

# Below the Surface: The Dangers of Genetically Engineered Salmon

Fact Sheet • June 2011

The Food and Drug Administration (FDA) is poised to approve genetically engineered (GE) salmon as the first “transgenic” animal allowed into the U.S. food supply. AquaBounty Technologies, Inc. says its GE salmon,<sup>1</sup> which is designed to grow twice as fast as an unaltered fish,<sup>2</sup> is safe, healthy and poses little threat to the environment, but there are many reasons to doubt these claims.

## GE salmon may not be a safe or healthy choice

AquaBounty’s GE salmon would be raised in farms and would likely have many of the same nutritional differences that unaltered farmed salmon already have in comparison to wild salmon. These differences include lower levels of omega-3 fatty acids<sup>3</sup> and higher levels of contaminants like polychlorinated biphenyls (PCBs).<sup>4</sup> GE salmon have different vitamin, mineral and amino acid levels than non-GE salmon,<sup>5</sup> and GE salmon also have slightly higher levels of insulin-like growth factor 1 (IGF-1),<sup>6</sup> which has been shown to increase the risk of certain cancers.<sup>7</sup>

GE foods have also been found to cause allergic reactions.<sup>8</sup> Since no long-term studies on the safety of consuming transgenic fish have been conducted,<sup>9</sup> the consequences of approving these GE salmon as a food for humans are almost entirely unknown.

## GE salmon could threaten wild fish populations

AquaBounty plans to raise only sterile fish, but the FDA has called this claim “potentially misleading,”<sup>10</sup> as up to 5 percent of these fish may be fertile.<sup>11</sup> The company also claims their GE salmon will be raised in closed facilities so that wild stocks won’t be at risk.<sup>12</sup> Since the company intends only to produce and sell the eggs, it is unclear how they could enforce such restrictions on aquaculture companies, like those in China, Southeast Asia and Chile,<sup>13</sup> where regulations and oversight on aquaculture are notoriously weak.

Worldwide, the dominant method of raising salmon is in open net pens in the ocean, and millions of farmed fish

escape from these facilities every year.<sup>14</sup> The impact of a GE salmon escape could be immense, as AquaBounty’s founder once claimed orders for 15 million eggs.<sup>15</sup>

Escaped fish may outcompete wild fish for food, space and mating opportunities, as they often exhibit greater aggression and risk-taking than wild fish.<sup>16</sup> AquaBounty’s GE salmon are genetically designed to eat more and grow faster than wild salmon.<sup>17</sup> An invasion of GE fish into a natural fish population could lead to the extinction of both wild and transgenic fish in that region.<sup>18</sup> Escaped salmon have also been linked to the spread of infectious diseases and sea lice to wild populations.<sup>19</sup>

## GE salmon could hurt fishing communities and consumer choice

The worst-case scenario for the environment, fishermen and consumers — wild stocks going extinct — would increase AquaBounty’s market share and spur increased production of GE fish. Other markets where GE products have been introduced have experienced a similar effect, resulting in an enormous concentration of power in companies that produce GE products.<sup>20</sup> And interbreeding or intermingling of GE and non-GE salmon during processing could prompt foreign markets with strong regulations on GE foods to reject U.S. salmon,<sup>21</sup> hurting the fishing industry.

The spread of GE salmon may mean that consumers have fewer choices about what kind of salmon they can buy. People may not even know if they are eating GE salmon because the FDA may not require it to be specially labeled.<sup>22</sup> Most consumers do not want to eat transgenic salmon; more than 60 percent of consumers polled by

Consumer Reports National Research Center said they would not buy meat or milk from GE animals.<sup>23</sup>

Instead of increasing world food supplies<sup>24</sup> and reducing pressure on wild fish,<sup>25</sup> GE salmon pose a significant threat to wild fish and the people who depend upon them. Farmed fish like salmon are typically given feed that includes smaller, wild fish,<sup>26</sup> which are a critical food source for both marine wildlife and people in many coastal areas worldwide.<sup>27</sup> Growing GE fish could increase demand for feed<sup>28</sup> and thereby increase this demand. Production of alternative feeds containing soy has already been shown to threaten biodiversity, cause soil erosion, increase deforestation and harm local communities in Latin America.<sup>29</sup>

## Flawed approval process

The FDA is considering approval of GE salmon through a process designed for new animal drugs, rather than developing an appropriate evaluation method for GE animals intended for human consumption.<sup>30</sup> The FDA hasn't fulfilled requirements to consult with other federal agencies that have serious concerns about approving GE salmon,<sup>31</sup> and the U.S. Congress<sup>32</sup> and state legislatures of Alaska<sup>33</sup> and California<sup>34</sup> have bills opposing GE salmon.

The approval of GE salmon is likely to serve as a precedent for other GE animals entering the food supply. There are better alternatives available to meet the growing demand for fish, including sustainable, land-based recirculating aquaculture systems and effective management of wild fish populations. There is no need to endanger consumers and the environment by rushing to approve a poorly understood and potentially dangerous new GE salmon.

## Say no to GE salmon

Go to [www.foodandwaterwatch.org/stop-frankenfish](http://www.foodandwaterwatch.org/stop-frankenfish) to take action and tell the FDA not to approve GE salmon!

## Endnotes

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