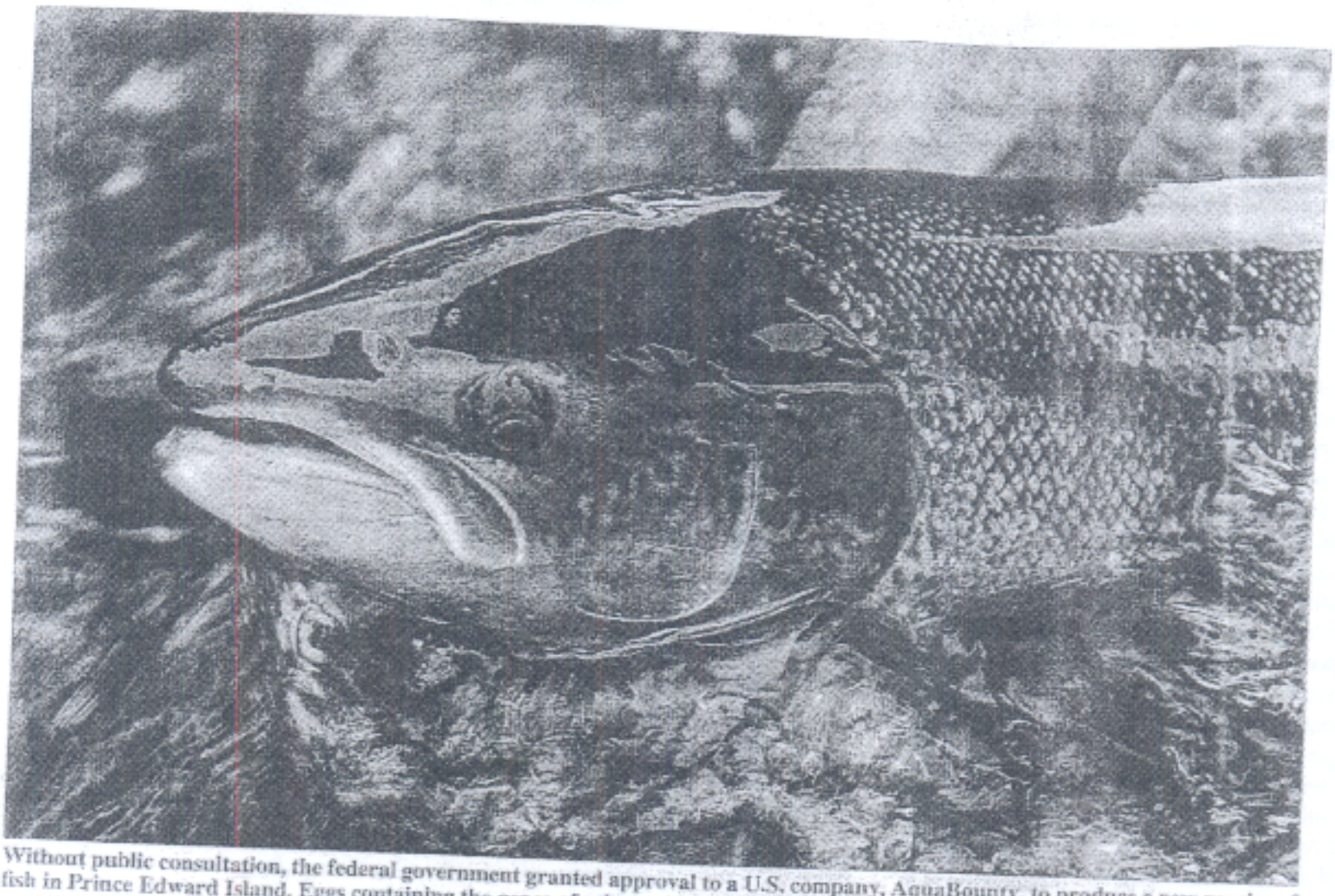
Frankly franken-fish

Genetically modified salmon is growing in our backyard



Without public consultation, the federal government granted approval to a U.S. company, AquaBounty, to produce a new species of fish in Prince Edward Island. Eggs containing the genes of salmon and pout are shipped to Panama to grow into adult fish.
(Raymond Plourde photos)

by Mark Butler and Catharine Grant

In November 2013, the Canadian government quietly approved the production of genetically modified (GM) Atlantic salmon eggs in a facility in Port Fortune, P.E.I. The facility, owned by the U.S. company AquaBounty, is growing the GM salmon eggs and then shipping them to Panama for "growing-out" until the fish are big enough to go to market.

Genetic modification is a controversial technology that splices the genes of one species into another. It is different from traditional breeding because it makes changes at a molecular level across the species and kingdom barriers. Genetic modification has been hailed by some as the technology that will enable us to feed a growing population. Opponents believe that the risks of this new technology – both to humans and the environment – are too high. Those opponents also point to the fact that we currently produce more than enough food to feed the world, but don't prioritize equitable distribution.

AquaBounty's Atlantic salmon – named AquaAdvantage – contains genetic material from Chinook salmon and the Ocean pout (an eel-like marine fish). They are designed to grow faster than conventional farmed Atlantic salmon and in colder water, and thus increase profits for salmon farms. While the approval granted by Environment Canada allows for the growing-out of GM salmon on Canadian soil, AquaBounty is sending the eggs to its facilities in Panama, which will distribute the grown fish across North America if approved for human consumption.

The U.S. Food and Drug Administration is currently considering approval of GM salmon for human consumption despite growing public opposition to the fish. If approved, it will be the first GM food animal to be sold on supermarket shelves. Seventy-five organizations in Canada have stated their opposition to GM fish, and approximately 60 U.S. retailers have publicly promised to not sell GM salmon if it's approved. The state of California recently passed a law prohibiting the development of GM salmon for environmental reasons.

The outcry against GM salmon in Canada has been provoked by two major factors: the federal government failed to consult with Canadian citizens before approving the development of GM salmon; and the threats the technology poses to nature ecosystems, and wild salmon stocks in particular.

The decision to approve GM salmon

for production came in the absence of public consultation. In fact, Environment Canada didn't even tell the public it was conducting an internal assessment for approving GM salmon eggs. All of its decisions were made behind closed doors and citizens were not once asked to provide input.

Considering the controversial nature of genetic engineering and considerable public opposition in the past to the development of GM animals (such as the "Enviropig," development of which stopped after opposition from the public and farmers), it is troubling that this decision was made in the absence of public scrutiny.

Part of the reason GM technology is controversial is because its impacts on our natural environment are unknown. This is particularly the case for GM salmon. Salmon populations around the world are at risk, and Atlantic salmon populations are considered endangered by Canadian scientists, and face the risk of extinction. Escapes of farmed salmon already pose risks to wild salmon stocks. However, if a GM salmon were to escape, the consequences could be devastating. An escape could lead to interbreeding between wild salmon and GM salmon, which could change the fundamental nature of Atlantic salmon forever.

AquaBounty claims that all GM salmon will be bred to be sterile females. However, it has acknowledged that up to five percent may be able to reproduce. If production is commercialized and becomes widespread it may only be a matter of time before these fish escape.

Escapes of GMO salmon could be devastating to wild salmon stocks.

Interbreeding has already been shown to be possible with wild salmon and a close relative of salmon, the Brown trout. The GM salmon are also aggressive and may compete with salmon, trout, and other wild fish for food and habitat. The consequences of this technology escaping into the wild are irreversible, and to many, frightening.

It isn't just environmental groups that have expressed concern about GM salmon. Salmon anglers, including those who make a living running angling trips, are also worried about the potential impacts on their businesses. So is the traditional aquaculture industry, which sees GM salmon as a threat to their own business model.

Because of the depth of concern about this new technology, the Ecology Action Centre (Nova Scotia) and Living Oceans Society (British Columbia) have launched a lawsuit against the Canadian government for premature approval of GM salmon. The groups are concerned that Environment Canada violated the Canadian Environmental Protection Act when it permitted the manufacture of the GM Atlantic salmon eggs, because the agency failed to assess whether the new species could become invasive. The case has not yet gone to court because, 10 months after the suit was filed, the government has still not released all documents related to the case. The groups hope that the case will ultimately prevent the development of GM salmon in Canada until proper assessments are completed, and at the same time raise the profile of the issue with the Canadian public.

In the meantime, AquaBounty's Panama facility, which grows the eggs into adult fish, has been fined for a series of breaches of environmental regulations, and a second GM salmon research facility has opened in P.E.I. Both developments are cause for concern, especially with the legal status of GM salmon in Canada pending and without any public and scientific discourse about what could be the first GM food animal in the world to be sold in stores.

(Mark Butler is the policy director at the Ecology Action Centre. Catharine Grant is the marine policy and certification co-ordinator at the Ecology Action Centre.)

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