

Education and Experience in Environmental Science



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Environmental Science 120
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Education background

- **University of New Brunswick**

- Bachelor of Science



- **University of Windsor (Ontario)**

- Masters of Science in Environmental Science

- PhD in Environmental Science



UNB: Classes

- Bachelor of Science (4 years)
- Major: Biology
 - All biology related classes like:
 - Ecology, Zoology, Evolution, Animal Behavior
 - Wildlife Management, Animal Physiology, etc.
- Semester abroad in Norway
 - Marine Biology courses



UNB: Classes

- Field courses in Marine Biology
 - Marine Birds, Oceanography, Aquaculture,
 - Seaweeds, Coastal ecosystems



UNB: Work experience

- Worked in research labs in the summer
 - Sturgeon project in Manitoba (Dr. Peake)
 - Ecology - population size, habitat, diet, movement



UNB: Work experience

- Worked in a stable isotope lab (Dr. Cunjack)
 - Food webs
 - How salmon bring nutrients into freshwater ecosystems



University of Windsor

- Masters in Environmental Science (2 years)
 - Mostly thesis based
 - Some courses required
 - Get paid!

An underwater photograph showing a school of small, dark fish swimming in clear, blue-green water. Tall, thin seaweed or grasses are visible in the background, creating a natural habitat scene.

GLIER

Great Lakes Institute for Environmental Research

Masters

- A Masters project focuses on one main issue
- You create experiments to test your ideas
- Collect data and get results
- Write a thesis about your project

- My Masters (Dr. Daniel Heath)
- Conservation Genetics Lab (mostly fish research)

Masters

Environmental Issue:

- Salmon farming
 - Disease
 - Pollution
 - Escaping fish



- Study species: Chinook salmon

Masters: Research Question

If farmed salmon escape will they be able to reproduce in the wild?

Yellow Island Aquaculture



Masters

- Mating experiments: Spawning channels
 - Put wild and farm salmon together
 - Let them mate



Masters

Who's the daddy?

Do paternity tests to see who fathered the most babies



Eggs







Fry



Paternity tests

Masters: What did I find?

- Eggs: Wild = Farm 
- Fry:  Wild (lots of babies),  Farm (few babies) 
- This means that farmed salmon could reproduce in the wild
- But their babies would not survive in the wild
- They are maladapted to the natural environment

PhD

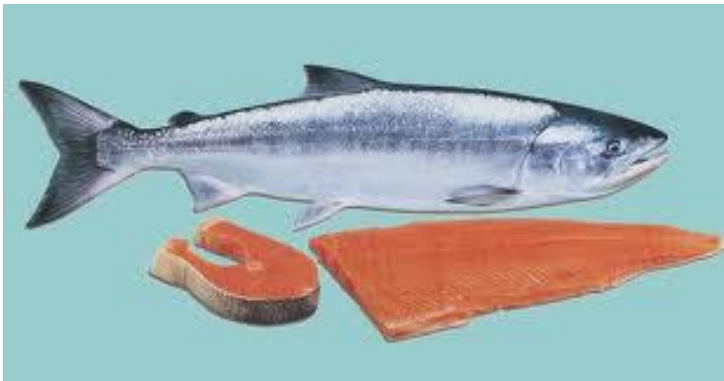
- PhD in Environmental Science (4 years)
- **PhD research question: Why are salmon red?**



PhD



- Red color caused by carotenoids
- Important for salmon's health
- Red flesh and eggs are only found in salmon



PhD: Research Questions

- What genes make a salmon red?
- What are the advantages and disadvantages of being red?

Red



25 cm

White



Thank you!

Questions?

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