Ash Free Dry Mass of Epiphyton samples on Glass Fiber Filters.

1. Samples are stored in Briggs Lab freezer, in Ziploc bags in which there are labels which indicate the dates and tank numbersof the samples. It is preferable to go in order of date.
2. Samples are labeled with the following:
   1. TankNumber
   2. TileNumber
   3. SampleDate
   4. FilterWeight
   5. And sometimes: FilterNumber; when more than one filter was used per tile.
3. There are two sizes of filters: 47mm and 25mm. All are wrapped in foil and labeled with the above information. Both sizes contain samples from the tiles in the mesocosms and will be treated the same.
4. Remove a few samples at a time from freezer (so they stay mostly frozen as you unwrap them) The maximum we can do in one cycle is about 80 (this is limited by the size of the desiccator jar).
5. Assign individually numbered aluminum weigh boats to each filter,
6. Unwrap filter, and scrape any bits of algae sample off the foil using the edge of the filter like a sponge.
7. Record Boat# and drying date and all information on the filter wrapper into the Access datasheet (2010MesoAlgae) – either match that to already entered tank/date/tile/filter weight info in the datasheet, or enter all that information based on what is written on the foil. Save the foil filter wrappers until you are done with each weighing cycle.
8. Set each filter in weigh boat to the side, placing them on aluminum trays.
9. *You may stop here and resume Step 10 at a later time, date, or another person may resume.*
10. Place the filters in weigh boats in the drying oven for 24 hours.
11. Turn oven on and set to 105°C.
12. After 24 hours, remove the weigh boats and place them in the dessicator for 1 hour to cool. This is very important as heat can affect the local air density and thus perceived weight of an object.
13. Weigh each filter separately and independently from its weigh boat. Record the DryWeight to the nearest .1 mg (e.g. .0001g is usually what the balance displays). Place each filter in weigh boat off to the side.
14. *This should take about 1 to 1.5 hours.*
15. Double check your data sheet to make sure data makes sense and no samples have been missed.
16. *You may stop here and resume Step 17 at a later time, date, or another person may resume.*
17. Preheat the muffle furnace to 500°C, and place a note on it describing the times you will be using it for, and the date, your name/lab/phone extension.
18. Place the weigh boats and filters into homemade foil trays.
19. When the furnace reaches 500°C (appx. 30 min later), place foil trays into oven VERY CAREFULLY. Wear the muppet mitts and use tongs in your right hand to support the “far” end of the foil tray and hold the close end in your left hand as you slide it into the furnace and DO NOT TOUCH the inside of the furnace. It will destroy you.
20. Foil trays may be stacked in the furnace.
21. Start a stop watch or lab timer, set to 1 hour (60 min).
22. After 1 hour has elapsed, turn the furnace off, remove the foil trays from the furnace, and carry them back to the Briggs lab. The weigh boats will have cooled by the time you reach the lab.
23. Place the weigh boats into the desiccator for one hour to allow the filters to cool.
24. Weigh each filter as above. Record the weight. Double check the weight. *This should take about 1 to 1.5 hours.*
25. Double check your datasheet to make sure all samples have been weighed and weights make sense. The AshFree weight should be less than (or identical to) the DryWeight.
26. Make sure all your data is entered into the Access datasheet, looks OK, then save and email to Tom. You may continue to add to the same copy and send that.
27. Discard the filters and foil.

Notes:

* If someone else’s stuff like glassware is in the furnace, but the furnace is open, off, and cool, I say you can put their stuff on the counter and use the furnace. I always do and there have been no problems. If it is samples, best to leave it in there and wait or contact the person (usually Schimel, Cooper, Dudley, or D’Antonio labs)
* Sometimes the filters stick to the weigh boats. Scrape off the stuck bits and place them on top of the filter for weighing. This is avoided to some extent with experience and by propping the filter against the side of the boat.
* The “Stops” specify ways to break the work up into multiple days if needed.
* If the balance will not settle on a number, that may mean many things:
  + If it oscillates between two numbers, average them, or use the one at which it spends more time.
  + If the weight continues to rise or decrease this means (in order of ease of fixing):
    - The sample is still hot and disturbing the air
    - The balance or the table is not level
    - The balance needs to be calibrated