Cruise Report AE1516-Giov15-1 July 1-3, 2015

Ship: RV Atlantic Explorer

Location of research: All research activities were at Hydrostation S (32° 10′ N 64° 30′ W)

Personnel:

Stephen Giovannoni (CS) – Oregon State University

Kim Halsey - Oregon State University

Omran Muslin - Oregon State University

Zach Landry - Oregon State University

Eric Moore - Oregon State University

Craig Carlson - University of California Santa Barbara

Cruise Objectives:

1. Metabolite oxidation experiments with osmolytes compounds. The goal of these experiments is to identify osmolytes that are oxidized by heterotrophic bacterioplankton.
2. Tangential flow filtration (TFF) surface water samples to collect cells single cell genomics. After concentration by TFF cells were filtered through 0.45 um Nuclepore filters, and cryopreserved in *SCGC glycine betaine cryopreservation buffe*r.
3. TFF of 100 m water samples to collect cells for Ib, IIa, IIIa, IV or Vb ecotypes, TFF cell concentrates were filtered through 0.45 um Nuclepore filters, and cryopreserved in *SCGC glycerol cryopreservation buffe*r.
4. DOM and nucleic acid water profiles for chemistry and amplicon sequencing, from surface to 300 m (surface, 40, 80, 120, 160, 200, 250, 300 m), all samples were first filtered through 0.2 μm Sterivex cartridges and then A) 300 ml was frozen at -80 in polypropylene or teflon bottles; for chemistry, and B) 3.7 liter were concentrated with PPL cartridges and stored at -20 in the bound state (sealed and store PPLs). SLB was added to Sterivex cartridges and frozen at -80 C. DOC samples, collected in washed EPA vials, were collected for every DOM sample.

Synopsis: The weather was fair throughout this cruise and the departure and return occurred on time. All cruise activities occurred on schedule and all cruise objectives were met. This cruise was focused on sampling and experimental studies that require substantial post cruise processing, so a post-cruise assessment of discovery and impact is not yet available.

A brief account follows:

Log of events:

July 1

08:30 - Depart for HS from BIOS

Cast 1: 11:51 0-300, for DOM concentration; surface bottles for methyl oxidation.

Cast 2: 12:36, 60 m to fill misfired number 4 on cast 2; 23 bottles experiment, particle gravity sedimentation and single cell sorting from 100 m ~230 liters concentrated to 3L; 1.46 x 10^7 cells/ml in concentrate.

July 2

Cast 3: 05:34, 20 m, TFF for osmolyte oxidation exp.; ~230 liters concentrated to 500 ml; 4.33 x 10^7 cells/ml in concentrate.

Cast 4: 05:34, 0-300 m, for DOM concentration.

Cast 5: 09:13, 2600 m for Carlson DOC, bottles 1-16.

Cast 6: 18:11, 0-300 m, for DOM concentration

July 3

Cast 7: 05:30, 0-300 m, for DOM concentration.

07:00 - depart for BIOS

09:15 - SB, return to BIOS