Where Do Skeleton Shrimp Live?

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Introduction
• Skeleton shrimp are found in the lower intertidal zones of all oceans on the planet, yet they are rarely studied

• Skeleton shrimp spend most of their time attached to a living substratum
• In Bodega Harbor, many skeleton shrimp are found on branching substrata, such as the bryozoan Bugula

Native Species

Invasive Species

- Caprella californica
- Caprella mutica
- Bugula californica
- Bugula neritina

• 54\% more skeleton shrimp were present on settlement plates with Bugula colonies

Research Question
Do skeleton shrimp in Bodega Harbor prefer the widespread, invasive B. neritina or the rare, native B. californica?

Methods
• A substratum preference experiment performed on the two skeleton shrimp in Bodega Harbor, C. mutica and C. californica
• C. mutica were collected from three different substrata in the marina to assess any effects of prior substratum conditioning
• C. californica were collected from eel grass beds in the harbor
• Bugula were collected from the marina

• We prepared containers with samples of equal mass of each substratum
• Preferences were recorded after 45 minutes

B. californica is more than 3 times more abundant than B. californica in Spud Point Marina
Skeleton shrimp were 7 times common on B. californica than B. neritina

• Skeleton shrimp occurred in larger number on B. californica, even though it is the rarer form of Bugula in the community.

Results
• C. californica strongly preferred B. neritina
• Preference for B. californica varied between C. mutica initially collected from different substrata
• C. mutica collected from B. californica strongly preferred B. neritina
• C. mutica collected from B. neritina or Obelia exhibited no preference for B. californica
• 17.7\% of caprellids showed no preference, and this percent did not vary among treatments

Discussion
• The native C. californica preferred the invasive B. neritina
• The invasive C. mutica collected from the native B. californica displayed a strong preference for B. californica, but C. mutica collected from other substrata showed no significant preference for B. californica
• Behavior of C. mutica suggests that B. californica has a strong conditioning effect on C. mutica

Future Directions
• The effect of the invasive C. mutica on the substratum preference of the native C. californica
• The effect of skeleton shrimp on the mass and surface area of their substrata (experiment in progress)

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