CANADA'S **IN-DEPTH** GUIDE TO Sustainable Seafood

SeaChoice.org
for healthy oceans

SeaChoice is a sustainable seafood program of the following four conservation groups:

CPAWS
CANADIAN PARKS AND WILDERNESS SOCIETY

David Suzuki Foundation
SOLUTIONS ARE IN OUR NATURE

Ecology Action Centre

LIVING OCEANS

WWW.SEACHOICE.ORG

SeaChoice is a national program that helps Canadian businesses and consumers make the most ocean-friendly seafood choices to support the long-term health of marine ecosystems and coastal communities.

SeaChoice brings together broad national expertise from four Canadian conservation organizations: the Canadian Parks and Wilderness Society, David Suzuki Foundation, Ecology Action Centre, and Living Oceans Society.

WHAT IS SUSTAINABLE SEAFOOD?

Sustainable seafood is fish or shellfish caught or farmed in a manner that can be sustained over the long-term without compromising the health of marine ecosystems.

Unfortunately, the effects of unsustainable fishing and aquaculture practices are already obvious right here in Canada and worldwide. But, it's not too late. Everyone can make a difference by learning about sustainable seafood and making more ocean-friendly choices.

DETERMINING SEAFOOD SUSTAINABILITY

SeaChoice works with the Monterey Bay Aquarium to provide science-based sustainability rankings for the majority of seafood sold in Canada; both farmed and wild. As practices and products change, SeaChoice adds new listings and updates. Seafood options found on the SeaChoice "Best Choice", or green list, are the most sustainable based on ecological impacts (social equality and climate change are not considered at this time). Seafood on the yellow "Some Concerns" list should be eaten when a best choice is not available. Options ranked "Avoid" on the red list have serious conservation concerns, and should always be avoided.


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SUSTAINABILITY CONSIDERATIONS FOR WILD-CAUGHT SEAFOOD

For wild-caught seafood products, the most important sustainability factors to consider are maintaining healthy populations of the wild species being harvested, making sure harvesting techniques are not causing problems for other ecosystem components, and ensuring effective management is in place. Specifically, SeaChoice looks at:

1. **Impacts of the fishery on the target species:** Is the stock healthy and abundant? Abundance, size, sex, age and genetic structure should be maintained at levels that do not impact the long-term productivity of the stock or fulfillment of its role in the ecosystem and food web.

2. **Impacts of the fishery on non-target species (bycatch):** What is the fishery's impact on bycatch? Seafood Watch® defines bycatch as all fisheries-related mortality or injury other than retained catch. Examples include discards, endangered or threatened species catch, pre-catch mortality and ghost fishing.

3. **Effectiveness of Management:** Is the fishery managed to sustain the long-term productivity of all impacted species? Management should be appropriate for the inherent resilience of affected marine life and should incorporate data sufficient to assess the affected species and manage fishing mortality to ensure little risk of depletion.

4. **Habitat and Ecosystem Impacts:** Is the fishery conducted such that the impacts on the seafloor are minimized and the ecological and functional roles of the seafloor habitats are maintaned? Fishing activities should not seriously reduce ecosystem services provided by any fished species or result in harmful changes such as trophic cascades, phase shifts or reduction of genetic diversity.

COMMON FISHING METHODS

The way that seafood is caught is an important factor when assessing the nature of bycatch as well as habitat and ecosystem impacts of a fishery. The following is a list of fishing gear most commonly assessed by SeaChoice, ranked by the risk they pose to the marine environment.

LOW-RISK GEAR

Low-risk gear have the lowest rates of accidental catch and seafloor damage relative to the other gear presented.

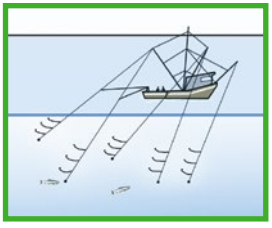
1. **HOOK AND LINE (HANDLINE, JIG, TROLL):** Have far fewer hooks per line than longlines. Minimal seafloor damage and low bycatch rates. **USED FOR:** salmon, albacore tuna, lingcod, Pacific cod, rockfish, skate, sole, flounder, dogfish, mackerel, mahi mahi, squid, sturgeon (caviar), octopus.

2. **PURSE SEINE:** Low bycatch rates and rarely contact the bottom. **USED FOR:** salmon, herring, capelin, mackerel.

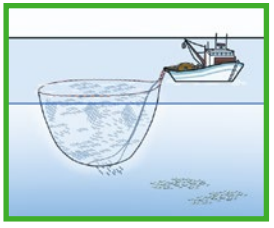
3. **HARPOON:** No known bycatch or seafloor damage. **USED FOR:** Swordfish.

4. **DIVE:** No known bycatch and minimal seafloor damage. **USED FOR:** scallop, sea cucumber, sea urchin, octopus, geoduck clam.

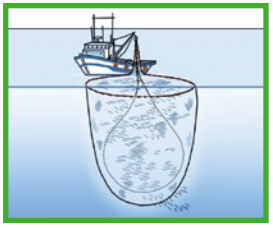
5. **MIDWATER GILLNET:** Can have a high impact on birds if no avoidance devices are used. Generally low bycatch and rarely contact the bottom. **USED FOR:** salmon, herring, sardines, mackerel.



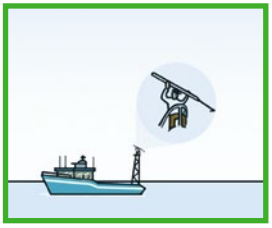
1. Hook and Line



2. Salmon Purse Seine

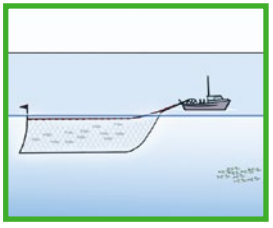


2. Herring Purse Seine



3. Swordfish Harpoon

4. Dive



5. Midwater Salmon Gillnet

*The relative risk of fishing gear presented in this document are based on ecological impacts evaluated in a study of Canadian fisheries (*How We Fish Matters: Addressing the Ecological Impacts of Canadian Fishing Gear, *Fuller et al. 2009). They are intended to provide general guidance on bycatch and habitat impacts; however, the impacts of any fishing gear will ultimately be fishery-specific.*

MEDIUM-RISK GEAR

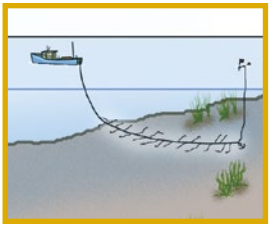
These gear types either have a significant impact on the seafloor, significant bycatch, or a moderate impact on both.

6. **BOTTOM LONGLINE:** consists of a single mainline that can extend up to 150km with several thousand baited hooks attached. Anchors on the longline secure the gear to the ocean floor. This gear can have medium to high bycatch rates for groundfish, sharks and seabirds. Habitat damage depends on the speed, technique and weather when gear is hauled in. **USED FOR:** Atlantic and Pacific cod, rockfish, lingcod, Atlantic and Pacific halibut, sablefish, flounder, sole, haddock, dogfish, skate, Chilean seabass.

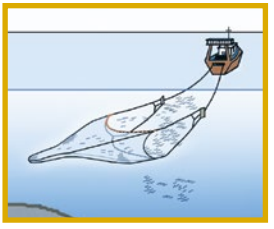
7. **MIDWATER TRAWL:** Thought to have a low incidence of bycatch, but information is lacking. When used as intended it does not come in contact with the bottom. **USED FOR:** Atlantic herring, Pacific hake, rockfish, walleye Pollock.

8. **POTS AND TRAPS:** Bycatch often consists of undersized individuals of the target species. Habitat damage varies, but traps to make contact with the seafloor, causing disturbance, especially during hauling when they may be dragged. **USED FOR:** Crab, lobster, sablefish, shrimp, prawn, cod, Chilean seabass.

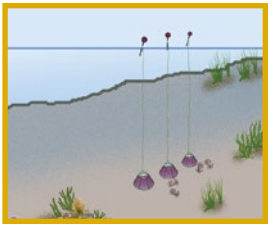
9. **PELAGIC LONGLINE:** Bycatch is the major concern, with some of the highest bycatch rates in Canada occurring with this gear type. The most common bycatch species include endangered turtles and threatened sharks. This gear is not used on the bottom. **USED FOR:** Atlantic albacore, bluefin, bigeye and yellowfin tuna, swordfish, shark, mahi mahi.



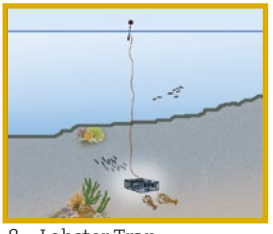
6. Groundfish Bottom Longline



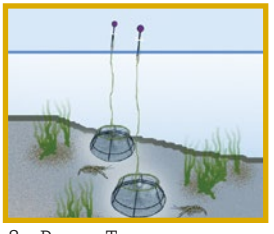
7. Midwater Trawl



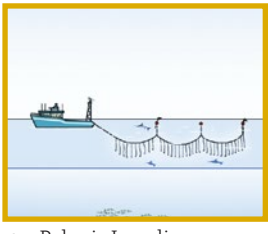
8. Crab Pots



8. Lobster Trap



8. Prawn Trap



9. Pelagic Longline (Swordfish Longline)

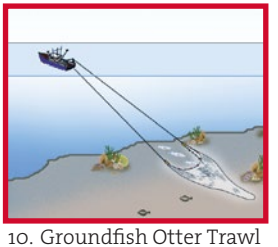
HIGH-RISK GEAR

These gear types often damage the seafloor and are highly unselective, catching anything in their path.

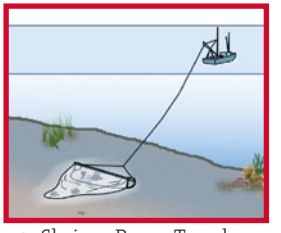
10. **BOTTOM TRAWL:** This is an unselective gear that is dragged along the bottom in shallow and deep seas worldwide. Fish, marine mammals, corals, sponges and other bottom dwelling creatures are regularly caught as bycatch and seafloor damage is considered high relative to other gear. **USED FOR:** dogfish, Atlantic and Pacific cod, rockfish, lingcod, Atlantic halibut, flounder, sole, haddock, monkfish, squid, Chilean seabass, orange roughy.

11. **BOTTOM GILLNET:** This gear has a medium to high impact on groundfish, marine mammals, corals, sponges and other bottom dwelling creatures that may be accidentally caught. The total area of bottom contact is smaller than that of trawls or dredges. **USED FOR:** Greenland halibut, Atlantic cod, monkfish, white hake, dogfish, walleye Pollock.

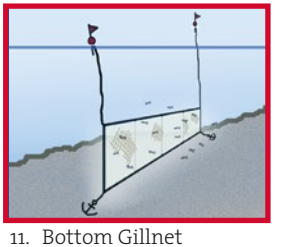
12. **DREDGE:** Scallop dredges are dragged along the seafloor and pick up everything in their path. Hydraulic dredges inject high-pressure water into the seafloor to liquefy the bottom and expose buried clams. Both dredges have a high impact on the seafloor and can accidentally catch bottom-dwelling marine life because of their unselective nature. **USED FOR:** clams, scallops, cockles, sea cucumbers, mussels.



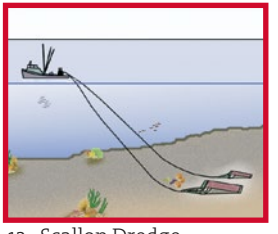
10. Groundfish Otter Trawl



10. Shrimp Beam Trawl



11. Bottom Gillnet (groundfish gillnet)



12. Scallop Dredge

12. Offshore Hydraulic Clam Dredge

SUSTAINABILITY CONSIDERATIONS FOR FARMED SEAFOOD

Important factors in the production of sustainable farmed seafood, or aquaculture, are to use methods that do not harm wild fish or damage ecosystems, choose species that are low on the food chain so they add more seafood to the supply chain than they use, and ensure management and regulations are effective. The criteria SeaChoice looks at are:

1. **Data:** All assessments require information. Responsible producers that make data on their activities and impacts available will be rewarded.
2. **Effluent:** Net pens and other systems that discharge untreated waste pollute the surrounding ecosystem harm marine life and freshwater habitats. The impact of aquaculture wastes is relative to the total amount of pollutants added over time in relation to the sensitivity of the receiving waters.
3. **Habitat:** Siting aquaculture operations away from sensitive or ecologically important marine habitats is important. The degree of impact is ascribed relative to the loss of certain ecosystem processes.
4. **Chemical Use:** A wide range of chemicals are used in aquaculture systems for a variety of purposes, but most often they are applied for disease treatment and pest management. The impact of chemicals used is based on a combination of evidence of their use and the risk of their spreading into the environment.

5. **Fish Feed:** Feed is a defining factor for aquaculture sustainability, especially in the intensive systems that rely entirely on feed coming from external sources. This criterion examines three aspects of feed sustainability: the use of wild fish, net protein gain/loss, and ecological footprint measure of land/sea area used to produce the feed.

6. **Escapes and Introduced Species:** Farming seafood can lead to negative impacts from the escape of some species combined with the threat of introduced non-native species, pathogens or parasites. The escapes criterion provides an estimate of the "biological pollution" and is divided into the risk of escaping combined with the risk of impacting native species and ecosystems.

7. **Disease, Pathogen and Parasite Interaction:** All farming operations risk amplifying naturally occurring pathogens and parasites. These elevated levels of pathogens and parasites can represent a risk to wild species residing in or passing through the vicinity of the farms. Systems that discharge untreated waste cannot prevent the transfer of disease and parasites to wild stocks.

8. **Source of Stock:** Some farm operations capture wild brood stock to supply the farm. This criterion evaluates the independence of the farming operation from wild fisheries to source the brood stock.

AQUACULTURE

Farmed seafood can be found on the SeaChoice "Best Choice", "Some Concerns" and "Avoid" lists. Some seafood can be farmed sustainably by minimizing environmental impacts and resource use. Other farmed seafood comes at a cost to the environment. The risk of environmental damage from aquaculture is largely dependant on the farming methods used and the amount of marine resources needed for feed.

LOW-RISK AQUACULTURE

1. **CLOSED-PEN SYSTEMS:** Control the exchange between farms and the natural environment. This can significantly reduce pollution, fish escapes, negative wildlife interactions, and parasite and disease transfer from farms to marine and freshwater ecosystems.

2. **PONDS:** Discharged waste must be filtered and treated to be considered a "low-risk" method. The construction of shrimp ponds in Asian and South America has destroyed mangrove forests along the coast.

3. **RACEWAYS:** Flowing water is diverted from natural streams. To be considered a low-risk method, waste must be treated and fish escapes prevented.

4. **RECIRCULATING SYSTEMS:** Water is treated and re-circulated. This system does not mix with natural water sources so pollution, parasite transfer and fish escapes are dealt with.

1. Closed-Pen System

2. Pond

3. Raceway

4. Recirculating System

HIGH-RISK AQUACULTURE

5. **OPEN-PEN SYSTEMS** Have free exchange between the farm and the surrounding environment. Open net pens allow exchange of potentially high concentrations of waste, chemicals, parasites and disease. They also attract predators, such as marine mammals, that can get tangled and drown in fish farm next.

5. Open-pen system

BUSINESSES CAN LEAD THE WAY

By offering and labelling sustainable seafood choices, businesses are doing their part to protect our oceans. This helps shift demand away from seafood that is caught or farmed at a cost to our oceans and our future. Purchasing changes that favour sustainable seafood help ensure there will be healthy, delicious seafood for years to come — something any seafood customer can appreciate.

SeaChoice is committed to building relationships with our partner companies as they take steps to implement sustainability initiatives and shift their purchasing towards more sustainable seafood.

CONSUMER CHOICES MATTER

Choosing sustainable seafood is a simple and effective action that you can take every time you eat at a restaurant or buy seafood at your local grocer. Use Canada's Seafood Guide to find out the "Best Choice" seafood options, and always ask: what fish is this, where was it caught or farmed, and how? The SeaChoice website, **www.SeaChoice.org**, is a great resource for learning more about sustainable seafood, and for finding out what other actions you can take as a consumer to support sustainable fisheries and healthy oceans.




SeaChoice works with retailers and suppliers assessing the sustainability of seafood products, recommending sustainable options, and developing training programs for staff and clients.

FOR MORE INFORMATION

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