Changes in Zooplankton Abundance with Tidal Cycles
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Question: Does zooplankton abundance vary throughout a six-hour tidal cycle?

Abstract/Background:
- Zooplankton have an important role in food chains, energy transfer and indication of how physical forces influence marine environment
- Zooplankton abundance can be controlled by both abiotic and biotic factors including temperature, salinity, and abundance of phytoplankton
- Zooplankton abundance has been linked to chlorophyll a concentrations and changes in temperature and salinity
- In a study conducted in a harbor of Taiwan, zooplankton were most abundant at high tide and least abundant at low tide (1)

Materials and Methods:
- 333μm mesh plankton net to sample zooplankton
- Flow meter to determine how much zooplankton per volume of water
- Sampled at ½ hour time periods during incoming tidal cycles
- Measured temperature, salinity, chlorophyll a concentration with each sample
- Sampling conducted at Breach Inlet: GPS location 32.7767, -79.8117

Interpretation:
- Zooplankton biovolume seems to vary during the six-hour tidal cycle, however there is no significant difference between high and low tide
- Our temperature, salinity, and chlorophyll a measurements did not have a significant correlation with biovolume
- Possible reasons for insignificant differences between high and low tides:
  - Flow meter was not sensitive enough for slow flowing currents, which occur at peaks of high and low tide
  - Possible net avoidance with slow current

Conclusions:
1) There was no detected significant relationship between tidal cycles and abundance, which is most likely a result of sampling errors with the flow meter.
2) Chlorophyll a concentration, temperature and salinity were not significantly correlated with changes in zooplankton biovolume. Therefore, they were probably not factors influencing biovolume at our sampling site.

Lit Cited:
(1) Chang, Wen-been; Fang, Lee-shing. (2004) Temporal and spatial variations in the species composition, distribution, and abundance of copepods in Kaohsiung Harbor, Taiwan