

# Effect of barnacle cover on biodiversity

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30/10/2021

## Hypothesis and Question

**Question:** How does percent barnacle cover affect species richness, diversity, and abundance in the inter-tidal?

**Hypothesis:** Species richness, diversity, and abundance will increase with increasing percent barnacle cover due to an increase in surface area and habitat.

## Data collection

Surveys of species abundance, richness, and percent cover of substrate types (including barnacle cover) were collected on October 26, 2021 at Scott's Bay along transect lines set on exposed and sheltered shore environments. Six transect lines were surveyed, with three to four 0.5 x 0.5m quadrats along each transect.

## Data analysis

Species richness, total abundance of organisms (excluding barnacles), and the Shannon-Weiner diversity index were calculated for each quadrat, with data from transect 5 omitted due to the absence of barnacle abundance data. Linear models were applied to test if species richness changes significantly with percent barnacle cover, if species diversity changes significantly with barnacle cover, and if organism abundance (excluding barnacles) changes significantly with barnacle cover.

## Results and conclusions

Our linear model of species richness vs. barnacle cover (Figure 1) and species diversity vs barnacle cover (Figure 2) showed no correlation ( $p = 0.4051$  and  $p=0.21$  respectively), while organism abundance (excluding barnacles) vs. barnacle cover (Figure 3) showed a positive correlation of the two variables ( $p = 0.0179$ ). Therefore, we fail to reject the hypothesis that species richness and diversity increases with increasing barnacle cover. However, we lend support to the hypothesis that organism abundance (excluding barnacles) increases with increasing barnacle cover due to increased habitat surface area.

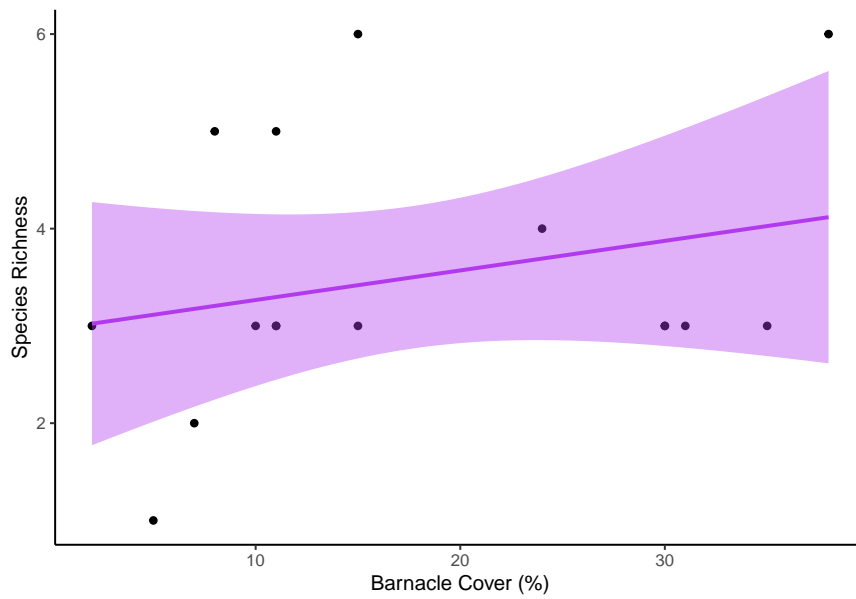


Figure 1: Species richness in intertidal habitats with varying levels of barnacle cover. Data was collected at Scott's Bay, BC.

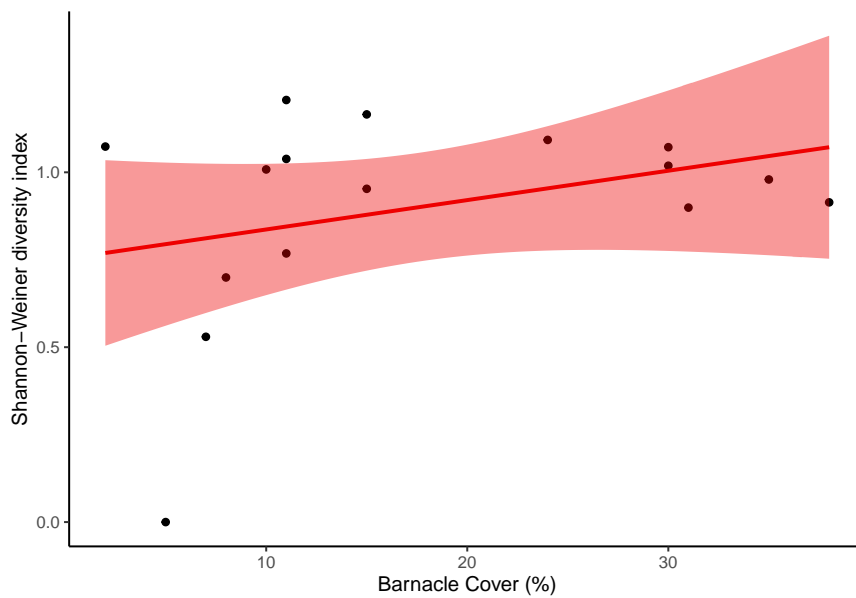


Figure 2: Shannon-Weiner diversity index of intertidal habitats with varying levels of barnacle cover. Data was collected at Scott's Bay, BC.

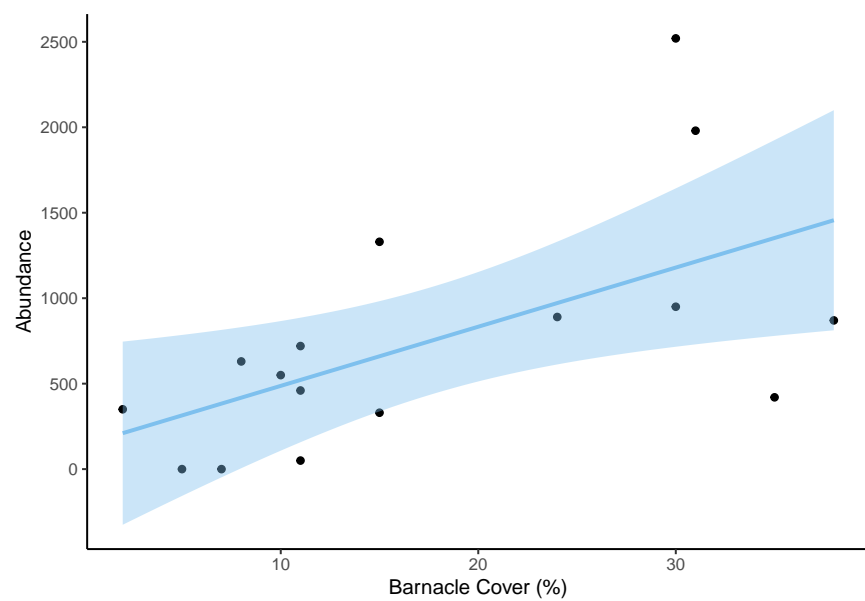


Figure 3: Abundance of organisms (excluding barnacles) in intertidal habitats with varying levels of barnacle cover. Data was collected at Scott's Bay, BC.