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Panel Leans in Favor of Engineered Salmon

By **ANDREW POLLACK**

ROCKVILLE, Md. — Members of a federal advisory committee on Monday seemed to conclude that genetically engineered super-salmon would be safe to eat and for the environment, but they also found gaps in the studies used to support that conclusion.

The committee met here to advise the [Food and Drug Administration](#) on whether to approve what would be the first genetically engineered animal to enter the American food supply.

The Atlantic salmon, which would be raised on farms, contain an extra [growth hormone](#) gene that allows them to grow to marketable size about twice as fast as conventional fish.

Committee members, who were not asked to vote on whether the fish should be approved, did not point out anything about the fish that would seem dangerous, despite one study suggesting a possible increase in the potential to cause [allergic reactions](#). They said the chance the fish would escape into the wild was low.

“They didn’t see any glaring holes” in the data, Gregory A. Jaffe of the [Center for Science in the Public Interest](#), who was the consumer representative on the committee, said after the meeting ended.

Still some panel members did say the studies the F.D.A. relied on to reach its own conclusion that the salmon would be safe were flawed, often using only a few dozen fish or even fewer.

“I do get [heartburn](#) when we’re going to allow post-market surveillance to finalize our safety evaluation,” said one committee member, Michael D. Apley, a pharmacology expert at [Kansas State University](#).

The criticisms could add to the time needed to approve the salmon. It could also provide grist for consumer and environmental groups, many of which testified on Monday that the salmon should not be approved.

Approval of the salmon could pave the way for other such biotech animals to enter the food supply, like a pig developed in Canada that has more environmentally friendly manure.

The results could also influence other countries. Eric Hallerman, a fisheries expert at [Virginia Tech](#), told the committee that fast-growing versions had already been developed for 18 different types of fish in various countries.

The salmon contain a growth hormone gene from the Chinook salmon and a genetic switch from the ocean pout that turns on an antifreeze gene. That allows the salmon to make growth hormone in cold weather, whereas salmon usually produce it only in warm weather.

Ronald L. Stotish, the chief executive of AquaBounty Technologies, the company that developed the salmon, told the committee that its AquAdvantage salmon would help the world meet rising demand for seafood without further devastating natural fisheries. He said it would be economical to grow the fish in inland tanks in the United States, saving the cost of flying in the fish from Chile or Norway, from which the United States now gets most of its Atlantic salmon, he said.

For now, though, the company's eggs are being hatched at a company facility in Prince Edward Island, Canada. And the fish would be grown to size in only limited quantities at a company facility in Panama.

The company said that fish would not escape because they are grown inland in facilities with containment mechanisms. If any did escape, it said, the rivers outside the Canadian and Panama facilities would be too salty or warm for the fish to survive. And the fish would all be female and almost all would be sterile, so they would not interbreed with wild salmon.

But some committee members, as well as some environmental groups, said the government's environmental assessment should evaluate what would happen if the salmon were grown widely in many facilities.

"The F.D.A. must consider issues related to realistic production scenarios," said Anna Zivian, a senior manager at the group Ocean Conservancy.

One test showed a possible increase in the potential to cause allergic reactions that was almost statistically significant even though only six fish were used in each group in the study.

But several committee members said the meaning of that test's results were open to question since it was not clear what amount of increase was meaningful.

Kevin Wells, an assistant professor at the [University of Missouri](#) and a committee member, said he doubted the fish would cause extra [allergies](#).

“The salmon contains nothing that isn’t in the human diet,” he said.

The fish are being regulated under the process used to approve veterinary drugs. The F.D.A. held a half-day session on Sunday to give the committee, made up mostly of veterinarians, a primer on genetic engineering.

Approval, if it comes, is likely to take at least several months. The F.D.A. said it would prepare an environmental assessment that would be open to comment for 30 days. If the agency decides that there could be a significant environmental impact — something that does not appear likely — it will have to do a full environmental impact statement, which could take months or years.

The F.D.A. will have a public hearing on Tuesday on whether the salmon, if approved, should be labeled.