

FOOD SECURE CANADA SÉCURITÉ ALIMENTAIRE CANADA

Where agriculture, environment, health, food and justice intersect
Le pont entre l'agriculture, l'environnement, la santé, les aliments et la justice

DISCUSSION PAPER 5 Sustainable Fisheries and Livelihoods for Fishers

Food Secure Canada is a national membership-based organization committed to fighting against hunger and to building a healthy, fair, and ecological food system. Our vision is encapsulated in *Resetting the Table: A People's Food Policy for Canada*.

FOOD SECURE CANADA DISCUSSION PAPERS

The People's Food Policy is based on ten detailed discussion papers. These discussion papers were generated through 350 Kitchen Table Talks, hundreds of policy submissions, dozens of tele-conferences, online discussions, and three national conferences. Over 3500 people participated in their development. These papers cover a breadth of issues and include detailed policy recommendations for rebuilding Canada's broken food system. Unlike *Resetting the Table*, they are not consensus documents and not every member of Food Secure Canada has signed on to every recommendation in them. Rather, they are living documents, intended to inform debate, stimulate discussion and build greater understanding of our food system and how it should be—and must be—fixed.

- 1) Indigenous Food Sovereignty
- 2) Food Sovereignty in Rural and Remote Communities
- 3) Access to Food in Urban Communities
- 4) Agriculture, Infrastructure and Livelihoods
- 5) Sustainable Fisheries and Livelihoods for Fishers
- 6) Environment and Agriculture
- 7) Science and Technology for Food and Agriculture
- 8) International Food Policy
- 9) Healthy and Safe Food for All
- 10) Food Democracy and Governance



Contact:

FOOD SECURE CANADA
SÉCURITÉ ALIMENTAIRE CANADA

CP 48020 BP Bernard
Montreal, QC H2V4H0
Canada

(514) 271 7352
info@foodsecurecanada.org
www.foodsecurecanada.org

Sustainable Fisheries and Livelihoods for Fishers

EXECUTIVE SUMMARY

On the Atlantic coast, federal fishery policy, supposedly designed to protect fish stocks, has been disastrous. It is driven by the assumption that a highly mechanized fleet catching fish for export is best for the economy. On the Pacific coast, the DFO (Fisheries and Oceans Canada) regulations enable corporations to own the fishing boats, forcing fishers with quotas to work as “sharecroppers.”

What is needed is a fisheries policy that accords coastal communities control over their harvesting, ensuring long-term economic stability.

Indigenous communities that have traditionally relied on the fishery for its main food supply should, in accordance with several Supreme Court decisions, be allowed to follow their traditional practices under a co-management approach.

Priorities

1. Conservation, protection, and restoration of fish populations and the ecosystems that sustain them must be central to maintaining the food security and livelihoods of coastal communities.
2. Rebuilding local markets for fish products is crucial. This involves support for wharf-gate sales, increased marketing of Canadian fish within Canada, and supporting local and sustainably caught value-added fisheries and fair trade certification.
3. Aboriginal jurisdiction over traditional lands and waters should be recognized, and Aboriginal and treaty rights to make a livelihood from fishing must be given priority over commercial and sports interests.
4. Independent family fishers, owner-operator fleets, and fishing with the lowest impact gear type must be prioritized. Where quotas and ITQs (Individual Transferable Quotas) exist, measures should be taken to develop strict transferability clauses that protect fisheries and marine ecosystems and ensure that these are kept within coastal communities.

5. Labeling fish for sale must be clear and honest: the species of fish, the place where caught, and the method of harvesting. Traceability measures should link back to the fisher.
6. Open-pen salmon farming should be banned and closed containment enforced. Salmon and other types of fin fish aquaculture should only be allowed when coastal communities are the direct beneficiaries and managers.

INTRODUCTION

Fisheries resources from Canada's freshwater and marine ecosystems represent the most significant source of wild protein commercially available to Canadians and to our export markets. Canada's *Fisheries Act* calls for the management of our fisheries resources to serve the public good.

For many Indigenous Peoples, fish harvesting represents an intimate and sacred relationship with their traditional territories and an integral part of a way of life. More generally, fishing has long defined the culture, social fabric, and local economies of coastal communities. Canada is home to some of the world's most storied fisheries and fishing cultures, yet the importance of fisheries for national food sovereignty is often overlooked by fishers, consumers, and even those in the food sovereignty community itself.

The colonization of eastern Canada began in part with European fishing activity dating back to the 1500s. Early settlement saw the processing of salt cod, which was then shipped back to Europe, beginning the tradition of exporting fish in large quantities. The concept that Canada's fisheries resources are to feed other countries continues to this day. Colonial fishing stations primarily for export is responsible for the semi-feudal culture of fishers being accountable to or owned by their fish-buyers. This relationship is still one of the factors hindering owner-operator fisheries (licenses that are owned by operator of a boat, not a company). As a result, there are very few opportunities for links between consumers and fishers – unlike the direct links that being made between consumers and farmers.

While fisheries are a public resource, the move to consolidate and restructure the fishing industry following stock collapses in the 1990s, were largely attributable to wide scale mismanagement and politically-based decision making, has resulted in increased privatization through enterprise allocations and individual transferable quotas. This system has been implemented largely without any attention given to ensuring proper ecosystem management, and hence there is no guarantee that such a system will result in a continued food supply from the oceans. The growing government support for fin fish aquaculture, touted as a replacement for decimated wild fish stocks and veiled in the argument that we

need to produce more food, is fundamentally flawed given the amount of wild stock needed to feed farmed fish.

While foreign overfishing had been blamed for stock decline following WWII in particular, the designation of the 200 mile line in 1977 resulted in significant expansion of the domestic fishery. Both the government and the expanding Canadian off-shore fishing industry were of one mind: fish should be treated like the grains grown on the prairies, as commodities to be caught and sold in large volume and mainly for export.

Since the 1840s, economists have taken it as axiomatic that a key index of prosperity is that food gets cheaper as production increases and that it takes fewer people to participate in this production. Essentially, a nation becomes more prosperous as its labour force becomes more “productive.” The only way to do this is through mechanization. In the fishery, that meant large ocean-going factory trawlers dragging nets along the ocean floor, using sonar and radar to find the fish.

Implicit in that vision is that corporate profits are the measure of success, not whether or not the men and women working on the ships and in the fish plants can earn a reasonable livelihood. Nor, as it turned out, did the vision of prosperity imply a sustainable fishery. While there was some overfishing beginning in the 1950s when big trawlers were first introduced, once the Canadian government was able to supervise the cod fishery out to the 200-mile limit, the trawlers fished out the Northern Cod, a fish stock of mythical proportions, in 15 short years.

The simple fact is that market forces, commercial interests, and government managers who dominate the industry value Canadian fisheries as a way of generating wealth. The Department of Fisheries and Oceans acts as though its clients are the large fishing industry and ignores all other stakeholders. They overlook the fisheries’ role in supplying Canada with seafood and ignore its centrality to the culture and economies of coastal communities.

The language of wealth generation is present in the *Oceans Act*, but it specifies that all Canadians, and in particular coastal communities, are the intended beneficiaries. Instead of structuring the fisheries to add to Canada’s GDP through exports and corporate profits, the economic priority should be a fair, reasonable and sustainable income for fishers. Similar to farmers and other food providers, fishers should be rewarded for their difficult and dangerous work.

This is a crucial distinction. If the goals of fisheries management include maintaining coastal communities, we should strengthen the sectors in the fishing industry that are still dominated by independent owner-operator family fishers, for example, east-coast lobster and hook-and-line caught haddock. This can be done by strengthening local markets, ensuring fishers are paid a fair price, and by changing policies to ensure they support independent family fishers. For example, we should strengthen and extend owner-operator

and fleet separation policies that exist on the Atlantic coast that prevent corporate concentration of ownership in the industry.

Our fisheries remain a source of healthy animal protein and although many commercial-fish populations are collapsing around the world, there are fisheries here in Canada that can and do produce food sustainably. Canadians demonstrate a solid demand for seafood. So, why is the role of the Canadian fishers often an afterthought in the discussion about national food sovereignty?

One answer is that there are few direct links between Canadian fish harvesters and Canadian seafood consumers. Much of the fishing industry focuses on producing for international export and much of the seafood we eat is imported.

As a food movement, we have a long way to go in terms of integrating fisheries into our vision for food sovereignty and building wider support for the fishers demanding these kinds of changes. So, how can Canadian fisheries contribute to food sovereignty? To address this, it may be helpful to review the status of Canadian fisheries against the six pillars of food sovereignty, which include the prioritization of food for human consumption, valuing those who fish or farm seafood, localizing the food system both for distribution and management, building knowledge and skills, and protecting the natural environment.

THE SIX PILLARS

1. Prioritizing food for people

Food policy must prioritize fisheries that produce food for people, not supply the raw materials for other products. In this regard, Canada does relatively well: the *Fisheries Act* forbids directed fishing for the purposes of reduction to meal or oil. However, fisheries to supply bait markets are permitted, and such fisheries often direct potentially palatable and nutritious human foods for use as bait in trap or line fisheries. This is a reflection of the absence of strong North American consumer demand for small fish such as herring or sardines. There used to be much more consumption of small pelagic fish, from pickled herring to smoked mackerel, but small pelagics have disappeared from our coasts (the east coast in particular).

It should be noted that, for several centuries, fish was free in coastal communities. People got it from family members or from the dock. But as it got more difficult to get fish this way, people were generally reluctant to pay for what they used to get for free.

If we see fishing primarily as gathering food for people, then we can focus on *how* we fish. We need to fish with low-impact gear. This is defined as gear that does not destroy fish other than the ones intended for catch and does not harm the environment. This will enable us to maintain fish stocks and the ecosystems that sustain them. Careful harvesting and the

resultant resilience of fish stocks will become more important as climate change does damage to ocean life.

The fishing industry is structured and managed to produce fish as a commodity, not food. While exporting fish will always be part of the fishing industry in Canada, given the volumes that we catch, we also must reconsider the prioritization of export and engage more fully in defining our fisheries as food, be it for locally communities, Canadians or foreign markets.

We must reframe fisheries in the context of local and subsistence fisheries; these are vital to the economies, cultures and ecologies of coastal communities. The Coastal Communities Network defines subsistence fisheries as socially embedded, conducted by people who also have other employment, that supply fish for other purposes than marketing, that strengthen families and neighborhoods, and where harvest is shared within communities. Such exchanges form the foundation of many Indigenous cultures. Their right to fish for subsistence and ceremonial purposes is recognized by Canadian courts (especially the Marshall,ⁱ Delgamuuk,ⁱⁱ and Sparrowⁱⁱⁱ decisions of the Supreme Court) as well as treaty obligations for food fisheries.

Historically, fisheries were only part of a livelihood. Many fishers farmed, cut wood, and participated in other employment, and hence fished natural populations during times when they were coastally abundant. We have moved away from the seasonal nature of fisheries and as a consequence removed some of the natural ecosystem protections that were in place. Today, we fish on spawning populations, feeding grounds, and catch entire schools of fish.

2. Valuing the people who provide our food and 3. Localizing food systems

It is obvious that management and market trends of the past two decades have moved away from these two pillars. Government policy and market pressures have shaped most sectors of the industry, some of which are now dominated by large, vertically integrated companies, forcing family-run businesses off the water. This is especially true for fisheries managed with ITQs (Individual Transferable Quotas) but that do not have measures (such as owner-operator clauses) to balance out the effect of ITQs to centralize ownership. Because the quotas are “transferable” – that is, able to be sold on the market - their price has risen to a level where only corporations can afford them. This system has served to further industrialize an industry that cannot survive industrial fishing practices.

Inshore, small-scale fisheries are one sector that by and large demonstrates resiliency and community-mindedness. We must also work to transmit these values beyond our fishing communities. When Canadian fishers are connected to seafood consumers, they will be valued for their important role as providers of food.

4. Localizing control

Localizing control is one way to value the detailed knowledge fishers have about the

ecosystems they operate in, and has in some cases been an effective strategy in slowing privatization and the concentration of corporate ownership in the industry. Local fishers have won limited voice in management decisions in Newfoundland and Nova Scotia, especially in the crab fishery. They make local decisions and have had some effect in slowing the privatization of their sector. On the west coast, fisheries sectors work relatively closely with fisheries managers. But less powerful groups, such as clam harvesters and swordfish harpoon fishers in Nova Scotia, and shellfish harvesters in British Columbia, have had difficulty organizing and accessing channels of power in order to advocate for their fisheries and the maintenance of community quotas and management.

Localizing control has particular importance for Indigenous peoples within Canada. First Nations people, who from time immemorial have depended on ocean resources for cultural and physical sustenance, have made some recent gains through land claims, modern treaties, and court cases.

However, First Nations peoples who have won some recognition of their management authority also face substantial political challenges to get their knowledge, practices and world view valued within the management regimes that regulate harvesting. Because the DFO grants them licenses and quotas like everyone else, they feel the pressure to fish industrially. Those First Nations who sought to follow traditional practices were either bludgeoned into submission (in Burnt Church) or are refused licenses (in Bear River).

5. Building knowledge and skills for food production

The collapse of the cod and other ground fish off the Atlantic coast was predicted by inshore fishers, who knew the patterns of fish returning to the bays and coasts and saw their catch decline. This information was not used in decision making, and despite investment in science by the Department of Fisheries and Oceans, science advice on the overfishing of cod stocks was not heeded. Decisions were made on a political basis, following lobbying from the large-scale industry. Today, cod populations remain at an all time low and are considered endangered throughout much of their Canadian range. As small populations begin to rebuild on the inshore, pressure to open fisheries is now coming from small-scale fishers, who feel they were not responsible for the collapse in the first place. Decisions continue to be politically based, and neither science nor traditional ecological knowledge is adequately used to make ecologically sound fisheries allocations.

When, in 1977, Canada began to manage the Atlantic fishery out to the new 200-mile limit, it continued to encourage large factory trawlers, which caused the same damage as foreign overfishing. By the early 1990s, the Northern cod population had collapsed, costing millions of dollars and fundamentally changing the social, cultural and economic lives of hundreds of small communities.

Fishery-specific knowledge and skills are threatened when a large vessels and advanced fishing technologies take over, and when corporate owners are increasingly separated from

operations on the water. Because the DFO does not manage the fishery according to gear type, it facilitates the concentration of corporate ownership.

Fishers' ecological knowledge, including cultural and social knowledge, are fostered when we support subsistence, owner-operated, and inshore fisheries; and when policy gives these a role in decision making. First Nations culture and way of life depend on the recognition of Indigenous sovereignty over their waters and harvesting activities.

6. Works with nature

Canadian fisheries need to work with nature in two ways: they must catch fish in a sustainable way that does not reduce the ability of the stock to replenish, and they must do so using gear and methods that have minimal "collateral damage" on habitat, biodiversity, and marine food webs. Bottom trawls and scallop dredges are well-known to have greater collateral impact than other gear. Some species may be more suited to supporting fisheries for human consumption; small fish species, for example, are particularly appealing for human consumption. Those fisheries that are emphasized to provide a basis for food sovereignty in Canada should be those that are able to withstand targeted removals for human consumption, using gear and methods demonstrated to have the least amount of collateral impact.

CHALLENGES TO FISHERIES AND FOOD SOVEREIGNTY

Canadian seafood consumers are cut off from a vital link to their country's oceans, and Canadian seafood producers are forced to compete with cheap seafood from often notoriously unsustainable international sources. For example, shrimp farming in the southern Pacific destroys important habitats. Such practices, which undersell shrimp caught in Canada, displace small-scale harvesters and increase corporate control over the food industry. Not to mention, shrimp caught in Canada is often in turn dumped on international markets.

The distance between Canadian fishers and seafood consumers creates conditions that encourage a "race to the last fish" mentality in the industry. Canadian fishers, saddled with large debts and operating costs, operating largely out of sight and away from close social networks. Competing with each other and with foreign sources of cheap seafood for access to volatile foreign markets, they have very little practical incentive to conserve marine resources for the future.

This race has justified centralized, top-down management regimes and socially disruptive attempts to privatize access to fish. Restoring Canadian fisheries to their important role in the national food system requires the restoration of the small-scale Canadian fishers are embedded in local or regional social, economic, and environmental contexts. This would

mean a huge shift in the logic governing fisheries management, and a huge shift in control over the industry—away from corporate interests and towards local harvester organizations who have a much greater stake in the long-term ecological health of the oceans they fish.

But how to do this? To find your way out of a mess, you have to know how you got into it in the first place. Does the market determine both the philosophy that underlies policy and the characteristics of the fleet, or do architects of fisheries policy determine fleet characteristics and the markets that can be accessed? The answer is a combination of the two. While this answer may seem simple, it means that solutions are anything but.

1. Privatization

The “Tragedy of the Commons” storyline goes as follows: fishers will always overuse a common resource because, if they don't, their neighbours will. So the only way to ensure conservation is through a strong state regulator or by privatizing property rights.^{iv} Anthropologists and others have long since identified major flaws in this argument, the most important one being that communities have sustainably managed resources as common property for thousands of years. Millennia of Indigenous practice and centuries of coastal community experience proves this. The thinking behind the argument - that people always act selfishly in their own best interest, and that no form of ownership exists in the water - still informs the philosophy of fisheries management. Canadians have a special relationship with this philosophy: Canadian bioeconomists Scott Gordon and Anthony Scott were pioneers in arguing for individual ownership of access to fish quota.

Following the lead of Iceland and New Zealand, DFO put “Individual Transferable Quota” (ITQs) in place in the 1980s. With the establishment of an ITQ regime, the Total Allowable Catch (TAC) of a given species is divided among existing license holders who may then transfer their quota by selling or leasing it. This is intended to set off market competition for control of quota, ending in the survival of the most “efficient” and “competitive” fishers. The approach assumes that a rationalization of the industry will allow for a reduced government role in regulation, and that conservation can most effectively be achieved through the creation of private property rights. Such a vision has guided DFO policy since the influential 1982 Kirby Report.^v Successive bureaucratic initiatives have made public ownership of our marine resources a legal fiction; policies designed to keep ownership of the inshore fleet in the hands of independent fishers and ensure the benefits of that industry are distributed within coastal communities have been replaced or ignored.

In Atlantic Canada the result of this privatization by stealth was, first, a dramatic consolidation of corporate ownership at the expense of the traditional small family-owned businesses; and, second, the destruction of the Atlantic cod fishery. On the Pacific coast, the introduction of ITQs, without any regulation that the quotas should be owned by the same person who owns the fishing boat, has led once again to corporate control and to many fishers who owned ITQs now forced to become “sharecroppers” for large companies. In B.C. today, there are eleven fisheries regulated by ITQs, representing 74% of the catch by

weight. Pilot ITQ regimes have also been introduced in select salmon fisheries. Despite the many voices calling for ITQs as a cure-all in the fishery, only about 1% of fisheries in the world are so managed.

The ITQ regimes also undermine the Treaties signed between the colonial government and aboriginal peoples in Canada, which guaranteed that First Nations could maintain their ways of life and harvesting activities. In 2001, the Senate Standing Committee on Fisheries and Oceans called on DFO to articulate its rationale behind privatizing access to fisheries. DFO has never done so and a public debate into this question has never been held.

The “Tragedy of the Commons” is not the natural state of fisheries; it is the result of fisheries conducted to supply distant markets, and of management policy with a narrow economic focus. By re-positioning fisheries back into their traditional role as suppliers of food for Canadians, we can reduce the potential for the Tragedy. In so doing, we can preclude much of the need for heavy, top-down management measures and diminish the drive to privatization. A crucial first step is to recognize the management authority of First Nations, and include Indigenous voices in the creation of the rules that govern the fisheries.

Recommendations

1. Prioritize owner-operator fishing capacity: Owner-operator fleets are essential to the health of coastal communities; however, these are threatened by expensive ITQs that drive up the cost of accessing the fishery. One answer to this challenge is the use of owner-operator clauses, which would require that the holder of a license or quota must be on a vessel when that license or quota is being fished. Such a clause is meant to prevent the ownership of quota by corporations or “armchair fishermen” who make money from leasing their quota to active fishermen at exorbitant fees. At the insistence of the provincial fishermen’s unions in both Newfoundland and Nova Scotia, the ITQ in the crab fishery has been strictly regulated so that a Quota can be transferred only under strict conditions (such as a fisher retiring) and that the community controls who will receive it.
2. To guarantee the survival of owner-operator fleets, we need to ensure that the tendency of ITQs to centralize fishing power and create economically steep hurdles to fisheries access is balanced by provisions, such as owner-operator clauses, that level the playing field for owner-operator vessels. By enhancing the health of owner-operator fleets, Canada will take substantial steps to enhance the health of coastal communities, repair the connection between Canadian fishers and Canadian seafood consumers, improve the opportunity for local involvement in management measures, and improve the creation and retention of knowledge and skills required for sustainable fisheries. DFO is working to implement this change in some fisheries in Atlantic Canada, but in 2005 rejected a similar move for the West coast.

3. Halt the development of ITQs until the public debate that the Senate Committee on Fisheries and Oceans called for is held. ITQs are a way for the government to "rationalize" fisheries by making them more "economically efficient" – and rationalizing fishermen out of their livelihoods. Most small-scale fishers have had no input into this policy, nor is the Canadian public aware of its repercussions.
4. Foster the development of community licence banks, where both fishing licenses and quota are held by community trusts. This makes access easier for new entrants to the fishery; it also means that the value of quota and licenses is not entirely subject to market forces. Conservation measures can be put in place without waiting for government regulation.
5. Involve fishers, First Nations, coastal communities, and civil society in debate about our marine and coastal resources. The federal government's mandate through DFO is to steward our marine habitats for all people of Canada. Current policies do not do this. Through ITQ regimes, DFO policy has privatized access to Crown resources with no public debate and no regard for Indigenous ownership of the waters in their traditional territories. Instead, policies support large, export-oriented corporate interests above the ecological health of the oceans as well as the health of our fishing communities.

2. Export-driven market

Canadian fisheries are focused on commodity production for export. In 2008, Canada exported at least 2/3 of the seafood produced from its marine fisheries.^{vi} As we saw in Discussion Paper # 4, the federal government increased the value of food exports by 400% within sixteen years. Some of Canada's most lucrative fisheries and fishing regions are heavily invested in export markets: east coast lobster fisheries have exported more than 80% of their annual total supply in recent years, and over 90% of all seafood produced in British Columbia is exported. Much of the seafood at Canadian supermarkets is, in turn, imported. While Canada was busy exporting 631,000 tonnes of seafood products in 2008, it imported 471,000 tonnes. The separation of Canadian seafood producers from consumers has negative implications for the ecological and social sustainability of the fisheries, and for Canadian food sovereignty overall.

Recommendations

- Support local, sustainably caught seafood initiatives. For example, "Off the Hook," a new community-supported fishery developed by the Halifax-based Ecology Action Centre and a group of Maritime groundfishers, seeks to connect local fishermen with seafood consumers. Such a connection encourages long-term ecological sustainability by re-integrating fishermen into their communities. It likewise encourages social sustainability of the fishery, as the fishermen are able to

command a premium for their products, rather than being forced to compete with the omnipresent, lowest-common-denominator, anonymous "white fish."^{vii}

- Include fisheries in local food networks. Seafood is often left out of community-supported agriculture, farmers' markets, and other direct marketing efforts. There are numerous small seafood businesses on all of Canada's coasts that would both benefit from and contribute to these efforts. By including seafood producers in these sorts of efforts, proponents of food sovereignty will be making the all-important fundamental step of recognizing Canadian seafood as an essential aspect of Canadian food sovereignty.

3. Ecosystem impacts of fishing

Canadian fishers use a suite of fishing gear that imposes a range of collateral environmental impacts beyond the removal of target fish. To varying degrees, this gear destroys habitat, non-targeted ('bycatch') species, food webs, and other living and non-living aspects of marine ecosystems. Different gear has different impacts, with bottom trawls and dredges widely considered to cause the most collateral damage. Gear damage to living habitat-formers such as corals and sponges can be largely irreversible. Much gear often routinely catches non-targeted bycatch. These species are discarded back over the side, often dead or dying. The catching and discarding of non-targeted species can be harmful to biodiversity and marine food webs.

"Perverse incentives" created by policies can reinforce destructive practices. For example, consider the unintended consequences of a quota for one species of fish: on northern lakes, trout is harvested, which has a high price, and there is a quota for trout; but nets also catch whitefish, which has little value and no quota. The fishers can do little except throw away the whitefish. In fact, one fisher was offended by the waste and offered to truck the whitefish to Winnipeg as a gift to the poor there. He was threatened with jail if he did it.

In response to some of these problems, Canada has committed to an ecosystem approach to managing its oceans, which must necessarily take into account these collateral impacts. Despite the development of new policies to manage impacts on sensitive habitat and fisheries on species of forage fish, which form the base of food webs, fisheries management has to date almost completely failed to implement tangible management measures to address collateral impacts. Therefore, the fisheries that are emphasized to provide a basis for food sovereignty in Canada should be those that use gear demonstrated to have the least amount of collateral impact. We must acknowledge and support fishing practices appropriate to the local context and which is sustainable over time.

Another example of the impact of fishing on marine ecosystems is less well known, yet extremely important. When fisheries remove living things from the ocean, they are removing pieces of marine food webs. The effects of these removals can vary greatly. One

study suggested, for example, that a fishery's removal of blue sharks was far more upsetting to food web dynamics than the removal of an equal amount of tuna that occupied a similar level in the food web; the discrepancy was due to the life histories of the two species.^{viii} Disruptions of marine food webs can be destabilizing, with effects that ripple out across both time and distance in unpredictable ways.

Fisheries tend to remove large predatory fish first. The cumulative effect of decades of such pressures has been a shift down the food web in which ecosystems - and fishery catches - have become increasingly dominated by lower food-web species. This trend has been documented both globally and in Canada.

Biodiversity loss is another impact of fisheries. Fisheries can reduce genetic diversity within a population by selective fishing and between populations by disproportionate removals of other populations, and can reduce or alter species diversity by (i) selective fishing methods; (ii) effects on marine food webs; (iii) subsidizing certain species with bait; or (iv) discarded biomass. Fisheries do not just effect biodiversity of the specific fish or invertebrate species they are harvesting; marine mammals, seabirds, and sea turtles are also unintentionally caught.

Lost or abandoned fishing gear can continue to kill fish for years after it settles to the ocean floor. This phenomenon is referred to as "ghost fishing" and is widely known to be a potentially serious problem. Lobster traps in Canada are required to have degradable escape hatches, but other gears, most notably gillnets, can still continue to fish for years after loss.

Recommendations

- Include fisheries in local food networks. It is often difficult to know how a piece of seafood was produced. Due to rampant mislabeling it can, in fact, be downright impossible. One way to sidestep the difficulties in traceability and labeling is to include fishermen or seafood producers who use sustainable gear and methods in existing local food networks.
- Though high-value fisheries such as shrimp and lobster are extremely important to guarantee a reasonable income for fishers, there could also be more emphasis on the human consumption of small pelagic fish (such as herring and sardines, which are low on the food chain). Canada's fisheries for small pelagics offer a vastly underappreciated source of healthy and sustainably-sourced seafood, capable of reducing our dependence on seafood imports. The fishing gear used in these fisheries do relatively little damage to fish habitat, and bycatch rates tend to be quite low. Small pelagic species also tend to be low in bioaccumulated toxins, such as heavy metals, while still supplying important omega fatty acids. These fisheries are also generally ecologically sound, since fuel use and greenhouse gas emissions

are consistently the lowest of all fisheries. For these reasons, these fisheries are often among the most energy-efficient animal production systems in the world, substantially more efficient than many terrestrial animal protein production systems.

4. Climate change, ocean acidification, and pollution

It is possible, and perhaps likely, that the effects of fisheries on marine ecosystems will soon pale in comparison to the threats posed by the twin perils associated with increasing atmospheric concentrations of carbon dioxide. Climate change and ocean acidification, separate processes that share a common source, threaten to create widespread and largely irreversible alterations to marine ecosystems. Climate change will likely alter water temperatures, phytoplankton blooms, species distribution, species invasion risks, among others. Ocean acidification is expected to reduce the availability of carbonate ions, the essential building block for the shells of many marine organisms. Evidence is also beginning to show that higher acidic levels in ocean water may “scramble” the olfactory senses of some fish species. Recent studies associate oyster recruitment failure on the U.S. west coast with acidification of ocean water in the same region.^{ix}

Also threaten fish species are non-fishing activities, such as farming, which causes land-based pollution to waterways.

Recommendation

- Support substantial international efforts to curb carbon dioxide emissions.

5. Labeling: mis-labeling and marine certification

Marine certification bodies such as the Marine Stewardship Council (MSC) provide consumers with a measure of confidence that the product they are purchasing was produced sustainably. Unfortunately, what MSC does not evaluate is the social or cultural sustainability of a given fishery, nor do they consider energy inputs into the fisheries. This means that fisheries with high fuel usage or with questionable labour practices can be labeled sustainable. MSC certification is a costly and time-consuming process and is out of reach for many small producers. Up to 30% of US fish is mislabeled, either at the end of the production line, at restaurants, or by fishmongers. Some species names, like red snapper, are used for another fish 70-80% of the time. Moreover, a significant percentage of fish labeled “wild” are actually farmed. This means that consumers cannot make informed decisions about conservation, and import and export regulations are undermined.

Recommendations

- Improve traceability and identification of seafood in Canada. Ecotrust Canada is working on a traceability project that will link fishermen and buyers in anticipation of an EU-wide traceability standard. Their goal is to “quash the market for illegally

caught fish and provide financial incentives for fishermen to harvest fish in a responsible manner."x To date, they have begun working with chinook salmon, spiny dogfish, Pacific halibut, and ling cod fisheries off Vancouver Island. The MSC has also introduced a "chain of custody" traceability initiative to link producers from the fishery through to the point of sale.

- Develop locally appropriate and holistic models for marine certification. The Off the Hook CSF in Halifax is one example of connecting consumers with producers so that consumers trust what they're buying and the way the seafood is harvested.
- Explore fair trade certification systems.

INDIGENOUS PEOPLES AND FISHERIES

Indigenous peoples have a crucial role to play in the sustainable management of Canadian fisheries, but their role can only be realized if First Nations jurisdiction and authority over traditional territories and waters is recognized. The federal government must also justly accommodate Indigenous harvesting practices, knowledge systems, worldviews, and ways of life. As a food movement, our responsibility is to ensure the kind of Nation-to-Nation negotiations that will bring such a political order into being. Grassroots action and education should work towards this goal.

First Nations in Canada have won political ground. For example, the Supreme Court's 1999 Marshall Decision recognized the Treaty rights of First Nations in the Maritimes to earn a "moderate livelihood" through commercial fishing. As a result, 32 of 34 First Nations Bands in the Maritimes have signed agreements with DFO and have seen their access to the commercial fishery open up. But some communities have found that this is a double-edged sword, given that DFO both facilitates and regulates their involvement in commercial fishing. This regulation is seen as incompatible with First Nations relationship to nature and undermines Treaty rights. Across the country (especially in the North), land claim negotiations have resulted in co-management boards that include First Nations. But there remains considerable political challenges in terms of structuring these to reflect treaty relationships and fully value and recognize Indigenous knowledge and authority.

On the West Coast, the salmon fisheries are in crisis: populations are in free-fall and there is widespread concern about the risks posed by aquaculture, such as outbreaks of sea lice and the chemicals used to treat it, and the possibility of interbreeding and competition between farmed and wild stocks. The impact for Indigenous peoples has been likened to the disappearance of the buffalo and the rise of cattle farming on the prairies: in other words, a catastrophe. In 2009, only 7% of the Sockeye salmon expected to spawn in the Fraser River

showed up. Despite strenuous opposition from the DFO, a judicial commission of inquiry has been set up to find out why.

Over thousands of years, Indigenous peoples along the coast developed cultural harvesting and management strategies and practices based on sophisticated knowledge of the salmon migration patterns and life cycles on a broad ecological and temporal scale. They developed an intensive fishery and on that they lived prosperously. Now, however, Indigenous peoples are one of the most marginalized groups in Canada, with over half of Indigenous households living in poverty. Fish is an important part of a healthy diet, yet people in Indigenous and coastal communities are eating less and less of it, while the obesity rates of the poor keep rising. If something does not change in the next few years, we will have destroyed a resource whose abundance sustained communities on this land for thousands of years. In fact, if all the treaties under negotiation in B. C. were ratified, one-third of the salmon caught would be allocated to indigenous peoples. It is critically important to the food sovereignty of Indigenous peoples that they regain control of their land and resources. Innovative models of co-management exist in the Arctic. Though not perfect, establishing Wildlife Management Boards should be investigated for Indigenous peoples in Canada, alongside current land claims and treaty processes.

Recommendation

- Advocate for the implementation of a governance and co-management approach that recognizes Aboriginal jurisdiction over the lands and waters in their traditional territories and includes Indigenous knowledge and values in fisheries management. Co-management models exist in the arctic that should be explored, alongside treaty and land claims processes, for the unique contexts of other Indigenous peoples.

AQUACULTURE

Aquaculture is one of the fastest-growing sectors of food production in Canada, harvesting many different invertebrate and fish species. The federal Department of Fisheries and Oceans, as well as the Canadian Council of Fisheries and Aquaculture Ministers, have wholeheartedly expressed support, both financially and from a regulatory perspective, for the expansion of aquaculture in Canada. In many cases, this is against the wishes of coastal communities.

Atlantic salmon reared in open net operations in British Columbia and Atlantic Canada are far and away the dominant aquaculture species. There are numerous concerns regarding the ecological impact of salmon farming. Salmon are predators, and therefore, salmon aquaculture feeds contain fish meal and oils derived from wild fish. Much of the fish meal and oil used in salmon feed comes from gigantic fisheries in other parts of the world -

fisheries that target wild forage species for the specific purpose of producing oils and meal. Another major concern regarding open net pen salmon aquaculture lies with what leaves the pens: the release of wastes, diseases, escaped fish, antibiotics and pesticides, and high concentrations of sea lice are all serious environmental problems associated with open net-pen aquaculture. Aquaculture is promoted as a replacement for the demise of traditional commercial fisheries on both coasts, but it has not been demonstrated that former fishermen are interested in employment in the aquaculture industry, nor does the industry fully benefit coastal communities unless it is locally, or at least nationally, owned. The use of wild fish as feed, the impacts of the farms on their environment, and the fact that the vast majority of B.C. farmed salmon is exported, make Atlantic salmon raised in open net pens a poor fit for national food sovereignty.

There are problems on both coasts with aquaculture operations. Net cage aquaculture sites can compete with traditional fisheries, such as herring weirs, for the same or adjacent spots of the seabed. Herring fishers report that herring do not return inshore when disturbed by noisy and smelly aquaculture operations. Clam aquaculture requires access to beaches, but in N.S. and N.B., aquaculture companies are being granted multi-year exclusive use leases. This severely restricts the access to open (public) beaches for clam harvesters. Both the process of lease allocation and the restriction of access are, according to First Nations on both coasts, infringements of their treaty rights. Aquaculture in this way is another form of "enclosure," or of limiting access to public resources.

That being said, there are other types of aquaculture that may be beneficial to national food sovereignty. Rainbow trout, Arctic char, tilapia, mussels, scallops, and oyster aquacultures are considered to be relatively sustainable and capable of producing food for Canadians rather than depending on an export market. Furthermore, these aquaculture operations, when situated in coastal communities, can be a source of stable income.

Recommendations

- Support shellfish aquaculture (mussel, scallop, clam, oyster) in which coastal communities play an active role in site planning, approval and monitoring and are guaranteed access and a fair share of the benefits.
- The aquaculture of fin fish should be limited to methods that keep the fish completely closed from the wild, and preferably in land-based pools. Such operations should be community managed.

CONSUMER EDUCATION

Consumer education around sustainable seafood has increased in the past half decade with the launching of programs such as SeaChoice, (a joint program of the Ecology Action Centre, David Suzuki Foundation, Living Oceans Society, Sierra Club BC Chapter, and the Canadian Parks and Wilderness Society), Ocean Wise, and Off the Hook that help Canadians purchase sustainable seafood or even bring fishers and consumers together.

All around the country local groups – farmers, gardeners, consumers – are coming together to localize the provision and distribution of food. Because the communities where fish are caught are a long way from cities, fish tend to be left out of the organizations that help Canadians understand the ecological and social implications of their food choices. Because the large majority of fish is sold in supermarkets, there needs to be a reliable and understandable certification process that enables people to understand what the implications of their choices are. The Maritime Stewardship Council does provide a certification service, but a large proportion of fish sold is still mis-labeled.

Recommendation

- Government should make mandatory a labeling system that includes not only the species of fish, but also the fishing method and country of export.

CONCLUSION

The primary challenges to including Canadian fisheries in an overall move towards food sovereignty lie with government policy. Through privatization, over-exploitation, and market changes, fishers and fishing communities have diminished access to fish and to decision-making about sustainable harvesting. Coastal communities suffer from increased out-migration of their population, radical alterations to their culture, and diminished skills and knowledge. Current markets encourage a pattern of seafood distribution that separates Canadian fishers from Canadian seafood eaters, and encourages export of Canadian seafood and import of cheap internationally-sourced seafood.

We envision a future in which Canadian fishers produce healthy and truly sustainable seafood using low-impact fishing gear in owner-operator fleets in which both vessel ownership and fishing access are held by members of coastal communities. We see these

situations arising even now: the fledgling scallop trawl fishery in British Columbia, for example, is an example of a previously unsustainable fishery that has been substantially reconfigured by a handful of committed fishers working closely with government. It is now poised to deliver unique and sustainable seafood from a small-vessel fleet to Canadian markets. Similarly, the hook and line haddock fishery on the East Coast consists of owner-operator vessels using relatively benign fishing gear to supply the regional market. The rights of First Nations to use the resources that continue to shape their societies, culture and economies are being recognized. Yet, serious challenges persist as these initiatives remain marginal in a corporatized industry that is disconnected from coastal communities.

NOTES

ⁱ “Highlights of the Marshall Decision,” Social Research for Sustainable Fisheries, SRSF Factsheet 1, June 2001. Available online at:
www.mystfx.ca/research/srsf/researchreports1/FactSheets/Factsheet1.pdf

ⁱⁱ Delgamuukw v. British Columbia, [1997] 3 S.C.R. 1010.
<http://www.canlii.org/en/ca/scc/doc/1997/1997canlii302/1997canlii302.pdf>

ⁱⁱⁱ Musqueam, band council website. www.musqueam.bc.ca/Sparrow.html

^{iv} Hardin, Garrett. “The Tragedy of the Commons”, *Science* 162, 1968, p. 1243-8.

^v Kirby (1982) Task Force on Atlantic Fisheries, *Navigating Troubled Waters: A New Policy for the Atlantic Fisheries*. Ottawa: Minister of Supply and Services Canada

^{vi} Backgrounders, 2011, Fisheries and Oceans Canada. Available online at: www.dfo-mpo.gc.ca/media/back-fiche-eng.htm

^{vii} Ayeisha Brinson, Min-Yang Leea and Barbara Rountreea, “Direct marketing strategies: The rise of community supported fishery programs,” *Marine Policy*, Volume 35, Issue 4, July 2011, Pages 542-548

^{viii} Schindler, Daniel E., Timothy E. Essington, James F. Kitchell, Chris Boggs, and Ray Hilborn, (2002) “Sharks And Tunas: Fisheries Impacts On Predators With Contrasting Life Histories.” *Ecological Applications* . vol. 12: pp. 735-748.

^{ix} Levinton, Jeffrey, Doall, Michael, Ralston, David, Starke, Adam et Allam, Bassem. 2011. « Climate change, precipitation and impacts on an estuarine refuge from disease ». *PLoS ONE*, 6(4): e18849. Available online at: <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3084236/>

^x Ecotrust Canada. From *the Pacific to your palate*. Available online at:
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Contact:

FOOD SECURE CANADA
SÉCURITÉ ALIMENTAIRE CANADA

CP 48020 BP Bernard
Montreal, QC H2V4H0
Canada

(514) 271 7352

info@foodsecurecanada.org

www.foodsecurecanada.org

Food Secure Canada is based on three interlocking commitments:

Zero Hunger: All people at all times must be able to acquire, in a dignified manner, adequate quantity and quality of culturally and personally acceptable food. This is essential to the health of our population, and requires cooperation among many different sectors, including housing, social policy, transportation, agriculture, education, and community, cultural, voluntary and charitable groups, and businesses.

A Sustainable Food System: Food in Canada must be produced, harvested (including fishing and other wild food harvest), processed, distributed and consumed in a manner which maintains and enhances the quality of land, air and water for future generations, and in which people are able to earn a living wage in a safe and healthy working environment by harvesting, growing, producing, processing, handling, retailing and serving food.

Healthy and Safe Food: Safe and nourishing foods must be readily at hand (and less nourishing ones restricted); food (including wild foods) must not be contaminated with pathogens or industrial chemicals; and no novel food can be allowed to enter the environment or food chain without rigorous independent testing and the existence of an on-going tracking and surveillance system, to ensure its safety for human consumption.