PARTICULATE AND DISSOLVED ORGANIC CARBON/COLOR

(procedure for total POC/DOC as well as isotopic composition)

EQUIPMENT:

25 mm GF/F filters (ashed)
Petri dishes (50 x 9mm, plastic)
Filter tower apparatus and pump/vacuum line
Erlenmeyer flasks
Glass scintillation vials, acid washed
Plastic cone-shaped lined caps, acid washed
60 mL HDPE bottles
Spectrophotometer
10cm glass spec cell

REAGENTS:

2N H_2SO_4
1N HCl

A: To ash filters:

1. Place filters in a foil boat and cover. Put in 450^{o}C oven for 2 hours.

B: POC/PON

1. Place a 25mm ashed GF/F filter into a filter holder (grid to grid) that is attached to an Erlenmeyer flask.

2. Pour 100-300 ml duplicate samples from each depth (PML, meta, hypo) through 153 um mesh to remove large zooplankton. (Typically ~200mL for PML, 150 meta, 75-100 hypo – check previous week and adjust as necessary)

3. Filter samples at less than 200 mm Hg pressure. Remove filters from towers, fold in half, and place two replicates in one labeled Petri dish. Be sure to indicate volume of water filtered on the Petri dish and record it on the POC log. Place dish in drying oven with the cover on loosely.

4. After filters have dried (a couple of days), remove dish from drying oven and store in desiccator. Analyze samples at IES.

5. Each week, make 2 blank filters by filtering 200ml of DI and processing as above.

C: DOC

1. Pour 20 mL of filtrate (from POC procedure) from each lake-depth into labeled, acid washed, glass scintillation vials and acidify with 200 uL 2N H_2SO_4. Prepare two replicate samples for each depth. Each week, make one blank sample using 20ml of DI (filtrate from POC blanks) and 200uL 2N H_2SO_4. Analyze samples at IES.

D. COLOR

1. Fill a 60 mL HDPE bottle with GF/F filtrate from each lake-depth (from POC procedure). Store in refrigerator until it is convenient to analyze samples on a spectrophotometer. Let samples warm up to room temperature before running on spec.

2. Turn on spectrophotometer at let it warm up for 30 minutes. Set to 440 nm. After calibrating with distilled water, rinse cuvette with 10 mL of filtrate. Remove rinse, then fill with 30 mL of filtrate and measure absorbance. Continue in this manner until all samples have been measured. (See the more detailed instructions on using the GENESYS 2 spectrophotometer at UNDERC in "Spec Instructions.doc").

3. To estimate the amount of machine drift, measure the absorbance of distilled water after measuring sample