

Impacts on Wild Salmon

Wild salmon are an important part of British Columbia's environment, culture and economy. It is important that salmon farming not in any way further compromise what are in many cases already severely stressed stocks of wild fish.

Has salmon farming contributed to the decline of wild salmon stocks?

Wild Pacific salmon stocks have seen significant declines over the last several decades and particularly since the early 1990's. A recent scientific paper reviewed the causes of these declines and concluded that the declines were primarily caused by a combination of climate change, overfishing, freshwater-habitat destruction, and the genetic and ecological impacts of large-scale salmon enhancement projects. The paper concluded that all available evidence suggests salmon farming has not had a significant impact and in fact poses a low degree risk to wild salmon in BC (Noakes, et al., 2000).

Do farmed salmon compete with wild salmon?

When salmon escape they do not appear to compete very well in the wild, or even to have a very high survival rate. Of the low proportion of escaped fish that survive to be caught or found in B.C., over 94% have empty stomachs (McKinnel et al., 1997), indicating that their competition with wild salmon for food is insignificant. Very few farmed salmon have been found in river systems, and farmed fish have been shown to have a significant competitive and reproductive disadvantage compared to wild salmon (Fleming, et al., 1996). Competition for spawning locations between wild and farmed is therefore negligible (Alverson & Ruggerone, 1997).

Can farmed salmon spread disease or parasites to wild fish?

Salmon farmers expend a great deal of effort to ensure they have healthy fish stocks (see Maintaining Healthy Salmon). Farmers screen all their broodstock for disease, provide good water quality and nutritious feeds, and vaccinate the juvenile fish to stimulate their natural immune systems before they are brought to the ocean. The few fish that are imported undergo strict quarantine and multiple, redundant levels of protection and testing to ensure no exotic diseases are ever brought into BC. Farmed fish are therefore generally healthy and have a much higher survival rate than wild stocks. The only diseases that have been recorded on BC salmon farms are diseases that naturally occur in native BC fish populations (Kent & Poppe, 1998; Stephen & Iwama, 1997).

What are sea lice, and can they be spread by salmon farms?

Sea lice are small parasites that attach themselves to the outside of marine fish, and survive by consuming small amounts of slime or skin. They are very common on several species of wild fish in the B.C. waters, and most wild salmon are host to small numbers of sea lice. There is no evidence that sea lice have been spread from farmed fish to wild fish in British Columbia, or that the presence of farms has increased sea lice levels or contributed to outbreaks. Salmon farmers use management techniques that help minimize the presence of sea lice within their stocks. This includes fallowing (leaving a farm site to sit empty for a period of time), combined with the practice of growing only

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one age class on a farm. This ensures sea lice are not spread from older fish to younger fish, which effectively breaks their host/parasite cycle. If sea lice do show up on a farm in significant numbers, veterinarians may choose to treat fish in order to remove the lice.

Has there been a recent outbreak of sea lice in BC?

In 2001, there were some reports of large numbers of sea lice on pink salmon smolts off northern Vancouver Island. The federal Department of Fisheries and Oceans conducted a scientific assessment in the area – which involved capturing more than 1000 salmon smolts – and they found the fish to generally be in very good condition with little scale loss, few lesions and low numbers of sea lice. Only 1% of the fish were found to have large numbers of lice (DFO, 2001). Veterinarians did not report elevated numbers of sea lice on salmon farms in the area at the time.

Has salmon farming introduced parasites into Norwegian Rivers?

No. Salmon enhancement, or the stocking of wild fish by public hatcheries, caused problems in Norway by unwisely stocking Swedish salmon into Norwegian rivers using extremely poor practices. The salmon enhancement stocking introduced a parasite that was subsequently spread by government hatcheries and required many rivers to be poisoned to rid them of the parasite (Johnsen and Jensen, 1991). This problem was not caused by salmon farms, but fisheries managers learned from the mistakes and have developed multiple, redundant levels of protection and quarantine to ensure that these problems never occur in the BC salmon farming industry.

Do farmed salmon consume more food than they produce?

All farm animals consume more food than the meat that we obtain from them. For example, cows require about 8 pounds of grain and chickens about 2 pounds of feed for every pound of meat that is produced. Salmon are in fact very efficient converters of food into edible flesh, and Atlantic salmon in B.C. consume only consume 1.1 pounds of dry feed for every pound they grow. Fishmeal is a large component of salmon feed, and the species used to make it are typically small or bony fish, with a low proportion of edible flesh and for which there are few alternative uses. Globally, salmon farms use about a third of all the fishmeal, and the rest is used in poultry and other animal feeds. Much of the fish meal that ends up on farmed salmon food comes from Chile and Peru, where government controls on the fishing are designed to ensure sustainability.

Does farmed salmon depress the price that wild salmon fishermen receive for their fish?

Salmon farming has undoubtedly changed salmon markets in the world. Prior to the advent of farming, salmon were only available fresh for a few months during the fishing season, and prices swung wildly from year-to-year based on the changing returns of salmon. Fresh farmed salmon is now available every day of the year, and salmon has gone from a luxury product to a food commodity almost as readily available as chicken, beef and pork. Overall, salmon prices are now more stable and somewhat lower than before farmed salmon became widely available. Demand, however, is also much higher than it used to be. The consumption of fresh and frozen salmon in the US nearly

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quadrupled from 1990 to 1999, mostly due to increased farmed salmon consumption (Knapp, 2000). Since BC farmed salmon account for only 2.4% of total world salmon production, these operations are price-takers and do not have an impact on world salmon prices.

Salmon farms pose a low risk to the well-being of wild salmon, and both farmed and wild fish depend on a healthy ecosystem. Rather than being in any sense at odds with each other, the salmon-farming and the commercial fishing industries are complementary in various economic and social respects. Both industries depend on similar services, supplies, processing, transportation, and marine infrastructure. Many individuals have either made the transition from one industry to the other or now work in both. Salmon farms have provided an important degree of diversification and year-round stabilization to the economies of rural coastal communities, particularly at a time when there have been declines in employment in commercial fishing and other traditional economic mainstays.
