships, certification processes, direct producer engagement and consumer education. SeaChoice bases its sustainable seafood recommendations on Monterey Bay Aquarium’s Seafood Watch Program, which assesses seafood sustainability based on stock status, ecosystem impact and management effectiveness.³ SeaChoice and its member organizations undertook this report to:

1. Produce an overview of the sustainability of all seafood produced, exported, imported and sold in Canada.
2. Review the extent of Canadian market-based approaches, including retailer partnerships, certifications and fishery/aquaculture improvement projects.
3. Identify key areas for sustainability improvement for seafood produced in and imported to Canada.

This is the first sustainability overview for all seafood produced in, exported from and imported into Canada. We summarize available government data on seafood,

2 McDevitt-Irwin, J.M., Fuller, S.D., Grant, C. and Baum, J.K., 2015. Missing the safety net: evidence for inconsistent and insufficient management of at-risk marine fishes in Canada. *Canadian Journal of Fisheries and Aquatic Sciences*, 72(10), pp.1596-1608

3 Monterey Bay Aquarium Seafood Watch Program <http://www.seafoodwatch.org/>

BOX 1. A SNAPSHOT OF CANADIAN SEAFOOD PRODUCTION AND EXPORT MARKETS

Canada is the world’s seventh-largest seafood producer and exporter.⁴ In 2014, Canada exported \$4.9 billion of fish and seafood products. Canada exports about 85 per cent^{5,6} (by value) of captured fish and seafood produced by aquaculture. The United States is Canada’s largest export market (combined 63 per cent), followed by China and the European Union together at 19 per cent. Canada’s largest seafood exports by species were lobster, snow/queen crab, shrimp and farmed Atlantic salmon (63 per cent by value, 46 per cent by volume).⁷

by volume, and separate results into three SeaChoice-supported sustainability categories: *green* (Best Choice), *yellow* (Some Concerns) and *red* (Avoid). As several ENGO sustainable seafood programs exist in Canada, we also assemble information on sustainable seafood retail programs from across the country. We provide information on the number of Canadian fisheries and aquaculture operations certified by the Marine Stewardship Council (MSC) for wild-caught fisheries and, more recently, through the Aquaculture Stewardship Council (ASC) for farmed seafood. Finally, we provide information on fisheries and aquaculture operations in Canada associated with a fisheries improvement project (FIP). To our knowledge, there are no aquaculture improvement projects (AIPs) in Canada.

4 FAO 2014. State of the World’s Fisheries and Aquaculture <http://www.fao.org/3/a-i3720e.pdf>

5 This value is officially used in government publications. Through communication with DFO we learned that this 85 per cent originates from an internal government report. We were unable to reproduce this value; therefore, it should be interpreted carefully.

6 Government of Canada. 2015. Archived - Harper Government Invests in Canadian Aquaculture Exports. <http://news.gc.ca/web/article-en.do?nid=977939>

7 DFO 2015. Statistics. <http://www.dfo-mpo.gc.ca/stats/stats-eng.htm>

2.0 DATA COLLECTION AND ANALYSIS

Seafood production and trade data are reported by Fisheries and Oceans Canada, Statistics Canada and Industry Canada. Domestic production data, comprising marine commercial fisheries landings⁸, aquaculture production⁹ and freshwater landings¹⁰, came from DFO with complete data available for 2013. DFO was also the source for import, domestic export, re-import and re-export data for this report.¹¹ Information about Canadian imports and exports was also available from Statistics Canada; however, to reduce possible discrepancies between data sources, we chose to use DFO data. Volumes of seafood reported as either aggregated product categories or as individual species were categorized as follows: i) produced in Canada; ii) exported from Canada; iii) imported into Canada and iv) available to the Canadian marketplace (trade balance).¹² Trade balance for each product or species category was calculated by subtracting the seafood exported from the total production and adding imports of that particular grouping.¹³

Although all product volumes are expressed in metric tonnes (t), the final product forms vary greatly depending on how products are processed. Because of these differences, direct comparison of production, export and import volumes is not possible. Values in this report should be viewed as a broad characterization of seafood trade.

Seafood Watch's sustainability rankings (i.e., green, yellow, red) were assigned to each product category. DFO reports some seafood volumes at a species-level ranking, (e.g., Canadian Pacific halibut), while others are aggregated or unidentified. For example, the product category "imported catfish" includes a red-ranked basa, a yellow-ranked ASC-certified basa and a green-ranked U.S. catfish. We applied the following rules when applying sustainability rankings:

1. If the species category corresponded to a single product that carries a single ranking, that ranking was used for the entire volume.
2. If the species category contains seafood of more than one ranking (as with catfish above), we had no way to estimate the proportional rankings within categories using only the DFO-provided data. Therefore aggregated sustainability information on seafood sold from SeaChoice partners was used to calibrate these breakdowns. This aggregated volume data likely results in an optimistic representation of the sustainability within these product categories, but are a more accurate representation than if they were not used. Aggregated data were used when there were at least three separate listings from each source within a category.
3. If there were not enough listings to meet this threshold, a worst-case scenario was used. This scenario was used in limited instances, usually for small-volume categories such as shark and eel where multiple sustainability rankings may appear within the category, but for which SeaChoice retailers do not purchase any (or enough) items to approximate the breakdowns.

8 DFO. 2013. Commercial Fisheries: Seafisheries. <http://www.dfo-mpo.gc.ca/stats/commercial/land-debarq/freshwater-eadouce/2013-eng.htm>. Accessed September 2015.

9 DFO. 2013b. Aquaculture Production Quantities and Values. <http://www.dfo-mpo.gc.ca/stats/aqua/aqua13-eng.htm>. Accessed August 2015.

10 DFO 2013c. Commercial Fisheries: Freshwater. <http://www.dfo-mpo.gc.ca/stats/commercial/land-debarq/freshwater-eadouce/2013-eng.htm>. Accessed September 2015

11 DFO 2015 Canadian Trade by Species Group and Species. http://www.inter.dfo-mpo.gc.ca/NSR/Report?report_by=3 Accessed September 2015

12 DFO 2015. Statistical Services personal communication. October 2015.

13 DFO 2015. Statistical Services personal communication. October 2015.

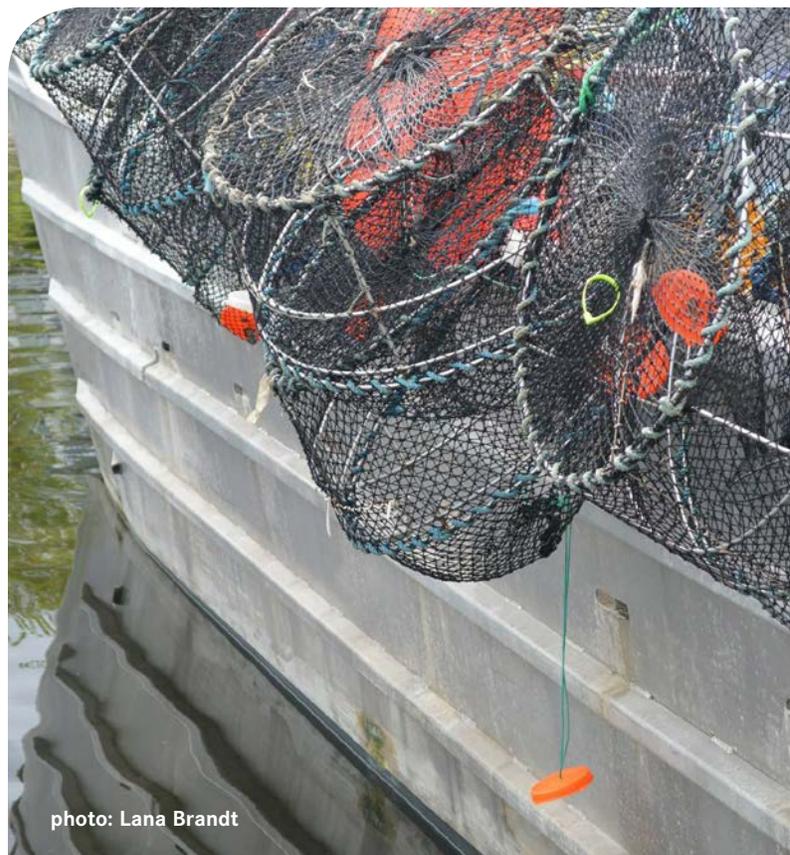


photo: Lana Brandt



photo: EAC/Becky Cliche

These rules helped minimize arbitrary ranking designations. There were, however, three seafood categories where aggregated data could not provide accurate estimations for the ranking distributions: tuna, groundfish and crab. A case-by-case approach was used to determine specific breakdowns for these exceptions. Tuna rankings, for example, depend largely on fishing method. The percentage caught by each gear type was estimated using Seafood Watch assessments. The relative amount of tuna caught by fish aggregating devices (FAD) purse seines versus those from free sets was estimated by using E.U. fisheries data¹⁴. Relative volumes of groundfish and crab caught in Canadian fisheries were estimated from DFO catch data.

Obtaining accurate estimates for seafood import and export volumes is confounded by the fact that some Canadian seafood is exported for processing and then re-imported for sale in Canada. As well, Canada imports seafood for processing and then exports the processed product. These re-import/re-export transactions are not easily tracked and required additional data requests to DFO.

14 Fonteneau, A., Chassot, E., & Bodin N. (2013) Global spatio-temporal patterns in tropical tuna purse seine fisheries on drifting fish aggregating devices (DFADs): Taking a historical perspective to inform current challenges, *Aquatic Living Resources*, 26(1) 26, pp. 37-48

A large amount of imported product is lumped together in an aggregated category and can't be given a sustainability ranking. Other anomalies include imported non-seafood-related items such as frogs, reptiles and marine mammal products. These imports account for less than one per cent (3,000 t) of imports and were removed from the analysis.

SeaChoice's retail partners provide annual reports of their seafood procurement. We combined all the data provided by our partners, but were unsuccessful in acquiring similar data from other sustainable seafood programs with retail partners in Canada. We do, however, provide information on ENGO-retail seafood partnerships in Canada, including background on the level of commitment to sustainable seafood purchasing and the public reporting of their commitments.

Seafood Watch has engaged in ongoing efforts to align its assessment rankings with other certification programs to reduce confusion in the marketplace and avoid duplication of efforts. For Canadian fisheries that are certified by the MSC and ranked by Seafood Watch, we typically defer to MSC assessment as a yellow-ranked category as suggested by Seafood Watch.¹⁵

15 Monterey Bay Aquarium Seafood Watch. (2013). Eco-certification Benchmarking Project. <https://www.seafoodwatch.org/-/m/sfw/pdf/eco-certifications/reports/mba-seafoodwatch-benchmarking-faqs.pdf?la=en>. Accessed April 2016.



photo: Grant Stirton

3.0 RESULTS

3.1 DATA AVAILABILITY, DISCREPANCIES AND TRANSPARENCY

Data availability and quality heavily influenced our analysis and results. We encountered significant challenges, including locating detailed information, resolving aggregated data, aligning data between government departments responsible for reporting on seafood production, imports and exports and lack of transparency within the retail sector.¹⁶

On request, DFO provided us with detailed re-import, re-export, import and export volume data. DFO stated that this information, including re-imports by volume, is provided by Statistics Canada, but there was no confirmation that this is the case. The difficulty in obtaining accurate and accessible data identifies a need for integrated data platforms between Canadian government departments and international agencies responsible for tracking seafood products.

¹⁶ Explanation of Data Challenges: While re-import data by value is available online from Industry Canada's "Trade Data Online" database, volume is not. In an effort to obtain re-imports by volume, we tried to verify the source of the data, which proved impossible. Industry Canada directed us to Statistics Canada (which we were told provides the data). They in turn directed us to the U.S. Census Bureau and the CBSA. After transferring our call several times the U.S. Census Bureau confirmed they provided the U.S. portion of the data, and officials at the CBSA verified that they did not provide Statistics Canada with this data. After contacting several people at Statistics Canada, we were told that they would be able to compile information on re-imports and re-exports as a custom order and cost-recovery product. When asked if re-import information was included in the import data that DFO provides, officials at Statistics Canada informed us that the "table is not one of Statistics Canada's tables"; however, the source of information on the DFO extract states that the information is from Statistics Canada.

In calculating volumes, we found that there is an unknown amount of re-imports from Canadian sources that are classified as imports by Statistics Canada. This occurs when a product has been "materially altered or substantially enhanced in value while abroad."¹⁷ The Canadian Border Services Agency revealed that the origin of these products is not tracked. For example, when Canadian-caught salmon is exported to China for processing, it returns as a product from China. This confounds the sustainability rankings for what originated as a yellow-ranked domestic product but is returned as a generic seafood category. This example suggests that improvements are needed regarding traceability of Canadian seafood.

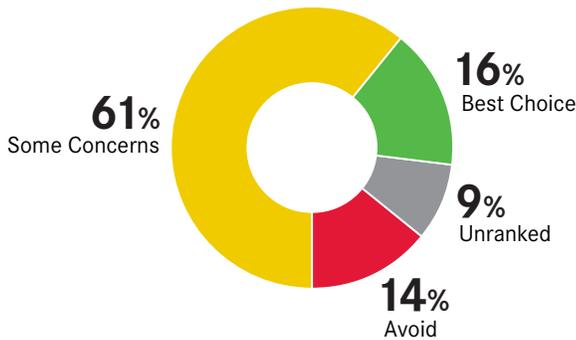
There are also discrepancies among agencies responsible for disseminating information. We compared information sent by Statistics Canada and DFO. While the information should be the same, we found notable differences in datasets. For example, Statscan reports 301,000 t of imports in 2014, while DFO reports 518,000 t (1.7 times more). There is no answer as to why the two datasets differ so significantly when DFO's data source is Statistics Canada's International Trade Division.

¹⁷ Government of Canada. (2015). <https://strategis.ic.gc.ca/app/scr/sbms/sbb/cis/internationalTrade.html?code=11&lang=eng> (Accessed October 2015).

3.2 CANADIAN FISHERIES AND AQUACULTURE PRODUCTION

In 2014, just over one million tonnes of seafood was produced in Canada, including wild-caught from marine and freshwater ecosystems and farmed shellfish and finfish. The majority of Canadian seafood production (83 per cent) is harvested from wild marine fisheries, with aquaculture (14 per cent) and freshwater species (three per cent) following a distant second and third. Canada’s internal auditing system identifies that fewer than half of Canada’s major fish stocks are considered “healthy,” with the measure applied only to stock status.¹⁸ We identify that more than half (61 per cent) of Canada’s total production is ranked as *yellow* by Seafood Watch (Figure 1). The *yellow* category includes eco-certification recognized by MBA, including MSC, and specific standards of ASC, BAP and Naturland.¹⁹ Only 16 per cent are considered *green*, leaving 84 per cent of Canada’s seafood production requiring some improvement.

FIGURE 1. Total Canadian-produced seafood by Seafood Watch ranking from 2014 data. Figure represents approximately 1,000,000 t of production.



Shrimp (149,000 t), Atlantic herring (126,000 t), farmed salmon (100,000 t), snow crab (98,000 t), and lobster (75,000 t) are the top five produced species by volume (Figure 2).

FIGURE 2. Top 20 categories of Canadian-produced seafood by volume (t); colours represent Seafood Watch sustainability ranking. Top 20 species represent 88 per cent of the total production volume (1,016,000 t).

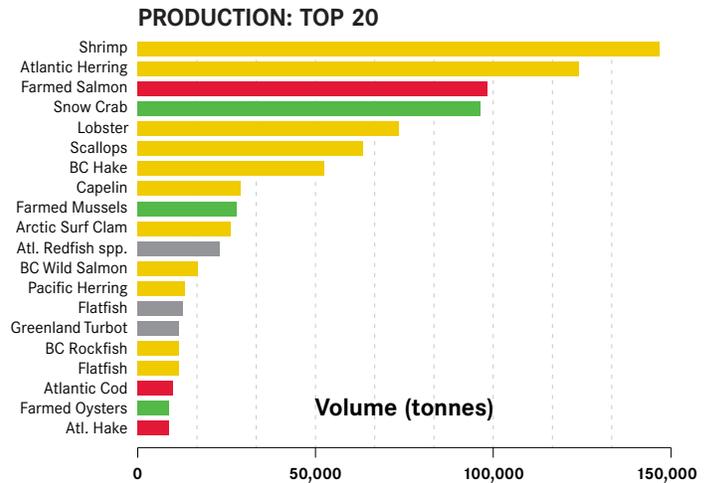


photo: EAC

¹⁸ Environment and Climate Change Canada (2016) Canadian Environmental Sustainability Indicators: Status of Major Fish Stocks. Accessed February 2016. www.ec.gc.ca/indicateursindicators/default.asp?lang=en&n=1BCD421B

¹⁹ <http://www.seafoodwatch.org/seafood-recommendations/eco-certification>

Farmed salmon is the largest contributor by far to red-ranked seafood in Canada (Figure 3), making up 72 per cent of the total *red* seafood volume (138,000t), followed by Atlantic cod (eight per cent).

FIGURE 3. Canadian-produced Seafood in 2014 that is red-ranked by Seafood Watch, arranged by descending volume (t). Total red-ranked volume is 138,000 t.

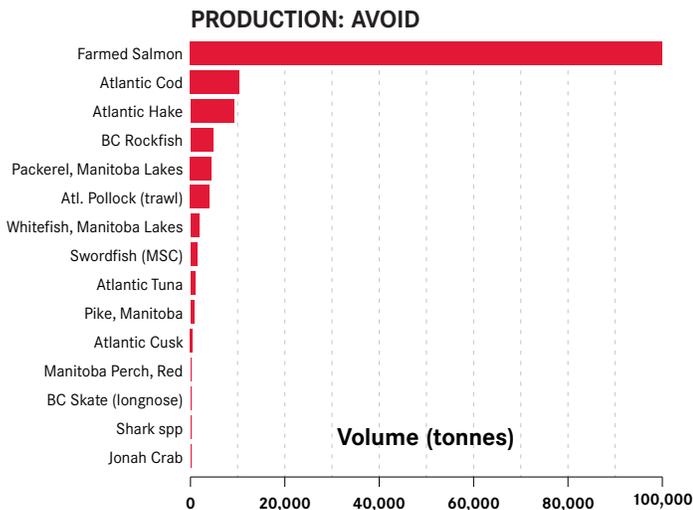


Figure 4 shows unranked product categories, about nine per cent of total production (87,000 t), that do not have a sustainability ranking by SFW, or the data was reported in aggregated categories too broad to assign sustainability rankings. Atlantic redfish contributes 28 per cent of the unranked items that are domestically produced due to lack of an assessment, followed closely by an over-aggregated flatfish category (16 per cent) and Greenland turbot (15 per cent), also without an SFW assessment. Atlantic redfish has been prioritized for a Seafood Watch assessment in 2017.

FIGURE 4. Canadian-produced seafood in 2014 unranked due to lack of a Seafood Watch assessment or over-aggregated reporting, arranged by descending volume (t). Total unranked volume is 87,000 t.

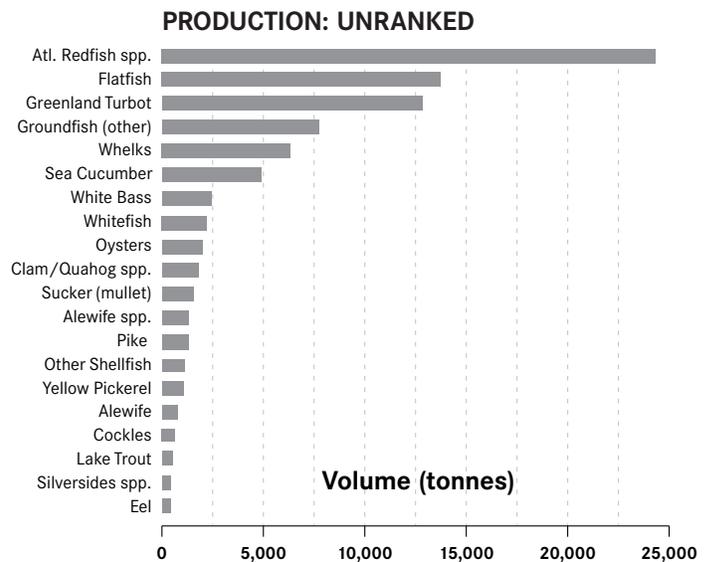
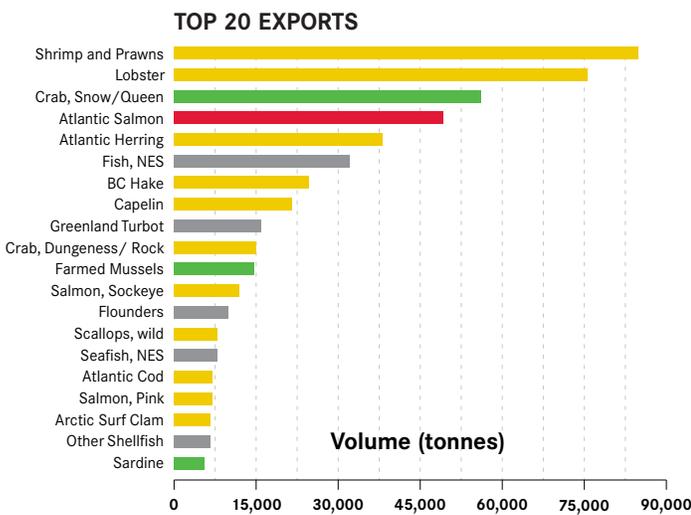


photo: Colleen Turlo

3.3 CANADIAN SEAFOOD EXPORTS

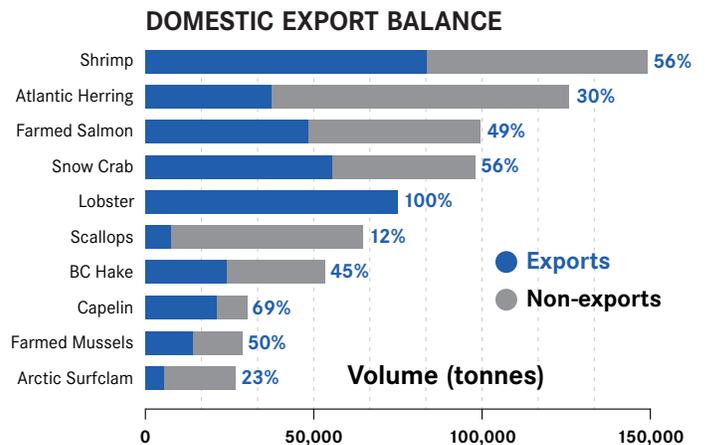
Canada is known globally as a major exporter of seafood. In 2014, 579,000 t of seafood were exported from Canada, with over half from just five categories: shrimp and prawns (14 per cent), lobster (13 per cent), snow and queen crab (11 per cent), Atlantic salmon (eight per cent) and Atlantic herring (six per cent) (Figure 5). Canada is one of the top producers of snow crab, which accounts for the country’s largest volume of green-ranked seafood export. In total, 54 per cent of domestic production of snow crab, by volume, is exported. If the analysis were done by value it would be even higher.

FIGURE 5. Top 20 domestic exports in Canada by volume (t); bars are colour-coded to Seafood Watch sustainability ranking. The top 20 categories represent 85 per cent of all exports. Total exported volume is 579,000 t.



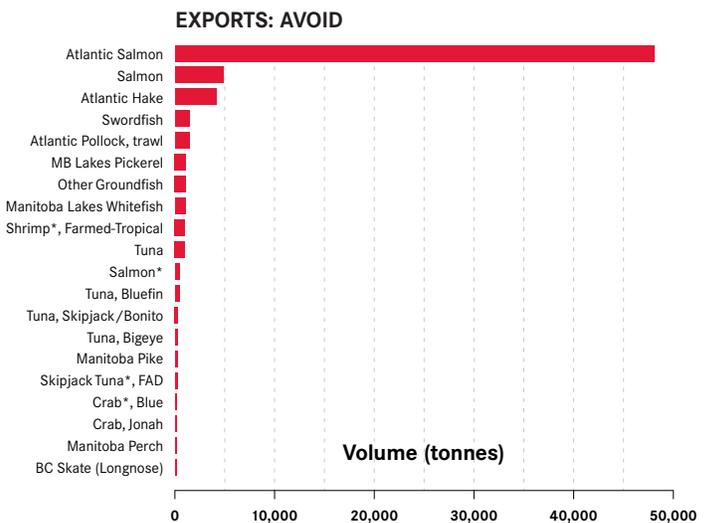
Because an increasing amount of seafood is exported for processing, it is likely that some domestic products that are brought back into Canada are included in import volumes. According to available data, more than half of shrimp landings (56 per cent) and 99.6 per cent of lobster are exported (Figure 6). We know that this is inaccurate as more than 0.4 per cent of lobster is needed to supply the domestic fresh market, but it does highlight how difficult it is to separate out exports for processing, imports for processing and re-exports.

FIGURE 6. Domestic export balance of Canadian seafood products. Domestic fisheries and aquaculture production is shown in grey, while the exported portion is overlaid in blue.



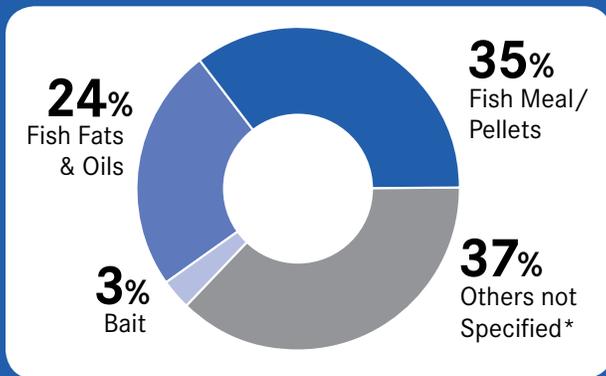
A breakdown of red-ranked export categories show that Atlantic salmon is the dominant product (72 per cent) (Figure 7). The next largest category was aggregated as “salmon” but not differentiated between wild and farmed.

FIGURE 7. Top 99 per cent of exported seafood that is red-ranked by Seafood Watch, arranged by descending volume in tonnes. Total red-ranked exported volume is 67,000 t.



BOX 2. NOT ELSEWHERE SPECIFIED (NES) FISH IMPORTS: WHAT ARE THEY?

“Fish, NES” serves as a catch-all for all species groupings *not elsewhere specified* in the import data. The trade groupings are tracked by generic products such as fish fillets, fish meal and fish fats. Products in the NES category make up over 151,000 tonnes and 29 per cent of all imports. Sustainability information cannot be accurately represented since a species name is not tracked when it is imported. It is likely that a large proportion of the seafood is from fisheries where there is no Seafood Watch ranking.

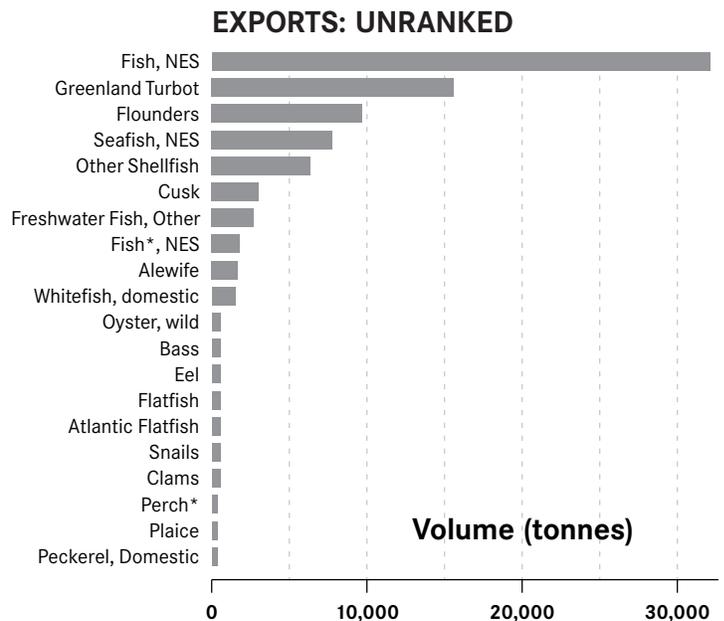


Although not tracked by species names, several product groupings can be separated from the “Fish NES” category: 1) Fishmeal and pellets, 2) Fish fats and oils, 3) Fish used as bait and 4) Other unspecified fish (mostly edible).

Many fish species used in feed products and for oils play important roles in marine ecosystems and commonly follow boom-and-bust cycles. It is therefore important to better understand how these species are used. Fish meal and oils make up 13 per cent and seven per cent, respectively, (518,000 t) of all imported seafood. In addition to meal tracked under the “Fish, NES” category, shellfish and herring were also imported as fishmeal and cod was imported as fish oil. We recommend that fisheries and aquaculture products should be reported to government statistical agencies at the species level, along with the region of catch and farming method or gear type in order to better assess sustainability. This will allow insight into sustainability of species that are likely feeding farmed salmon and pets in Canada.

The “Fish, NES” (not elsewhere specified) category has the largest volume of unranked exports, making up 37 per cent of the total 87,000 t (Figure 8). We were unable to apply any sustainability ranking to this category. Over half (53 per cent) of “Fish, NES” is reported internally as “fish, shellfish invert prod NES” and described as “not for human consumption”, including fish meal, pellets, oils and other products (Box 2). After “Fish NES”, Greenland turbot is the next largest export volume at 18 per cent of the total. The rest of this category is made up of many fish parts and offal varying in levels of processing.

FIGURE 8. Exported seafood that is unranked by Seafood Watch by volume (t). Asterisks correspond to re-exported items. Total unranked exported volume is 87,000 t



According to DFO statistics, 85 per cent of seafood produced in Canada by value is exported. Our analysis showed that 54 per cent by volume is exported. The majority of this exported seafood (51 per cent), or 292,000 t, is sent to the United States. Of the 51 per cent exported to the United States, over a quarter (27 per cent) is salmon, either farmed or wild, followed by 19 per cent lobster and 18 per cent crab. China and Japan trail behind for exports at 14 per cent and five per cent, respectively (Figure 9).

FIGURE 9. Top 15 countries for Canadian seafood export by percentage of total export volume (579,000 t).

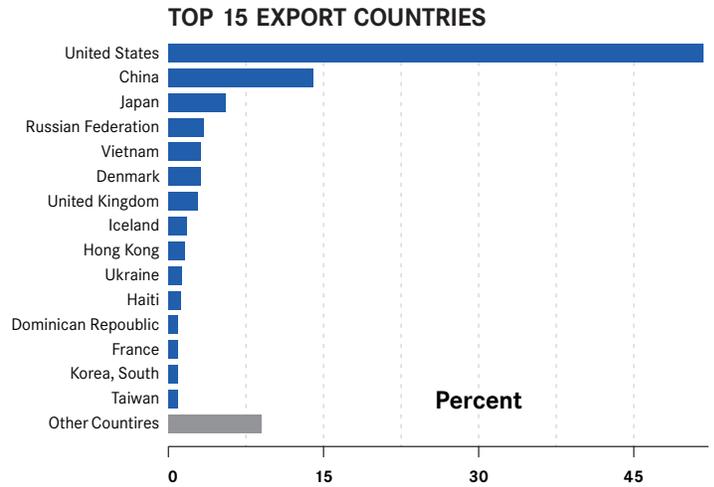
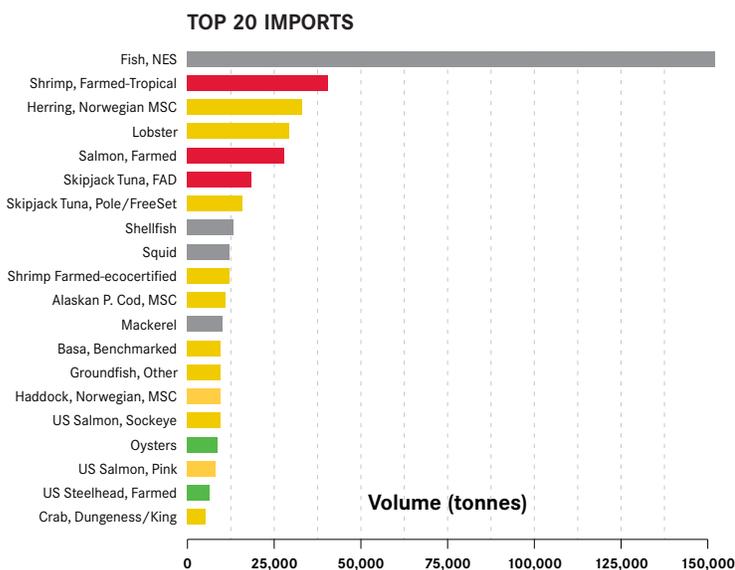


photo: Shannon Arnold

3.4 CANADIAN SEAFOOD IMPORTS

In 2014, Canada imported just over half a million tonnes of seafood (Figure 10), including non-quantified amounts produced in Canada then exported and re-imported. Similar to exported seafood, the aggregated unranked category “Fish, NES” makes up the largest category of seafood imports, contributing to 30 per cent (151,000 tonnes) of all imports (Figure 10). Products in the NES category in the Canadian marketplace are primarily fishmeal and fish oil products (Box 2). Red-ranked farmed tropical shrimp are the second-largest import product, contributing eight per cent (39,000 tonnes) to total imports.

FIGURE 10. Top 20 imported seafood categories in Canada by volume (t) in 2014; bars are colour-coded to Seafood Watch ranking. The top 20 categories represent 84 per cent of total imports (518,000 t).



In analyzing sustainability of imports, we found that farmed tropical shrimp (39 per cent), farmed salmon (27 per cent) and skipjack tuna (18 per cent) are the three largest red-ranked Canadian imports (Figure 11). Approximately 67 per cent of all red-ranked imports come from farmed sources.

FIGURE 11. Top 99 per cent of total imported red-ranked seafood in 2014 arranged by descending volume in tonnes. Total red-ranked volume is 102,000 t.

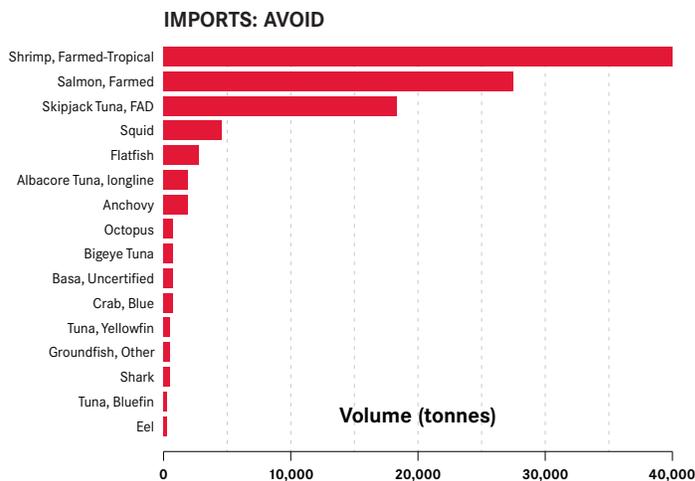
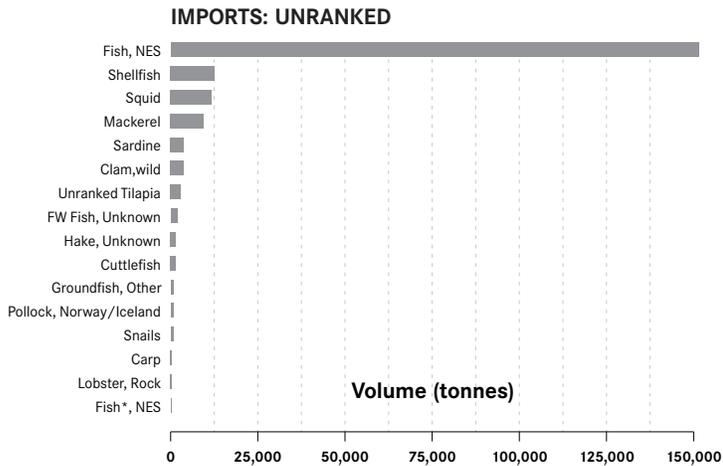


photo: Colleen Turlo

The generic group “Fish, NES” makes up 74 per cent of the 204,000 t of all unranked imports, followed distantly by the three categories of shellfish, squid and mackerel, which combined make up 17 per cent. There is an additional 2,468 t of seafood included in unknown generic categories (Figure 12).

FIGURE 12. Top 99 per cent of imported unranked seafood arranged by descending volume in tonnes. Asterisk corresponds to re-imported items. Total unranked volume is 204,000 t.



As with exports, the United States is our largest trading partner for imports, providing 36 per cent, or 188,000 t, of imported seafood, including lobster (27 per cent) and fresh, frozen or brined herring (21 per cent). The U.S. is followed by China and Thailand at 14 per cent and 10 per cent of imports, respectively (Figure 13).

FIGURE 13. Top 15 countries from which Canada imports seafood. Values are expressed as a percentage of the total imports.

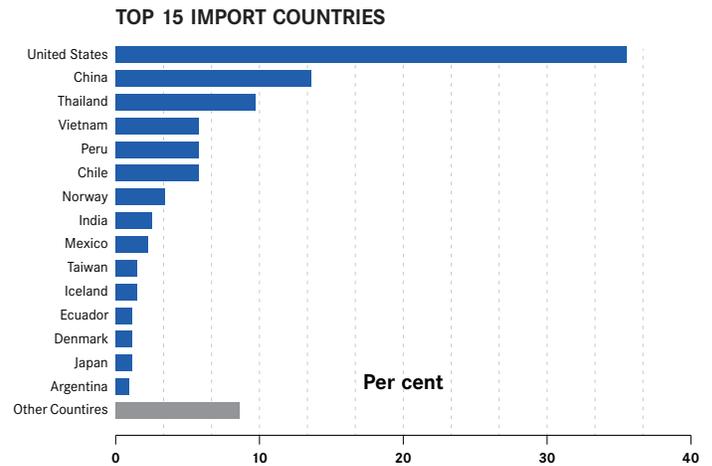


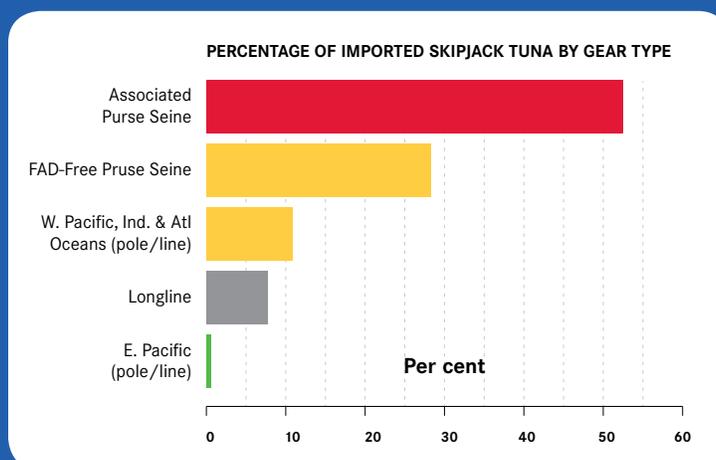
photo: Lana Brandt

BOX 3. TUNA IN CANADA'S SEAFOOD MARKETS

Tuna is one of the largest sustainability challenges in the seafood marketplace. In 2014, Canadian fisheries harvested 3,800 tonnes (at a value of CDN\$33 million) of primarily green-ranked Pacific albacore tuna. After imports and exports are considered, 39,000 t are available, mostly from foreign sources, in Canada. Imports include albacore, skipjack, bigeye, yellowfin and bluefin tuna. Skipjack tuna is Canada's third-most imported red-ranked seafood. Skipjack tuna has different sustainability rankings based on the gear type used and the region of catch. Skipjack caught with fish aggregating devices (FADs) are believed to make up the majority (52 per cent) of Canadian imports. Tuna caught using FADs have high bycatches of juvenile tuna, sea turtle and sharks, making it unsustainable. Pole and line-caught tuna from the eastern Pacific Ocean, on the other hand, is green-ranked but makes up only a small proportion of the catch (0.03 per cent), and FAD-free seined tuna (28 per cent) and pole and line or troll from all other regions (11 per cent) are ranked *yellow*.

To determine the breakdown of tuna imported into Canada, proportions were assumed to be equal to the global gear type and region catch breakdowns for skipjack. This estimation is necessary as gear type is not tracked for imports into Canada. The breakdown was estimated using the gear type breakdowns from the four Regional Fisheries Management

Organizations – WCPFC²⁰, IOTC²¹, IATTC²² and ICCAT²³ – responsible for managing tuna. Unfortunately, not all RFMOs report volume data from purse seines that are set both on and off floating FADs. It's estimated that 65 per cent²⁴ of seine-caught skipjack is caught by FAD and this value was used to estimate FAD catch from total seine catch.



20 WCPFC. 2016. Overview of tuna fisheries in the western and central Pacific Ocean, including economic conditions – 2014. Rev 1 (28 July 2015). <https://www.wcpfc.int/node/21762>

21 IOTC. 2016. Status summary for species of tuna and tuna-like species under the IOTC mandate, as well as other species impacted by IOTC fisheries. <http://www.iotc.org/science/status-summary-species-tuna-and-tuna-species-under-iotc-mandate-well-other-species-impacted-iotc>

22 IATTC. 2016. The fishery for tunas and billfishes in the eastern Pacific Ocean in 2014. Scientific Advisory Committee, Sixth Meeting.

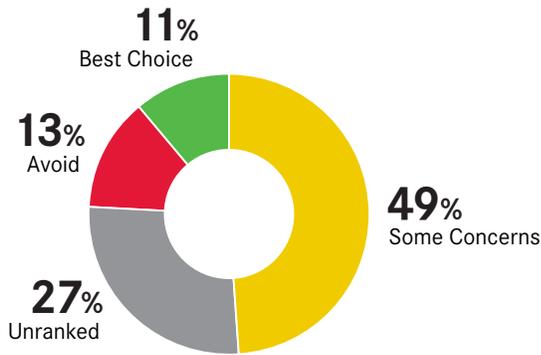
23 ICCAT. 2016. Skipjack Tuna. http://www.iccat.int/Documents/SCRS/ExecSum/SKJ_EN.pdf

24 Fonteneau, A., Chassot, E., & Bodin N. (2013) Global spatio-temporal patterns in tropical tuna purse seine fisheries on drifting fish aggregating devices (DFADs): Taking a historical perspective to inform current challenges, *Aquatic Living Resources*, 26(1) 26, pp. 37–48

3.5 CANADA'S SEAFOOD TRADE BALANCE

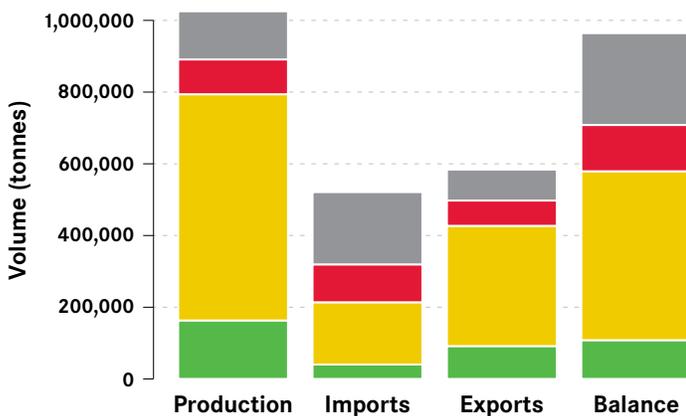
The Canadian seafood trade balance is the seafood remaining in the Canadian marketplace after imports are added and exports are removed from domestic production, while also taking into account re-imports and re-exports. This tells us the amount of seafood left in the Canadian marketplace for consumption by suppliers, retailers and restaurants and, ultimately, consumers.

FIGURE 14. Canadian balance of seafood by Seafood Watch ranking category. This includes MSC benchmarking recognized by SFW.



The total volume available to the Canadian marketplace in 2014 was 955,000 tonnes. This does not take into account losses such as spoilage in the supply chain after import or processing loss during export. Eleven per cent (107,000 t) of the seafood trade balance falls within the *green* category, while 13 per cent (173,000 t) is red-ranked and 27 per cent is unranked. Although 16 per cent of the seafood produced in Canada is *green*, the sustainable trade balance reduces the amount available in Canada to 11 per cent (Figure 15).

FIGURE 15. Breakdown of Canadian production, imports, exports and the balance available to the Canadian marketplace, by Seafood Watch rankings (tonnes).



3.6 CERTIFICATIONS AND IMPROVEMENT PROJECTS

As of January 2016, 66 per cent of wild Canadian marine and freshwater fisheries production has been certified or is in assessment by the MSC (Figure 16). Thirty-nine fisheries in Canada are certified, with five fisheries in the assessment process. Examples of MSC fisheries include Pacific whiting/hake, northern shrimp from Atlantic Canada, lobster, snow crab and Atlantic herring.

FIGURE 16. Canadian production (by volume) certified by MSC.

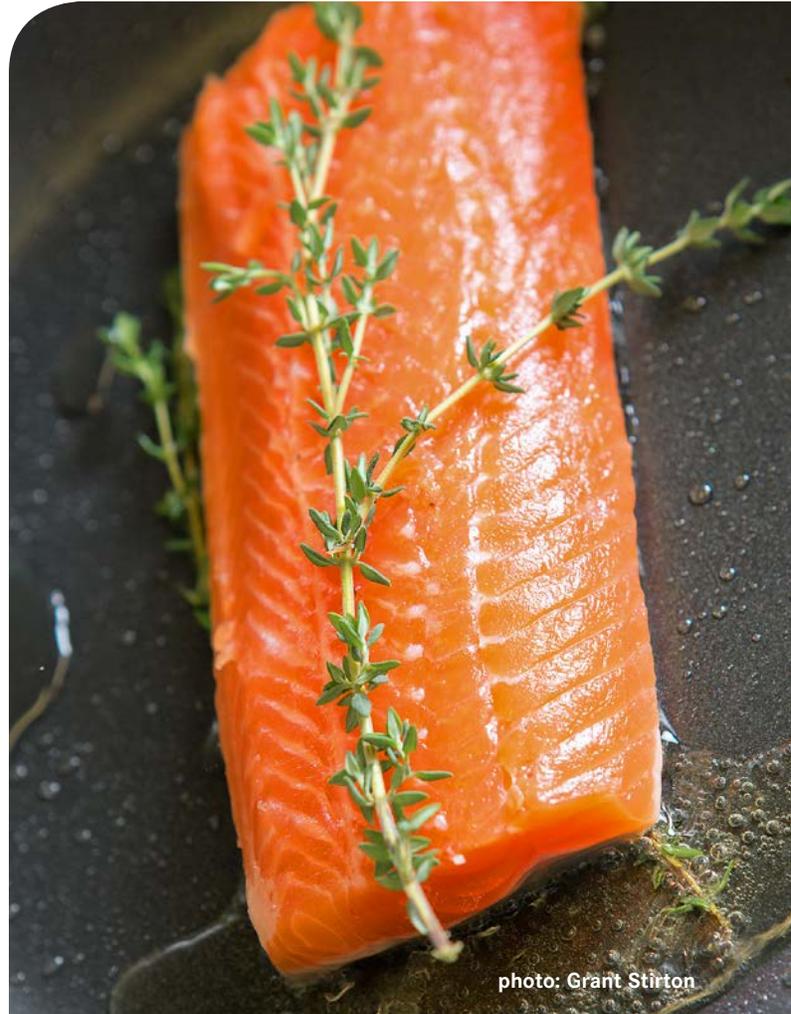
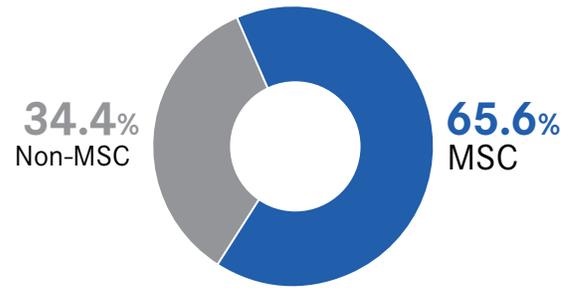


photo: Grant Stirton

All certified fisheries in Canada must meet conditions to make improvements to meet the MSC standard (Table 1).

TABLE 1. MSC-certified fisheries in Canada by region, with conditions at time of certification.

Fishery	Year Certified / Recertified	Conditions at Time of Certification	Conditions Remaining as of March 2016
ATLANTIC			
Gulf of St. Lawrence shrimp	2008/2014	3	3
Canada northern shrimp A 1	2011	10	2
Canada northern shrimp A 2-6	2011	8	0
Can. northern shrimp Area 7	2011	9	0
Scotian Shelf northern prawn	2008/2014	3	3
Nfld. & Labrador snow crab	2013	5	4
Scotian Shelf snow crab	2012	2	0
Gulf of St. Lawrence snow crab	2012	2	0
Bay of Fundy-Scotian Shelf and S. Gulf of St. Lawrence lobster trap	2015	5	5
Eastern Canada offshore lobster	2010/2015	1	1
Gaspésie lobster trap	2015	3	3
Iles-de-la Madeleine lobster trap	2013	3	0
Prince Edward Island lobster trap	2014	5	5
Eastern Canada offshore scallop	2010/2015	5	0
FBSA Canada Full Bay scallop	2013	8	8
Canadian Scotia-Fundy haddock	2010/2015	5	5
Atlantic Canada halibut	2013	9	0
NAFO 4R Atl. herring purse seine	2014	5	5
G. St. Lawrence fall herring gillnet	2015	3	3
Yellowtail flounder	2010/2015	1	1
NW Atl. Can. harpoon swordfish	2010	4	2
NW Atl. Can. swordfish longline	2012	11	6
Clearwater Seafoods Grand Bank Arctic surfclam	2012	3	0
PACIFIC			
Pacific halibut	2009/2015	1	1
Pacific hake	2008/2014	2	2
Albacore tuna	2010/2015	2	2
BC chum salmon	2013	33	23
BC pink salmon	2011	44	16
BC sockeye salmon	2013	36	10
BC spiny dogfish	2011	6	Suspended
INLAND FISHERIES			
Waterhen Lake walleye	2014	1	1
Waterhen Lake northern pike	2014	2	2

Five Canadian salmon farms have received full certification from the ASC with a total volume of 16,280 t, and seven farms are currently being assessed under the standard.²⁵ In 2015, the Global Aquaculture Alliance's BAP had 131 farms in Canada producing 90,773 t of salmon under their program.

A Fisheries Improvement Project (FIP), as defined by the Conservation Alliance for Seafood Solutions, is a designation given to fisheries making improvements on a credible time-bound path. During the improvement period, the fishery is given market recognition even if it is currently unsustainable. Key features of a FIP include an assessment of the primary problems in a fishery, a work plan and a budget.²⁶ In Canada, three FIPs are either complete or in process. The World Wildlife Fund engaged with Icwater and OceanChoice International in an FIP in 2010 for 3PS cod in southern Newfoundland, which achieved MSC certification in March 2016. This certification, however, is problematic because this population of Atlantic cod is also considered endangered by COSEWIC and is currently under consideration for listing on Canada's *Species at Risk Act*. MSC does not consider COSEWIC-assessed species as "endangered, threatened or protected" unless the species has been formally listed under national legislation. There are currently two additional FIPs for Northern cod in Atlantic Canada, one between WWF and the Fish Food and Allied Workers Union (FFAW) for an inshore cod fishery, and a second including the offshore trawl and processing industry.



25 Aquaculture Stewardship Council (2016). Farms in Assessment. Accessed May 2016.

26 Sustainable Fisheries Partnership (2016). The FIP directory. Please visit to view the six components of a FIP. <http://fisheryimprovementprojects.org/about-us/>

photo: Colleen Turlo

3.7 SUSTAINABLE SEAFOOD RETAILER PARTNERSHIPS

Most Canadian food retailers have partnered with a non-governmental organization to help with sustainable seafood procurement as part of their broader corporate and social responsibility strategies. Each retailer has a unique approach reflecting individual business models (Table 2). While it is generally accepted that retailers have reduced their purchasing of non-sustainable products, there is no commonly shared data platform to quantify these changes.

TABLE 2. Canadian retailer partnerships with NGOs as of 2016 (updated from Schmidt, 2012²⁷).

Canadian retailer	Key NGO partner	Seafood sourcing commitments
	SeaChoice	Wild: All fresh and frozen SeaChoice <i>green</i> or <i>yellow</i> , or MSC. Farmed: All fresh and frozen SeaChoice <i>green</i> or <i>yellow</i> , or in a credible certification (ASC, BAP 2* or higher, Naturland). Tuna: Not included in commitment but have delisted Yellowfin and working toward sourcing from sustainable fisheries, FAD-free. More information ²⁸
	SeaChoice	Wild: All fresh and frozen SeaChoice <i>green</i> or <i>yellow</i> , or MSC. Farmed: All fresh and frozen SeaChoice <i>green</i> or <i>yellow</i> , or in a credible certification (ASC, BAP 2* or higher, Naturland). Tuna: Not included in commitment but working toward sourcing from sustainable fisheries. More information ²⁹
	SFP	Wild: MSC. Farmed: BAP 2* or higher. Tuna: ISSF. Seafood Watch <i>yellow</i> and <i>green</i> or <i>red</i> with FIP/AIP. No endangered species. More information ³⁰
	SeaChoice	Wild: All fresh and frozen SeaChoice <i>green</i> or <i>yellow</i> , or MSC. Farmed: All fresh and frozen SeaChoice <i>green</i> or <i>yellow</i> , or in a credible certification (ASC, BAP 2* or higher, Naturland). Tuna: Private-label tuna now under Sobeys Compliments brand. More information ³¹
	Ocean Wise	Offer Ocean Wise-labelled seafood products
	WWF & Jeffrey Hutchings (independent scientific adviser)	Wild: MSC or equivalent. Farmed: ASC or equivalent, or closed- containment. Tuna: ISSF, increase MSC canned assortment. Member of: IFFO and GSSI. Support MPAs, FIPS, AIPS. MSC and ASC chain of custody-certified for seafood fresh counters. Delisted species identified as “species at risk”. More information ³²

27 Schmidt, D. (2012). Roles, Relationships and Challenges in Canada’s Market-Based Seafood Governance Network. University of Guelph.

28 Federated Co-operatives Limited Sustainable Seafood Policy. Accessed March 2016. <https://www.coopconnection.ca/wps/wcm/connect/1d574440-5465-45d7-8aa5-500b507e321c/FCL-sustainable-seafood-policy.pdf?MOD=AJPERE>

29 SeaChoice & Buy-Low Foods. Accessed March 2016. <http://www.buy-lowfoods.com/images/SeaChoice-info.jpg>

30 Sobeys Inc. National Sustainable Seafood Policy. (2010) Accessed March 2016. https://ontario.foodland.ca/wp-content/uploads/sites/4/2014/05/SobeysInc-National-Sustainable-Seafood-Policy_Sept-29-2010_EN.pdf

31 Canada Safeway Seafood Sustainability. Accessed March 2016. <https://www.safeway.ca/about-us/sustainability/seafood-sustainability>

32 Loblaw Companies Limited Previous Responsibility Reports. Accessed March 2016. <https://www.safeway.ca/about-us/sustainability/seafood-sustainability>

Canadian retailer	Key NGO partner	Seafood sourcing commitments
	N/A	Wild: MSC or equivalent. Farmed: BAP (favours higher stars). Tuna: Private brand canned tuna – pole and line skipjack. Looking into FAD free. In house traceability & sustainability policy ³³
	WWF US (through parent company)	Wild: MSC or equivalent. Farmed: ASC or equivalent. Tuna: ISSF. Support FIPs, traceability. More information ³⁴
	SFP	Wild: MSC, or working toward, or in FIP, or in accordance with the Principles of Credible Sustainability Programs developed by The Sustainability Consortium. Farmed: BAP 2* or higher, goal of 4 star, or in AIP. Tuna: ISSF or MSC and traceable. Support FIPs & AIPs & MPAs & closed-containment aquaculture. Won't knowingly source from IUU fisheries. More information ³⁵
	N/A	
	N/A	“Catch Conscious” program in-store. No formalized commitment but have de-listed species such as shark, Chilean seabass, orange roughy, skate and monkfish. More information ³⁶
	Seafood Watch, The Safina Center	Wild: All is Seafood Watch (SeaChoice) green or yellow, or MSC. Farmed: Created Quality Standards for Aquaculture. Wild Caught Link ³⁷ Aquaculture Link ³⁸
	Ocean Wise	Offer Ocean Wise-labelled seafood products. Salmon: Sell only wild salmon. More information ³⁹
	Ocean Wise	Offer Ocean Wise-labelled seafood products. Tuna: Private label tuna meets Ocean Wise standard. Salmon: Ocean Wise recommended only. Working toward 100 per cent Ocean Wise seafood by summer 2016. More information ⁴⁰

33 Metro Sustainable Fisheries Policy. Accessed March 2016. <http://www.metro.ca/products-services/sustainable-fisheries/policy.en.html>

34 Costco Seafood and Sustainability. (2012). Accessed March 2016. <https://www.costco.ca/wcsstore/CostcoCABCCatalogAssetStore/Attachment/Seafood-Sustainability-131112-EN.pdf>

35 Walmart Canada Sustainable Seafood Commitment. (2014). Accessed March 2016. <http://www.walmartcanada.ca/article/sustainable-seafood-commitment>

36 Longos Catch Conscious. Accessed March 2016. <http://www.longos.com/greeninitiatives/#catch>

37 Whole Foods Wild Caught Seafood Sustainability. Accessed March 2016. <http://www.wholefoodsmarket.com/mission-values/seafood-sustainability/wild-caught-seafood-sustainability-ratings>

38 Whole Foods Aquaculture. Accessed March 2016. <http://www.wholefoodsmarket.com/mission-values/seafood-sustainability/wild-caught-seafood-sustainability-ratings>

39 IGA Seafood. Accessed March 2016. <http://www.marketplaceiga.com/departments/seafood/>

40 Choices Markets Meat and Seafoods. Accessed March 2016. <https://www.choicesmarkets.com/department/meat-seafood/>

Among the seafood retailers in Canada (Figure 15), SeaChoice partners clearly source more sustainable options and have virtually eliminated unranked sources. Aggregation of seafood procurement by major retailers partnered with SeaChoice indicates that, as of 2015, 23 per cent of supply was green-ranked, 66 per cent is in the *yellow* category, nine per cent is red-ranked (Figure 17) and 2.5 per cent remains unranked. The red-ranked category is predominantly made up of farmed tropical shrimp and open net-pen farmed salmon. Seafood data from other ENGO-retailer partnerships or from retailers without partnerships in Canada are not available for comparison. Although the volume of seafood sold through SeaChoice retail partners is not disclosed due to privacy considerations, we do recognize that it represents a small percentage of the seafood sold in Canada. The immensity of seafood markets in Canada in comparison to individual partnerships suggests that a consolidated Canada-wide collaboration is needed to ensure continued gains in sustainability.

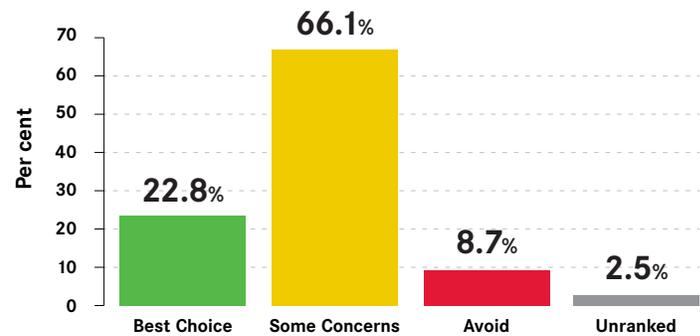
3.8 PRODUCT CATEGORIES OF MOST CONCERN

Specific seafood categories are contributing disproportionately to poor sustainability performance from production, import and export perspectives. The following table of seafood products illustrates the categories driving the overall production performance, imported seafood that decreases our sustainability trade ratio and areas where focused work can increase the supply of sustainable seafood in Canada.

TABLE 3: Primary concerns associated with red-ranked and unspecified seafood categories in Canada’s seafood production, import and export markets.

PRODUCT CATEGORY	PRIMARY CONCERNS	KEY ACTIONS TO IMPROVE SUSTAINABILITY
Farmed Atlantic salmon	Largest volume of unsustainable fish imported, exported and produced in Canada	<ul style="list-style-type: none"> • Support closed-containment production when possible • Improve public reporting of disease and pathogens • Restrict use of harmful pesticides and chemical use • Strengthen, or not weaken, ASC standard • Improve Atlantic provinces aquaculture regulations
Imported shrimp/prawns	Export large volumes of yellow-ranked, import large values of red-ranked	<ul style="list-style-type: none"> • Promote Canadian-produced wild shrimp as substitute • Encourage retailers to preferentially source yellow-ranked, ASC or BAP-recognized products
Skipjack tuna	Third most imported red-ranked seafood	<ul style="list-style-type: none"> • Encourage ENGOs with retail partners to preferentially source MSC products and to pay increased attention to canned tuna in general • Improve country-of-origin labelling • Encourage Canada to work internationally to reduce the use of fish-attracting devices and improve monitoring
Manitoba freshwater fish	Large volume of red-ranked production	<ul style="list-style-type: none"> • Develop fisheries improvement project • Support government/industry initiatives for better management
Atlantic cod	Second largest volume of red-ranked seafood produced in Canada. Listed under COSEWIC as endangered.	<ul style="list-style-type: none"> • Establish science-based rebuilding plans and precautionary fisheries management measures for red-ranked, COSEWIC-recognized populations • Ensure that MSC certifications uphold best practices in Canadian law and policy, including alignment with the precautionary approach framework and appropriate science-based reference points to allow recovery
NES (not elsewhere specified)	30 per cent of all seafood import to Canada has no traceability to species or source.	<ul style="list-style-type: none"> • Work with government agencies to improve import reporting to include country of origin, species names and gear types

FIGURE 17. Sustainability breakdown of combined SeaChoice retailers by Seafood Watch ranking. Data from 2015 retailer sales.



4.0 CONCLUSIONS AND RECOMMENDATIONS

Numerous reports – from fact sheets to commissioned reports⁴¹ – focus on seafood in Canada, largely on the economic value of the Canadian seafood market through production, imports, exports and employment. This report is the first to assess the broad sustainability of seafood produced in, imported to, exported from and available in Canada.

The ability to “take stock” of sustainable seafood initiatives ranging from certifications, ranking programs, retailer commitments and consumer-facing initiatives is constrained by the availability and quality of seafood production, export and import statistics. A central finding of this report is the significant data discrepancies between government agencies such as StatsCanada and DFO (See p. 12).

The aggregation of large quantities of seafood in generic categories makes it difficult to assess the full sustainability picture of seafood available to the Canadian marketplace. We found that 18 per cent of seafood imports are classified as “unranked”. Combining of re-imports with imports also posed a problem, making it impossible to differentiate Canadian-origin seafood from foreign products.

Underpinning the shortcomings in data is a basic lack of regulatory requirements for labelling and tracing seafood. The Canadian government only requires that fish be labelled with common names. For example, according to Inspection Canada’s “CFIA Fish List” (names recommended by the federal government), the common name “rockfish” can correspond to any fish of the genus *Sebastes* of which there are over 100 species worldwide and 65 in the northeast Pacific alone⁴², but not every rockfish receives the same sustainability ranking.⁴³ And Inspection Canada does not require a record of where the fish originates. Not only is it difficult to find out the species of fish, but also where it came from. Another example is found in fish-inspection regulations. Once Atlantic salmon (*Salmo salar*) is canned,

it could be labelled “Atlantic salmon” or just “salmon”.⁴⁴ A consumer would be unable to make an informed choice to differentiate between wild and farmed salmon if the more generic salmon label were used. As we have demonstrated in this report, aggregated categories that fold in several species make it impossible to assess the sustainability of the individual product components.

Canada is considered to have a trade surplus in seafood, with seafood exports historically greater than seafood imports. Of the seafood produced in Canada, 16 per cent is considered green-ranked and 49 per cent is yellow. A breakdown of trade volumes by sustainability ranking found that we export more sustainable seafood than we import, leaving a sustainability trade deficit of five per cent (Figure 15). At the same time, we increase the amount of red-ranked seafood through imports. Canada is replacing better choices for those that are less sustainable by importing more red-ranked items than we produce. The red-listed seafood category is made up mostly of open net-pen farmed salmon, unsustainably farmed tropical shrimp and skipjack tuna caught using FADs. These three items alone account for 84 per cent of all red-ranked imports.

Certification programs, including MSC for wild capture fisheries and Aquaculture Stewardship Certification Council (ASC) and Best Aquaculture Practices (BAP) for farmed seafood, use standards to assess the sustainability of seafood in Canada. Approximately 80 per cent of the value of wild capture fisheries is certified by MSC in Canada, representing 65.6 per cent of the total harvested landings. This includes fisheries on the Atlantic and Pacific coasts, as well as several inland fisheries. Across all wild capture certifications, there are 243 unresolved conditions for MSC-certified fisheries, reflecting that more progress is needed to fulfil sustainability objectives.

Our analysis shows that SeaChoice-connected retailers sell a higher proportion of sustainable seafood (nearly 90 per cent is either green-ranked or yellow-ranked) than is generally available in Canada. While 31 per cent of seafood in the Canadian marketplace is unranked, it makes up less than two per cent of the seafood sold by SeaChoice retailers.

41 Agriculture Canada. (2015). Accessed March 2016. <http://www.agr.gc.ca/eng/industry-markets-and-trade/value-chain-roundtables/seafood/?id=1385755866700>

42 Hyde, J.R., & Vetter R.D. (2007) The origin, evolution, and diversification of rockfishes of the genus *Sebastes* (Cuvier), *Molecular Phylogenetics and Evolution*, 44(2), pp. 790-811

43 Canadian Food Inspection Agency. (2016). Accessed March 2016. <http://www.inspection.gc.ca/active/scripts/fssa/fispoi/fplist/fplist.asp?lang=e>

44 Justice Laws Website. (2016). http://laws-lois.justice.gc.ca/eng/regulations/C.R.C.,_c._802/FullText.html

Canadian retailers that hold a sustainability agreement with an ENGO partner confirm they are making progress by providing more sustainable options and increasing available data within their seafood supply chains. Retailer data from organizations not affiliated with SeaChoice were not made available for this report. It would be beneficial to aggregate all retailer data across Canada, where there is a sustainable seafood policy in place, to assess the effectiveness of retail sector sustainable seafood initiatives. Additionally, several restaurants across Canada are committed to sustainable seafood purchasing, but there is no comprehensive data collection to assess shifts in purchasing policies.

SeaChoice's retail partners hold only a small fraction of the available seafood in the Canadian marketplace. We suspect that a large volume of seafood is traded outside of ENGO retail or restaurant partnerships in Canada. Knowing the amount of seafood held in other ENGO partnerships, across restaurants and retailers, would clarify where the largest portion of red-ranked seafood is sold in Canada and where to focus to most effectively create changes to fishing and aquaculture practices. We need to bring greater scrutiny to the most problematic species and the destinations for that seafood.

In addition to sustainability, there has been increasing attention on social issues, which need similar traceability requirements to control market access. Human rights issues have been uncovered through investigations into modern slavery associated with rampant mislabelling in the marketplace. A recent study by Oceana estimated that 43 per cent of seafood sampled was mislabelled in the United States.⁴⁵ With so many uncertainties identified in official Canadian data, it is likely that Canadians are not even eating the species they think they are and may be inadvertently contributing to modern slavery and other illegal practices.

Other reports by Canadian government agencies that focus on sustainability requirements differ from this report because they only quantify the state of the primary stock and do not include impacts on non-target species and habitat, like SeaChoice and Seafood Watch do. We conclude with several recommendations to resolve data discrepancies and to improve the sustainability of seafood produced in and imported to Canada.

45 Oceana. (2015). One Name, One Fish: Why Seafood Names Matter. Oceana July 2015 <http://usa.oceana.org/OneNameOneFish>



photo: Grant Stirton

RECOMMENDATIONS

1. Improved data, transparency and labelling

- Improved reporting on seafood sustainability in the Canadian marketplace requires better traceability, including country-of-origin labelling, country of processing, species name and harvest method on all products sold in the marketplace.
- Fisheries and aquaculture products should be reported to government statistical agencies according to the species name. This would reduce the amount of seafood categorized as unranked.
- Organizations working on market-based approaches to increase sustainable seafood in Canada should adopt a shared data-gathering tool to track effectiveness of programs, and improvements in procurement of sustainable seafood.

2. Eliminate *red-ranked*, increase *green-ranked* and consider human rights abuses

- Canadian retailers, food-service companies and restaurants should continue to replace red-ranked seafood with sustainable options.
- Canada could use traceability requirements for sustainability to examine human rights abuses in the seafood supply chain.
- Examples to improve Canadian production and policy include:
 - » Improve disease reporting and implement findings of Cohen Commission to protect wild salmon from the impacts of open net-pen farmed salmon.
 - » Establish science-based rebuilding plans and precautionary fisheries-management measures as per Canadian fisheries policy to improve red-ranked fisheries (e.g., Atlantic cod and Manitoba lake fisheries).
- Reduce imports from biggest red-ranked sources including farmed salmon and shrimp, and tuna caught using Fish Attracting Devices (FADs).

3. Ensure certifications are credible

- Canadian fisheries certified by the MSC should meet their conditions within a reasonable timeframe.
- MSC conditions should be consistent with Canadian laws and policies relating to sustainable fisheries and marine biodiversity protection, with a particular focus on fisheries species that have been assessed by COSEWIC.
- The Aquaculture Stewardship Council (ASC) certification methodology, with particular reference to the *Salmon Standard*, should not undermine wild salmon management and must uphold a high standard for disease and pathogen control.



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photo: Shawn Taylor