Surface epifauna and algae

Characterizing surface epifauna and algae that live on intertidal substrates can give valuable information on the habitat of the lower beach. They are important components of the nearshore food web, and are good indicators of biodiversity and physical parameters.

Materials

- 50 m transect tape
- 0.5 x 0.5 m pvc quadrat, subdivided with string into 25 small squares

Sampling Summary

- 50 m transect parallel to shore
- 0.25 m^2 quadrat (0.5 x 0.5 m)
- N=10 random quadrats per transect
- Transects at 0' MLLW, others as appropriate
- Measure % cover of sessile invertebrates and algae, and counts of motile invertebrates

Scale of Effort

$ Cost – low, simple materials and data are all field-based

$ People – low, 2-3 people can establish transects and record quadrat data

$ Fieldwork time – low, 1 day, once a year May-August during daytime low tides at MLLW

$$ Processing time – medium, entering field data into computer format

$$ Technical expertise – medium, depending on level of identification of invertebrates and algae

Additional Resources

Reports that have used this method: Dethier and Schoch 2005, 2006

Other similar methods: The Sound Water Stewards sample at +1, 0, and -1' MLLW, n=3 quadrats at each elevation, published in Toft et al. 2017

Suggested citation: Shoreline Monitoring Toolbox. Washington Sea Grant.
Website: shoremonitoring.org

Methods

At ten random points along a 50 m transect parallel to shore at MLLW, place a 0.25 m^2 quadrat on the beach surface. Make a visual estimate of the percent composition of sessile invertebrates and algae (e.g., barnacles, the green algae *Ulva fenestrata*), and count the number of motile invertebrates (e.g., sea stars, limpets). The quadrat is divided with string into 25 small squares to facilitate these estimates (each square equals 4%). Identify algae and invertebrates to the species taxonomic level if possible, especially if key species are of interest or if precise measurements of taxa richness and diversity are needed. If taxonomic expertise is limited, identifications to the Family taxonomic level or to a low-resolution functional group (especially for algae) are easier and still of great value (see Dethier and Schoch 2006). Sample in May-August during daytime low tides, and plan for a -2' MLLW low tide to ensure time for sampling when 0' MLLW is exposed. Sample at other elevations based on project goals and topography of the site.

Data to record in the field

Date, time, site name, transect elevation, sample number, percent and count data. It is advisable to take a digital photo of the transect and of some example quadrats for documentation.

Processing

Enter the field data into computer spreadsheets. Analyze percent and count data separately for the entire assemblage, and also for any key indicator taxa (such as mussels, limpets, etc). Convert counts to density (#/m^2) based on the surface area of the quadrat. Measurements of taxa richness (the number of different taxa in a quadrat) can incorporate both count and percent data.