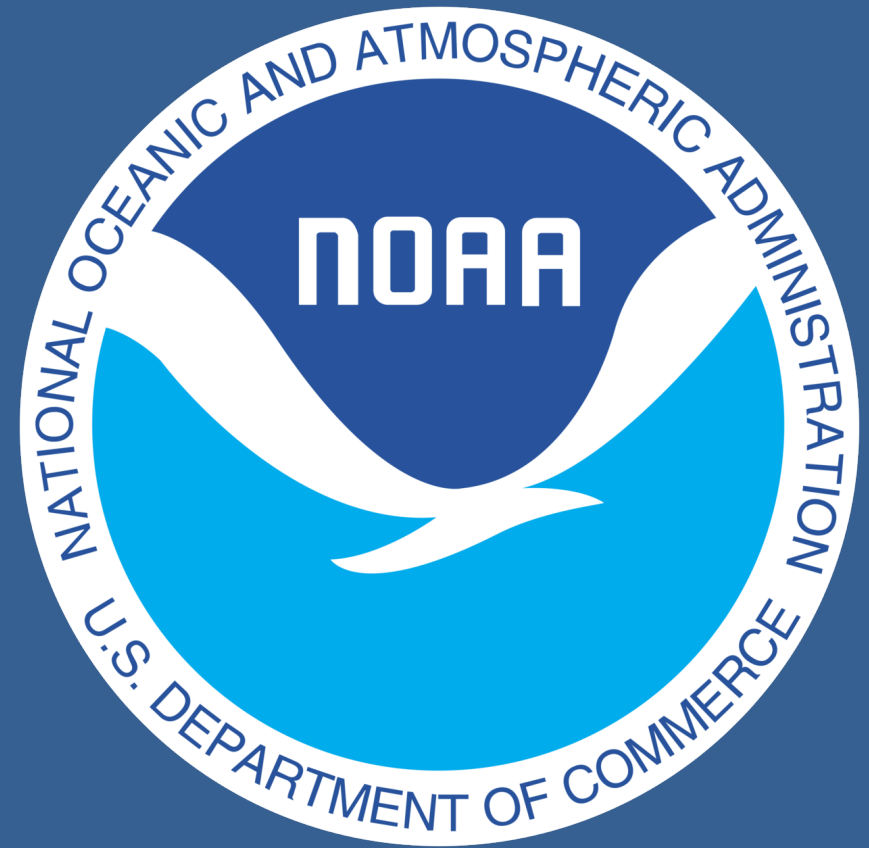


# Feeding the Future: Suggestions to Improve Washington's Regulatory Regime for Shellfish Aquaculture

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## Background

- Shellfish aquaculture in Washington has immense potential as a source of sustainable protein.
- Unfortunately, the current regulatory framework significantly hinders industry growth and efficiency.
- Therefore, identifying areas for improvement in the regulatory structure can help inform efforts aimed at improving industry functionality.



Fig. 1: A Puget Sound farmer handles oysters (NOAA Sea Grant).

## Research Question:

How does the regulatory structure limit shellfish aquaculture in Washington and how can it be improved?

## Internship and Methods

- I interned with the National Oceanic and Atmospheric Administration (NOAA) to analyze multi-levelled shellfish aquaculture regulations.
- Organized regulations into spreadsheets broken into categories of key concern.
- Content and statistical analyses used to identify trends in regulations.
- Discussion with professionals to gain insight.



Fig. 2: Map of Western Washington indicating counties whose Shoreline Master Programs I analyzed (selected for aquaculture output).

## Results

- + County Shoreline Master Programs (SMP) generally showed positive correlations across handling of regulations; indicating similarity of direction in the provisions.
- County SMPs and the NOAA Endangered Species Act Programmatic generally showed negative correlations between each other; showing differing emphasis placed on areas of environmental concern.
- When isolating for submerged aquatic vegetation, correlation values vary across all levels; suggests a lack of agreement in the regulatory framework on how to treat the issue.
- Uncertainty makes regulations hard for applicants to follow; redundancy draws out an already lengthy process.
- Conversations with professionals and supplemental research highlighted the costs of the permitting process as the greatest single hindrance to industry efficiency.

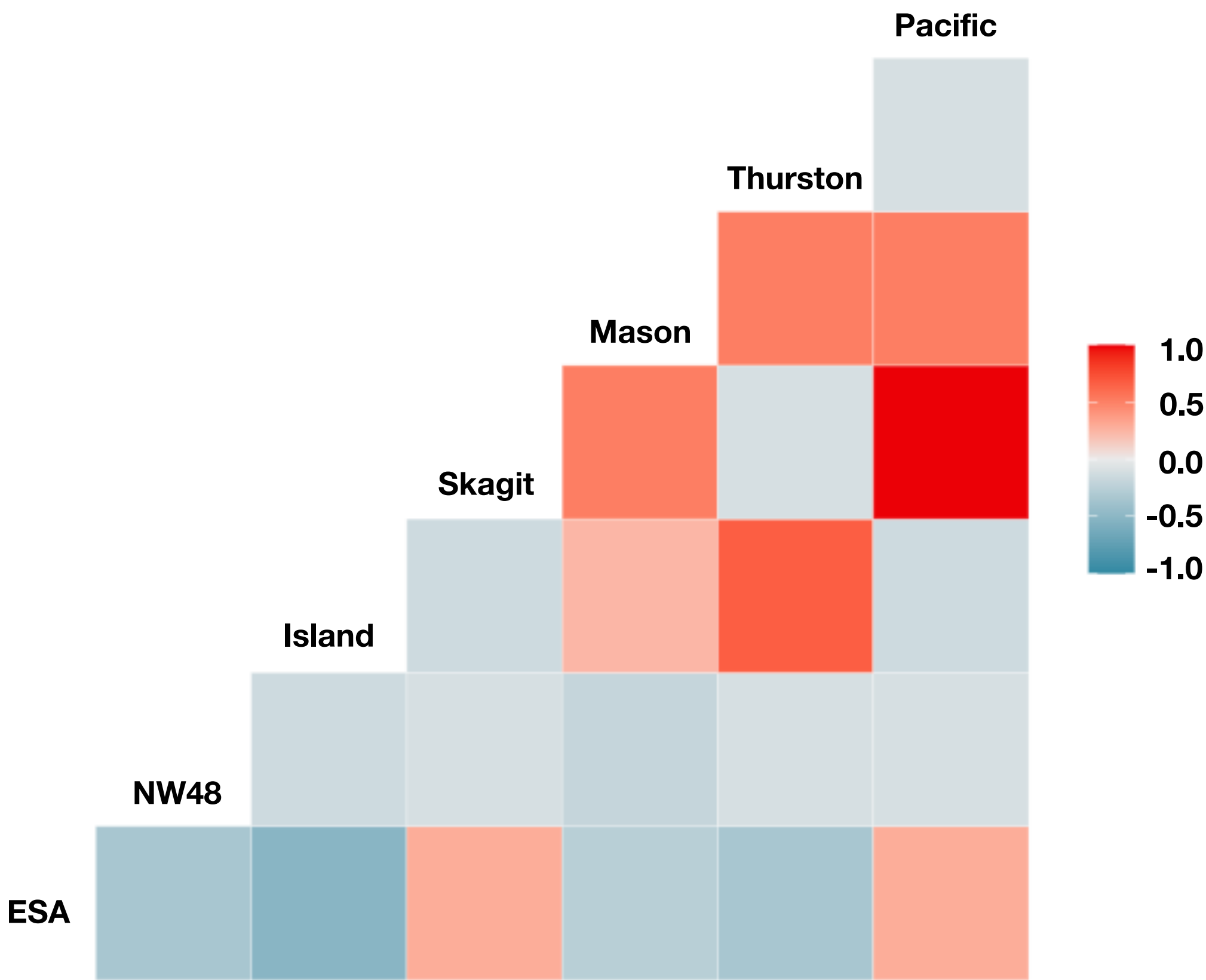


Fig. 3: Correlation values between SMPs, Nationwide 48 Permit (nw48), and NOAA ESA Programmatic (esa) for long line growing method, submerged aquatic vegetation category regulations. RStudio was used to generate values based on the results of my content analysis, with deep red showing a perfectly positive correlation and deep blue indicating perfectly negative. Shades along the gradient signify slight positive or negative correlations.

## Solutions

- Develop comprehensive online resources and guidance for permits; create template application forms specific to shellfish growing methods.
- Improve interagency communication; creation of an Aquaculture Interagency Coordination Council to allow for higher regulatory consistency and less agency overlapping.
- Amend permit requirements that make switching to more environmentally friendly gear cost-prohibitive.
- Increase public education; make informational resources more readily available to decrease instances of lengthy public appeals during regulatory processes.
- Shift the paradigm surrounding shellfish aquaculture to better emphasize the ecological services it provides.

## Implications



Increased government coordination can help reduce instances of redundancy and uncertainty in regulatory requirements.



Lowering regulatory/permitting costs will encourage industry expansion and benefit local economies.



Designing regulations with the true impacts of shellfish aquaculture in mind can facilitate environmental benefits.

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