

## Farmed Seafood for a Healthy Body, Soul, and Planet

Written by Cyr Couturier



Canadian farmed seafood is among the most affordable and nutritious protein for Canadians. Raised with care it provides millions of meals to Canadian families each year. The average cost for a standard meal of finfish or shellfish ranges from \$2-4 in retail. And, it's healthy for the planet as well! It is produced in every province and the Yukon, and available in retail and restaurants fresh 365 days of the year, as well as in a variety of value added formats.

No less than 20 species of seafood are farmed across Canada, including finfish, shellfish (mussels, oysters), and seaweeds. Most of the production is focused on salmon, trout, mussels and oysters, however there are a number of small farm operations developing sablefish, sturgeon, clam, seaweed, arctic char, eel and a few other exciting species for Canadian palates. The vast majority of seafood farms are family-owned businesses with fewer than 500 employees, but there are a few larger Canadian companies employing many.

More than 25,000 farming families are engaged directly as farmers or indirectly as suppliers to farmers in rural and coastal Canada. These are mostly young families looking towards a promising future in

farming the seas, as recommended by well-known explorer Jacques Yves Cousteau in 1971 in response to the obvious destruction of fisheries around the globe. The seafood farming sector is fairly new to Canada in a commercial sense, having started in the mid-1970s.

Most seafood farmers are environmentalists, and conservationists, using the best available science to ply their craft, and produce safe, healthy and responsible food. They also care about their local communities, providing aid in times of crisis. For example, well over 1 million meals of farmed seafood were distributed to Canadian foodbanks at beginning of the pandemic when disruptions in our food supply chain could not be avoided owing to COVID-19.

Canada's seafood farming sector generates CDN \$2.1 billion in GDP, CDN \$6 billion economic activity (including taxes, support and value chain sectors), and about CDN \$1 billion in wages.



**Cyr Couturier is a marine biologist, aquaculture scientist, educator, part-time seafood farmer and advisor, and academic.**

The industry is composed of veterans, owners in their 50s and 60s, but the vast majority of employees on and off farm and service are 20-40 years of age, of which men and women are in equal proportions. Women are taking an increasing role in leadership on industry and sectoral Boards, in company and on farm management, and here too the numbers are closing in on proportional representation in the sector. The industry has partnerships, business relations, and First Nations agreements across Canada, in various provinces, with well over 100 FN's. To say the seafood farming industry is not diverse, would be a misnomer, given the thousands First Nations, new Canadians, permanent residents, and Canadians working in the sector from every province, territory and numerous countries from across the globe.

One of the challenges is getting new skilled workers to move from urban to rural, coastal Canada to take up the many highly technical but rewarding jobs in the sector (farm managers, farm technicians, environmental technicians, aquatic veterinarians, scientists, vessel operators, etc.), not only in the seafood farming sector, but in all of agriculture: Canadian Ag lost \$3 billion in farm productivity in 2018 owing to skilled and unskilled labour shortages, and a further \$3 billion in 2020 just owing to labour and market disruptions by COVID-19. The Canadian Agriculture Human Resource Council is working on attraction strategies for youth to enter the sector to fill these gaps in both the short and longer term.

Seafood farmers must comply with a variety of complex regulations (as many as 84 at last count) to bring these healthy and nutritious products to Canadians. Seafood farming (a.k.a. Aquaculture) is jointly managed and the responsibility of both Federal and Provincial Governments. With oversight and approval by dozens of provincial and federal agencies, including Fisheries and Oceans, Agriculture and Agrifoods, Canadian Food Inspection Agency, Environment and Climate Change Canada, Health Canada and their analogs in the Provinces and Territories, Canadians can be assured that what you see and eat in farmed seafoods, ***are good for the Body, the Soul, and the Planet***. Afterall, they are the guardians for Canadians for safe, wholesome, and nutritious food sources.

On the carbon footprint side of the equation, farmed seafoods are among the most ecologically efficient forms of food / protein production, typically using less resources (water, feed, space), and sequestering carbon (seaweeds, shellfish) known on the planet, and improvements on this are made continuously. The United Nations recognizes it as one of the key measures to achieve a number of the Sustainable Development Goals by 2030, and so do many countries.

Most farmed seafoods are low in saturated fats and carbohydrates, high in protein, and rich in heart and brain healthy omega-3s, vitamins (B6, 12, D) and essential minerals for humans. Not only that, they taste fantastic and are easy to prepare (see recipes below). No wonder the Canada Food Guide from Health Canada recommends at least two portions of oily fish such as salmon, mackerel, tuna in a healthy and balanced diet. A study conducted about 5 years ago revealed that if Canadians ate heart healthy seafood, like farmed salmon, twice per week in keeping with the Canada Food Guide, costs to the healthcare systems from balanced diets including seafood, could easily be reduced by CDN \$9 billion in preventative and healthier lifestyles. There are numerous medical reports of the benefits of eating seafood in general, including farmed seafood, and some recent studies have shown there may even be a COVID-19 therapy from seaweed consumption, among other beneficial impacts on human health and nutrition.

Most Canadians have little time to read their news, many get it on social media of one sort or other, they are busy with their daily lives and typically do not know where their food originates, or how it is made. This applies to farmed seafood as well as any of our wonderful Canadian farmed foods on land. Whenever public surveys are conducted across Canada the average “approval” rating of farmed seafood typically ranges above 80% by all Canadians, and it continues to grow. Rest assured, Canadian farmed foods, whether on land or sea, are among the most wholesome, safe, and environmentally benign foods on Earth, and this is recognized by Canadians, and ALL of our trading partners.

I will end this article with a few facts and myths that may surprise the average Canadian, and then provide you with a few recipes, easy to make, delicious and nutritious:

**FACT:** Over 3 billion seafood meals are consumed daily on Earth, over a trillion annually, and the demand only continues.



**FACT:** Seafood farming accounts for over 60% of the aquatic plant and animal protein consumed annually by Earth's 8 billion inhabitants. The UN projects this be about 65% by 2030 owing to no-growth in capture fisheries since the 1980s.

**MYTH:** Farmed salmon cause the demise of wild salmon. The reality is humans cause the demise of wild salmon, the World over. Most disappearances of wild salmon in Canada, or elsewhere, are explained by overharvesting, poaching, habitat destruction (roads, salt, urbanization), pollution, and climate change impacts in the ocean. This is not to say that farmed salmon can not have an impact on ecosystems, or local stocks, however the best available practices are based on science and there are continuous improvements and innovation in farming technology that prevent interactions with wild salmon, from farmed contained fish, all the while increasing feed efficiency and reducing ecological impacts. Most of the anti-farming articles published since the 1980s were not much more than crying wolf, and their predictions have never come true, nor proven to be valid in conclusion.

**FACT:** Seafood surpassed beef as a primary source of animal protein on Earth in 2014, according to the UN. Moreover, it is the single largest source of animal protein consumed by over half of the World's population. It's important in alleviating food insecurity and providing nutritious dietary essentials in over half of the World's population as well, according to the United Nations.

**FACT:** Farmed seaweed accounts for 96% of all seaweeds harvested, for a total of 33 million tonnes wet weight each year: 60% of farmed seaweeds are used as foods, rich in many important dietary components for human development; the remaining 40% are used in medicine, nutraceuticals, cosmetics, and food additives to name a few. Yes, if you brush your teeth, there is seaweed in there! And yes, there is often seaweed extract/thickeners in puddings and lemon meringue pies – so you can have your seaweed pie and eat that too!

**MYTH:** Eating a dozen oysters twice a day raises one's libido, says Casanova! (well, this one might actually be true with the oyster's zinc content involved in numerous physiological functions in humans, including sperm functioning).

**FACT:** Time and again in **blind cooking and taste trials**, high end chefs in North America, Europe and Asia tend to prefer farmed salmon over wild salmon, for its consistency, color, taste, freshness, and moisture. They rarely indicate a preference for the wild salmon in blind trials for these attributes. Some restaurants will use wild salmon in limited quantities when available seasonally and fresh, but the quality does vary according to fishing method, location, and it is very expensive. The farmed fish is more affordable and consistent in quality throughout the year at your local retailer.

For additional information on seafood farming/aquaculture in Canada please review [www.aquaculture.ca](http://www.aquaculture.ca) or consult the United Nations Food and Agriculture site biannual report SOFIA 2020 at [www.fao.org](http://www.fao.org)

Now for some delicious, easy to make recipes for the average Canadian household:

**Easy Maple Sesame Salmon** (my own version):

- 1) Combine and mix the following into a marinade and place in a large baking dish with cover or a sealed container:

- 2-3 cloves crushed garlic,
  - 1 cup (250 mL) of Canadian Maple Syrup,
  - 2 tablespoons (30 mL) lemon zest,
  - ¼ cup sesame oil (60 mL),
  - ¼ cup (60 mL) low salt soya sauce
  - ½ cup (120 mL) diced red onion
  - ¼ cup (120 mL) chopped green onion
  - cracked pepper to preference
- 2) Wash fish, and place a fresh farmed Canadian salmon fillet of 1 kg (skin on, boneless) into the marinade, and let sit for 30-60 mins. Glaze the salmon with the marinade once or twice. (Note frozen portions can be used but will need to sit in the marinade for a few hours longer).
  - 3) Garnish the salmon with think lemon slices, capers, pepper, and cracked salt to taste.
  - 4) Bake in oven at 350 F in covered dish for about 30-40 mins until tender and cooked through.
  - 5) Remove and serve immediately with a vegetable medley, wild or long grain rice or other of the family's preference. Serves 6-8 comfortably, but expect them to want more.

For a variation of the cooking method, which I prefer, I put the fish, marinade and garnish into a foil wrap and seal it. I then bake for 30-40 mins at 350 F or put on medium heat on the BBQ and cook for about 25-30 mins. The foil seals the juices in much better and the salmon stays moist, although the farmed salmon contains enough healthy oils in it one need not worry about the fillet drying out.

For beautiful and delicious blue mussel recipes, visit [www.bluemussels.com](http://www.bluemussels.com) and find Chef Watson's fantastic recipes for: Mussel in Marina sauce, Mussels in Garlic and Cream Sauce, Sweet Chili and Thai Chili blue mussels. YouTube links are provided on storing, preparing and cooking these shellfish. One of my favourites is Mussels in Garlic and Cream Sauce. Or if you prefer a greater variety, of recipes and meal types, you can visit [www.peimussel.com](http://www.peimussel.com) for dozens of fantastic recipes for mussel chowders, entrees, snacks, etc.

*About the author: Cyr Couturier is a marine biologist, aquaculture scientist, educator, part-time seafood farmer and advisor, and academic. He sits and has sat as a volunteer on a variety of government advisory councils and boards (science-based), regional and national economic development boards, farming association boards. He has travelled and worked with seafood farmers in 18 countries, across Europe, South America, and Asia, and they share one thing in common – to farm food and feed their families. He has been recognized several times by industry and academic awards, mostly for seafood farming activities, and awarded 1 of 10 Designated Hitters in the Top 50 in Canadian Agriculture 2021 for his efforts Agvocacy.*