Step-by-step Methods for Seagrass Processing

PREPARE SAMPLES, LABELS, TINS

1. Process samples one bag at a time. Do all samples from one site before starting a set of samples from another site.
2. Remove one set of samples (i.e., N, S, E, W) from the ice chest.
3. Work as a team on a single sample (e.g., N). This will reduce the likelihood of mixing the samples.
4. Place plastic strainer in the brown tub.
5. Put the sample inside the strainer inside the tub. Put the Ziploc bag under the tub.
6. As one person begins to rinse and wash the sample, the other person can set up the tins and organize the labels. If labels are not printed in advance, make them by hand.
    a. While rinsing sample, remove large pieces of calcareous algae (macro-algae) and place on cardboard labeled Calcareous algae.
    b. Massage as much sediment as possible from the roots and rhizomes and scrape the epiphytes from the blades.
    c. Also, remove as much of the calcareous "trash" (tests & shells) as possible and discard.
    d. Try to leave the plants as intact as possible.
7. Each tin should be labeled with the following information:
    a. Sample Category (e.g., Above ground live SG)
    b. Sample (e.g., North)
    c. Location (e.g., Mouth of Bogue G)
    d. Date the sample was collected (e.g., 7 Jan 02)
    e. Earthwatch Team number (e.g., Team II)
    f. Names of volunteers processing sample (e.g., Mary Smith., Bob Jones.)
8. Categories for the tins are (create labels for all of these categories whether or not you have material that will go into the tin):
    a. Above ground live seagrass
    b. Below ground live seagrass
    c. Dead seagrass parts
    d. Calcareous algae
    e. Other biomass

SEPARATE SAMPLE INTO CATEGORIES

1. Remove strainer from water. Set strainer on large piece of cardboard to drain.
2. Remove whole plants and any lose live seagrass blades from the strainer and set aside for the moment (put them into a pile on cardboard).
3. Remove all bits of dead seagrass blades and put them into pile on cardboard labeled dead seagrass parts.
4. Put the strainer back into tub of clean water (yes, this is the 3rd tub of clean water). AT this point, most everything left in tub should be below ground seagrass material (rhizomes & roots). All you have to do is separate live material from dead. It's easy, live stuff floats and dead stuff sinks. Pick out all floating pieces, stir the sample and pick our more floating bits, continue to stir and pick until there are no longer floating bits. Put all floating bits into pile labeled live below ground seagrass. Put all sinking bits into pile labeled dead seagrass parts. Put anything that is not a seagrass part into the pile labeled Other Biomass.

5. When you are finished separating the parts in the strainer, clean out the strainer and put the whole plants back into the water to clean and rinse them some more if necessary. Carefully remove all sediment from the plant leaves, roots, and rhizomes.
6. Now, separate the whole plants into above ground and below ground piles. Separate the plant at the node. Mostly green, some white, occasionally a brown leaf (if attached to whole plant), and the sheath go into the above ground pile. Rhizomes and roots go into the below ground pile.
7. AT this point you should have the sample divided into 5 piles: (1) above ground live SG; (2) below ground live SG, (3) dead SG parts, (4) calcareous algae, and (5) other biomass.
8. Scrape any remaining epiphytes from the seagrass leaves with a flat edge table knife and re-rinse. Using one of the kitchen towels labeled seagrass, dry as much of the water from the samples as possible.

WEIGH the towel dried samples, DRY THE SAMPLES, and THEN WEIGHT AGAIN (ON ANOTHER DAY)

1. You MUST close all of the windows in "Pink House" before you begin weighing the samples as the wind will affect the reading of the scale.
2. Place the labels in the tins and weigh the tins. Record the weight on the data sheet.
3. Place the towel dried samples into the appropriate tins.
4. BEFORE weighing the tins with the sample, break any large plant parts into smaller pieces and "fluff" the sample (this makes drying faster).
5. Weigh the tins, label, and samples. Make sure the scale reads "zero" before weighing. IF it doesn't read zero, press the zero button to re-set.
6. Record the wet weight of the tins, labels, and sample on the data sheets.
7. If it is a dry, sunny day, the samples can be dried outside. Place the tins in a single layer in a cardboard box with sides higher than the tins. Cover the cardboard box with an orange net bag. Place the covered boxes outside on the septic tank cover near the door to "Pink House". Use drying oven if possible to continue drying at night or during wet weather. Drying oven should be set at lowest temperature scale to maintain a temperature of 45 degrees Celsius.
8. When samples are completely dry, weigh again using same technique as in #5 above. BE sure to close all windows in Pink House.
9. Calculate dry grass weight (from data sheet, use the number in the cell labeled "DRY: bin, grass, label" minus the cell labeled "WET: label & bin").
10. Add Above and Below ground live SG to get Total Live SG Biomass.
11. Also weigh, calculate, and record data for Dead SG parts, Calcareous algae, and Other biomass.
12. Pack individual dried samples (each category in a different bag) into small Ziplock bags WITH labels. Pack all small bags into one large back labeled by sample (e.g., N, S, E, W). Then pack all samples into large bag labeled by date and site.