

The Fishy Business of Transgenic Salmon: Explaining the Delay in the Mass Commercialization Process

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Excerpt

While by themselves the skepticisms of both the public and the scientific community delay a consensus being reached, the combination of the two magnifies the cumulative effect. As was mentioned previously, consumers are hesitant of transgenic salmon due to not knowing the effects of consumption on their own well being while researchers are hesitant due to not knowing the effects of commercialization on the environment if an escape were to occur. There exists a mismatch between the two groups, and the different focuses potentially extend the delay because part of the role of science is somehow addressing public concerns. However, if we look deeper into the two focuses, we see that although the concerns of the public and the science are explicitly different, they arise from a similar qualm that genetically modified salmon have the potential to pervert nature. Since we generally associate nature with pureness, the potential violation of an innate association perpetuates a fundamental roadblock hindering the decision-making process, a roadblock that exists despite the increased knowledge of the scientists.

Directing our attention back to the public's apprehensions, we see that their major health concerns arise from a consumer preference for "natural" products (Kuznesof and Ritson n.p.) and a belief that the genetic modification process somehow fundamentally alters the naturalness of the salmon. In fact, the genetic modification of the Atlantic salmon simply inserts a naturally occurring growth hormone from Chinook salmon, which is also consumed by humans. Moreover, cooking and digesting destroys this hormone completely (Stokstad 1799), so the only aspect of the transgenic salmon that can be accurately described as varying from nature is the physical process of transferring the DNA. Animal scientists Alison Van Eenennaam and William Muir conducted a thorough review of the scientific literature about the potential for food safety

risks associated with the consumption of transgenic salmon and concluded that the hormone does not cause any concerns (708). In fact, “no possible adverse impacts of transgenic salmon on human health have been reported” (Aerni 335). However, public perceptions of health risk nonetheless continue. E. Issatt elucidates that a romanticized view of farming techniques may be responsible for the skepticism of transgenic salmon (303); this romanticized view can also be used to explain the public’s rejection of genetic modification as too unnatural. Humans have been genetically improving animals for 10,000 years through domestication and selective breeding for favorable traits for food production (Lowenthal S47). While selective breeding does not physically transfer advantageous DNA, it effectively acts in the same manner, with man’s hand intervening in the genetic makeup of an animal. However, only genetic modification brings these heightened sentiments of doubt. Why does this occur? Again, this can be explained by the inability to know – in this case, it is the inability to know broad, long-term health effects. Even though no health effects have been reported, that does not mean they do not exist because without the widespread introduction of the transgenic salmon, studies cannot be conducted on how it affects a large number of people. The inability to know with certainty if and how the naturalness of ourselves becomes violated through consumption of transgenic salmon leads to the hesitation and delay in approval. Despite evidence suggesting there are likely no adverse consequences and no perversion of “naturalness” from consuming salmon, the fact that we maintain this delay attests to the degree with which we regard “naturalness” as a fundamental value. That degree likely makes it rather difficult to reverse the current status quo of thinking.

In a similar fashion as the public focus, the scientific focus also represents a fundamental concern over the perversion of nature, but in this case it is about how genetically modified fish may pervert the naturalness of the ecosystem should they escape. Philipp Aerni, in his evaluation of the scientific debates of transgenic salmon, attempts to rationalize the ecological focus by concluding that since “zero risk cannot be guaranteed in spite of improved containment facilities and fish sterilization techniques, (...) precaution must be the overall guiding principle

in regulating aquatic biotechnology” (337). The view that precaution must be the procedure demonstrates that the scientific community holds the sanctity of nature in very high regard, and that any potential violation of this sanctity must be studied intensely. However, just like the public, some of the scientific community’s focus may well be due to a certain degree of romanticizing, or at least compliance with current practices. Aerni himself notes how “each year hundreds of thousands of farmed salmon escape from net pens and their potential impact on wild salmon is uncertain” (331). While this may serve to support the argument that scientific research into the ecological impacts of transgenic salmon is worthwhile because there is precedence for salmon escape, it more importantly highlights the fact that we are holding the transgenic salmon to a much higher standard, since we disallow transgenic salmon commercialization to proceed because we do not know enough about environmental impact, but we continue to allow salmon farming even though that practice also carries uncertain ecological effects from escaped fish. Therefore, somehow the scientific community perceives genetic modification as more of a deviation from the natural than selective breeding, and again, the foundational valuing of the purity of nature is explanatory of the regulatory delay.

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Author Commentary

Eric Qiu

This excerpt is from my research paper entitled “The Fishy Business of Transgenic Salmon: Explaining the Delay in the Mass Commercialization Process”, which was written for my freshman writing seminar, *Living with Animals*. In it, I examine the case of the transgenic AquAdvantage salmon and seek to explain its state of limbo between approval and rejection for mass consumer consumption. During the research phase, a challenge that I quickly encountered was the myriad of angles that I could potentially take to explore this topic. A more traditional approach may have been to thoroughly examine a single angle, for example through a synthesis of the scientific data evaluating benefits and risks. However, I knew I wanted to incorporate the public opinion side as well, because that was a major component fueling the debates on the acceptance of genetically modified salmon.

I ended up approaching this topic through both lenses. I looked at the scientific hesitation versus the public hesitation, established that they seemingly appear to be different, but in the end distilled the concerns of both groups to the same fundamental concern over the perversion of nature associated with the transgenic salmon. Since I was dealing with a complex approach to a complex topic, it was quite important to present my arguments in a fluid structure and clearly indicate when I am shifting focuses in order to preserve the clarity of the paper and maintain the integrity of my argument. One strategy I used was to stay consistent in the order that I presented the material. Throughout, I presented first the public side then the scientific side, separated into distinct paragraphs but following a similar structure. Interspaced are paragraphs bringing both sides together and connecting them. This way, the different characteristics of both areas are addressed without focusing too much on one at a time.

In grappling with a difficult subject, I initially found myself struggling to discover how to insert myself into the scholarly conversation, especially because groups of the referenced scholars were discussing vastly different ideas. What I found quite helpful was taking a step back from all of the evidence and observing everything from a removed, abstract level, even during the revision process. As a result, I found it easier to discover underlying fundamental patterns and make connections across disciplines. Once I was able to identify the fact that both the public and scientific hesitation represents a concern with an “inability to know”, I was then able to reframe my motive and thesis to make a more fluid argument.

In retrospect, I believe the most important part of writing this paper was establishing a broad foundation of research. This way, my thesis was not dictated by the availability of evidence, but rather the evidence works to provide a more robust thesis. Of course, with this comes the challenge of handling a large number of sources. A strategy I have developed in regards to this is outlining by pen and paper. Physically writing facilitates the ability to draw arrows from one idea to the next, to circle related ideas, and to sketch other visual representations of arguments. It forces me to make connections and organize, so when I go to actually write, there exists a clear roadmap for the path that the paper will go. Thus, despite presenting challenges of organization and scope, a broad foundation for research nonetheless nurtures the growth of rich argumentative structure.

Editor Commentary

Julia Johnstone

The first paper topics assigned in Writing Seminars typically require students to respond to one or two sources. As the semester goes on, students are asked to include more and more sources in their writing, place them in conversation with each other, and add their own original arguments to this conversation. In tackling this challenge, paper structure becomes crucial. Without careful structure, students’ own perspectives can become lost in the tangle of sources, leaving their readers confused. Eric’s Writing Seminar research paper, excerpted above, is an example of how successful structure can help maintain a paper’s clarity, even when working with many sources. In the paper, which explores skepticism toward transgenic salmon, Eric uses strong macro- and microstructure to introduce readers to his many sources while still foregrounding his own argument.

Eric splits his sources into two camps: those looking at the public’s concerns about transgenic salmon and those concerning scientists’ hesitation about the introduction of the fish. Eric first describes the differences between these two camps, before explaining in the excerpt above how each group is ultimately concerned that the creation of transgenic salmon is unnatural. Eric is able to frequently switch focus from analysis of one camp to the other and still maintain clarity because of his successful use of macrostructure elements like roadmaps and topic sentence transitions. In the first paragraph of the excerpt, Eric briefly recaps his analysis thus far (“As was mentioned previously...”) before transitioning to the next step in his argument (“However, if we look deeper into the two focuses....”). This paragraph works as a roadmap, linking the previous section of the paper to the next and signaling to the reader what analysis to expect. The topic sentences of the other two excerpted paragraphs also successfully guide the reader into the next step in Eric’s argument. In one, Eric acknowledges that he is jumping back to a discussion of his sources on the general public’s concerns (“Directing our attention back to the public’s apprehensions...”). In the other, Eric shifts his focus to scientific opinion (“In a similar fashion as the public focus, the scientific focus also represents...”). In both of these examples, he references a previous point made in the paper as he introduces his next topic of analysis. These logical transitions help the reader keep track of Eric’s thought process.

In addition to successfully employing macrostructure elements such as roadmaps and paragraph transitions, Eric structures his paragraphs to frame his arguments clearly. In particular, he begins paragraphs with a topic sentence expressing the main claim made in the paragraph, introduces evidence, analyzes that evidence, and finally explains the significance of the claim. In the second excerpted paragraph, Eric states his perspective (that public concerns “arise from a consumer preference for ‘natural’ products...”), provides supporting evidence and analysis, and then draws out the implications of this point, namely that public hesitation is rooted in uncertainty and that people “regard ‘naturalness’ as a fundamental value.” By making his claim upfront and finishing with his own analysis and implications, Eric ensures that his argument is not overshadowed by summary of his sources’ work.