CRUISE REPORT

**Time Series at a Stations in Wilkinson Basin (WBTS) and on Jeffreys Ledge in 2012-2013**

**Project:**

NSF RAPID: Effect of a Very Low NAO Event on the Abundance of the Lipid-Rich Planktonic Copepod, *Calanus finmarchicus*, in the Gulf of Maine. Award OCE-1235920.

**PI**

Jeffrey Runge, Ph.D.

School of Marine Sciences, University of Maine

Gulf of Maine Research Institute

350 Commercial Street

Portland, ME 04104

jeffrey.runge@maine.edu

**Contact For Data Inquiries**:

Cameron Thompson

School of Marine Sciences, University of Maine

Gulf of Maine Research Institute

350 Commercial Street

Portland, ME 04101

cthompson@gmri.org

**Location:**

Gulf of Maine: Wilkinson Basin and Jeffreys Ledge

Jeffreys Ledge Station (WB-5):  42.898, -70.140

Wilkinson Basin Station (WBTS):  42.862, -69.861

**Start and End dates**: April 6th, 2012- May 21st, 2013

There were 17 one-day cruises to the stations between April 6th, 2012 to May 21st, 2013

**Description:**

Wilkinson Basin is one of the three major basins in the Gulf of Maine where depths exceed 200 meters. The Wilkinson Basin station (WBTS) has a depth of 256 meters and is approximately 38 nautical miles from New Castle, NH, home port of the R/V *Gulf Challenger*. The Jeffreys Ledge station (WB-5) is situated between New Castle and Wilkinson Basin and is 62 meters deep.

Between April 6th 2012 and May 21st 2013, there were 17 deployments on the R/V Gulf Challenger as part of the time series. Sampling was conducted in collaboration with Doug Vandermark and Joe Salisbury of University of New Hampshire (UNH). They were visiting these two stations as well as others as part of the UNH time series started with the COOA project in 2004. The UNH group took over responsibility for the CTD deployments throughout the time series. The attached table lists the samples taken during each cruise.

**Protocols:**

These deployments followed the AZMP protocols (Mitchell et al. 2002) as a guideline. At each station a CTD cast was made by the UNH group, and Niskin bottles were used to capture water samples at depth ( 2, 10, 20, 40 meters). Water was filtered immediately on the vessel using glass fiber filters (GF/F) and polycarbonate membrane filters with pore sizes of 5µm and 20µm. Following Strickland and Parsons (1972) the filters were processed for Chl a and Phaeopigments

Using a 0.75 meter diameter SEA-GEAR Model 9600 twin-ring, 200µm mesh net, two vertical casts were made to within 5 meters of the bottom at each station. Two of the cod end samples were preserved in 4% formaldehyde and a third in 95% ethanol. The fourth sample was kept live, diluted with sea water and distributed into 3.7 L plastic containers, and placed in a cooler until they could be transported back to the lab for live image analysis.

The zooplankton samples fixed in formalin were further processed for identification and enumeration of species. The focus was on the planktonic copepod, *Calanus finmarchicus*, thus there are more samples processed for *Calanus finmarchicus* and their development stages were determined. Samples would be diluted in seawater and subsamples were taken until 200 copepods and at least 75 *Calanus* were identified.

Mitchell, M. R., G. Harrison, K. Pauley, A. Gagné, G. Maillet, and P. Strain. (2002) Atlantic Zonal Monitoring Program Sampling Protocol. Canadian Technical Report of Hydrography and Ocean Sciences 223.

Strickland, J.D.H., and T.R. Parsons, (1972). A Practical Handbook of Seawater Analysis, second ed. Bulletin of Fisheries Research Board, 167: 201–203.

**Data collected**:

This table lists the activities performed and samples collected for each cruise deployment.

Column headers and description

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| Cruise ID | Each deployment has its own cruise ID following this format: GC for R/V Gulf Challenger, followed by the date (mmddyy) |
| Station | Either the Jeffreys ledge station WB-5 or Wilkinson Basin WB-7 |
| Date (mmddyyyy) |  |
| Month |  |
| Day |  |
| Year |  |
| CTD profile | Number of casts completed and available |
| Chl a/Phaeo | Number of water sample filters analyzed for Chlorophyll a and Phaeopigments |
| Formalin | Number of net samples preserved in 4% formaldehyde |
| ETOH | Number of net samples preserved in 95% ethanol |
| Calanus finmarchicus | Number of samples analyzed for Calanus finmarchicus abundance |
| Zooplankton Community | Number of samples analyzed for zooplankton species composition and abundance |

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**Map of the Gulf of Maine showing station locations**

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