**Crab Battles: Comparison of the Early Life History of Dungeness Crabs to Yellow Shore Crabs**

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**Background**

- There has been a 97% decrease in Dungeness crab populations in the South Puget Sound region since 2005.
- Competition with yellow shore crab adults could impact the survival of Dungeness crab juveniles.
- It is important to understand the early life history of Dungeness crabs and yellow shore crabs in order to understand the competition and coexistence between the species.
- My research aims to compare abundance numbers and habitat use of each species in their early life histories.

**Question**

How do patterns of abundance numbers and habitat use differ between Dungeness crabs and yellow shore crabs on Puget Sound beaches?

**Internship and Methods**

**Light trap:**
- PCRG uses light traps to collect Dungeness crabs and yellow shore crabs in their larval stages of life.
- Light traps work by attracting positive phototaxis animals into them.

**Intertidal Surveying:**
- PCRG uses intertidal surveying to collect Dungeness crabs and yellow shore crabs that settle in nearshore habitats.
- Intertidal surveying works through excavating samples of habitat, and counting the crabs within the samples.

**Results**

**Light trap:**
- Dungeness crab larval abundances decreased as time progressed, while yellow shore crab larval abundances increased as time progressed.
- This indicates that between July and August, there was a shift in spawning seasons from Dungeness crabs to yellow shore crabs.

**Intertidal surveying:**
- Dungeness crab abundances decreased as yellow shore crab abundances increased.
- This could be due to yellow shore crabs successfully colonizing more nearshore habitat than Dungeness crabs.

**Figure 1.** Size comparison of yellow shore crab adult (left) to Dungeness crab juvenile (right).

**Results (Continued)**

**Figure 2.** Scatter chart showing Dungeness crab and yellow shore crab larvae abundances as time progresses in the season.

- Higher cobble percent cover is considered ideal habitat for crabs settling in nearshore habitats, as cobble provides a better hiding place for crabs.
- Yellow shore crab densities increased as cobble percent increased, while Dungeness crab densities stayed relatively the same as cobble percent increased.
- These findings are consistent with Visser et. al. 2004, showing that yellow shore crabs successfully colonized more ideal nearshore habitat than Dungeness crabs.

**Figure 3.** Scatter chart showing comparison in abundances between Dungeness crab juveniles and yellow shore crab adults.

**Figure 4.** Scatter chart comparing yellow shore crab and Dungeness crab abundances as cobble percentage increases.

**Broader Implications**

- Competition could pose a threat to the Dungeness crab species since they are outnumbered in their early life stages by yellow shore crabs.
- There is need for nearshore habitat abundance data in earlier months (April-June) in order to get more accurate results.

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