

FISH LIST WISH LIST:

A case for updating the Canadian government's guidance for common names on seafood

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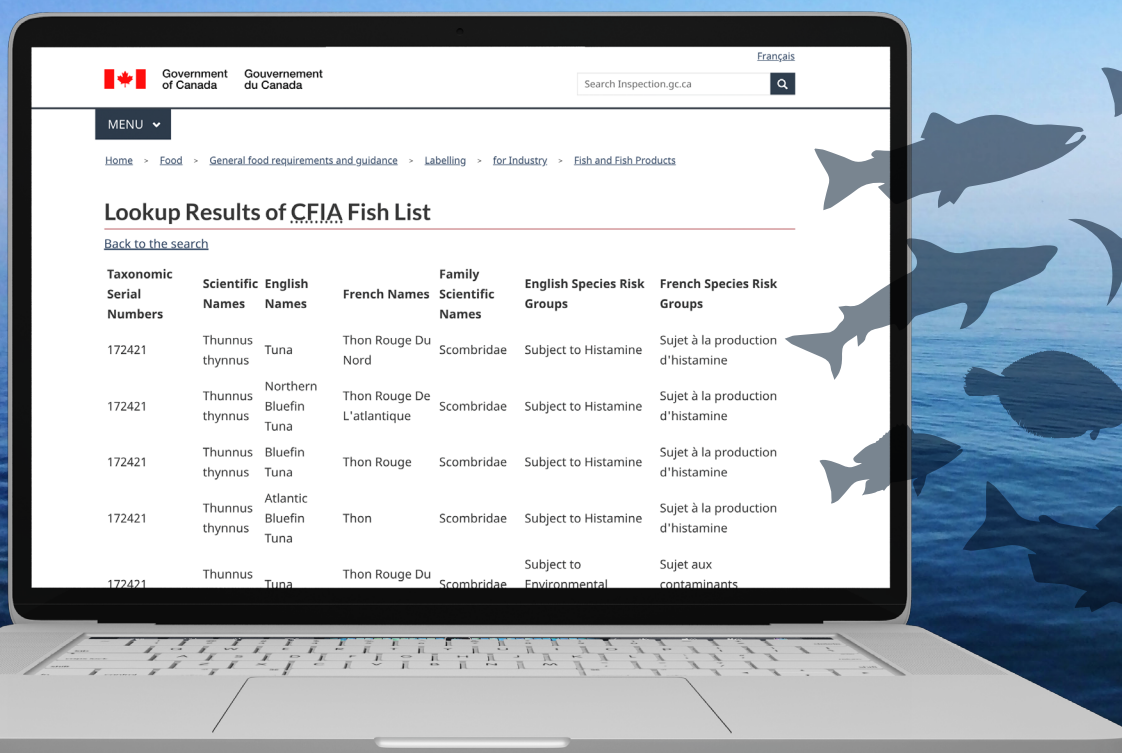


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GLOSSARY

The terms below are defined to aid in comprehension of this report.

Common name – Although species are given a standard common name that is readily used by the scientific community, industry has adopted other widely used names for species sold in the marketplace. The Canadian Food Inspection Agency allows the use of these market names and thus many are given as options on the Fish List in addition to, but not always including, the standard common name. Names that are permitted by the Fish List are denoted as a “CFIA common name(s),” or explicitly stated as being on the Fish List.

Entry – This term, in conjunction with the words “species” and “genus,” is used in the report to refer to all genus and species names listed in the Canadian Food Inspection Agency’s Fish List data under the column “Scientific Name.” Within the report, a species-level entry is referred to as “species entry” (or species) and a genus-level entry is referred to as “genus entry” (or genus).

Genus – Genus is a taxonomic category that ranks below family and above species. Genus is a name given to a group of closely related organisms. For example, within the scientific name *Homo sapiens*, “Homo” refers to the genus.¹ An example of a genus name in the Canadian Food Inspection Agency’s Fish List is *Sebastes*. Genus entries lump all species within that genus together and they appear under the column “Scientific Name” in the Fish List database.

Seafood mislabelling – The act of intentionally or unintentionally labelling a seafood product incorrectly. In this report, a seafood product would be considered mislabelled if the common name does not match any of the permitted common names on the Canadian Food Inspection Agency’s Fish List.

Scientific name – The taxonomic (Latin) name for a species. In nomenclature, every scientific name consists of two parts, the genus and the specific epithet, which is used to identify the specific species. Scientific names are italicized in this report.¹

Species – Species is a taxonomic category that ranks below genus. It is a group of organisms biologically distinct from a different group of organisms.¹ For example, a species in the Canadian Food Inspection Agency’s Fish List within the genus *Sebastes* is *Sebastes fasciatus*. Species in the Fish List database appear under the column “Scientific Name.”^{2 i}

Standard common name – A standard common name, in this report, is defined as a non-scientific name of a fish or shellfish assigned by the scientific community. While the standard common name for species can vary slightly in some cases due to the international and national databases referenced, SeaChoice has attempted to provide only the most widely approved or appropriate standard name for a species throughout the report by referencing scientific literature and databases. The standard common name for a species can be recognized throughout the report as it appears in parentheses beside a species names or is noted within the text. The standard common names were determined by consulting a set of sources: the FishBase database,³ the Integrated Taxonomic Information System database,⁴ the U.S. seafood list,⁵ American Fisheries Society’s Common and Scientific Names of Fishes from the United States, Canada and Mexico, 7th edition,⁶ and the Food and Agriculture Organization’s Aquatic Sciences and Fisheries Information System,⁷ but prioritizing the data from the latter two sources.

i For a detailed description of how the Canadian Food Inspection Agency’s Fish List data is structured, see Appendix A.

EXECUTIVE SUMMARY

The ever-increasing complexity of seafood supply chains and lax labelling and traceability systems have led to a patchwork of allowable names for seafood products in the marketplace. In Canada, the guidance for naming seafood products comes from the Canadian Food Inspection Agency (CFIA) and is maintained through [the Fish List](#). The Fish List contains entries for all seafood sold in Canada, including those harvested in Canada and imported seafood harvested internationally. The Fish List contains a database of these seafood species with corresponding English and French common names for companies and retailers to use on seafood packaging.

One of the most significant problems with the Fish List is that it allows for a single, often generic, common name to represent several species while at the same time allowing several common names to be used for a single species. A seafood package labelled as “rockfish,” for example, could be one of more than 100 possible species, some of which are endangered and others that are sustainably managed. Furthermore, Canadian law currently only requires the common name of any seafood product on a label, and if imported, “the place of last major transformation;” for example, where the seafood was canned or filleted (also called “country of origin”). This is in stark contrast to best practice labelling modelled by the European Union where seafood product labels must contain the scientific name, production method, harvest method and geographic origin, in addition to the common name and country of origin. With the absence of a species scientific name on a label specifically, buyers lack the information they need to make informed choices, or are confused by misleading common names because seafood varies so much in its production, population health and the environment it grows in.

This report is a comprehensive analysis of the Fish List and recommends a suite of changes to improve the list’s utility to improve traceability and labelling, and consequently human health and safety and conservation of seafood resources. First, SeaChoice examined which CFIA common names are used for multiple species. Next, we prioritized our analysis by narrowing our focus to Canadian wild-caught species. Within this subset, we examined the number of English common names for species against the following criteria: species prone to mislabelling, species prone to sustainability and health concerns and species that are subject to the U.S. Seafood Import Monitoring Program. Last, we examined the full Fish List, to identify inconsistencies and missing information to improve the guidance provided by the CFIA.



FINDINGS

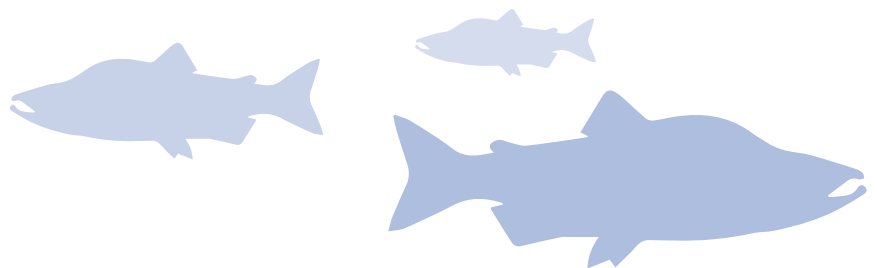
Our analysis of the most frequently occurring common names found four groups of common names to be highly problematic due to their association with the high number of species, the risk of ambiguity and the high occurrence of overlap among the associated genera and species. These groups of common names are 1) snapper, rockfish, rosefish, redfish and Pacific snapper, 2) sole and flounder, 3) shrimp and prawn and 4) dogfish and shark.

Our set of analyses of Canadian-caught species revealed:

- Twenty-four of the Canadian-caught species subset are commonly mislabelled in the marketplace. Of these, the species found to be most problematic due to their high number of CFIA common names are: *Gadus chalcogrammus* (walleye pollock), *Limanda ferruginea* (yellowtail flounder), *Oncorhynchus mykiss* (rainbow trout), *Reinhardtius hippoglossoides* (Greenland halibut) and *Sebastes alutus* (Pacific ocean perch).
- Fifty-six of the Canadian-caught species subset have sustainability concerns associated with their species or populations. Of these, the species found to be most problematic due to their high number of CFIA common names are: *Oncorhynchus tshawytscha* (chinook salmon), *Hippoglossoides platessoides* (American plaice), *Sebastes fasciatus* (Acadian redfish), *Sebastes mentella* (deepwater redfish) and *Sebastes ruberrimus* (yelloweye rockfish).
- Eighty-one of the Canadian-caught species subset have health concerns associated with species. Of these, the species found to be most problematic due to their high number of CFIA common names are: *Thunnus thynnus* (Atlantic bluefin tuna), *Mercenaria mercenaria* (northern quahog), *Prionace glauca* (blue shark), *Sebastes fasciatus* (Acadian redfish), *Sebastes mentella* (deepwater redfish), *Sebastes ruberrimus* (yelloweye rockfish), *Thunnus alalunga* (albacore tuna) and *Thunnus albacares* (yellowfin tuna).
- Twenty-three of the Canadian-caught species subset are subject to the Seafood Import Monitoring Program. Of these, the species found to be most problematic due to their high number of CFIA common names are: *Gadus chalcogrammus* (walleye pollock), *Prionace glauca* (blue shark), *Pandalus borealis* (northern shrimp), *Pandalus montagui* (aesop shrimp) and *Squalus acanthias* (spiny dogfish).

A combined impact assessment identified the species that generate the most concern across all four criteria. The most problematic groups of species are rockfish, tuna, shark, whitefishes of high commercial value such as halibut and cod, some flounder and sole and some species of shrimp. The top six species found to be of greatest concern were *Thunnus thynnus* (Atlantic bluefin tuna), *Sebastes fasciatus* (Acadian redfish), *Sebastes mentella* (deepwater redfish), *Sebastes ruberrimus* (yelloweye rockfish), *Squalus acanthias* (spiny dogfish) and *Reinhardtius hippoglossoides* (Greenland halibut).

Finally, our investigation into inconsistencies with the CFIA Fish List revealed that 14 species (or updated scientific names) are missing from the list and 16 species or genus-level entries are missing either an English or French common name, or both. Examination of the 99 genus entries in the Fish List shows 1,661 species are contained within the genus entries that are not captured by their individual scientific names on the Fish List. Accounting for the species represented by genus-level entries means the number of species on the Fish list jumps from 871 to a total of 2,532 species.





RECOMMENDATIONS

Based on our findings, we recommend that the CFIA make the following key changes to the Fish List to ensure proper and accurate seafood product labelling:

- Require the high-priority species identified in this report to be labelled only with the standard common name.
- Strengthen industry guidance to encourage the use of the standard common names instead of the generic common names, particularly the generic common names snapper, rosefish, redfish, rockfish, sole, flounder, shrimp, shark and dogfish.
- Remove common names that are misrepresentative from the Fish List altogether.
- Harmonize the common names of all species that are subject to the Seafood Import Monitoring Program such that they reflect the common names required for U.S. seafood product labels to uphold trade requirements.
- Add and update species and common names that are missing from the Fish List.
- Remove all genus entries and add any missing commercially relevant species as a species-level entry with one associated common name (the recognized standard common name) to the Fish List.

Our findings support widely described research that shows requiring a scientific name on a seafood product label would be the universal fix to address all other naming issues identified in this report. Furthermore, we recommend the CFIA dedicate additional resources to the implementation and enforcement of the Fish List to ensure compliance throughout the seafood supply chain.



INTRODUCTION

Compared to other foods, seafood supply chains are inordinately complex due to the number of countries, species and product transformations.⁸⁻⁹ Adding to this complexity is that many countries, including Canada, have lenient seafood labelling and traceability requirements. This has resulted in a patchwork of allowable names that seafood can be labelled with at the point of import or sale. In this report, we present our analysis of the “Fish List,” the official guidance document for the common names of seafood in Canada maintained by the Canadian Food Inspection Agency (CFIA).¹⁰

Recent SeaChoice research has shown that regulations pertaining to seafood labelling in Canada fall well behind those of the European Union and other leading countries.¹¹ Canadian law currently only requires the common name of any seafood product, and if imported, “the place of last major transformation” of the product; for example, where the seafood was canned or filleted (also called “country of origin”).¹¹ This is in stark contrast to the European Union, which requires the species scientific (Latin) name, geographic origin (country or region where the product was caught or farmed), production method (wild or farmed) and gear type or farming method.¹¹ Of particular relevance to this report is the lax common name requirements for seafood sold in Canada, which in turn is loosely regulated through the CFIA’s Fish List.

Insufficient labelling requirements contribute to unsustainable fisheries and farming methods, social issues, human health implications and mislabelling.¹² Species information, the seafood source and the method used to produce it are key determinants of environmental sustainability. Furthermore, proper labelling and traceability can also identify and uncover seafood that has social and/or economic implications.¹³ Finally, mislabelled species, whether intentional or not, can have serious health implications if a consumer has specific sensitivities, is pregnant or if the substituted species is unsafe for human consumption.¹⁴

People throughout Canada support best practice labelling through robust labelling regulations for all seafood. In spring 2017, SeaChoice collected signatures from over 12,000 Canadians who wanted better seafood labelling. An Eco-Analytics survey of 3,000 Canadians, also in 2017, found over 80 per cent agreed that, “All seafood sold in Canada should be labelled with information identifying the species, where it was caught, and how it was caught.”¹⁵ In fall 2018, over 3,200 Canadians signed a letter asking their retailers to source local, traceable and properly labelled fish.¹⁶ In addition, consumers demanding truthful and transparent seafood labelling sent more than 7,500 emails to CFIA in summer 2019.¹⁷ The scale of public support for these issues was reflected among each of the Liberal, New Democratic and Conservative Party 2019 campaign platforms, which included promises for implementation of a traceability program for seafood and reducing seafood fraud.¹⁸

In Canada, the allowable names for labelled seafood products are maintained through the CFIA's Fish List.¹⁰ The Fish List contains entries for all seafood sold in Canada, including seafood harvested in Canada and imported seafood harvested internationally. The list provides English and French common names for labelling fish and seafood products in Canada, the scientific name, the family the species falls under and the corresponding Taxonomic Serial Number (TSN, a unique numeric identifier for each scientific name).² For each entry, the list also provides the potential hazards (histamine production, environmental contamination, marine toxins) associated with that species or genus.²

One of the most significant problems with the Fish list is that a single species can have multiple common names and one common name can be used for multiple species. A seafood package labelled as “rockfish,” for example, could be one of more than 100 species, some of which are endangered and others that are sustainably managed.¹¹ Requiring the scientific name on seafood product labels is the preferred universal solution for labelling, as common names apply to different species and can vary from region to region and language to language.¹⁹ The scientific name along with a common name on a seafood product label allows consumers to be sure of the species they are purchasing. However, with no development toward stronger labelling regulations requiring scientific name, SeaChoice is turning to the guidance labelling documents (the Fish List) for improvements, aiming to reduce mislabelling, increase traceability along the supply chain and increase consumer trust and safety.

In this report, we undertake a comprehensive analysis of the Fish List and recommend a suite of changes to improve the list's utility to improve seafood labelling and traceability in Canada. We acknowledge that revising the common names for species in Canada is not the same thing as stipulating labelling requirements; however, it is not possible to have one without the other, and therefore the Fish List needs to be considered alongside labelling requirements.²⁰ We speculate that providing truthful common names will help drive improvements and reward sustainably managed fisheries and aquaculture operations.

APPROACH

When we downloaded the Fish List data from the CFIA website³ on January 24, 2019, it had 970 scientific name entries, with 871 of those being unique species and 99 genus-level entries. We carried out a series of analyses to filter the data and determine which species were of most concern and so of greatest need for improvement. We examined the common names on the Fish List, inconsistencies within the list such as missing species and missing common names, and the 99 entries limited to the genus level only. For this report, we decided to focus much of the analyses on Canadian-produced species to reduce the scope. It is recognized that many imported species on the Fish List are of equal or greater concern and should be addressed in the future. We decided to limit a portion of the analysis to Canadian-produced species for the following reasons:

1. The magnitude of the Fish List meant that a Canadian filter was necessary to make our analyses tractable in scope.
2. Narrowing the scope to Canadian species allowed for making connections across departments within the federal government. For example, aligning science and management of the species with markets, labelling, health and species at risk.
3. Canada, and more specifically Fisheries and Oceans Canada (DFO), has a role in the production of sustainable seafood and thus a role in ensuring that any species of concern are not mismanaged due to market misrepresentations.
4. Improved labelling of Canadian species affords opportunities to Canadian producers.

IDENTIFICATION OF CANADIAN-CAUGHT SPECIES

We considered a species in the Fish List to be Canadian-produced if it is one for which the DFO provides commercial licences and/or a quota, and/or those species that are caught as bycatch and retained for human consumption. We further confined the list to wild-caught species, and so did not include species that are farmed in Canada. Canadian-produced species were identified through Oceana Canada’s 2019 Fisheries Audit,²¹ DFO’s Canadian Aquatic Species database²² and searches within the DFO website. We searched for individual species within the DFO site to determine if they were of commercial importance based on volume of landings. In addition, there are a small number of species that historically made up a fishery but are now produced only by aquaculture (e.g., Atlantic salmon). Farmed Atlantic salmon is addressed separately from the analysis but is discussed in the text box to the right due to its market relevance.

DATA PROCESSING

The Fish List data set was cleaned and organized in the following ways. First, spaces in cells, blank cells and duplicates were removed. Cleaned data included information under the following headings: Taxonomic Serial Number, Scientific Name, English Name, French Name, Family Scientific Name and the three risk groups that are Subject to Histamine, Subject to Environmental Contaminants and Subject to Marine Toxins (See Appendix A). As defined by the CFIA, “subject to histamine” refers to species that are at risk of producing unacceptable levels of histamine, which can cause reactions when ingested by some people. “Subject to environmental contaminants” generally applies to larger predatory species that can accumulate unacceptable levels of contaminants such as mercury and lead. “Subject to marine toxins” generally refers to tropical reef species that could contain certain toxins, as well as bivalve mollusks collected in coastal waters, which can contain toxins.²³

FARMED SPECIES - ATLANTIC SALMON LABELLING

Although this report focuses on wild-caught species, labelling issues for Atlantic salmon (*Salmo salar*) are examined here because of its significance in the market. Wild Atlantic salmon is no longer commercially caught and sold in Canada due to its low abundance in many different populations, some of which are endangered.²⁴ There are, however, issues with farmed Atlantic salmon labelling in the market, particularly a high instance of mislabelling.^{14 33} Studies have shown that Atlantic salmon is often mislabelled as chinook salmon or other wild Pacific salmon species.¹⁴ ³³ Furthermore, while all Pacific salmon species on the Fish List must be labelled with descriptive common names, Atlantic salmon is the only salmon species that can be labelled generically as “salmon.” This matters because a consumer who sees the label “salmon” on a product would not know that this means the product is an Atlantic salmon and not a Pacific salmon species – unless they are aware of the regulations set out by the CFIA. We suggest that the only acceptable common name for *Salmo salar* be Atlantic salmon, so as to not confuse consumers.



List of acceptable common names on the CFIA Fish List for Pacific salmon species and Atlantic salmon.

SPECIES (SCIENTIFIC NAME)	ACCEPTABLE COMMON NAMES ON THE FISH LIST
<i>Salmo salar</i>	Atlantic salmon Salmon
<i>Oncorhynchus gorbuscha</i>	Pacific pink salmon Pink salmon
<i>Oncorhynchus keta</i>	Keta salmon Chum salmon Silverbrite salmon
<i>Oncorhynchus kisutch</i>	Coho salmon Medium red coho salmon Blueback salmon
<i>Oncorhynchus nerka</i>	Sockeye salmon Red sockeye salmon Red salmon
<i>Oncorhynchus tshawytscha</i>	Chinook salmon Spring salmon Chinook White chinook Red chinook Pink chinook King salmon

REPORT STRUCTURE

The report is divided into three sections:

1. **SECTION A** – This section examines all the English species and genus entries on the Fish List (n=1131). It identifies which CFIA common names are most frequent and used for multiple different species across families and genera. Next, the list of CFIA common names is reduced to only Canadian species to inform Section B.
2. **SECTION B** – This section considers only the Canadian-caught species on the Fish List. Within the subset we identify species that have several CFIA common names, are prone to mislabelling, have sustainability or health or safety concerns associated with them or are listed under the U.S. Seafood Import Monitoring Program (SIMP). We prioritize recommendations based on species with multiple concerns.
3. **SECTION C** – This section examines the full Fish List, with a focus on inconsistencies and missing information to improve the guidance provided by the Fish List.

SECTION A: COMMON AND OVERLAPPING NAMES

INTRODUCTION

Two well-known issues with seafood labelling in Canada are the practices of allowing a single common name to represent several species (with different scientific names) and allowing several common names to be used for a single species.¹¹ This section of the report highlights the most egregious examples of these issues and provides recommendations to reduce the occurrence of generic common names and misrepresentation.

METHODOLOGY

For each entry in the Fish List, the numbers of English and French common names were summed. Using only the CFIA English common names, we identified species and genus entries associated with multiple common names and common names associated with multiple species and genus entries. This analysis was repeated again with only Canadian species from the list included. Finally, the common names associated with the highest number of species (throughout the whole Fish List and when looking at the filtered Canadian-caught species results) were further examined to identify the more problematic groups of common names where considerable overlap and/or misrepresentation of species were occurring. Groups that contained many Canadian species were prioritized for examination.

RESULTS

On the date of download (January 24, 2019), the Fish List contained 1,131 English common names and 816 French common names across 871 species and 99 genus-level entries. The frequency of English common names for species and genus entries ranged from zero to seven and for French common names from zero to six. The number of species and genus entries associated with a single English common name was as high as 41 (shrimp) and for French as high as 38 (crevette).

The Fish List contains many generic common names that can be used across multiple species and genus entries. The 10 CFIA common names associated with the highest number of species and genus entries were shrimp, croaker, flounder, sole, clam, snapper, rockfish, crab, prawn and scallop (Table 1). Within the Canadian-caught species subset of data, the CFIA common names with the highest number of associated species were rockfish, sole, flounder, Pacific snapper, rosefish, clam and crab (Table 1).

Table 1: *The number of species and genus entries per common name within the Fish List, from highest to lowest. Common names found to have 10 or more species and genus entries and/or relevant Canadian species (denoted with an asterisk) are included in the table. Data from the Canadian Food Inspection Agency's Fish List.*

CFIA COMMON NAME	NUMBER OF ASSOCIATED SPECIES AND GENUS ENTRIES ON THE FISH LIST	NUMBER OF ASSOCIATED CANADIAN-CAUGHT SPECIES ON THE FISH LIST
Shrimp	41	6
Croaker	29	0
Flounder	24	13
Sole	22	13
Clam	22	8
Snapper	21	1
Rockfish	21	15
Crab	20	8
Prawn	19	5
Scallop	17	4
Squid	15	2
Tuna	14	4
Pacific snapper	13	12
Pilchard	11	1
Rosefish	11	9
Grouper	11	0
Anchovy	11	1
Sardine	10	1
Shark*	7	4
Redfish*	4	3
Dogfish*	4	1
Pacific red snapper*	2	2

Our analysis above shows the common names with the highest number of associated species within the entire Fish List and within the subset of Canadian-caught species. We consider four groups of common names to be highly problematic due to their association with the high number of Canadian-caught species, the risk of ambiguity and the high occurrence of overlap among the associated genera and species. We now discuss each in turn.



Snapper/rockfish/Pacific snapper/rosefish/redfish

According to the CFIA Fish List, the common names snapper, rockfish, Pacific snapper, Pacific red snapper, rosefish and redfish are permitted for a variety of different species within the genus *Sebastes*, but these names are also permitted for species from other taxonomic groups such as the genus *Sebastolobus* and *Serranus*. Some have generic common names that reflect the family of fish they fall under, but some common names misrepresent the species (Table 2).

Snapper – According to the CFIA Fish List, 10 species entries and 12 genus entries can be named snapper (Table 2). Nine of the species entries and all 12 genus entries are within the *Lutjanidae* family, collectively known as snappers in scientific literature.^{3 6} While snapper is taxonomically correct for these species and genus entries, given the high number of species covered, it is clearly a “catch-all” name within the list. Conversely, *Sebastes ruberrimus* is a *Sebastes* species that the Fish List suggests can be called snapper, which is misrepresentative as it is recognized as a rockfish species from the *Sebastidae* subfamily.⁶

Rockfish – According to the CFIA Fish List, the common name “rockfish” is permitted for 20 species entries and one genus entry (Table 2). All of the species fall under the subfamily *Sebastidae*, which are collectively recognized as rockfishes in the scientific literature.^{6 25} However, many of these species differ in their life history and vulnerability to fisheries, as we will discuss in Section B. Furthermore, the common name “rockfish” may not be an appropriate label name for some of these species as they contain the name redfish in their standard common name as opposed to rockfish. These are *Sebastes fasciatus*, *Sebastes mentella*, *Sebastes norvegicus* and *Sebastes viviparus*.⁶ *Sebastes alutus* is a Pacific rockfish, but is more appropriately referred to by its standard common name, Pacific ocean perch, in scientific literature.⁶ Finally, the species *Sebastolobus alascanus* and *Sebastolobus altivelis* are more specifically recognized as thornyheads in scientific databases.^{3 6}

Pacific snapper and Pacific red snapper – According to the CFIA Fish List, the common name “Pacific snapper” is permitted for 12 *Sebastes* species (Table 2). Two of these species, *Sebastes reedi* and *Sebastes ruberrimus* are also allowed to be called Pacific red snapper. However, as described in the rockfish section above, the *Sebastes* species are rockfish, not snappers, and so these common names are misleading.⁶

Rosefish – According to the CFIA Fish List, the common name “rosefish” is permitted for 11 species (eight *Sebastes*, two *Sebastolobus* and one *Serranus*; Table 2). However, none of these species are commonly known or scientifically referred to as rosefish. The only true rosefish species in the Fish List is *Helicolenus dactylopterus* (blackbelly rosefish).⁶

Redfish – According to the CFIA Fish List, the common name “redfish” is permitted for four species (three *Sebastes* and one *Serranus*; Table 2). *Sebastes fasciatus* and *Sebastes mentella* have redfish in their standard common name and are distinct from the other species under the rockfish subfamily *Sebastidae* because they live in the Atlantic and not the Pacific.^{3 6} However, it is misleading to label the other two species as redfish. *Sebastes alutus* is referred by its standard common name, Pacific ocean perch, within scientific literature and *Serranus scriba*, commonly known by its standard common name, painted comber, is part of the grouper and sea bass family.^{6 7} Interestingly, the species *Sebastes norvegicus* (found in the Atlantic and similar to *Sebastes fasciatus* and *Sebastes mentella*) is not permitted to be called redfish under the CFIA guidance, but can be called its standard common name golden redfish, as well as rockfish.⁶

Table 2: Comparison of species and genus entries by alphabetical order that are allowed to be named Pacific red snapper, Pacific snapper, redfish, rockfish, rosefish and/or snapper within the Fish List. An X within the table means the common name can be used for the entry. Data from the Canadian Food Inspection Agency's Fish List. The standard common names are based on the scientific consensus.^{3 6 7} Asterisk denotes Canadian-caught species.

SPECIES AND GENUS ENTRIES	STANDARD COMMON NAME	PACIFIC RED SNAPPER	PACIFIC SNAPPER	REDFISH	ROCKFISH	ROSEFISH	SNAPPER	TOTAL
<i>Lutjanus sanguineus</i>	Humphead snapper		X				X	2
<i>Sebastes alutus</i> *	Pacific ocean perch			X	X	X		3
<i>Sebastes babcocki</i> *	Redbanded rockfish		X		X	X		3
<i>Sebastes borealis</i> *	Shortraker rockfish		X		X	X		3
<i>Sebastes brevispinis</i> *	Silvergray rockfish		X		X			2
<i>Sebastes caurinus</i> *	Copper rockfish		X		X			2
<i>Sebastes crameri</i>	Darkblotched rockfish		X		X			2
<i>Sebastes entomelas</i> *	Widow rockfish		X		X			2
<i>Sebastes fasciatus</i> *	Acadian redfish			X		X		2
<i>Sebastes flavidus</i> *	Yellowtail rockfish		X		X			2
<i>Sebastes maliger</i> *	Quillback rockfish		X		X			2
<i>Sebastes mentella</i> *	Deepwater redfish			X		X		2
<i>Sebastes norvegicus</i>	Golden redfish				X			1
<i>Sebastes paucispinis</i> *	Bocaccio rockfish		X		X			2
<i>Sebastes pinniger</i> *	Canary rockfish		X		X			2
<i>Sebastes polyspinis</i>	Northern rockfish				X			1
<i>Sebastes proriger</i> *	Redstripe rockfish				X			1
<i>Sebastes reedi</i> *	Yellowmouth rockfish	X			X	X		3
<i>Sebastes rosaceus</i>	Rosy rockfish				X	X		2
<i>Sebastes ruberrimus</i> *	Yelloweye rockfish	X			X	X	X	4
<i>Sebastes spp.</i>					X			1
<i>Sebastes viviparus</i>	Norway redfish				X			1
<i>Sebastolobus alascanus</i> *	Shortspine thornyhead		X		X	X		3
<i>Sebastolobus altivelis</i> *	Longspine thornyhead		X		X	X		3
<i>Serranus scriba</i>	Painted comber			X		X		2
12 genus entries 7 <i>Lutjanus</i> species entries							X	1
TOTAL		2	14	4	21	11	21	



Sole/flounder

The next common name groups found to contain a high number of species are soles and flounders. The two groups are similar in appearance and we speculate “sole” and “flounder” are used interchangeably in the marketplace for any type of flatfish, resulting in overlap within the CFIA’s common name guidance.

Under the CFIA Fish List guidance, the common name “sole” is permitted for 22 species entries (Table 3). However, the only true sole regularly found in the marketplace is the European dover sole or common sole (previously *Solea vulgaris*, currently *Solea solea*), which is in the family *Soleidae*.^{6,7} The other flatfish group examined here are flounders, within the families *Pleuronectidae* (right-eye flounders) and *Paralichthyidae* (sand flounders).^{6,24}

According to the CFIA Fish List, the common name “flounder” is permitted for the 22 species mentioned above as well as two other species, *Paralichthys californicus* and *Paralichthys dentatus* (sand flounders).⁶ The naming of the true flounder species, however, is particularly problematic. Twenty of the 24 right-eye and sand flounder species have standard common names or CFIA common names that include sole in the name, such as lemon sole, dover sole and rex sole (Table 3), thus increasing confusion as to the true family the species fall under. However, we consider the most problematic cases are species that do not have “sole” in their standard common name but for which the common name “sole” is allowed under the Fish List. These are *Glyptocephalus cynoglossus*, *Hippoglossina stomata*, *Hippoglossoides platessoides*, *Limanda ferruginea* and *Pseudopleuronectes americanus* (Table 3). Interestingly, the species *Atheresthes stomias* (a right-eye flounder) only has one common name under the Fish List, arrowtooth flounder, which is inconsistent with the large number of common names for other sole and flounder species.⁶

Table 3: Comparison of the species entries by alphabetical order that are permitted to be called “sole” and “flounder.” An X within the table means the common name can be used for the entry. Data is sourced from the Canadian Food Inspection Agency’s Fish List. The standard common names are based on the scientific consensus.^{3,6,7} Asterisk denotes Canadian-caught species.

SPECIES ENTRIES	STANDARD COMMON NAME	FLOUNDER	SOLE
<i>Clidoderma asperum</i>	Roughscale sole	X	X
<i>Eopsetta jordani</i> *	Petrals sole	X	X
<i>Glyptocephalus cynoglossus</i> *	Witch flounder	X	X
<i>Glyptocephalus zachirus</i> *	Rex sole	X	X
<i>Hippoglossina stomata</i>	Bigmouth flounder	X	X
<i>Hippoglossoides elassodon</i> *	Flathead sole	X	X
<i>Hippoglossoides platessoides</i> *	American plaice	X	X
<i>Isopsetta isolepis</i> *	Butter sole	X	X
<i>Lepidopsetta bilineata</i> *	Rock sole	X	X
<i>Limanda aspera</i>	Yellowfin sole	X	X
<i>Limanda ferruginea</i> *	Yellowtail flounder	X	X
<i>Lyopsetta exilis</i>	Slender sole	X	X
<i>Microstomus bathybius</i>	Deepsea sole	X	X
<i>Microstomus kitt</i>	Lemon sole	X	X
<i>Microstomus pacificus</i> *	Dover sole	X	X
<i>Paralichthys californicus</i>	California halibut	X	
<i>Paralichthys dentatus</i>	Summer flounder	X	
<i>Paraplagusia bilineata</i>	Double-lined tonguesole	X	X
<i>Parophrys vetulus</i> *	English sole	X	X
<i>Pleuronichthys coenosus</i>	C-o sole	X	X
<i>Psettichthys melanostictus</i> *	Sand sole	X	X
<i>Pseudopleuronectes americanus</i>	Winter flounder	X	X
<i>Solea vulgaris</i>	European dover sole/common sole	X	X
<i>Xystreurys liolepis</i>	Fantail sole	X	X

FISH LIST WISH LIST:

A case for updating the Canadian government’s guidance for common names on seafood



Shrimp/prawn

The common name “shrimp” was associated with the greatest number of species and genus entries in the Fish List (n=41). Among these were 19 species entries that could also be named prawn. Considerable overlap exists between these names even when only considering the Canadian-caught species, and so we focus our results on Canadian species alone. Canada produces six species of true shrimp and just one species of true prawn according to the DFO.²⁶ Five of the six shrimps can be called both shrimp and prawn: *Pandalus borealis* (northern shrimp), *Pandalus montagui* (aesop shrimp), *Pandalus platyceros* (spot shrimp)ⁱⁱ, *Pandalopsis dispar* (side-stripe shrimp) and *Pandalus jordani* (ocean shrimp). *Pandalus hypsinotus* (coonstripe shrimp) is the only species for which “prawn” is not permitted under the Fish List. *Pandalus platyceros* is the only actual prawn species harvested in Canada, and can be called a shrimp as well as a prawn.²⁵



Shark/dogfish

The CFIA Fish List guidance allows seven species entries to be simply labelled and marketed as “shark.” The species *Centroscyllium fabricii* (black dogfish), *Squalus blainville* (longnose spurdog) and *Squalus acanthias* (spiny dogfish) are misrepresented under the common name “shark” as they fall under the family *Squalidae*, which are collectively called dogfish sharks.⁶ Similarly, *Scyliorhinus canicula* (small-spotted catshark) belongs to the family *Scyliorhinidae*, including groups like catsharks and dogfish.³ The other three species, *Isurus oxyrinchus* (shortfin mako shark), *Lamna nasus* (porbeagle) and *Prionace glauca* (blue shark), are not misrepresented when called “shark;” however, these three species are Canadian-caught and thus the use of the generic common name is concerning as they have several sustainability concerns associated with them (more on this in section B).

Under the CFIA Fish List guidance, four species have the common name “dogfish,” namely *Amia calva* (bowfin), *Centroscyllium fabricii* (black dogfish), *Squalus blainville* (longnose spurdog) and *Squalus acanthias* (spiny dogfish). *Amia calva* is misrepresented by the common name “dogfish” as it is within the family *Amiidae* (bowfins).⁶ Canada has two commercially fished dogfish species. One, *Squalus acanthias* (spiny dogfish), can be called dogfish, shark, spiny dogfish, greyfish or northern shark.²⁷ However, the only acceptable common name on the Fish List for *Squalus suckleyi* (Pacific spiny dogfish) is spiny dogfish, demonstrating the entrenched inconsistency within the Fish List.

WHY IT MATTERS

In this section, we highlight how the CFIA Fish List allows for ambiguous and/or misrepresentative labelling of seafood sold in Canada, which directly contradicts CFIA’s own labelling requirements. CFIA states that “all information provided on food labels or in advertising must be accurate, truthful, and must not mislead or deceive the consumer.”²⁸ We have demonstrated that ambiguous labelling begins with allowing generic common names to apply to a large number of seafood species. Regulating the mandatory use of a scientific name on seafood product labels would be the most thorough approach to ensure all labels comply with the CFIA’s rules, as misrepresentative labelling results from cases where the use of generic common names is not only generalizing the species sold but is misrepresenting it entirely. For example, the many *Sebastes* species can be called snapper, Pacific snapper or Pacific red snapper despite not being true snappers.⁶ Likewise, the species *Serranus scriba* (painted comber), is a subtropical species in the Atlantic that can be “acceptably” misrepresented as a rosefish, redfish and ocean perch in the Fish List.⁶

ii While *Pandalus platyceros* is defined as a prawn according to the DFO, the standard common name used by the databases consulted is spot shrimp.

The use of generic common names also contradicts specific CFIA rules and intent established for other species groups. For example, the CFIA states that “Pacific salmon” is not an acceptable common name in the Fish List due to the different market values of species of Pacific salmon.²⁹ The issue of different market values holds true for other generic names described in this section, including soles and rockfish.

If Canada is to move forward with a comprehensive traceability system, the issue of lumping several species into generic common names will need to be resolved. The permitted use of generic common names does not allow for the differentiation of species within the market, resulting in misrepresentation of products to consumers.³⁰ The generic names also allow for grouping of similar species within the supply chain, contributing to the challenge of tracing seafood products.²⁹

RECOMMENDATIONS

Based on the results above, we recommend the following:

1. The CFIA requires all seafood products to be labelled with the correct scientific name. This would be the simplest universal fix to address all naming issues identified in this report.
2. CFIA common names that are misrepresentative should be removed, including (but not limited to) the following:
 - a. Remove the common names “snapper,” “Pacific snapper” and “Pacific red snapper” from all *Sebastes* species. *Sebastes* species are under the subfamily Sebastidae, which are recognized as rockfishes, not snappers.
 - b. Remove the common name “rosefish” from all *Sebastes*, *Sebastolobus* and *Serranus scriba* species. *Sebastes* and *Sebastolobus* species fall under the subfamily Sebastidae, which are recognized as rockfishes, including thornyheads, not rosefish, and *Serranus scriba* is part of the grouper and sea bass family.
 - c. Remove the common name “redfish” from *Sebastes alutus* and *Serranus scriba*. *Sebastes alutus* is more formally recognized as Pacific ocean perch, and *Serranus scriba* is part of the grouper and sea bass family.
 - d. Remove the common name “flounder” from *Solea vulgaris*. *Solea vulgaris* is a sole, not a flounder.
 - e. Remove the common name “sole” from *Glyptocephalus cynoglossus*, *Hippoglossina stomata*, *Hippoglossoides platessoides*, *Limanda ferruginea* and *Pseudopleuronectes americanus*. These species are right-eye flounders and sand flounders, not soles, and do not have a standard common name with the word “sole” in it.
 - f. Remove the common name “prawn” from *Pandalus borealis*, *Pandalus montagui*, *Pandalopsis dispar* and *Pandalus jordani*. These species are shrimp, not prawns.
 - g. Remove the common name “shrimp” from *Pandalus platyceros*. This species is a prawn, not a shrimp.
 - h. Remove the common name “shark” from *Centroscyllium fabricii*, *Squalus blainville*, *Squalus acanthias* and *Scyliorhinus canicula*. *Centroscyllium fabricii*, *Squalus blainville* and *Squalus acanthias* are part of the family Squalidae, which are called dogfish sharks, and *Scyliorhinus canicula* is specifically a catshark.
 - i. Remove the common name “dogfish” from *Amia calva*. This species is a bowfin, not a dogfish.
3. Strengthen industry guidance to encourage the use of the standard common names instead of the generic common names, particularly the generic common names snapper, rosefish, redfish, rockfish, sole, flounder, shrimp, shark and dogfish.
4. The Fish List would be more effective at standardizing the names that seafood could be sold under if industry were required to comply with the common name(s) listed for each species, instead of the Fish List being classed as guidance. We recommend the CFIA make an amendment to the Safe Food for Canadians regulation stating that compliance with the names given in the Fish List is mandatory for all seafood products, and enforce it by performing frequent audits and spot checks.

SECTION B: CANADIAN-CAUGHT SPECIES OF HIGHEST CONCERN

INTRODUCTION

The diversity of Canadian seafood products and the variation and complexity of the associated fisheries means different products embody different concerns. Some species are more prone to mislabelling within the market, others are more likely to be fished unsustainably or illegally.³¹ Furthermore, the morphology (e.g., size of fish) or its place within the food chain will influence the health-related concerns.³² Adding to these issues are new import regulations targeting specific species of fish or shellfish based on their susceptibility to mislabelling and Illegal, unreported and unregulated (IUU) fishing.³³ In this section, we prioritize changes to the Fish List that can best address this wide range of problems for Canadian-caught species.

Section A demonstrated that there are a number of generic and misleading common names in Canada. This leaves the consumer or seafood buyer vulnerable to unwillingly engaging in a variety of market and sustainability issues. The more permitted common names per species, the greater chance for confusion and poor labelling practices at the point of sale. While the Fish List contains numerous species that have these issues, this section considers only the Canadian-caught species. We more closely examine this subset of domestically fished and managed species by identifying those that are prone to mislabelling, and/or have environmental, health or safety concerns and/or those listed under SIMP.

Mislabelled: Commonly mislabelled species were chosen as a criterion for this analysis in order to identify the species that are in need of more oversight and enforcement from the CFIA. All species should have specific common names, but we used the prevalence of mislabelling to prioritize where efforts to amend the Fish List should focus immediately. We theorize that reducing the number of ambiguous or confusing CFIA common names, and ensuring compliance for those regularly mislabelled species, will help reduce mislabelling in the marketplace.

Environmental concerns: This analysis identified species with known environmental and sustainability concerns that are regularly available in seafood supply chains and that can be sold under a variety of common names. Ensuring specific species are identified throughout the supply chain can help consumers, retailers and distributors avoid unsustainable seafood and allow for improved fisheries management on the water.

Health concerns: With the large number of generic common names on the Fish List, it is necessary to examine species known to cause health concerns that are not currently differentiated by name in the market. Lax naming regulations and guidance pose a risk to consumers.²⁹

Seafood Import Monitoring Program: Aligning and harmonizing seafood names between major trading partners is recognized as a key part of maintaining market access and allowing for easier trade.²⁹ The SIMP was chosen as a criterion for this report to ensure that species under this U.S. program had appropriate common names to comply with program transparency.³² SIMP was established to reduce instances of IUU fishing and product mislabelling. The species under SIMP were chosen as they are found to be most at risk to IUU fishing, environmental pressure and/or seafood misrepresentation in the U.S. marketplace.³²

We further prioritized this subset by sorting species that have higher frequency of English CFIA common names and meet one or more of the criteria above to obtain a subset of species for which amendments to the Fish List would have the most benefit to species management and the supply chain.

METHODOLOGY

1. We compiled all species (excluding genus-level entries) that met at least one of the four criteria: (a) mislabelling; (b) sustainability; (c) human health; and/or (d) SIMP. Species were assessed against each of these criteria as follows:

a. Species that are commonly mislabelled

Species considered to be commonly mislabelled were those previously identified in studies of seafood mislabelling in the Canadian marketplace. Each of the studies assessed the percentage of sampled seafood that was labelled with common names not in accordance with the CFIA Fish List. The studies we consulted included SeaChoice's DNA and labelling studies carried out in 2017 and 2018,³⁴ Oceana Canada's "Seafood Fraud and Mislabelling Report" carried out in 2018,¹⁴ "A survey of mislabelling across finfish supply chain reveals mislabelling both outside and within Canada" by Shehata et al. 2019 (data collected in 2016),³⁵ and "Study of fish products in Metro Vancouver using DNA barcoding methods reveals fraudulent labeling" by Hu et al. 2018 (data collected in 2017 and 2018).²⁹

b. Species with sustainability concerns

Species were considered to have sustainability concerns if they met one or more of the following sub-criteria:

- i. Species ranked Special Concern, Threatened and/or Endangered by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC).³⁶
- ii. Species ranked as Vulnerable, Endangered, Critically Endangered or Extinct on the IUCN Red List of Threatened Species.³⁷ The year the species was assessed and the population trend (increasing, decreasing or stable) was also recorded. If the species was noted as "Needs updating" within the database, it was not included in this analysis as its assessment is out of date.
- iii. Species belonging to stocks assessed by the DFO as in the Critical or Cautious zone, according to the DFO's 2018 Sustainability Survey for Fisheries.³⁸
- iv. Species listed on the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES).³⁹

c. Species linked to human health concerns

Species were considered to be linked to human health concerns if they were noted in the Fish List to be subject to histamine, environmental contaminants and/or marine toxins. Information from the Fish List was supplemented by sources that have reported seafood-related health concerns, including the book *Real Food, Fake Food*,⁴⁰ Oceana Canada's seafood fraud and mislabelling report¹⁴ and Health Canada's webpage on ciguatera.⁴¹ Species in these sources were indicated to cause digestive distress, to be associated with recorded unapproved or banned antibiotics or to be poisonous, and some recorded causing ciguatera poisoning, an illness caused by consuming reef fish contaminated with a toxin called "ciguatoxin."⁴⁰ The histamine, environmental contaminants, marine toxins lists and/or list of health concerns compiled by SeaChoice were all sub-criteria under the criteria health concerns.

d. Species listed under the U.S. Seafood Import Monitoring Program

SIMP includes a set of species that require specific reporting and record-keeping if imported into the U.S.⁴² All Canadian-caught species included in the SIMP program were deemed to meet this criterion.

2. The compiled list of species that met these criteria was refined to include only Canadian-caught species.

3. Species were assigned a score based on the number of criteria and sub-criteria they met multiplied by the number of English CFIA common names associated with that species.ⁱⁱⁱ
4. To determine the priority species under each criterion, species were ranked from highest to lowest priority based on their assigned score from Step 3.
5. To determine priority species across all criteria (the combined impact assessment), species scores were summed across the criteria and sub-criteria and then ranked according to this combined score from highest to lowest.
6. The priority species, both within each criterion and across all criteria, was determined by choosing the species that had the highest impact score. The cut-off for the species considered top priority was decided on a case-by-case basis based on the results of the scores.
7. Finally, common name recommendations for the top priority species within and across criteria were determined by consulting the following databases detailed in Table 4: FishBase;³ the Integrated Taxonomic Information System (ITIS);⁴ American Fisheries Society's Common and Scientific Names of Fishes from the United States, Canada and Mexico, 7th edition;⁶ the Food and Agriculture Organization's Aquatic Sciences and Fisheries Information System;⁷ and the U.S. Seafood List.⁵ Based on these sources, two suggestions for common names were made per species. The first recommendation (Tier 1) refers to SeaChoice's preferred common name(s) for the species. Tier 2 offers other suggestions in case the Tier 1 suggestion is deemed unsuitable.

Table 4: A description of databases consulted to determine recommended common names.

DATABASE	DESCRIPTION	SOURCE
FishBase	An online database where users can search for aquatic species and gain biological and geographical information on the species as well as the common name(s) used (vernacular, market and the Food and Agriculture Organization names).	https://www.fishbase.in/search.php
Integrated Taxonomic Information System (ITIS)	An online database where users can search for any internationally traded species, and find information such as the common name(s) used and the hierarchical classification of the species in question.	https://www.itis.gov/
American Fisheries Society's Common and Scientific Names of Fishes from the United States, Canada, and Mexico, 7th edition	An up-to-date reference of common and scientific names for all documented fish species found in fresh and marine ecosystems in North America.	https://fisheries.org/docs/pub_fish_names.pdf
The Food and Agriculture Organization's Aquatic Sciences and Fisheries Information System	A database containing 12,771 aquatic species, including their scientific names and common names, used widely for international trade.	http://www.fao.org/fishery/collection/asfis/en
United States Seafood List	A guide for naming seafood products in the U.S. It is a searchable database that provides information including the scientific name, acceptable market name(s), established common name and, in some cases, vernacular name(s) that are not accepted as a proper name for the species.	https://www.accessdata.fda.gov/scripts/fdcc/index.cfm?set=seafoodlist

ⁱⁱⁱ For sustainability concerns, a species that met both the COSEWIC and IUCN sub-criteria was only counted once as COSEWIC and IUCN Red List assessments use a similar framework. For example, the American eel (*Anguilla rostrata*) met the COSEWIC and IUCN sub-criteria, but was only scored once for this within the analysis instead of twice. Additionally, a species can meet the COSEWIC sub-criteria more than once since different populations of the species are assessed versus the species as a whole. For example, different populations of Atlantic cod (*Gadus morhua*) are assessed as COSEWIC Endangered and COSEWIC Special Concern, but the species was only counted as meeting the criteria once within the analysis.

RESULTS

Of the 871 species-level entries on the Fish List, 157 were identified as Canadian-caught. Table 5 (below) shows the number of Canadian species that met each of our criteria and sub-criteria. For the full list of species under each category, Canadian-caught and otherwise, see Appendix B.

Table 5: *The number of Canadian-caught species within each criteria and sub-criteria examined within the analysis.*

CRITERIA AND SUB-CRITERIA	NUMBER OF CANADIAN-CAUGHT SPECIES
Species prone to mislabelling	24
Species assessed as threatened by COSEWIC	16 Endangered, 16 Threatened, 15 Special concern
Species assessed as threatened on the IUCN Red List	1 Critically endangered, 3 Endangered, 4 Vulnerable
Species/stocks identified by the DFO as in the critical or cautious zone	31
Species listed on CITES	2
Species linked to human health concerns	1
Species subject to histamine	14
Species subject to environmental contaminants	52
Species subject to marine toxins	19
Species included in the U.S. Seafood Import Monitoring Program	23

Commonly mislabelled species

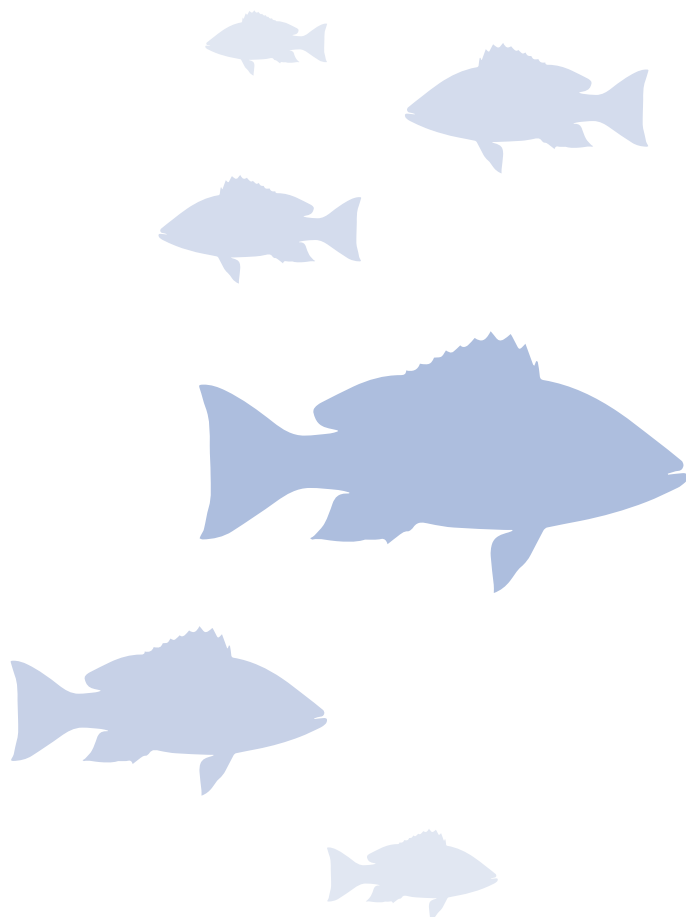
Our results show that of the Canadian-caught species subset, 24 have been found to be commonly mislabelled. The commonly mislabelled species frequently sold in the Canadian marketplace include whitefishes like pollock, cod, halibut and flounder, as well as tuna, rockfish, salmon and trout (Table 6). The misuse of generic common names such as snapper and sole where they are not appropriate or allowed leads to much of the seafood mislabelling in the Canadian marketplace.^{7 29 34}

From the priority analysis, we identified the following five species to be of greatest concern due to the risk of mislabelling combined with a high number of acceptable common names (Table 6). Standard common name in brackets.

1. *Gadus chalcogrammus* (walleye pollock) has six CFIA common names: Alaska pollock, Alaskan pollock, big-eye pollock, Pacific pollock, pollock and walleye pollock. This species is often mislabelled as Pacific or Atlantic cod.
2. *Limanda ferruginea* (yellowtail flounder) has six CFIA common names: dab, flounder, rusty dab, sole, yellowtail and yellowtail flounder. This species has been found to be mislabelled as Pacific sole, which is not a permitted name for any sole or flounder species.
3. *Oncorhynchus mykiss* (rainbow trout) has six CFIA common names: deep sea trout, rainbow trout, steelhead, steelhead salmon, steelhead trout and trout. This species is often mislabelled as a different species of salmon.
4. *Reinhardtius hippoglossoides* (Greenland halibut) has five CFIA common names: American turbot, black turbot, Greenland turbot, Newfoundland turbot and turbot. This species is often mislabelled as sole.
5. *Sebastes alutus* (Pacific ocean perch) has five CFIA common names: ocean perch, Pacific ocean perch, redfish, rockfish and rosefish. In addition to these permitted names, this species has been found to be mislabelled as snapper, red snapper and Pacific snapper.

Table 6: Canadian-caught species identified as commonly mislabelled ranked in priority from highest to lowest based on the number of CFIA common names per species. Data from the Canadian Food Inspection Agency's Fish List.

SPECIES (SCIENTIFIC NAME)	ENGLISH COMMON NAMES (#)
<i>Gadus chalcogrammus</i>	6
<i>Limanda ferruginea</i>	6
<i>Oncorhynchus mykiss</i>	6
<i>Reinhardtius hippoglossoides</i>	5
<i>Sebastes alutus</i>	5
<i>Thunnus thynnus</i>	4
<i>Gadus macrocephalus</i>	3
<i>Microstomus pacificus</i>	3
<i>Oncorhynchus keta</i>	3
<i>Oncorhynchus nerka</i>	3
<i>Parophrys vetulus</i>	3
<i>Salvelinus alpinus</i>	3
<i>Sebastes brevispinis</i>	3
<i>Sebastes entomelas</i>	3
<i>Sebastes flavidus</i>	3
<i>Thunnus alalunga</i>	3
<i>Cancer irroratus</i>	2
<i>Gadus morhua</i>	2
<i>Hippoglossus hippoglossus</i>	2
<i>Hippoglossus stenolepis</i>	2
<i>Sebastes proriger</i>	2
<i>Melanogrammus aeglefinus</i>	1
<i>Sebastes aleutianus</i>	1
<i>Urophycis tenuis</i>	1



Species with sustainability concerns

In total, our analysis identified 56 Canadian-caught species with at least one sustainability concern based on DFO, COSEWIC, IUCN and/or CITES criteria. The most concerning species due to the combination of the number of sustainability rankings/assessments and number of allowable CFIA common names are chinook salmon, American plaice, Acadian redfish, deepwater redfish and yelloweye rockfish, as well as other species of flounder, salmon, cod, pollock, rockfish and redfish (Table 7). One species, the Atlantic wolffish, is also problematic from a sustainability point of view but is not as prevalent in seafood markets (Table 7).

The following five species were found to be of greatest concern due to a combination of numerous sustainability issues and multiple CFIA common names (Table 7).

1. *Oncorhynchus tshawytscha* (chinook salmon) has a total of seven CFIA common names: chinook salmon, chinook, king salmon, pink chinook, red chinook, spring salmon and white chinook. Populations of this species are assessed by COSEWIC as Endangered, Threatened and Special Concern, and stocks of this species assessed by DFO are in the cautious zone.

2. *Hippoglossoides platessoides* (American plaice) has a total of six CFIA common names: American plaice, Canadian plaice, flounder, sole, sand dab and plaice. Populations of this species are assessed by COSEWIC as Threatened, and stocks of this species assessed by DFO are in the critical zone.
3. *Sebastes fasciatus* (Acadian redfish) has a total of six CFIA common names: Acadian redfish, Atlantic ocean perch, Atlantic rosefish, ocean perch, redfish and rosefish. Populations of this species are assessed by COSEWIC as Threatened and Special Concern, the species is assessed as Endangered on the IUCN Red List and stocks are assessed by DFO as in the cautious zone.
4. *Sebastes mentella* (deepwater redfish) has a total of six CFIA common names: Atlantic ocean perch, Atlantic rosefish, deepwater redfish, ocean perch, redfish and rosefish. Populations of this species are assessed by COSEWIC as Endangered and Threatened and stocks are assessed by DFO as in the cautious zone.
5. *Sebastes ruberrimus* (yelloweye rockfish) has a total of six CFIA common names: Pacific red snapper, red snapper, rosefish, rockfish, snapper and yellow-eye rockfish. Populations of this species are assessed by COSEWIC as Special Concern and stocks are assessed by DFO as in the critical zone.

Table 7: Canadian-caught species with identified sustainability concerns. X indicates the species meets the sub-criteria. All species with an impact calculation score of 6 and above are included, representing the top 47 per cent of species based on their impact score. Species are ranked from highest to lowest. The number of species within the table represents eight per cent of the total number of Canadian species on the Fish List (n=157). Data from the Canadian Food Inspection Agency's Fish List.

SPECIES (SCIENTIFIC NAME)	ASSESSED BY COSEWIC/IUCN AS THREATENED, SPECIAL CONCERN	CITES- LISTED SPECIES	ASSESSED BY DFO AS CRITICAL OR CAUTIOUS	NUMBER OF SUB- CRITERIA MET (A)	NUMBER OF ENGLISH COMMON NAMES (B)	IMPACT SCORE (=A*B)
<i>Oncorhynchus tshawytscha</i>	X		X	2	7	14
<i>Hippoglossoides platessoides</i>	X		X	2	6	12
<i>Sebastes fasciatus</i>	X		X	2	6	12
<i>Sebastes mentella</i>	X		X	2	6	12
<i>Sebastes ruberrimus</i>	X		X	2	6	12
<i>Anarhichas lupus</i>	X			1	7	7
<i>Glyptocephalus cynoglossus</i>			X	1	6	6
<i>Oncorhynchus mykiss</i>	X			1	6	6
<i>Oncorhynchus nerka</i>	X		X	2	3	6
<i>Pollachius virens</i>			X	1	6	6
<i>Pseudopleuronectes americanus</i>			X	1	6	6
<i>Sebastes maliger</i>	X		X	2	3	6
<i>Sebastes paucispinis</i>	X		X	2	3	6
<i>Sebastes pinniger</i>	X		X	2	3	6

Species linked to human health concerns

Of the 81 species found to have one or more health concerns, only one Canadian-caught species – *Acipenser oxyrinchus* (Atlantic sturgeon) – was identified under our additional health concern sub-criteria due to the risk of ciguatera poisoning.⁴⁰ Other notable species known to have health concerns such as escolar, Cambodian ponga and tilefish^{14,39} are not produced in Canada. The CFIA has identified Canadian-caught species that have other health concerns including those subject to histamine, environmental contaminants and/or marine toxins. The species that ranked highest priority based on a combination of human health concerns and the number of CFIA common names were species of tuna, shark, rockfish and one species of clam (Table 8).

The following eight species were determined to be priorities based on their associated health concerns and the number of CFIA common names they have (Table 8). Standard common name in brackets.

1. *Thunnus thynnus* (Atlantic bluefin tuna) has a total of four CFIA common names: Atlantic bluefin tuna, bluefin tuna, northern bluefin tuna and tuna. This species is noted on the Fish List as subject to histamine and subject to environmental contaminants.
2. *Mercenaria mercenaria* (northern quahog) has a total of six CFIA common names: bay quahog, cherry stone, clam, hard-shell clam, round clam and quahog. This species is noted on the Fish List as subject to marine toxins.
3. *Prionace glauca* (blue shark) has a total of six CFIA common names: blue dog, blue pointer, blue pointer shark, blue shark, great blue shark and shark. This species is noted on the Fish List as subject to environmental contaminants.
4. *Sebastes fasciatus* (Acadian redfish) has a total of six CFIA common names: Atlantic ocean perch, Acadian redfish, Atlantic rosefish, ocean perch, redfish and rosefish. This species is noted on the Fish List as subject to environmental contaminants.
5. *Sebastes mentella* (deepwater redfish) has a total of six CFIA common names: Atlantic ocean perch, Atlantic rosefish, deepwater redfish, ocean perch, redfish and rosefish. This species is noted on the Fish List as subject to environmental contaminants.
6. *Sebastes ruberrimus* (yelloweye rockfish) has a total of six CFIA common names: Pacific red snapper, red snapper, rosefish, rockfish, snapper and yellow-eye rockfish. This species is noted on the Fish List as subject to environmental contaminants.
7. *Thunnus alalunga* (albacore tuna) has a total of three CFIA common names: albacore, albacore tuna and tuna. This species is noted on the Fish List as subject to histamine and subject to environmental contaminants.
8. *Thunnus albacares* (yellowfin tuna) has a total of three CFIA common names: tuna, yellowfin and yellowfin tuna. This species is noted on the Fish List as subject to histamine and subject to environmental contaminants.

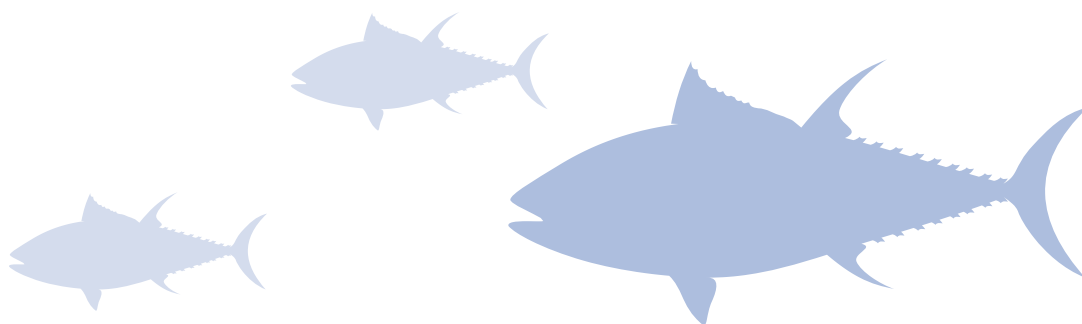


Table 8: Canadian-caught species with identified health concerns.^{iv} X means the species meets the sub-criteria. All species with an impact calculation score of 4 and above are included, representing the top 47 per cent of species. Species are ranked from highest to lowest. The number of species within the table represents 14 per cent of the total number of Canadian species (n=157). Data from the Canadian Food Inspection Agency's Fish List.

SPECIES (SCIENTIFIC NAME)	SUBJECT TO HISTAMINE	SUBJECT TO ENVIRONMENTAL CONTAMINANTS	SUBJECT TO MARINE TOXINS	HEALTH CONCERNS NOT IDENTIFIED BY CFIA	NUMBER OF SUB-CRITERIA MET (A)	NUMBER OF ENGLISH COMMON NAMES (B)	IMPACT SCORE (=A*B)
<i>Thunnus thynnus</i>	X	X			2	4	8
<i>Mercenaria mercenaria</i>			X		1	6	6
<i>Prionace glauca</i>		X			1	6	6
<i>Sebastes fasciatus</i>		X			1	6	6
<i>Sebastes mentella</i>		X			1	6	6
<i>Sebastes ruberrimus</i>		X			1	6	6
<i>Thunnus alalunga</i>	X	X			2	3	6
<i>Thunnus albacares</i>	X	X			2	3	6
<i>Reinhardtius hippoglossoides</i>		X			1	5	5
<i>Sebastes alutus</i>		X			1	5	5
<i>Sebastes babcocki</i>		X			1	5	5
<i>Sebastolobus alascanus</i>		X			1	5	5
<i>Sebastolobus altivelis</i>		X			1	5	5
<i>Squalus acanthias</i>		X			1	5	5
<i>Acipenser oxyrinchus</i>		X		X	2	2	4
<i>Isurus oxyrinchus</i>		X			1	4	4
<i>Placopecten magellanicus</i>			X		1	4	4
<i>Salvelinus namaycush</i>		X			1	4	4
<i>Sander vitreus</i>		X			1	4	4
<i>Sebastes borealis</i>		X			1	4	4
<i>Sebastes reedi</i>		X			1	4	4
<i>Thunnus obesus</i>	X	X			2	2	4

iv Please see methodology section 1.c for description of the column "Health concerns not identified by the CFIA."

Species listed under the U.S. Seafood Import Monitoring Program

Currently, 23 Canadian-caught species fall under the provisions of SIMP. These are sharks and dogfish, commonly sold whitefish such as cod and pollock, shrimp, tuna, crab and sea cucumber (Table 9). SIMP requires the scientific name of a species to be recorded and kept for entry into the U.S. The large number of CFIA common names coupled with differences in naming between Canada and the U.S. is concerning as it is likely contributing to the challenge of complying with SIMP regulations.

The impact analysis identified the following five species to be of highest priority based on the SIMP criterion and the high number of CFIA common names (Table 9). Standard common name in brackets.

1. *Gadus chalcogrammus* (walleye pollock) has a total of six CFIA common names: Alaska pollock, Alaskan pollock, big-eye pollock, Pacific pollock, pollock and walleye pollock. Of these the U.S. accepts walleye pollock and pollock, but does not accept Pacific pollock.

2. *Prionace glauca* (blue shark) has a total of six CFIA common names: blue dog, blue pointer, blue pointer shark, blue shark, great blue shark and shark. Of these, the U.S. accepts blue shark and shark, but does not accept blue dog, blue pointer and great blue shark.

3. *Pandalus borealis* (northern shrimp) has a total of five CFIA common names: cold water shrimp, deep water shrimp, northern shrimp, prawn and shrimp. Of these, the U.S. accepts northern shrimp, pink shrimp and shrimp, but does not accept deep water prawn.

4. *Pandalus montagui* (aesop shrimp) has a total of five CFIA common names: aesop shrimp, cold water shrimp, deep water shrimp, prawn and shrimp. This species is not currently listed in the U.S. Fish List.

5. *Squalus acanthias* (spiny dogfish) has a total of five CFIA common names: dogfish, greyfish, northern shark, shark and spiny dogfish. Of these, the U.S. accepts spiny dogfish. In addition, the U.S. allows dogfish shark and cape shark.

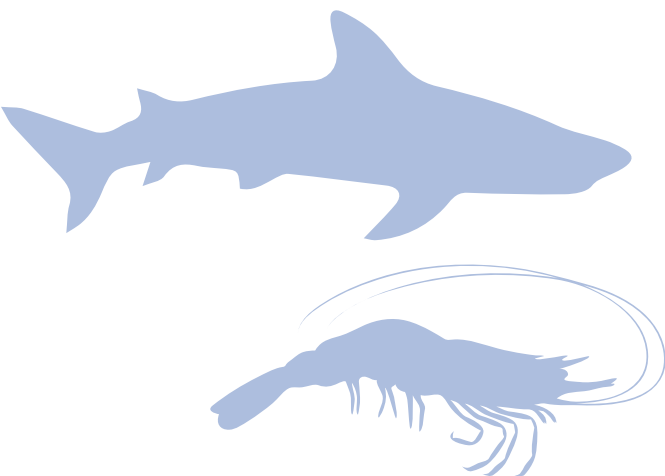


Table 9: Canadian-caught species identified as falling under the provision of the Seafood Import Monitoring Program ranked from highest to lowest priority based on the number of common names per species. Data from the Canadian Food Inspection Agency’s Fish List.

SPECIES (SCIENTIFIC NAME)	ENGLISH COMMON NAMES (#)
<i>Gadus chalcogrammus</i>	6
<i>Prionace glauca</i>	6
<i>Pandalus borealis</i>	5
<i>Pandalus montagui</i>	5
<i>Squalus acanthias</i>	5
<i>Isurus oxyrinchus</i>	4
<i>Pandalus hypsinotus</i>	4
<i>Pandalus platyceros</i>	4
<i>Paralithodes camtschaticus</i>	4
<i>Thunnus thynnus</i>	4
<i>Gadus macrocephalus</i>	3
<i>Pandalopsis dispar</i>	3
<i>Pandalus jordani</i>	3
<i>Thunnus alalunga</i>	3
<i>Thunnus albacares</i>	3
<i>Gadus morhua</i>	2
<i>Gadus ogac</i>	2
<i>Lamna nasus</i>	2
<i>Parastichopus californicus</i>	2
<i>Thunnus obesus</i>	2
<i>Cucumaria frondosa</i>	1
<i>Squalus suckleyi</i>	1
<i>Xiphias gladius</i>	1

Combined impact assessment

The total impact assessment identified the species that generate the most concern across all four criteria: susceptibility to mislabelling, sustainability concerns, health concerns and U.S. trade requirements. The most problematic groups of species are rockfish, tuna, shark, whitefishes of high commercial value such as halibut and cod, some flounder and sole and some species of shrimp (Table 10).

The top six species found to be of greatest concern were *Thunnus thynnus*, *Sebastes fasciatus*, *Sebastes mentella*, *Sebastes ruberrimus*, *Squalus acanthias* and *Reinhardtius hippoglossoides* (Table 10).

1. *Thunnus thynnus* (Atlantic bluefin tuna) has four CFIA common names: Atlantic bluefin tuna, bluefin tuna, northern bluefin tuna and tuna. The generic common name “tuna” allows this species to be easily misrepresented as possibly being any of the other 13 tuna species on the Fish List. The species met five criteria/sub-criteria: it has been found to be commonly mislabelled within the Canadian market, is COSEWIC Endangered/IUCN Endangered (under the sustainability concerns criterion), is subject to histamine and environmental contaminants (under the health concerns criterion) and is listed under SIMP (Table 10). Currently, some populations of Atlantic bluefin tuna continue to be overfished with declining abundance, while other populations are recovering after decades of overfishing.⁴³ This stresses the importance of knowing the scientific name of the species and where it was caught for buyers to make an informed choice. Furthermore, Atlantic bluefin tuna has been found to have higher levels of toxins such as mercury when compared to other tunas, which a consumer may want to avoid.²⁹
2. *Sebastes fasciatus* (Acadian redfish) has six CFIA common names: Acadian redfish, Atlantic ocean perch, Atlantic rosefish, ocean perch, redfish and rosefish. The common names of redfish, and common names rosefish and Atlantic rosefish do not accurately represent the species. This species met three criteria/sub-criteria: it is listed by COSEWIC as Threatened and Special Concern, is assessed by IUCN as Endangered and assessed by DFO as being in the cautious zone (under the sustainability concerns criterion) and environmental contaminants (under the health concerns criterion; Table 10). Acadian redfish management and consumers would benefit from tightened naming.
3. *Sebastes mentella* (deepwater redfish) has a total of six CFIA common names: Atlantic ocean perch, Atlantic rosefish, deepwater redfish, ocean perch, redfish and rosefish. The allowed common names rosefish and Atlantic rosefish misrepresent the species as it is not a rosefish species, and the U.S. does not accept them as market common names. Additionally, it should be unacceptable to label this species under the generic redfish category because it does not allow consumers to distinguish it from other, more sustainably managed, redfish species. This species met three of the criteria/sub-criteria, including populations assessed by COSEWIC as Endangered and Threatened and assessed by DFO as being in the cautious zone (under the sustainability concerns criterion) and environmental contaminants (under the health concerns criterion; Table 10).
4. *Sebastes ruberrimus* (yelloweye rockfish) has a total of six CFIA common names: Pacific red snapper, red snapper, rosefish, rockfish, snapper and yellow-eye rockfish. The allowed common names snapper, red snapper and Pacific red snapper misrepresent the species as it is not a true snapper species. In fact, the U.S. seafood list does not accept Pacific red snapper; it only allows yelloweye rockfish and rockfish. It can also be called rosefish, although it is not a true rosefish species. This species met three criteria/sub-criteria, including COSEWIC Special Concern and assessed by DFO as being in the critical zone (under the sustainability concerns criterion) and environmental contaminants (under the health concerns criterion; Table 10).

5. *Squalus acanthias* (spiny dogfish) has a total of five CFIA common names: dogfish, greyfish, northern shark, shark and spiny dogfish. The allowed common names shark and northern shark misrepresent the species as it is a dogfish species, yet it can be sold generically as “shark” in the market. Furthermore, the U.S. does not accept greyfish as a market name for this species, but allows dogfish, shark and cape shark. This species met three criteria/sub-criteria, including COSEWIC Special Concern/IUCN Vulnerable (under the sustainability concerns criterion), subject to environmental contaminants (under the health concerns criterion) and listed under SIMP (Table 10).
6. *Reinhardtius hippoglossoides* (Greenland halibut) has a total of five CFIA common names: American turbot, black turbot, Greenland turbot, Newfoundland turbot and turbot. This species met three criteria/sub-criteria as it is often mislabelled as sole, assessed by DFO as being in the critical zone (under the sustainability concerns criterion) and is subject to environmental contaminants (under the health concerns criterion) (Table 10).

Table 10: Canadian-caught species identified to meet one of our criteria: species prone to mislabelling, species with sustainability concerns according to the sub-criteria COSEWIC/IUCN (C), CITES (CI), DFO assessment (D)), species with health concerns according to the sub-criteria health concerns identified by SeaChoice (H), subject to histamine (HI), subject to environmental contaminants (E), subject to marine toxins (MT), and species listed under the U.S. Seafood Import Monitoring Program (SIMP). An X within the table means the species met the criteria and/or sub-criteria. All species with impact scores of 10 and above are included, representing the top 36 per cent of species. Species are ranked from highest to lowest. The number of species included in the table represent 11 per cent of the total number of Canadian species in the Fish list (n=157). Data from the Canadian Food Inspection Agency's Fish List.

SPECIES (SCIENTIFIC NAME)	MISLABELLED	SUSTAINABILITY CONCERNS			HEALTH CONCERNS				SIMP	NUMBER OF CRITERIA MET BY SPECIES (A)	NUMBER OF ENGLISH COMMON NAMES (B)	IMPACT SCORE (A*B)
		C	D	CI	H	HI	E	MT				
<i>Thunnus thynnus</i>	X	X				X	X		X	5	4	20
<i>Sebastes fasciatus</i>		X	X				X			3	6	18
<i>Sebastes mentella</i>		X	X				X			3	6	18
<i>Sebastes ruberrimus</i>		X	X				X			3	6	18
<i>Squalus acanthias</i>		X					X		X	3	5	15
<i>Reinhardtius hippoglossoides</i>	X		X				X			3	5	15
<i>Oncorhynchus tshawytscha</i>		X	X							2	7	14
<i>Isurus oxyrinchus</i>		X					X		X	3	4	12
<i>Gadus chalcogrammus</i>	X								X	2	6	12
<i>Hippoglossoides platessoides</i>		X	X							2	6	12
<i>Oncorhynchus mykiss</i>	X	X								2	6	12
<i>Prionace glauca</i>							X		X	2	6	12
<i>Thunnus alalunga</i>	X					X	X		X	4	3	12
<i>Pandalus borealis</i>			X						X	2	5	10
<i>Pandalus montagui</i>			X						X	2	5	10
<i>Sebastes alutus</i>	X						X			2	5	10
<i>Sebastes altivelis</i>		X					X			2	5	10

WHY IT MATTERS

This section demonstrates the importance of species-specific labelling for seafood, particularly when that species has multiple and sometimes misleading common names, and when it is often mislabelled, has associated sustainability and health concerns and is subject to international trade regulations. Our results identify the most concerning species on the Fish List due to their association with one or more of the criteria and the number of common names that can be used to label the species.

When species are sold under multiple generic common names and have sustainability, health or trade issues associated with them, customers have no way of discerning one product from another to make an informed choice. For example, a study examined species sold as “Pacific red snapper” on the U.S. west coast and found that the fisheries’ sustainability status differed considerably among the 13 rockfish species sold under this common name.⁴⁴ Of those rockfish species, 56 per cent were assessed as overfished by the National Marine Fisheries Service.⁴³ In this case, the common name, Pacific red snapper, did not allow for consumers to make an environmentally friendly decision.⁴³ Furthermore, if a consumer does not know which species is in the seafood product they are considering, they cannot make use of ranking and recommendation programs such as Ocean Wise⁴⁵ and Seafood Watch⁴⁶ to help them make a sustainable choice. Species-specific common names would help consumers use these sustainability programs to inform their purchasing choices. Additionally, proper labelling is necessary to reduce health and safety risks that may arise from the consumption of some seafood products. A study conducted in Greece concluded that commercial fish markets were at risk for cases of allergies and suggested that labels with species names and increased consumer education around labels would be crucial in preventing incidents.⁴⁷

Variation in the common names used from country to country, and in this report between Canada and the U.S., is problematic as it may lead to industry confusion and increased cases of inaccurate labelling. Inconsistencies between trading partners, such as common names that are accepted in one country but not in another, should be reduced or, if possible, eliminated. Industry has recognized the need to move toward greater harmonization of traceability and labelling in recent years, best demonstrated by initiatives such as the Global Dialogue for Seafood Traceability.^{29 48} Harmonization of these trade elements for seafood will make it easier, faster and more accurate.

Our study identifies the species produced in Canada most at risk of being mislabelled, combined with the environmental, health and import consequences of insufficient naming guidance. Species with high combined impact scores provide a starting place for the CFIA to prioritize improvements to the Fish List and consequently to traceability and labelling (Table 10). Table 11 outlines our recommendations for the top species from each analysis we performed above. If the CFIA were to take our Tier 1 recommendation for each species noted in the table below, the combined impact score for that species would be reduced. While the issues associated with the species noted will not diminish immediately, one specific common name would ensure the species is more visible within the supply chain so consumers can avoid the product if it is unsustainable or has associated health concerns. The regulated use of a standard common name would lead to less mislabelling as a result of confusion and would facilitate easier trade among our major partners, including the U.S.

RECOMMENDATIONS

We recommend the following:

- The CFIA requires all seafood to be labelled with a scientific name. Coupled with proper common names on labels, this would be a universal fix for naming issues identified in this report.
- The CFIA adopts our Tier 1 recommendations for the species with the highest impact scores, as listed in Table 11. Reducing the number of common names currently permitted in the Fish List will help with the labelling issues associated with these species.

- The Fish List would be more effective at standardizing the names that seafood could be sold under if industry were required to comply with the common name(s) listed for each species, instead of the Fish List being classed as guidance. We recommend the CFIA make an amendment to the Safe Food for Canadians regulation stating that compliance with the names given in the Fish List is mandatory for all seafood products, and enforce it by performing frequent audits and spot checks.
- To uphold trade requirements, all species that are under SIMP in this report should be harmonized to reflect the common names required for U.S. seafood product labels.

Table 11: Compilation of the priority species identified from each analysis performed (species commonly mislabelled, species with sustainability concerns, species that have health concerns, species listed under the Seafood Import Monitoring Program (SIMP) and the combined impact analysis). Our primary recommendation for a species-specific common name is indicated as a “Tier 1 recommendation” and our secondary recommendation is indicated as a “Tier 2 recommendation.”

SPECIES (SCIENTIFIC NAME)	ALL COMMON NAME(S) ON THE FISH LIST	TIER 1 COMMON NAME RECOMMENDATION	TIER 2 COMMON NAME RECOMMENDATIONS	WHY IS IT A PRIORITY?
<i>Thunnus thynnus</i>	Atlantic bluefin tuna; Bluefin tuna; tuna; Northern bluefin tuna	Atlantic bluefin tuna ^v	Atlantic bluefin tuna; Bluefin tuna	Atlantic bluefin tuna ranked first under our health concerns analysis, first under our combined impact analysis and has four common names.
<i>Sebastes fasciatus</i>	Acadian redfish; Atlantic ocean perch; Atlantic rosefish; Ocean perch; Redfish; Rosefish	Acadian redfish	Acadian redfish; Atlantic ocean perch	Acadian redfish ranked third under our sustainability concerns analysis, fourth under our health concerns analysis, second under our combined impact analysis and has six common names.
<i>Sebastes mentella</i>	Redfish; Ocean perch; Beaked redfish; Atlantic rosefish; Atlantic ocean perch; Rosefish	Deepwater redfish	Deepwater redfish; Beaked redfish; Atlantic ocean perch	Deepwater redfish ranked fourth under our sustainability concerns analysis, fifth under our health concerns analysis, third under our combined impact analysis and has six common names.
<i>Sebastes ruberrimus</i>	Snapper; Rosefish; Red snapper; Pacific red snapper; Yellow-eye rockfish; Rockfish	Yelloweye rockfish	Yelloweye rockfish; Pacific rockfish	Yelloweye rockfish ranked fifth under our sustainability concerns analysis, sixth under our health concerns analysis, fourth under our combined impact analysis and has six common names.
<i>Squalus acanthias</i>	Shark; Spiny dogfish; Dogfish; Greyfish; Northern shark	Spiny dogfish ^{vi}	Spiny dogfish	Spiny dogfish ranked fifth under our SIMP analysis, fifth under our combined impact analysis and has five common names.
<i>Reinhardtius hippoglossoides</i>	American turbot; Turbot; Newfoundland turbot; Black turbot; Greenland turbot	Greenland halibut	Greenland halibut; Greenland turbot	Greenland halibut ranked fourth under our mislabelling analysis, sixth under our combined impact analysis and has five common names.
<i>Gadus chalcogrammus</i>	Walleye pollock; Alaska pollock; Pollock; Big-eye pollock; Pacific pollock; Alaskan pollock	Walleye pollock	Walleye pollock; Alaska pollock; Alaskan pollock	Walleye pollock ranked first under our mislabelling analysis, first under our SIMP analysis and has six common names.

v While many of the databases consulted use “bluefin tuna” as the common name for *Thunnus thynnus*, SeaChoice recommends “Atlantic bluefin tuna” as the body of water it was caught in provides greater clarity of the species. Without this, a buyer would not know if the species is *Thunnus thynnus* or the Pacific bluefin tuna, *Thunnus orientalis*.

vi Recommending spiny dogfish for *Squalus acanthias*, the species of spiny dogfish found in the Atlantic Ocean, will require the CFIA to distinguish it from the Pacific spiny dogfish, *Squalus suckleyi*. By upholding the American Fisheries Society database’s recommendation and calling it Pacific spiny dogfish as opposed to its permitted common name by the CFIA, “spiny dogfish,” buyers would be able to distinguish the species on a label.

SPECIES (SCIENTIFIC NAME)	ALL COMMON NAME(S) ON THE FISH LIST	TIER 1 COMMON NAME RECOMMENDATION	TIER 2 COMMON NAME RECOMMENDATIONS	WHY IS IT A PRIORITY?
<i>Limanda ferruginea</i>	Yellowtail; Sole; Rusty dab; Flounder; Yellowtail flounder; Dab	Yellowtail flounder	Yellowtail flounder	Yellowtail flounder ranked second under our mislabelling analysis and has six common names.
<i>Oncorhynchus mykiss</i>	Steelhead; Rainbow trout; Deep sea trout; Trout; Steelhead trout; Steelhead salmon	Rainbow trout	Rainbow trout Steelhead trout	Rainbow trout ranked third under our mislabelling analysis and has six common names.
<i>Sebastes alutus</i>	Ocean perch; Pacific ocean Perch; Redfish; Rockfish; Rosefish	Pacific ocean perch	Pacific ocean oerch; Pacific rockfish	Pacific ocean perch ranked fifth under our mislabelling analysis and has five common names.
<i>Oncorhynchus tshawytscha</i>	Chinook salmon; Spring salmon; Chinook; White chinook; Red chinook; Pink chinook; King salmon	Chinook salmon	Chinook salmon Spring salmon	Chinook salmon ranked first under our sustainability concerns analysis and has seven common names.
<i>Hippoglossoides platessoides</i>	Flounder; Sole; Sand dab; Plaice; American plaice; Canadian plaice	American plaice	American plaice Canadian plaice	American plaice ranked second under our sustainability concerns analysis and has six common names.
<i>Mercenaria mercenaria</i>	Hard-shell clam; Clam; Cherry stone; Bay quahog; Quahog; Round clam	Northern quahog	Northern quahog; Hard clam Hard-shell clam	Northern quahog ranked second under our health concerns analysis and has six common names.
<i>Prionace glauca</i>	Blue dog; Shark; Blue pointer; Blue pointer Shark; Great blue shark; Blue shark	Blue shark	Blue shark We recommend allowing for the geographical descriptors, Pacific or Atlantic in the common name.	Blue shark ranked third under our health concern analysis and has six common names.
<i>Thunnus alalunga</i>	Albacore; Tuna; Albacore tuna	Albacore tuna ^{vii}	Albacore tuna; Albacore We recommend allowing for the geographical descriptors, Pacific or Atlantic in the common name.	Albacore tuna ranked seventh under our health concerns analysis and has three common names.
<i>Thunnus albacares</i>	Yellowfin; Yellowfin tuna; Tuna	Yellowfin tuna	Yellowfin tuna; Yellowfin We recommend allowing for the geographical descriptors, Pacific or Atlantic in the common name.	Yellowfin tuna ranked eighth under our health concerns analysis and has three common names.
<i>Pandalus borealis</i>	Cold water shrimp; Shrimp; Northern shrimp; Prawn; Deep water shrimp	Northern shrimp	Northern shrimp Pink shrimp	Northern shrimp ranked third under our SIMP analysis and has five common names.
<i>Pandalus montagui</i>	Aesop shrimp; Cold water shrimp; Deep water shrimp; Prawn; Shrimp	Aesop shrimp	Aesop shrimp Cold water shrimp	Aesop shrimp ranked fourth under our SIMP analysis and has five common names.

vii While many of the databases consulted use “albacore” as the common name for Thunnus alalunga, SeaChoice recommends albacore tuna as many consumers may not recognize albacore as a species of tuna on a label.

SECTION C: MISSING SPECIES, MISSING ENGLISH AND FRENCH COMMON NAMES AND GENUS-LEVEL ENTRIES

INTRODUCTION

As the Fish List data were being processed for the analyses described in previous sections, we discovered several inconsistencies and missing information. For the Fish List to be properly utilized by the seafood supply chain, it is important that the naming guidance in the list is clear, robust and complete. This section identifies problems in three areas: (1) missing species or outdated nomenclature, (2) scientific names with no CFIA common names (English and French) and (3) English CFIA common names for genus-level entries.

MISSING SPECIES AND OUTDATED SCIENTIFIC NAMES

Over the past decade several investigations have examined the DNA of seafood in the Canadian marketplace.^{14 33 34} These studies have identified several species not currently on the CFIA Fish List or for which the CFIA is using a scientific name that is outdated and no longer valid.

The following species are missing from the Fish List or need updated scientific names (standard common names in brackets):

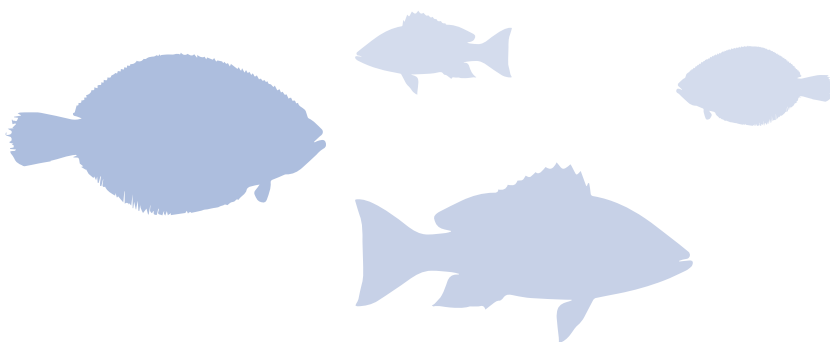
1. *Macrourus berglax* (roughhead grenadier) – missing
2. *Metacarcinus magister* (dungeness crab) – formally recognized as *Cancer magister*⁴⁹
3. *Apostichopus californicus* (California sea cucumber) – missing
4. *Leukoma staminea* (Pacific littleneck clam) – needs updating; the scientific name listed in the Fish List (*Protothaca staminea*) is outdated
5. *Dipturus laevis* (barn door skate) – missing
6. *Pandalus danae* (dock shrimp or coonstripe shrimp) – missing
7. *Sebastes serranoides* (olive rockfish) – missing
8. *Sebastes mystinus* (blue rockfish) – missing
9. *Hyporthodus flavolimbatus* (yellowedge grouper) – needs updating; the scientific name listed in the Fish List (*Epinephelus flavolimbatus*) is outdated
10. *Sebastes melanostictus* (blackspotted rockfish) – missing
11. *Lutjanus bohar* (two-spot red snapper) – missing
12. *Epinephelus diacanthus* (spinycheek grouper) – missing
13. *Pagrus auratus* (silver seabream) – missing
14. *Scortum barcoo* (barcoo grunter) – missing

SCIENTIFIC NAMES WITHOUT ENGLISH OR FRENCH CFIA COMMON NAMES

We examined each entry in the Fish List for an associated English or French CFIA common name. We found 16 species and genus-level entries that were missing English and/or French common names (Table 12). We could not find any rationale for maintaining these entries given that the Fish List’s primary purpose is to provide common name guidance.

Table 12: List of species and genus entries in the CFIA Fish List with no English or French common name.

SPECIES AND GENUS ENTRIES	DETAILS
<i>Anchoa hepsetus</i>	Does not have an English or French common name
<i>Centrolophidae spp.</i>	Does not have an English common name
<i>Ethmidium maculatum</i>	Does not have an English or French common name
<i>Etrumeus micropus</i>	Does not have an English or French common name
<i>Fodiator acutus</i>	Does not have an English common name
<i>Galatheididae spp.</i>	Does not have an English or French common name
<i>Muraenesox spp.</i>	Does not have an English or French common name
<i>Nemadactylus macropterus</i>	Does not have an English or French common name
<i>Oxyporhamphus micropterus</i>	Does not have an English or French common name
<i>Parachanna obscura</i>	Does not have an English or French common name
<i>Plectorhinchus pictus</i>	Does not have an English or French common name
<i>Pleuronichthys decurrens</i>	Does not have an English or French common name
<i>Pseudupeneus spp.</i>	Does not have an English or French common name
<i>Sepiolidae spp.</i>	Does not have an English or French common name
<i>Sprattus antipodum</i>	Does not have an English or French common name
<i>Stromateus fiatola</i>	Does not have an English or French common name



GENUS-LEVEL ENTRIES

Genus-level entries in the Fish List are problematic because they allow for several different species to be labelled as the same thing. Using the BOLD systems database⁵⁰ and FishBase,³ we determined the number of individual species that fall into each broad genus entry on the Fish List. The difference between these two numbers indicates the potential scale of the problem and also provides an estimate of the actual number of species the Fish List is providing guidance for.

There are 99 genus entries in the Fish List that provide an umbrella classification for 1,783 species (Table 13). The Fish List only contains 122 scientific names within these genus entries (Table 13) and therefore 1,661 different species are not specifically recognized by the Fish List. Thus, the Fish List provides guidance for 871 species, plus the 1,661 species contained within genus entries, for a total of 2,532 species.

Table 13: *Genus entries within the Fish List, the common name(s) associated with the entry, the number of species that fall within the genus, and the number of species scientific names that are now in the Fish List under the genus entry. Top 20 species by number of species in genus are shown.*

GENUS ENTRIES	COMMON NAME(S)	SPECIES IN GENUS (#)	SPECIES ON FISH LIST (#)
<i>Galatheidæ spp.</i>	None	158	2
<i>Scaridæ spp.</i>	Parrotfish	110	0
<i>Sebastes spp.</i>	Rockfish	103	28
<i>Epinephelus spp.</i>	Grouper	97	5
<i>Lutjanus spp.</i>	Snapper	78	9
<i>Dasyatis spp.</i>	Stingray	75	0
<i>Octopus spp.</i>	None	75	3
<i>Stichopodidæ spp.</i>	Sea cucumber	57	3
<i>Lethrinus spp.</i>	Emperor	55	2
<i>Portunus spp.</i>	Crab / Swimming Crab	45	1
<i>Sepiolidæ spp.</i>	None	41	0
<i>Strombus spp.</i>	Conch	38	0
<i>Upeneus spp.</i>	Goatfish	36	0
<i>Sillago spp.</i>	Sillago	35	1
<i>Sphyræna spp.</i>	Barracuda	35	0
<i>Nemipterus spp.</i>	Threadfin bream	33	5
<i>Parupeneus spp.</i>	Goatfish	32	0
<i>Sepia spp.</i>	Cuttlefish	32	2
<i>Centrolophidæ spp.</i>	None	31	4
<i>Haliotis spp.</i>	Abalone	30	9
Sum of all other genus entries (n=79)		587	48
GRAND TOTAL		1783	122

WHY IT MATTERS

Our report highlights missing information and inconsistencies in the Fish List. The list should be as robust and complete as possible to ensure seafood is properly named in Canada. When species or common names are missing, there is an increased likelihood that industry will choose a different, but similar, species name or to choose a different common name if one is not suggested. Clearly, not having guidance in the Fish List results in inherently false, misleading or deceptive labelling, and is therefore inconsistent with the intent and provisions of the Safe Food for Canadians legislation.

Our report also shows the vast number of genus entries within the Fish List. These entries are problematic as in many cases they allow for many different species to be labelled as the same. Furthermore, it leads to increased misrepresentation of the species sold. For example, while 15 Canadian-caught species can be called rockfish, 103 different species globally are in the genus *Sebastes*, which the Fish List guidance says can all be called rockfish. This poses an issue because a species labelled at point of sale as “rockfish” in Canada could be any of the 103 species. The consumer would have no way of knowing the species or even the broad oceanographic origin (e.g., Atlantic or Pacific). Eliminating genus-level entries in the Fish List would in turn eliminate this issue.

RECOMMENDATIONS

Missing or outdated scientific names:

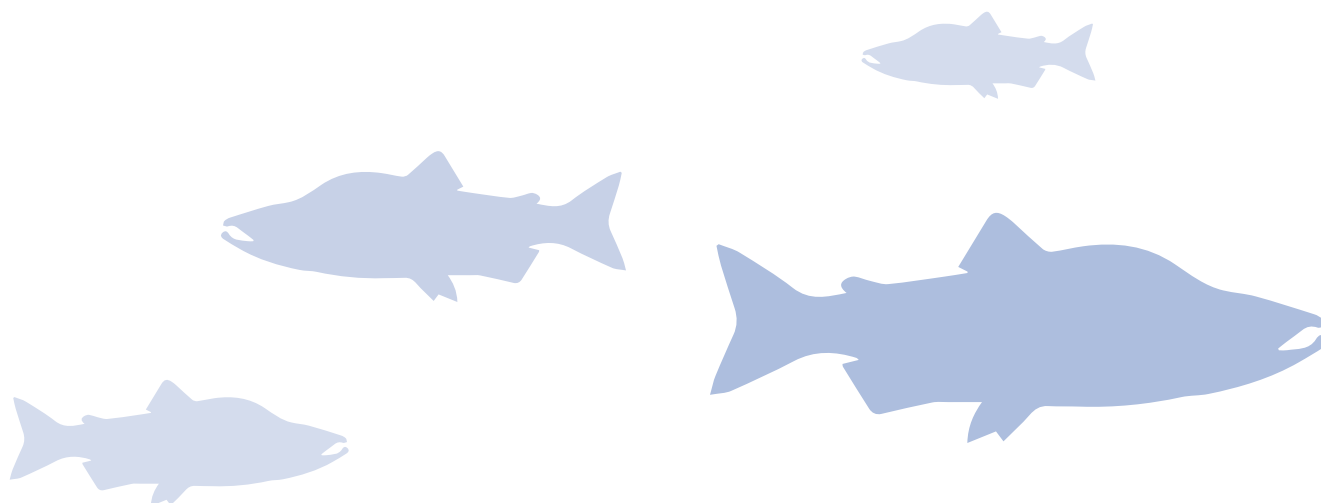
1. Add species that are missing from the Fish List, with just one English and one French common name each.
2. Update outdated scientific names in the Fish List.

Missing common names:

1. Add a single English and/or single French common name for all species noted as missing a common name. If there is not an internationally recognized common name for the species or rationale for maintaining these entries, remove the species from the list.

Genus-level entries:

1. Remove all genus-level entries and add any missing commercially relevant species as species-level entries with one acceptable English and one French common name to the Fish List.



CONCLUSION

The number of entries on the Fish List, despite being notably incomplete, demonstrates the variety of fish and seafood in Canada's waters and globally. Unfortunately, this diversity makes product labelling more complicated than other foods such as meat, dairy, fruits and vegetables. Seafood consumers frequently lack the information they need to make informed choices, or are confused by misleading seafood labelling because seafood varies so much in its production, population health and the environment it grows in.

A descriptive species name for a seafood product can provide consumers with at least the comfort of knowing what they are buying. For many years, non-governmental organizations and academics have raised the importance of a "one name, one fish" policy as a step in the right direction and a good approach for improving traceability and transparency in the seafood supply chain.⁵¹

In many cases, as demonstrated in this report, the use of vernacular and generic names for fish species creates confusion and misinformation in the marketplace. Evidence has shown that many consumers rely on seafood labels to convey information that allows them to choose sustainable options or avoid products with health-related concerns.⁵² However, we present evidence in this report showing that even if seafood labels in Canada were labelled in accordance with the Fish List guidance, a consumer may still not have the information they need to be able to buy or avoid certain species.

Revising the Fish List based on the recommendations in this report would help to increase supply chain transparency, sustainability, health and safety by providing consumers with more accurate seafood labels so they can make informed choices. However, the effectiveness of these recommended changes relies on the CFIA's ability to regulate common name use and enforce compliance. Our report provides a suite of recommendations to the Fish List by highlighting the most egregious species' names in need of improvement. These recommendations provide a starting point for the CFIA to move forward in their efforts to improve seafood traceability and consequently human health and safety and conservation of seafood resources.



FISH LIST WISH LIST:

A case for updating the Canadian government's guidance for common names on seafood

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APPENDIX

APPENDIX A

Structure of the Fish List database

Figure 1 shows a screen shot from the Fish List on the CFIA website when the species *Thunnus alalunga* (Albacore tuna) is searched. Each row shows the scientific name along with one of the acceptable common names for that species. When another common name is acceptable for a species a new line in the data is created with the same scientific name. Furthermore, when a species falls under more than one specific risk group, the scientific name and English name pairs are repeated again, creating duplicates, to display all risk groups. In the figure below, *Thunnus alalunga* has three English and three French common names and is subject to histamine and environmental contaminants, resulting in six rows for this species.

Taxonomic Serial Numbers	Scientific Names	English Names	French Names	Family Scientific Names	English Species Risk Groups	French Species Risk Groups
172419	Thunnus alalunga	Tuna	Thon Germon Blanc	Scombridae	Subject to Histamine	Sujet à la production d'histamine
172419	Thunnus alalunga	Albacore Tuna	Thon	Scombridae	Subject to Histamine	Sujet à la production d'histamine
172419	Thunnus alalunga	Albacore	Germon	Scombridae	Subject to Histamine	Sujet à la production d'histamine
172419	Thunnus alalunga	Tuna	Thon Germon Blanc	Scombridae	Subject to Environmental Contaminants	Sujet aux contaminants environnementaux
172419	Thunnus alalunga	Albacore Tuna	Thon	Scombridae	Subject to Environmental Contaminants	Sujet aux contaminants environnementaux
172419	Thunnus alalunga	Albacore	Germon	Scombridae	Subject to Environmental Contaminants	Sujet aux contaminants environnementaux

Figure 1: A screen shot from the Fish List search results when the species *Thunnus alalunga* is entered.

APPENDIX B

Full list of Canadian caught species examined in this analysis, noting the criteria and/or sub-criteria that applied to this subset of species.

<https://docs.google.com/spreadsheets/d/12aT3CugtCvuOalMh8Ni2WLUe2Jm9cN5spOQEwamIUfA/edit?usp=sharing>



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