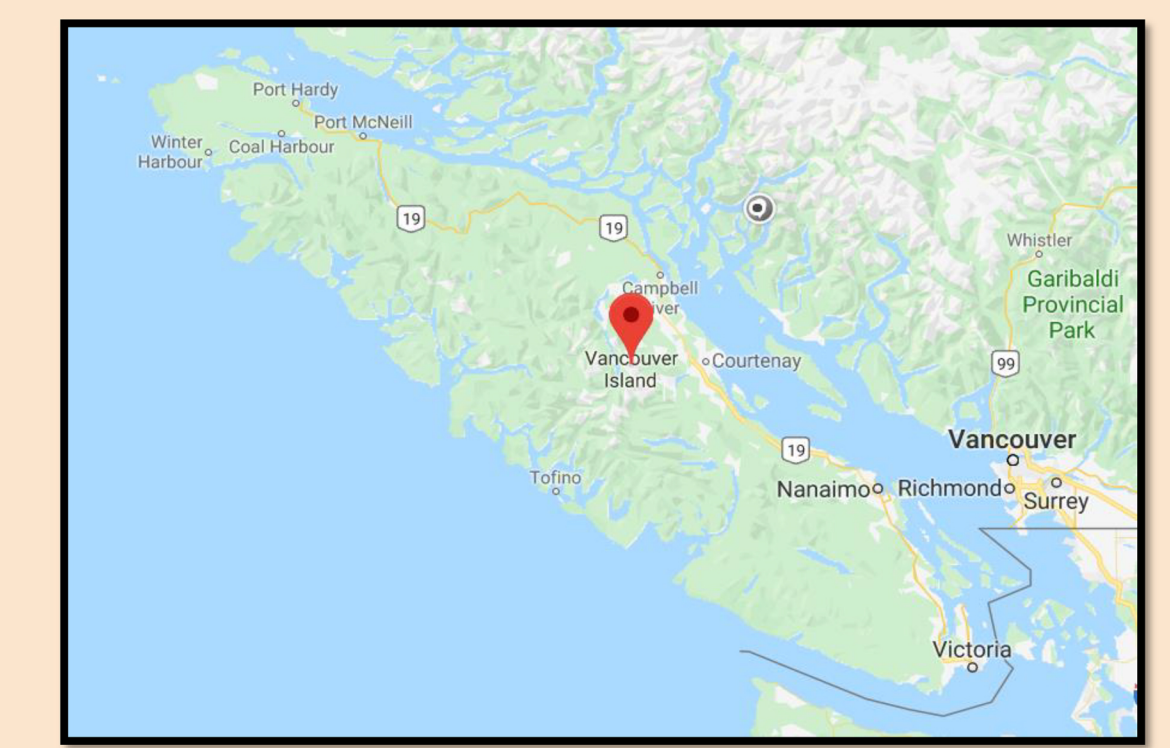


Salmon with a Side of Plastic?

Microplastics are Contaminating Vancouver's Aquaculture

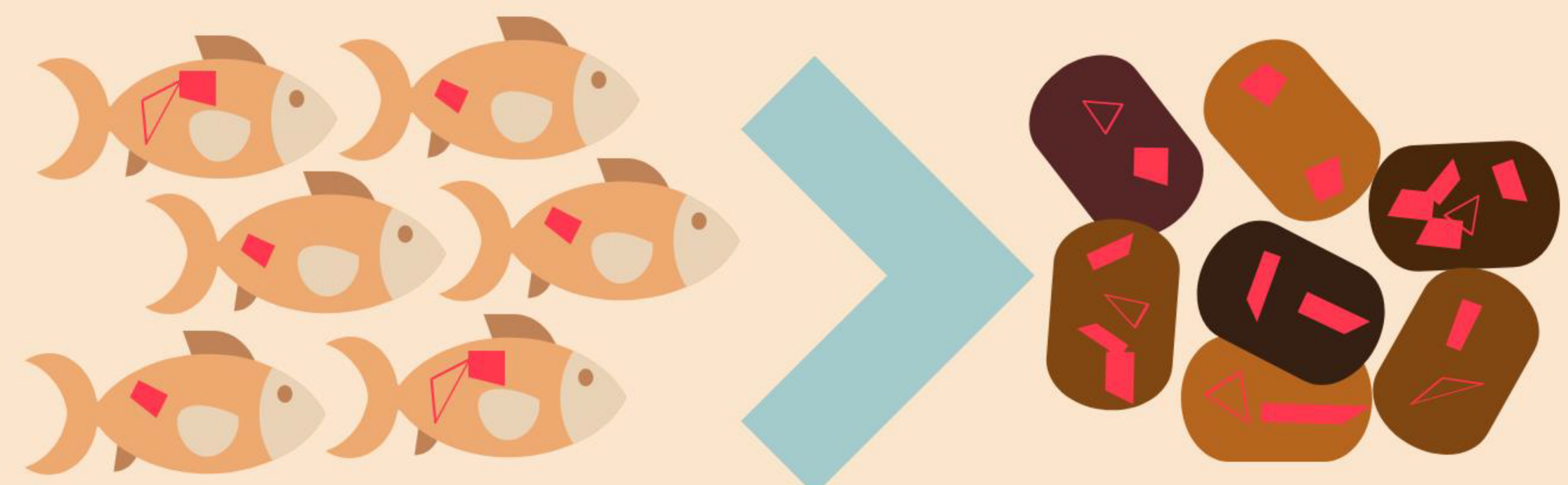
Declan Williams (RBE), Emma Driscoll (CHE), Grace Hadley (BBT), Jeffrey Marsh (BCH)
 Faculty Advisors: Professor Lisa Stoddard and Professor Reeta Rao



The Problem

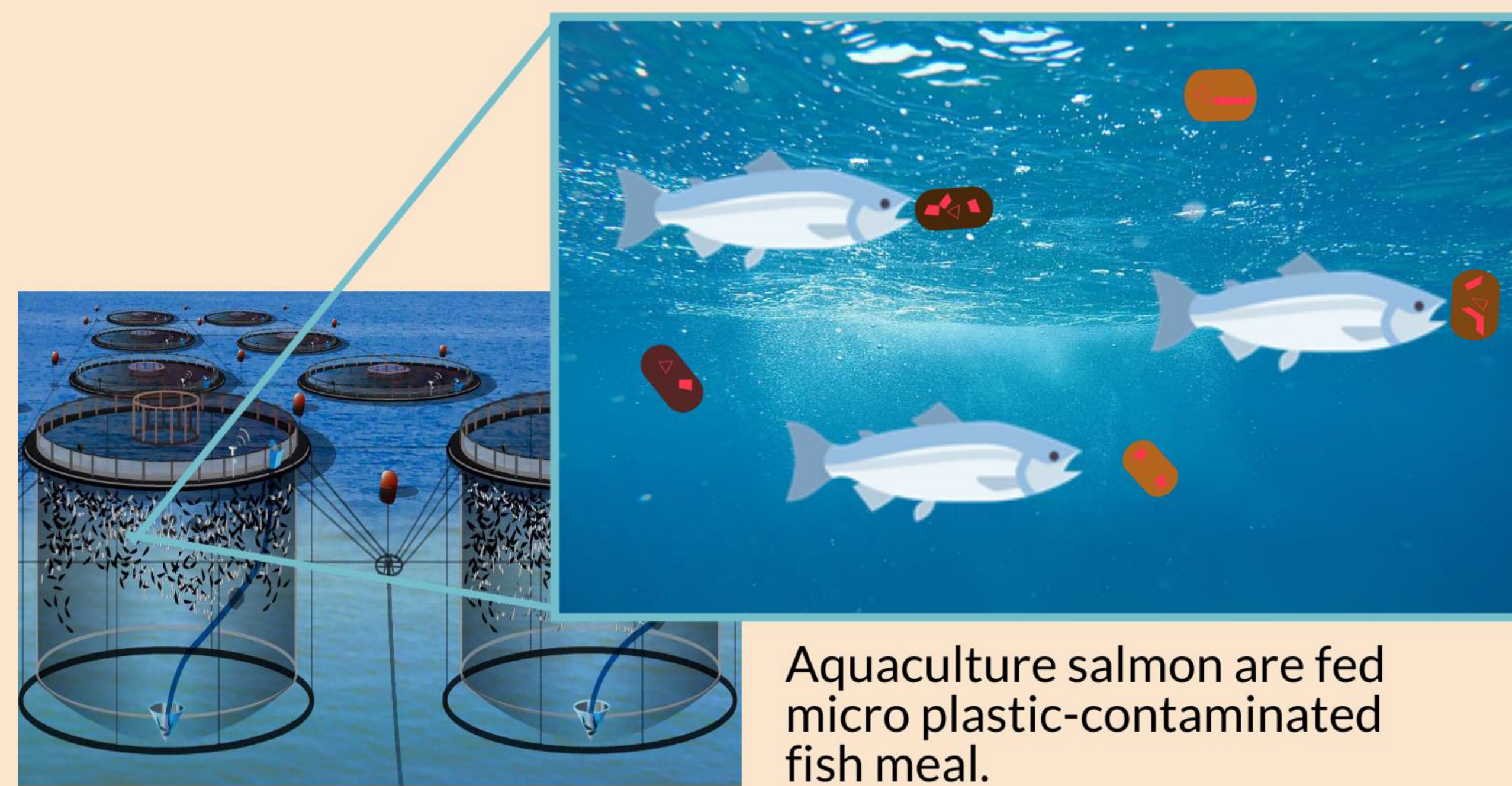
Microplastic contaminated fishmeal is fed to salmon, which can harm salmon consumers.

Microplastics are plastics less than 5mm in length

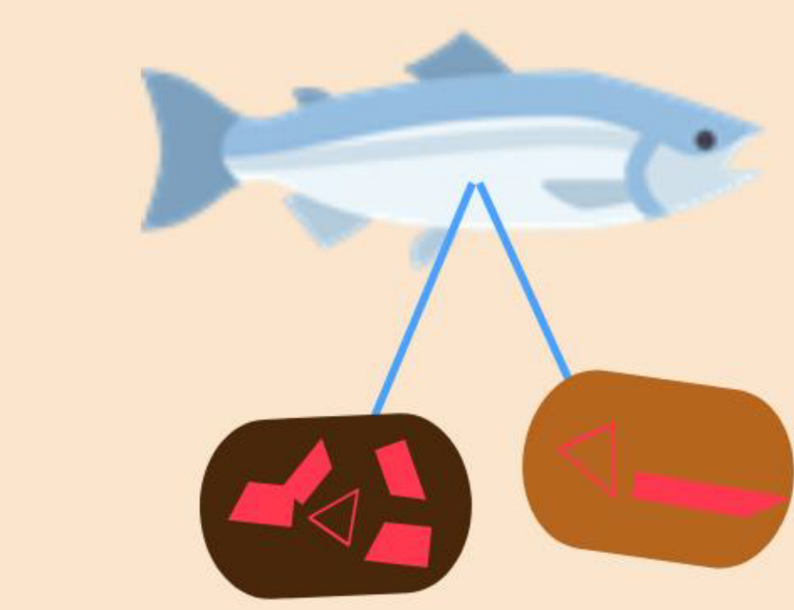


Surface fish eat micro plastics in the ocean

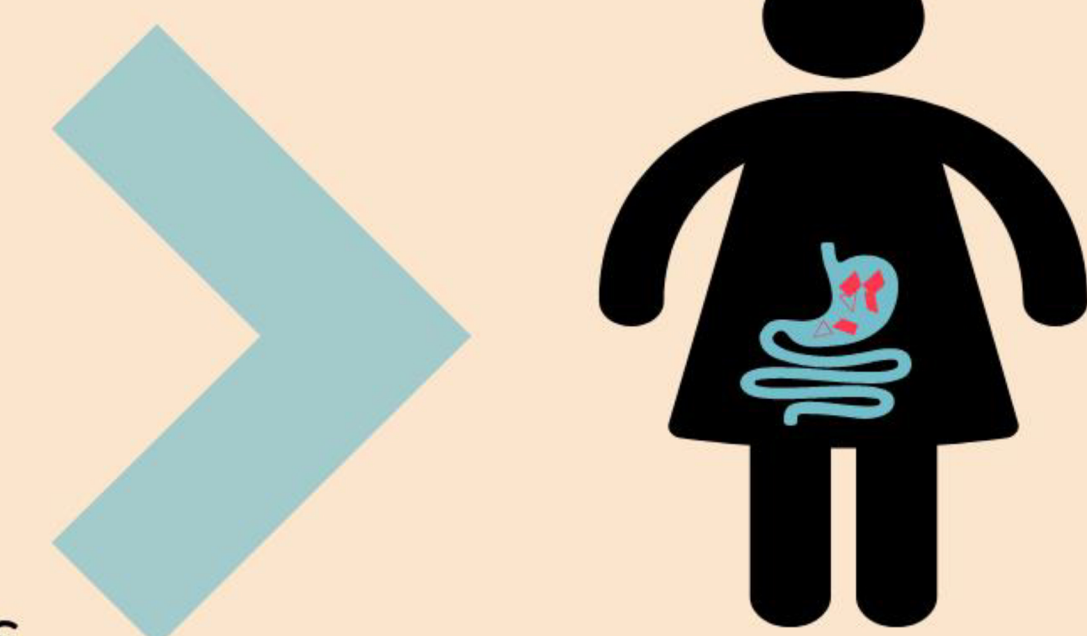
Fish meal is produced from surface fish



Aquaculture salmon are fed micro plastic-contaminated fish meal.

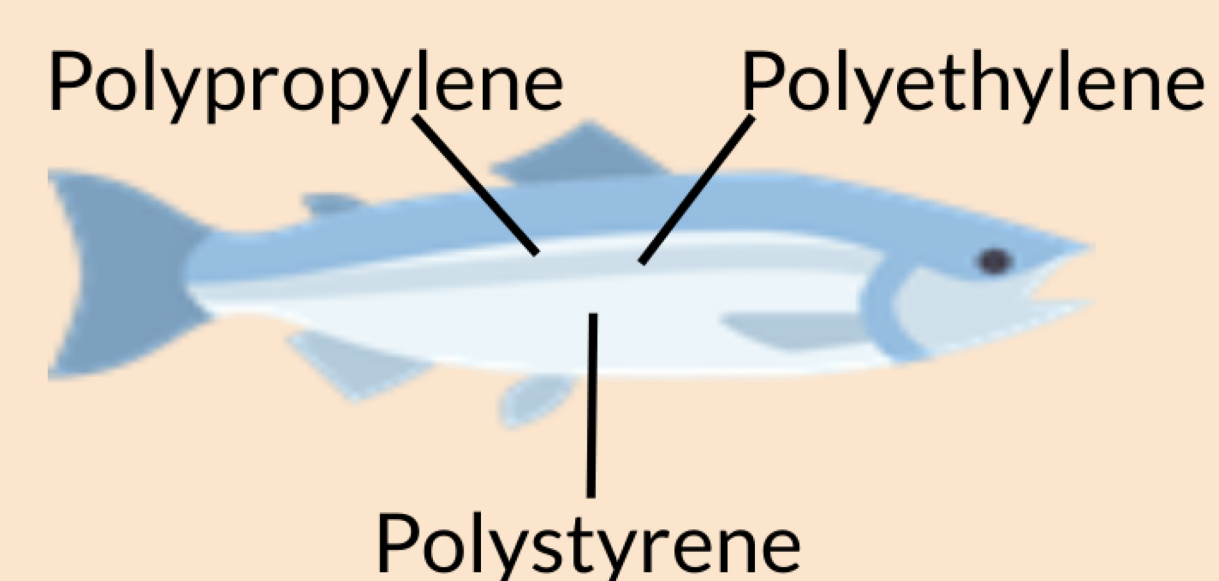


Chemicals in microplastics leach into salmon fat tissue

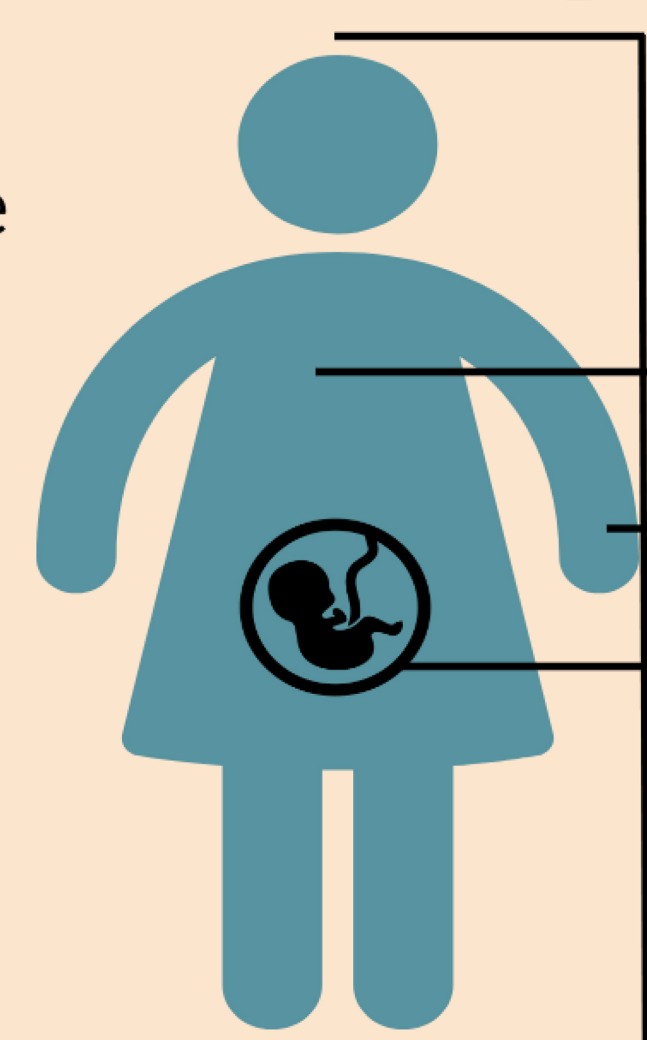


Humans ingest microplastics and related chemicals.

Human Health Impacts



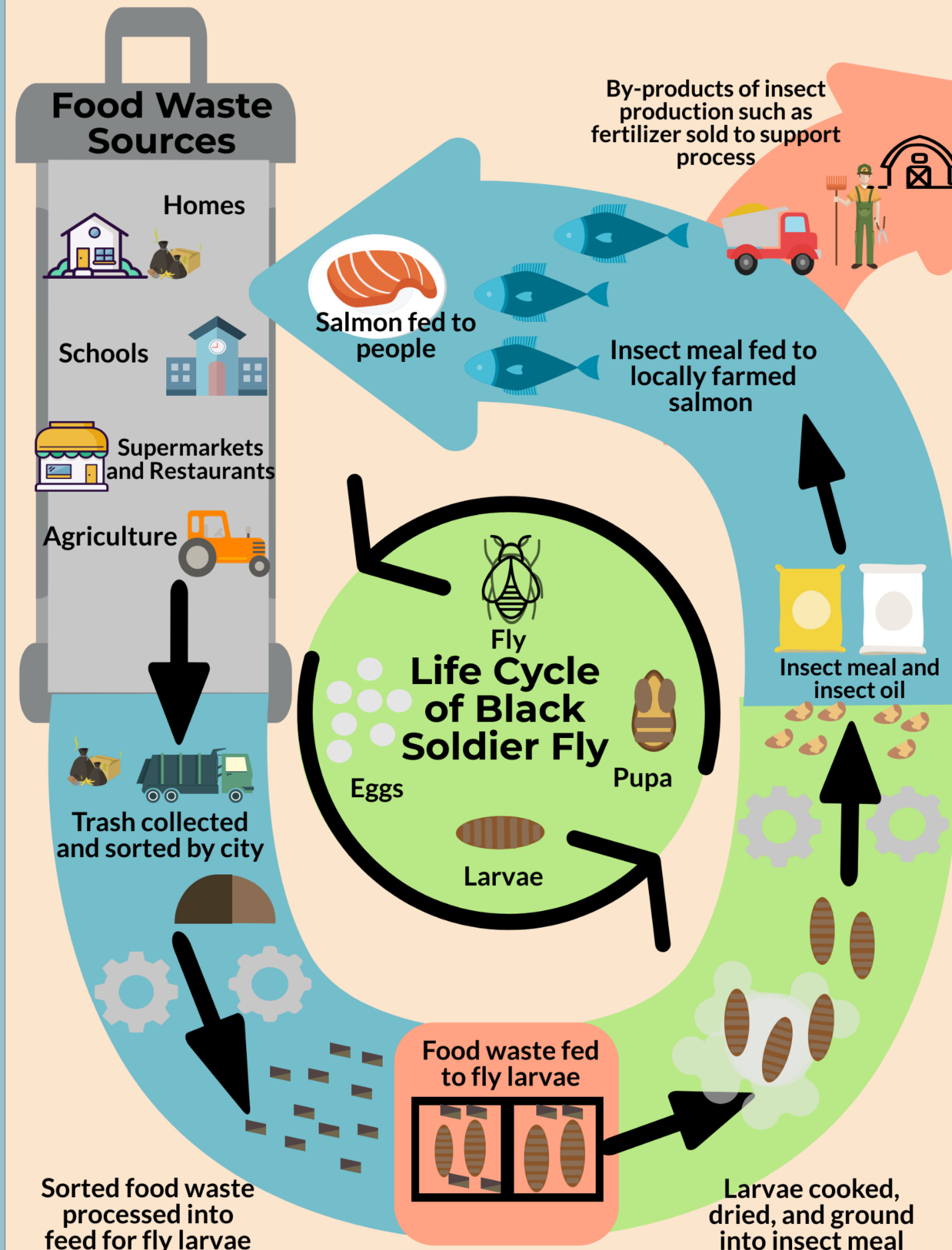
The most common monomers found in salmon fat



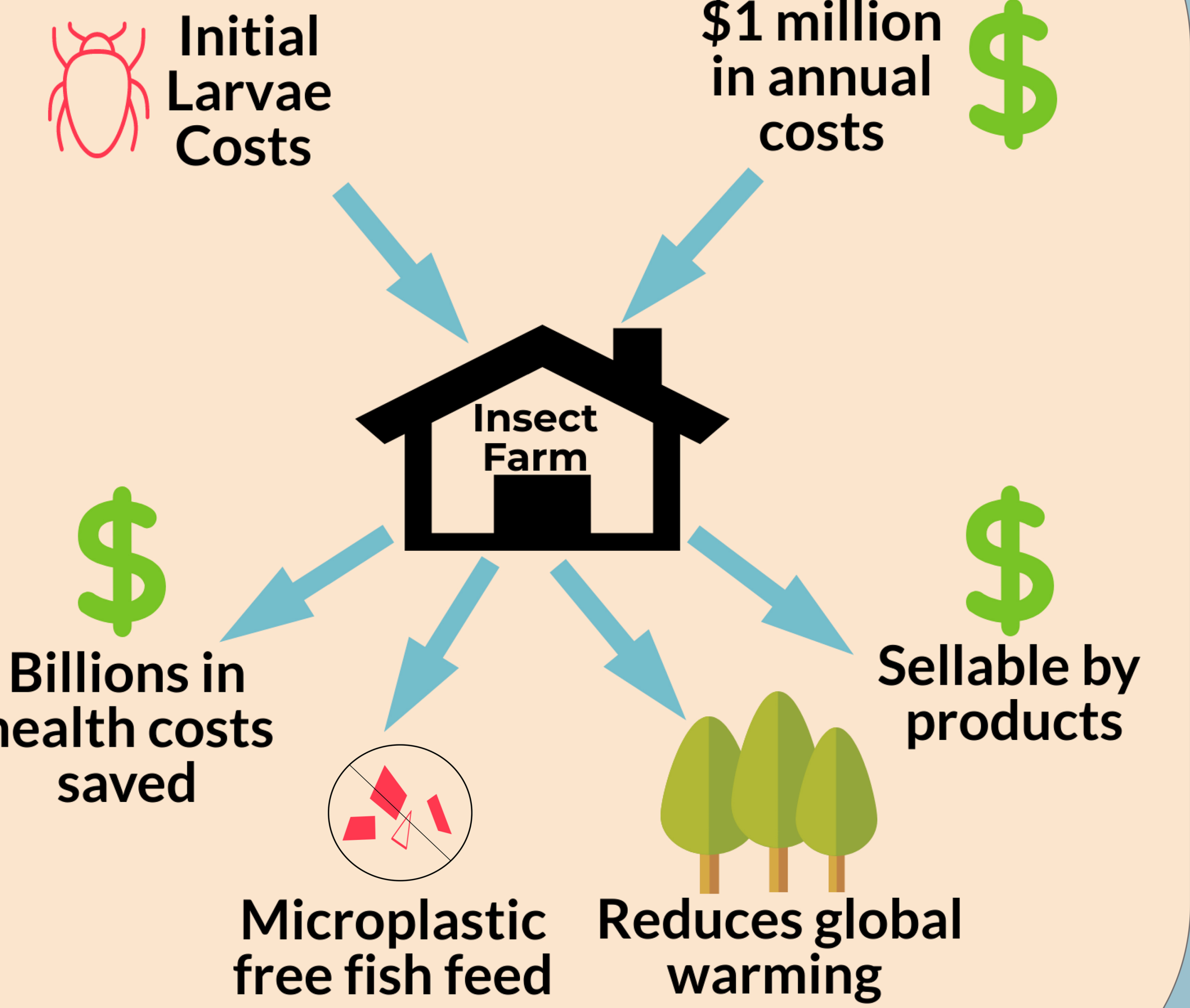
Breast cancer
 Inflammation of skin tissue
 Infertility and/or birth defects
 Weakened Immune System

The Solution:

Converting Food Waste to Salmon Feed with Insects



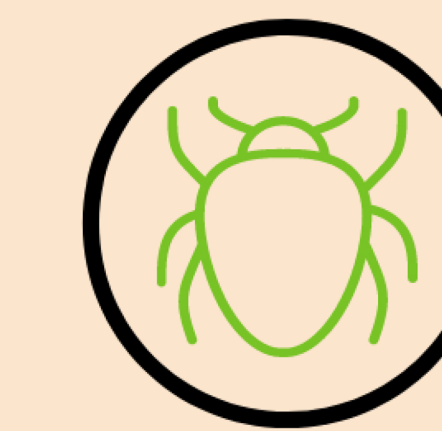
Cost Benefit Analysis



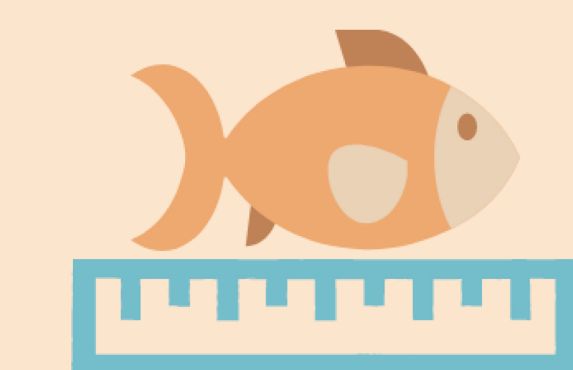
Implementation & Assessment



Partner with the City of Vancouver to implement trash pick up



Contact Enterra Feed about using food waste to raise fly larvae



Partner with Mowi Salmon Farm to test the quality of fish fed with insect meal

Key References

Belgith, I., Liland, N. S., Waagbø, R., Biancarosa, I., Pelusio, N., Li, Y., ... & Lock, E. J. (2018). Potential of insect-based diets for Atlantic salmon (*Salmo salar*). *Aquaculture*, 491, 72-81.

Collicutt, B., Juanes, F., & Dudas, S. E. (2019). Microplastics in juvenile Chinook salmon and their nearshore environments on the east coast of Vancouver Island. *Environmental pollution*, 244, 135-142.

Smith, M., Love, D. C., Rochman, C. M., & Neff, R. A. (2018). Microplastics in seafood and the implications for human health. *Current environmental health reports*, 5(3), 375-386.

Vancouver, C. of. (2019). Zero Waste 2040.