Santa Cruz Island Resource Samples: Lab Processing Protocol

General Notes

The purpose of resource sample processing is to identify and quantify the organisms found in Santa Cruz Island Resource Samples. These samples are collected at three different sites on the north shore of Santa Cruz Island (35˚5'N: 119˚45'W) annually between the months of August and January. Each site has 40 m transects at 10, 20, and 30 ft, characterized by different habitat zones, for a total of three transects per site. On each transect substrate scrapings are taken from 10 different random quadrats, for a total of 30 samples per site. Note that sites and sampling were variable prior to 1991.

Materials Needed:

SCI Resource Sample
Datasheet
Purple Nitrile gloves
Sieve (0.5 mm mesh size)
Funnel
Chemical waste jar designated for 10% Formalin
Forceps
Calipers
Plankton splitter
Waterproof labels
70% Ethanol
Glycerin

Decanting Sample

- Resource samples are decanted in the fume hood.
- Formalin is filtered out of sample into waste container using a 0.5mm sieve and funnel.
- Sieve containing sample is placed in the sink and rinsed thoroughly with water.

Rough Sort

- The sample label, large invertebrates, and large debris (rocks, algae, bryozoans) are removed from the sample.
- Everything is thoroughly rinsed over the sieve to ensure that any microscopic invertebrates are washed back into the sample.
- The sample label is returned to the original sample jar. Debris is disposed of. Large invertebrates are counted and preserved in the original sample jar. In addition to being counted, the following invertebrates are measured using calipers:
    - Crabs (carapace width)
    - Gammarids (total length)
    - Isopods (total length)
    - Long Rostrum Shrimp "LRS" (carapace length)
    - Short Rostrum Shrimp "SRS" (carapace length)
    - Pachys (total length; use size classes on purple laminated sheet)
    - Urchins (test width)

- All counts and measurements are recorded on a datasheet labeled with date, site, depth, and replicate number.

Splitting Sample

- Sample is examined to determine estimated number of organisms. Those with less than 200 organisms can bypass the splitting step. Samples with approximately more than 200 organisms are split using the plankton splitter.
- Entire sample is transferred to the plankton splitter and dividers are taped together.
- Splitter is rolled back and forth to distribute sample evenly, and swiftly rolled forward to split sample in half. Any organisms remaining in the splitter are rinsed out with DI water.
- One half of the sample is run through a sieve and transferred to a small vial to be stored in original jar. The vial is labeled with date, site, depth, replicate number, and fraction. Vial is filled with 70% ethanol, 1-2 drops of glycerin, and sealed with cotton.
- If more than 200 organisms remain in the other half of the sample, the split process is repeated. Otherwise, this half is run through a sieve and transferred in ethanol to a petri dish to be sorted under a microscope.
- Datasheet is labeled with the final fraction of the sample to be sorted (i.e. 1/2, 1/4, 1/8, 1/16, 1/32, etc.), depending on the number of splits completed.

Microscope Sort

- Invertebrates are sorted taxonomically and separated into petri dishes with labeled quadrats.
- The number of individuals in each invertebrate group is counted and recorded on the datasheet. In order to be counted, organism must have a head.
- The following invertebrate groups are sized in addition to being counted:
    - Gammarids (total length)
    - Isopods (total length) *classified as either Idotea, Jaerop, or Sphaerm
    - Long Rostrum Shrimp "LRS" (carapace length)
    - Short Rostrum Shrimp "SRS" (carapace length)
    - Mysids (carapace length)
    - Crabs (carapace width)
    - Urchins (test width)
- Organisms are measured on 12x magnification.
- Crabs and urchins sizes are recorded as scope units multiplied by 10. All other invertebrate measurements are recorded as the corresponding weight class indicated on the weight class determination chart.
- Counted and measured organisms are placed in taxonomically-labeled shell vials. The vial is filled with 70% ethanol, 1-2 drops of glycerin, sealed with cotton, and stored in original sample jar.
- Original sample jar containing all vials is sealed with parafilm and a lid, and stored in cabinet with finished samples.