



GMOs and Campbell's Ethical Assessment Framework

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What this lecture will do

- Apply Campbell's Ethics Assessment Process to understand the challenges and implications of sustainability issues in aquaculture
- Use Campbell's Assessment to discuss GMOs and highlight intrinsic and extrinsic ethical arguments concerning Aquabounty's "sustainable salmon"

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Facilitating moral reasoning: Ethical accounting and GMO fish: Should the sale of Aquabounty salmon be banned in Alaska?

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Campbell's Ethics Assessment Process

- **Problem-seeing:** What are the ethical issues? Who/what is impacted?
- **Ethical detective work/fact-finding:** are we using complete, current science (facts)?
- **Moral imagination:** what means/alternatives can achieve our goals?
- **Ethics Jam:** what values are embedded? Which have priority?
- **Moral Justification:** which options are ethically acceptable?
- **Moral Testing:** which moral tests are passed?

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Applying the ethics assessment process to a policy case

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Should GMO salmon be sold in Alaska?

FDA approves genetically modified salmon for human consumption

Mary Clare Jalonick | Associated Press | November 19, 2015

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WASHINGTON — The Food and Drug Administration on Thursday approved genetically modified salmon, the first such altered animal allowed for human consumption in the United States.

The Obama administration had stalled in approving the fast-growing salmon for more than five years amid consumer concerns about eating genetically modified foods. But the agency said Thursday the fish is safe to eat.



A genetically modified salmon and traditional farmed Atlantic salmon of the same age.

RELATED:

"There are *AquaBounty Technologies*

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Problem seeing

- What are the ethical issues? What must be decided?
 - Is it wrong to sell GMOs fish in Alaska?
 - Do we have special obligations to naturally occurring local species?
 - How will this product impact the market, animals, fisheries industry, fish stocks, the environment, folkways?
 - Will it promote sustainability (people, planet, profit)
- Who are the stakeholders? What are their interests?
 - Experimental fish, other fish
 - Alaska Native folkways and Alaska cultural icons
 - Threat to diversity and natural resources on the coast of Alaska
 - Environmental impacts
 - Fish farmers and farm staff; Biotech companies and agribusinesses..

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Central Concerns

- Unintended consequences and risks for agriculture and the environment
- Food safety and food policy
- Ethics of consent and unwanted social consequences
- Animal welfare and health
- Concerns about novel biotechnology in food (e.g., cloning)
- (Intellectual) property issues
- Religious concerns
- Trust, education and risk communication



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Evaluating Ethical Concerns

- Intrinsic ethical arguments: these are arguments about the morality of genetic engineering itself
- Extrinsic ethical arguments: these are arguments about the morality of applications of genetic engineering or its consequences

The Philosophy of Food

David M. Kaplan (Editor) (2012)

Chapter 7. Ethics and Genetically Modified Food Gary Comstock: pp. 125-127

<http://www.ucpress.edu/book.php?isbn=9780520269347>

Chapter 7 is Comstock's chapter (Philosophy of Food by David Kaplan)

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Comstock's 4 main categories (2012, p. 127-130)

- To engage in agricultural biotechnology is to:
 - a. Play God
 - b. Engage in world-altering interventions/technologies
 - c. Illegitimately cross species boundaries
 - a. Appropriateness of inserting plant genes into fish
 - d. Commodify life

Intrinsic arguments:

- Unnatural argument, violates species integrity, playing God, tampering with evolution

Extrinsic arguments:

- a. Certain applications of GE are permissible or impermissible according to duty-based constraints or considerations (e.g., legal or moral rights)
 - Issues of rights (we may have obligations to increase the food supply)
 - Property rights are violated
 - Does a particular application relegate people to the status of mere means?

Extrinsic Arguments

b. Genetic engineering is good or bad because of its likely consequences. Ways to evaluate consequences:

- Avoid bad consequences
- Maximize good consequences
- Is there fair distribution of good and bad consequences (benefits and burdens) among all affected parties?

Ethical detective work/fact–finding

- What do we need to know?
 - How are the fish created, bred?
 - What are the welfare impacts on fish?
 - What is the evidence?
 - What is the impact on the environment?
 - What is the difference between GMO fish and non-GMO ones??
 - What are good sources of information?

What is genetic engineering?

- The manipulation of the DNA content of an organism to alter that characteristics of that organism (Ruse and Castle, Genetically Modified Foods, 2002)
- Animal Biotechnology and GMOs
 - Use of modern molecular biological techniques to produce animals to provide vital benefits for human beings
- These technologies raises important ethical and public policy question.

Moral imagination: What are the options?

- What are the objectives of decision-makers?
 - If ban market access (e.g., limit consumer choice healthy alternative)
 - If allow market access (e.g., competition with wild fisheries)
- What means/alternatives can achieve their goals?
 - Conduct referendum (include consumers and representatives from fishing industry)

Ethics jam

- What values are embedded? Which have moral priority?
 - Fairness (F)
 - Compassion (C)
 - Protecting others from harm (PH)
 - Promoting others' welfare (PW)
 - Respect for others' choices (RC)



Moral justification

Alternatives

- Which options are ethically acceptable?
 - a. Ban market access
 - b. Allow market access

Values

- Fairness (F)
- Compassion (C)
- Protecting others from harm (PH)
- Promoting others' welfare (PW)
- Respect for others' choices (RC)

- **Which options are ethically acceptable?**

- **Which is ethically preferable?**
 - Does one respect a broader range of values?
 - Are benefits and harms equally distributed?

Moral testing

- Harm
 - Does this alternative do the least harm?
- Practicality
 - Can the decision be implemented?
- Publicity
 - Would I want the decision published?
- Collegiality
 - Can I defend the decision to peers?
- *Reversibility
 - Would I accept the decision if I were the recipient?
- Theoretical
 - Is there an ethical theory that supports the decision?

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Moral testing

Choices

- Allow
- Ban

Moral tests

- Harm, Practicality, Publicity, Collegiality,
*Reversibility, Theoretical
- Harm, Practicality, Publicity, Collegiality,
*Reversibility, Theoretical
- Harm, Practicality, Publicity, Collegiality,
*Reversibility, Theoretical
- Harm, Practicality, Publicity, Collegiality,
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Instructor notes

- On the ethics jam slide, challenge students to think about other values that may apply.
- Ask students to respond to moral justification the by teasing out both intrinsic and extrinsic concerns.
- Also discuss Importance of labeling (if concern is couched in terms of choice)



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