

Genetically Modified Salmon: Food or 'Frankenfish'?

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By Monique Conrod



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A company called AquaBounty Technologies has created a new type of salmon that grows twice as fast as regular salmon. Now it wants permission to sell the salmon as food.

But many people, including some scientists, say the company should not be allowed to farm or sell the salmon until we know more about the possible effects it could have on the environment and on human health.



The controversial fish, called the AquAdvantage salmon, has been genetically modified. That means some of its DNA has been artificially altered. (DNA is the information stored in the cells of an organism that determines the characteristics of that organism.)

The salmon is also "transgenic," which means genetic material from a different type of organism has been artificially added to the salmon's DNA.

About 25 years ago, a group of Canadian scientists wanted to create a strain of salmon that could survive in fish farms in the cold water off New Brunswick. They took genetic material from Chinook salmon and from an eel-like fish called the ocean pout and injected it into the eggs of an Atlantic salmon.

The result was a fast-growing fish that looks and tastes like a regular farmed Atlantic salmon. Some people call it a "super salmon," while others call it "Frankenfish," after the fictional monster created by Dr. Frankenstein.

In the early 1990s, the scientists teamed up with a U.S. company that wanted to produce the eggs commercially and sell them to fish farmers. But they faced a major obstacle: no government had ever approved a genetically modified (GM) animal as food.

The U.S. Food and Drug Administration (FDA), which regulates food in the United States, studied the salmon for several years. In 2010, they decided that the salmon was safe to eat and would have “no significant impact” on the environment – as long as it was raised in special facilities and could not accidentally be released into rivers or oceans.

But so many people objected that the FDA decided to reconsider its decision. They asked for comments from the public and received more than 35,000 responses. The FDA is still considering these comments and has not yet announced whether it will allow the salmon to be sold as food for humans.

In November 2013, the Canadian government gave AquaBounty Technologies permission to produce its transgenic salmon eggs at a hatchery in Prince Edward Island.

The fish live in special tanks inside the hatchery, and there are several filters and barriers designed to make sure transgenic salmon do not enter the natural environment. These fish are used to produce eggs that are then sent to a fish farm in Panama, in Central America, where they will grow to full size.

For now, the full-grown fish are buried in a pit near the fish farm because they cannot be sold for food.

Ron Stotish is the CEO (head) of AquaBounty Technologies. His company has conducted many experiments to show that the fish are not harmful to humans. They have spent a lot of money trying to get the salmon approved as human food.

He says the transgenic salmon look and taste just like regular Atlantic salmon, but because they grow so fast, they are ready to eat in 18 months instead of 36 months. And since the salmon are farmed, the supply is predictable and won't run out.

Stotish argues that raising transgenic salmon for food would actually be good for the environment because it would prevent the destruction of natural resources. He claims it might even end world hunger.

But many people disagree with Stotish and his plans to sell the salmon as food. They say there is not enough information available yet to know whether transgenic fish could be harmful to humans or to the environment.

One group in Prince Edward Island, called the Coalition for a GE-Free PEI, has organized public meetings and demonstrations against the hatchery.

Another group, called Ecojustice, has asked the Federal Court to review the government's decision to let AquaBounty produce GM eggs in PEI. They say the government did not have all the necessary information – like whether GM salmon could be harmful to the natural ecosystem and put wild salmon at risk if it escaped into the environment – before making the decision.

Ecojustice also says the government should have allowed members of the public to express their opinions about the hatchery. They are still waiting to find out if the court will review the decision.

Meanwhile, Canadians may already be eating GM food without realizing it. Genetically modified versions of tomatoes, corn, soya, canola, squash, milk products and other foods are grown and sold in North America.

Many of these are used as ingredients in other food products. While some countries require manufacturers to say on the label whether a product contains genetically modified ingredients, Canada does not.

Related sites

Overview of [genetically modified](#) foods.

Explanation of the [genetic engineering](#) process.

[Just Label It](#) (an organization in favour of labelling GM foods).

CURRICULUM CONNECTIONS

By Kathleen Tilly

Writing/Discussion Prompt

The company, AquaBounty Technologies, wants permission to sell this new type of salmon as food. What is food? Use your own understanding and experiences to come up with a definition. Using your definition, does this new type of salmon qualify as food?

Reading Prompt: Demonstrating Understanding

These new fish are very controversial and there are many opinions that surround them. In this article, there is positive and negative information about these new fish. Summarize the two sides using a t-chart.

Junior

Demonstrate understanding of increasingly complex texts by summarizing and explaining important ideas and citing relevant supporting details (OME, Reading: 1.4)

Intermediate

Demonstrate understanding of increasingly complex texts by summarizing important ideas and citing a variety of details that support the main idea (OME, Reading: 1.4)

Language Feature: Preposition

The article explains that the new type of fish are “‘transgenic’, which means genetic material from a different type of organism has been artificially added to the salmon’s DNA.”

Now that you know what ‘genic’ means, what do you think the preposition ‘trans’ means?