Item 1: Abstract and principal members:

1.1. Project Abstract

This project aims to create an accurate and comprehensible model to describe and predict population dynamics for species in the Oregon marine intertidal using a novel machine learning technique known as symbolic regression. Ideally, this model can be applied to describe other ecosystems as an alternative to traditional methods of characterizing species interactions.

This project accomplished most of what the team set out to do; several mathematical models explaining different aspects of population dynamics were derived by using symbolic regression form datasets provided. The usefulness of these equations varied, and valuable insights were gleaned from the experience which was rigorously documented for a future team – or the team's project partner – to continue development further.

1.2. Members and Contributions

Project Partner

- Mark Novak

Team Members

- Markus Bauer
    - Role: Machine Learning Developer
    - Contributions: Focused on Balanus/Mytilus growth rate testing
- Samson Mont
    - Role: Machine Learning Developer
    - Contributions: Focused on abundance versus feeding rate
- Madelyn Smith
    - Role: Lead Researcher
    - Contributions: Completed literature reviews to inform and support development
- Nour Rahal-Arabi
    - Role: Machine Learning Developer
    - Contributions: Focused on symbolic regression output equation parsing and interpretation
- Jinshui Wang
    - Role: Machine Learning Developer/Researcher
    - Contributions: Assisted in literature reviews and focused on Mytilus growth rate testing