

REMOTE INVERTEBRATE LAB

SOP # = Lab2

Purpose: Describes the procedure for setting up invertebrates for a lab (animals being kept remotely from sea tables for short periods of time).

Policy: This method is recommended for public education invertebrate labs, university program labs and lab tests, and any observational studies of invertebrates that do not have running seawater for periods of time.

Responsibility: Public education assistants, animal care specialist, public education coordinator, university programs coordinator, university programs professors and TA's, research coordinator and researchers.

Materials: Plastic aquaria (light weight and less dangerous than glass)

Procedures:

Note: Fish are far more affected by noise, vibrations, high temperatures and low oxygen levels than invertebrates. Thus, extreme care must be used when dealing with them.

1. The aquaria must be large enough for the animals to comfortably move around. The aquaria must have water levels around 3/4 full.
2. Sediment and/or small rocks must be put in to give the animal adequate hiding and shelter.
3. Seaweed should also be placed in tank to provide cover. If animals are placed in bare tank with no cover they behave more frantically and are not as easy to observe.
4. Total time in the plastic aquaria can vary from 1 to 3 hours based on the animal density and on building temperature. Most vertebrates can be left in aquaria for 1 hour without water changes or aeration. Hands should be placed in water only when necessary as this warms up the water. If the aquaria are to be left out longer than 1 hour, a quarter of the water should be refreshed with fresh seawater every 20 minutes. Previously prepared sea water ice cubes can also be added. This refreshing every 20 minutes will not only re-aerate the water but also keep it cold enough for 3 hours.
5. Temperature should be monitored in tanks that have been out for 2 hours or more. Thermometers are available in every lab (alcohol thermometers only!). Water temperature in tanks with subtidal invertebrates should not climb above 12 degrees Celsius.
6. Water can be changed by buckets or using a siphon hose to drain and then refill tanks without disrupting animals. Often this task can be assigned as an animal care duty to several students.
7. If any animal begins to look sluggish, it should immediately be placed back in a sea table. If in doubt about any animal, give it a refresh time in the seatable.
8. Try to handle animals as little as possible. Not only is our body temperature much higher than theirs (hands should be wet and cold when handling) but many invertebrates have a slime layer on their dermis which can be destroyed by over handling. This slime layer protects them from bacterial infection. Delicate animals

like nudibranchs, sponges, bryozoans, etc. should only be handled if absolutely necessary.

9. Any aquaria that contains an animal that may crawl or jump out (snails, nudibranchs, crabs, shrimp, etc.) must have a lid on it.
10. Finally predators and prey should not be placed together in single aquaria. This not only includes the obvious such as bivalves and sea stars but also some of the following:
 - Some sea stars are predate on other sea stars
 - Sea stars may be predacious on sea cucumbers,
 - Crabs may predate on other crabs (don't mix crabs with large differences in claw size) etc.

Note: intertidal animals tolerate warming water conditions much better than subtidal animals