# Exploring Price Premiums Associated with Retail Salmon Products

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## Overview

- Salmon is one of the most popular seafoods in the U.S., with 95% of Atlantic salmon supplied from farmed imports, primarily from Chile and Norway
- Land-based Recirculating Aquaculture Systems (RAS) in the US are emerging as a potential environmentally sustainable alternative to traditional net-pen farming for Atlantic salmon
- Expanding domestic production can be advanced by understanding price premiums for product characteristics such as labeling, preservation, or production methods
  - These insights support decision-making for seafood stakeholders and policymakers

Open net-pen salmon farm

RAS salmon farm

## Objective

- Examine the price premiums associated with different characteristics of salmon products sold in retail markets, such as production method, preservation, and value-added attributes

## Literature Review

- Davidson et al. (2012) find that consumers in Hawaii were willing to pay a 55.8% price premium per pound for wild-caught salmon over farm-raised, indicating a strong consumer preference for wild-caught salmon
- Asche et al. (2015) find that MSC-labeled (eco-labeled) salmon in the UK carries an average 13.1% premium, but this varies across retailers.
  - The premium ranges from negligible at high-end stores to 57% at discount chains
- From 2017-2019, over 73% of U.S. salmon sales were fresh, which typically have higher unit prices than frozen; fresh salmon sold at about a $2.59/lb premium over frozen options (Love et al., 2021)

## Data

- The dataset used for this research is the Circana OmniMarket Core Outlets Data provided by the United States Department of Agriculture's Economic Research System (USDA ERS)
- The data is sourced from point-of-sale transactions recorded through retail scanners in 2022 and 2023, and includes both Universal Product Code (UPC) products and random-weight items


Wild-caught retail salmon


Farm-raised retail salmon

Fresh salmon

Frozen salmon

## Methods

- I will explore price distribution associated with salmon product characteristics
- To estimate price premiums associated with product characteristics in grocery store seafood purchases, I will conduct an Ordinary Least Squares (OLS) regression
- My dependent variable is price per pound, calculated as the total amount paid divided by product volume
- Potential explanatory variables for the model include binary variables representing product attributes, such as fresh vs. frozen, farm-raised vs. wild-caught, and natural claim vs. no natural claim
- Key equation:

$$price = f(farm\ raised, fresh, natural, omega, organic)$$

## Expected Results

- Based on prior literature, I expect the variables fresh, omega, and natural to be associated with positive premiums, reflecting consumer preference toward health-related attributes and quality
- Conversely, I anticipate the farm-raised variable to have a negative association, consistent with consumer preference toward wild-caught fish

## Summary

- Data limitations come from missing product details in the dataset, such as whether the salmon is farm-raised or wild-caught
- Identifying price premiums for farm-raised salmon helps in informing industry stakeholders in best supporting US aquaculture production as it deals with consumer preference
  - Limited observations for specific products may inaccurately represent market trends and lead to less precise results
- This project is currently in progress; next steps include continuing to clean and understand the retail scanner dataset and conducting regression analysis to estimate price differentials associated with product characteristics

## References

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