



FARMED SALMON: PROFITING FROM EXTINCTION

Global Industry, Local Costs

- Salmon farming is a global industry with production concentrated in Norway, Chile, Canada, Scotland and Ireland. There is little production in the United States, both Alaska and California have banned open net-cage salmon farms, but the US remains the major consumer of Canadian farmed salmon.
- Everywhere open net-cages operate there is a significant environmental cost born by local marine ecosystems. In British Columbia these impacts have been well documented—from the infection of wild fish with sea lice to marine mammal deaths—threatening the health of our oceans as well as the communities that depend on them.

Sea Lice & Disease Outbreaks

- Salmon farms practice intensive, industrial farming, where 50,000 fish can be raised in a single net pen, with 10 to 12 pens — that's 500,000 fish or more at a single farm site. These conditions are ideal for diseases and parasites to grow and spread.
- A recent study in the scientific journal, *Proceedings of the National Academy of Sciences of the United States of America*, found that sea lice originating from fish farms can kill up to 95% of juvenile wild pink and chum salmon. Preliminary studies indicate that the disease transfer from the farms is just as prolific and harmful.

Marine Mammal Deaths

- BC salmon farmers are granted licenses to kill predators such as sea lions and seals to stop them from eating their fish. According to a report by the Department of Fisheries and Oceans Canada (DFO), between 1989 and 2000, BC salmon farmers reported killing 6,243 seals and California and Steller sea lions.
- BC salmon farmers are not required to report marine mammal drowning deaths caused by entanglement in nets. However, in April 2007, Creative Salmon did report 51 drowned California sea lions in one month and approximately 110 drowned sea lions since the beginning of the year.

Escapes

- DFO's own estimates show that Atlantic salmon have been found in over 81 BC rivers and streams that were surveyed.
- Provincial escape numbers do not account for consistent "leakage" where salmon escape through holes in nets. Industry states this can be anywhere from 1-5% of annual production which would translate into 350,000 fish per year in BC.

Feed

- On average, it takes two to five kilograms of wild fish to produce one kilogram of farmed salmon. Most of the wild feed for BC farmed salmon is taken from the southern hemisphere, diverting local protein to raise a luxury product for northern consumers.



Pollution

- The concentration of waste feed and feces from millions of penned fish in B.C.'s coastal waters is a source of pollution. This pollution accumulates not only under the fish pens but is also carried by tidal currents to other areas. The waste smothers bottom-dwelling marine life and increased nitrogen, phosphorous and other nutrients have led to algal blooms.
- Recent research in Scotland shows major loss of seabed flora and fauna from salmon farm wastes, even in strongly tidal areas. A 1994 European study estimates that one farm can dump the waste equivalent to between 2,250 and 5,580 people.

First Nations Opposition

- Salmon farms have been placed in many traditional territories despite strong and vocal opposition by First Nations.
- Salmon farms operating in or near First Nations' territory put mainstays of traditional diets at risk. The waste from feed and feces has been linked to increased mercury levels in rockfish. The loss of wild salmon affects coastal and interior nations.

Economic Impacts

- A government committee reported that salmon farming in BC provides a total of 2,945 jobs (including direct, indirect and induced jobs). This is significantly lower than the numbers the industry has long claimed and much lower than the jobs generated by wild salmon and healthy, salmon-dependent ecosystems—estimated at over 14,000 jobs for the commercial and recreational fishing sectors alone.
- The approximate contribution of BC's sport and commercial fisheries is \$1 billion per year. Nature based tourism, largely centered on the coast, brought an additional \$1.55 billion to BC in 2001.

Health Concerns

- Consumers may choose salmon because of the health benefits of Omega-3 fatty acids. However, numerous studies have found cancer risks from toxic contaminants (dioxins and PCBs) in farmed salmon outweighed potential benefits.
- Farmed salmon are fed more antibiotics per pound than any other livestock in North America and the proliferation of sea lice on net-cage farms has led to a dependence on chemical biocides.

Closing in on Solutions

- Closed containment technology offers a major step forward in salmon farming practices. The use of closed tanks (in the water or on land) can effectively address the major negative impacts of salmon farming including escapes, sea lice and disease transfer, waste and marine mammal deaths.
- Closed containment has been demonstrated as a technically feasible way to grow salmon. Government and industry need to get behind this innovative technology to support its development and implement an industry-wide transition in BC.