Scientific sampling event log from the WB1105 cruise from R/V Weatherbird II (WB1105) (DWH Micronekton project)

Website: https://www.bco-dmo.org/dataset/3742
Data Type: Cruise Results
Version: 2012-10-04

Project
» RAPID Deepwater Horizon Oil Spill: Impact of sub-surface oil plumes on mesopelagic micronekton (DWH Micronekton)

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Coverage

Spatial Extent: **N**:29.25203 **E**:-83.18212 **S**:26.87622 **W**:-87.90772
Temporal Extent: 2012-09-04 - 2012-09-09

Dataset Description

The science party maintained a sampling event log, recording all instrument deployments and significant events during the 2010 RAPID_I cruise aboard the R/V WEATHERBIRD II (WB1105). Refer to comments column for additional information.

Methods & Sampling

The event log was created by hand and includes a record of all scientific sampling events from the cruise. In addition to event identification numbers unique for the cruise, the scientific sampling event log includes date and time (UTC and local), position (latitude and longitude), station and cast identifier as appropriate to the sampling event, sampling instrument (CTD, MOCNESS, Tucker, Drifter, Bucket, Neuston net), name of person responsible for the sampling event, and a comment field to record additional information.

Data Processing Description

BCO-DMO Processing Notes:
- Edited Parameter names to conform to BCODMO convention
  - Specifically 'cast depth' edited to 'depth' after clarification from PI (data file indicated cast depth was equal to wire out, however confirmation from PI indicates it was true depth in meters)

- Edited mixed position reporting (decimal degrees converted to degrees decimal minutes)
- Edited time formats (to include leading zero and exclude colon)
- Added column for time_diff (+4)
- Split Activity/Instrument column into separate columns: 'inst' and 'action'
- Removed pound sign "#" from comment fields within data.
- Two positions were corrected:
  event W9.10.036 longitude was edited from 87.51166 to 87 51.166 (87.85277 in decimal degree format)
  event W9.10.074 latitude was edited from 28.05767 to 29.05767
- UTC time for event W9.10.074 was edited from 423 to 523 to conform to time difference of +4.
- Replaced missing data with 'nd'.
- Added version line
- final edited version of file was renamed eventlog_WB1105.dat

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Data Files

File
eventlog_WB1105.csv (Comma Separated Values (.csv), 7.64 KB) MD5:7b57231957b8172d2569b3ff19bb52e4 Primary data file for dataset ID 3742

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Parameters

Parameter	Description	Units
event	Unique event or operation number; containing year ans consecutive event number.	dimensionless
inst	GLOBEC convention name of instrument used to collect or process sample or data. 'Instrument' originally reported with 'Activity' in one column. This was split into individual columns for each parameter.	dimensionless
action	Activity associated with a particular instrument. 'Action' was originally reported with 'Instrument' in one column, which was split into individual columns for each parameter.	dimensionless
cast	Unique cast number or identifier.	dimensionless
station	Unique station identifier	dimensionless
se_flag	Text string identifying sampling event start or end, originally reported as 'Event start/end'.	dimensionless
month_local	month of year in local time.	dimensionless
day_local	day of month in local time.	dimensionless

time_local	Time of day in local time.	hhmm
time_diff	Time difference in hours between local time and UTC, originally reported in a comment line in data file and incorporated by the DMO into data.	hours
month_utc	Month of year in UTC time.	dimensionless
day_utc	Day of month in UTC time.	dimensionless
time_utc	Time reported in Coordinated Universal Time (UTC).	hhmm
lat	Geographic position reported in degrees and decimal minutes of latitude, where postive values denote northern hemisphere.	degrees, decimal minutes
lon	Geographic position reported in degrees and decimal minutes of longitude, where negative values denote western hemisphere.	degrees, decimal minutes
depth_w	Water depth in meters.	meters
depth	Depth of sampling or observation, originally reported as cast depth.	meters
si	Science investigator responsible for sampling event.	dimensionless
comment	Comments pertaining to sampling event.	dimensionless

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Deployments

WB1105

Website	https://www.bco-dmo.org/deployment/58850
Platform	R/V Weatherbird II
Start Date	2010-09-03
End Date	2010-09-10
Description	Note: Deployment Description was obtained from a pre-cruise cruise plan. The goal of this cruise is to investigate the impact of the BP oil spill on the northern Gulf of Mexico ecosystem, focusing on the mesopelagic fauna. Results will be compared to observations and measurements obtained during the August R/V Weatherbird cruise in the same region and the many other cruises preceding. Specific objectives include: - Determine hydrocarbon concentrations in water column samples obtained via the CTD. Characterize the chemical composition of oil (chemical fingerprint) and note what depths water column backscatter was observed. - Assess mesopelagic communities at two reference stations and one within the plume with respect to: - abundance and distribution - species composition - Obtain frozen specimens of 10 target species for laboratory determinations of evidence of exposure to oil Geographic Area: The cruise will originate and terminate at USF/CMS in St. Petersburg, FL. We will collect samples at three general locations: USF standard station (27o N 86o W) ; Midway station: (27o 55'N 86o 55'W), and vic DSH 9 (28o 38.19' N 87o 52.11' W). To the extent that time permits we will re-occupy the Aug 2010 Weatherbird deepwater stations (DHS10, DHS09, DHS08), where subsurface oil was detected. The WB II will depart from Bayboro and dead head to standard station - roughly a 180 NM transit – at 10 kts about 18 h. Sampling at each of the general sampling sites will consist of two types of midwater tows interspersed with CTD casts. Tows will be at the most comfortable heading and will remain within 20 NM of each general station location. Day tows will used the MOC-4 exclusively and will be in the upper 1000m of the water column. The winch will be in constant use during all tows, either paying out or taking up. Night tows will initially use the MOC-4, then the net will be switched to the 9 m2 Tucker tow for repetitive tows in the upper 400 m for the purpose of maximizing catch of target species. Station occupation will partially be determined on site but tentatively will be 2 d, 1d, and 2 d, at each of the general locations described above. DSH 10 and 8 are put in for reference.

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Project Information

RAPID Deepwater Horizon Oil Spill: Impact of sub-surface oil plumes on mesopelagic micronekton (DWH Micronekton)

Coverage: Gulf of Mexico

The mesopelagic micronekton/macrozooplankton assemblage of the GOM is both highly diverse and vertically mobile. The great majority of the fish and crustacean species reside at depths below 600 m during the day, performing a migration into the upper 250 m at night. Thus, chances of mid-water species encountering subsurface oil plumes are extraordinarily high. Briefly put, if the plumes are present, a large fraction of the mid-water community will be migrating through them.

This research project will: (1) obtain data on present-day micronekton species composition, distribution, and abundance in the upper 1000 m of the water column using ships of opportunity, and compare those data with those acquired in previous decades; (2) evaluate the degree to which the community has already been exposed to subsurface oil plumes using GCMS analysis of hydrocarbon fractions in organismal tissues, and comparing those results with previously collected specimens maintained at -80o; (3) evaluate the variability in sources of carbon and nitrogen supporting mesopelagic biomass and determine the trophic position of present day and previously collected specimens using d13C and d15N of muscle tissue. The data collected in this project will provide a stable isotope baseline allowing for evaluation of present and future subsurface oil impact.

Broader impacts. Broader impacts include training a postdoctoral fellow in shipboard sampling, the biology of

mesopelagic fauna, and basic geochemical methodologies and data interpretation. The PIs have established regular interactions with TV and newspaper reporters have been on the forefront of the shipboard sampling and geochemical analyses that first described the subsurface plumes emanating from the oil spill. Interaction with print and visual media will continue throughout the study as the oil spill coverage continues.

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Funding

Funding Source	Award
NSF Division of Ocean Sciences (NSF OCE)	OCE-1047693

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