# Article information:

Introduction of genetic engineering in aquaculture: Ecological and ethical implications for science and governance - ScienceDirect
<https://www.sciencedirect.com/science/article/abs/pii/S0044848605000025>

# Article summary:

1. Genetic engineering (GE) is being introduced in aquaculture for breeding fish and developing alternative sources of feed and vaccines, but it raises ecological, ethical, and economic concerns.

2. The use of GE in aquaculture could lead to the spread of genetically modified (GM) feed to the aquatic environment and horizontal gene transfer from DNA in feed or vaccines to other organisms.

3. To achieve sustainable introduction of GE in aquaculture, appropriate scientific investigations and ethical considerations are necessary, along with stakeholder involvement from the conceptual stage to the commercial stage to inform research and influence policy.

# Article rating:

Appears moderately imbalanced: The article provides some useful information, but is missing several important points or pieces of evidence that would be required to present the discussed topics in a balanced and reliable way. You are encouraged to seek a more balanced perspective on the presented issues by exploring the provided research topics and looking at different information sources.

# Article analysis:

The article "Introduction of genetic engineering in aquaculture: Ecological and ethical implications for science and governance" provides an overview of the potential benefits and risks associated with the use of genetic engineering (GE) in aquaculture. The authors highlight the need for appropriate scientific investigations and ethical considerations prior to large-scale introduction of GE products such as DNA/GE vaccines and GM feed in commercial fish farming.

The article presents a balanced view of the potential benefits and risks associated with GE in aquaculture. It acknowledges that GE strategies, such as transgenic fishes, GM plants as edible vaccines or GM feed, and DNA vaccines may offer a technological solution for some problems faced by the industry. However, it also raises concerns about ecological, ethical, and economic implications associated with their use.

One potential bias in the article is its focus on sustainability as a criterion for assessing harm caused by GE products. While sustainability is an important consideration, it may not be sufficient to address all ecological, ethical, and economic concerns associated with GE in aquaculture. For example, there may be concerns about animal welfare or unintended consequences of gene transfer that are not adequately addressed by a sustainability framework.

The article also highlights the need to involve stakeholders from the conceptual stage to the commercial stage to ensure transparency and informed decision-making. This is an important point that recognizes the importance of engaging diverse perspectives in risk governance processes.

However, one-sided reporting is evident when discussing benefits such as viral disease resistance following DNA vaccination without mentioning any potential negative side effects. The authors acknowledge that side effects may occur but do not provide any evidence or examples to support this claim.

Another missing point of consideration is the potential impact on wild fish populations if GM feed were to be spread into aquatic environments. While this concern is briefly mentioned, it is not explored in depth.

Overall, while the article provides a useful overview of some of the key issues associated with GE in aquaculture, it could benefit from a more nuanced discussion of potential risks and benefits, as well as a more comprehensive consideration of the ethical, ecological, and economic implications associated with their use.

# Topics for further research:

* Potential negative side effects of DNA vaccination in aquaculture
* Animal welfare concerns related to genetic engineering in fish farming
* Unintended consequences of gene transfer in aquaculture
* Ecological impact of GM feed on wild fish populations
* Economic implications of genetic engineering in aquaculture
* Ethical considerations in the use of transgenic fishes in commercial fish farming

# Report location:

<https://www.fullpicture.app/item/a2f347aa46c1ff1ce7457d67d3bc7559>