SOLOPC unprocessed data from cruises NH1008, NH1307 in Monterey Bay, near MBARI buoy M1 (36.747?N, 122.022?W), Southern California Bight 33?N 118?W; 2010 and 2013 (GATEKEEPERS project)

Website: https://www.bco-dmo.org/dataset/3738
Version: 26 November 2014
Version Date: 2014-11-26

Project
» Zooplankton feeding at the base of the particle maximum: Gatekeepers of the Vertical Flux? (GATEKEEPERS)

Contributors	Affiliation	Role
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Dataset Description

SOLOPC - UnProcessed Data Files
Sensor specific binary (.BIN) data files were converted to unprocessed, ascii, text using SOLOPC system software.
The file names 'SOLOPC_NH{xxx}293#_GK#' the first number 2930 or 2931 refers to which SOLOPC cruise the data were collected on, which instrument was deployed and the GK# refers to each of the six deployments, 5 & 6 being combined. No "GK" id's for NH1307.

No further processing of these text files has been carried out.
tar.gz archives of the text files per deployment are served.

SOLOPC Specs (.pdf)

Information on processing LOPC data files

Link to Alex Herman's Site on LOPC Post Processing

Methods & Sampling

Collected during SOLOPC deployments

Data Processing Description

Note - These are tar.gz archives of unprocessed, ascii text files

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Data Files

File
SOLOPC_UnProcData.csv (Comma Separated Values (.csv), 2.29 KB) MD5:1fe62fc70679f05df96de648585c74eb Primary data file for dataset ID 3738

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Parameters

Parameter	Description	Units
SOLOPC_Deployment	SOLOPC Deployment Id	text
Event	Event Number	Dimensionless
Station	Station Number/Id	Dimensionless
ISO_DateTime_Local_Deployed	Deployment Date/Time (PDT) ISO formatted	YYYY-MM-DDTHH:MM:SS.xx[+/-TZ]
Latitude_Deployed	Deployment Latitude (South is negative)	decimal degrees
Longitude_Deployed	Deployment Longitude (West is negative)	decimal degrees
ISO_DateTime_Local_Recovered	Recovery Date/Time (PDT) ISO formatted	YYYY-MM-DDTHH:MM:SS.xx[+/-TZ]
Latitude_Recovered	Recovery Latitude (South is negative)	decimal degrees
Longitude_Recovered	Recovery Longitude (West is negative)	decimal degrees
UnProcessed_Data_Archive	UnProcessed Data Archive (tar.gz files)	text
CruiseId	UNOLS Cruise Id	text

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Instruments

Dataset-specific Instrument Name	Laser Optical Plankton Counter
Generic Instrument Name	Laser Optical Plankton Counter
Dataset-specific Description	SOLOPC Specs (.pdf)
Generic Instrument Description	Laser Optical Plankton Counter (LOPC)

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Deployments

NH1008

Website	https://www.bco-dmo.org/deployment/58852
Platform	R/V New Horizon
Report	http://bcodata.whoi.edu/GATEKEEPERS/cruise_plan_checkley_nh_8_25_jul_10_v3.pdf
Start Date	2010-07-08
End Date	2010-07-25
Description	Collaborative Research: Zooplankton at the Base of the Particle Maximum: Gatekeepers of the Vertical Flux?: Deployment and recovery of SOLOPCs in Monterey Bay, plus CTD and MOCNESS deployments in Monterey Bay Cruise information and original data are available from the NSF R2R data catalog. Figure 1. R/V New Horizon Cruise NH1008 GATEKEEPERS [click on the image to view a larger version]

NH1307

Website	https://www.bco-dmo.org/deployment/540436
Platform	R/V New Horizon
Start Date	2013-04-18
End Date	2013-04-18
Description	Cruise information and original data are available from the NSF R2R data catalog.

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Project Information

Zooplankton feeding at the base of the particle maximum: Gatekeepers of the Vertical Flux? (GATEKEEPERS)

Website: http://iod.ucsd.edu/gatekeeper/

Coverage: Monterey Bay, CA and waters offshore

Zooplankton feeding at the base of the particle maximum: Gatekeepers of the Vertical Flux?

A range of observations suggest that zooplankton act as gatekeepers for material leaving the euphotic zone. This study will investigate the interactions of zooplankton with other particles using a suite of autonomous and tethered instruments in conjunction with finescale water sampling. The SOLOPC (Sounding Oceanographic Observer with Laser Optical Plankton Counter) will be the autonomous instrument and provide hourly profiles

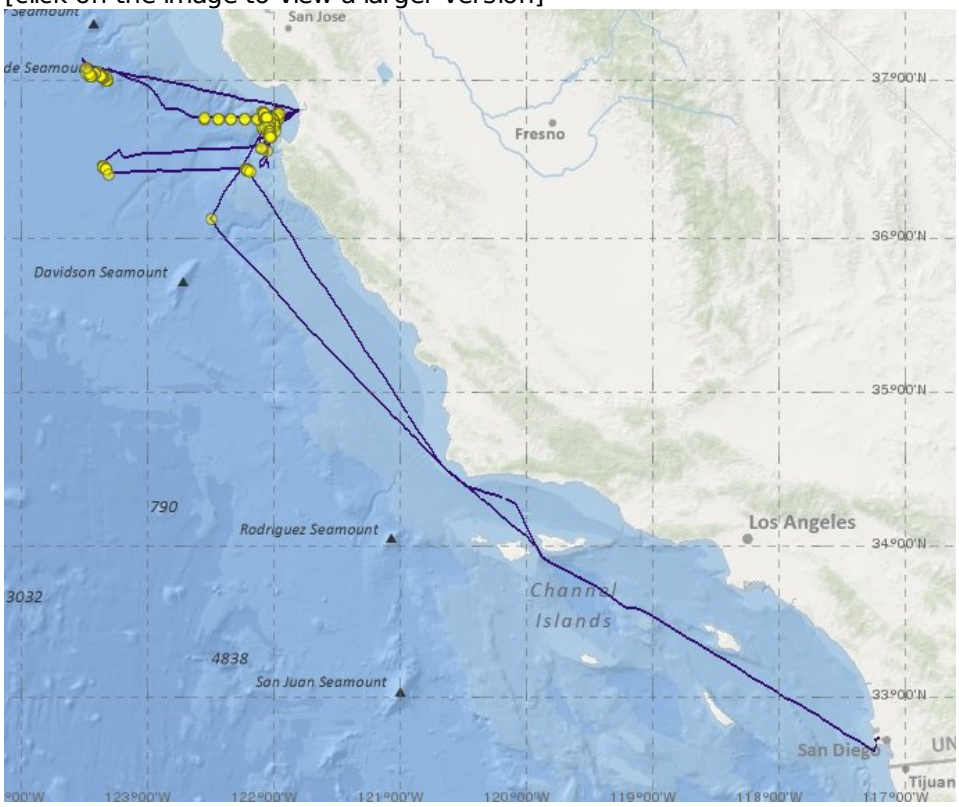
of zooplankton and other particles. Previous sampling with the SOLOPC indicated a diel cycle of production and abundance of particles in the euphotic zone and their sinking and consumption, presumably by zooplankton observed at the base of the particle abundance maximum. The SOLOPC senses particles, including zooplankton and aggregates, and measures their equivalent spherical diameters which can be used to compute particle size spectra. However, it is difficult to use the SOLOPC to distinguish among particle types, such as copepods, larvaceans, and aggregates, particularly if they are small. The research will include an intensive field study that will take place in Monterey Bay and use adaptive sampling to observe near SOLOPCs with a new, AUV-borne imaging system, ship-based CTD and MOCNESS sampling, and MBARI's ROV Ventana. The investigators will alter a SOLOPC to be stationary relative to an isopycnal and use the particle counts that it accumulates to calculate a flux spectrum. They will combine the flux and concentration spectra to estimate particle sinking velocities as a function of particle diameter. Zooplankton feeding in the water column will be estimated by analyzing the gut fluorescence of animals caught in zooplankton nets and by counting the distribution of fecal pellets in water samples. Results will enhance the understanding of the role of the zooplankton as gatekeepers in the vertical flux of particles and, hence, the biological pump. The study will also provide new insight into factors that affect zooplankton behavior and ecology.

Collaborating institutions include SIO, TAMU, LUMCON, MBARI, BIO, and Université Paris VI. The SOLOPC, modified to measure flux as well as profile, and REFLICS are intended for acquisition and use by other researchers worldwide. The understanding we gain of role of the zooplankton as gatekeepers of the vertical flux will contribute valuably to understanding of the biological pump and the carbon cycle.

PUBLICATIONS PRODUCED AS A RESULT OF THIS RESEARCH

Jackson, GA and DM Checkley Jr. "Particle size distributions in the upper 100 m water column and their implications for animal feeding in the plankton," *Deep-Sea Research*, 2011.

Figure 1. R/V New Horizon Cruise NH1008 GATEKEEPERS
[click on the image to view a larger version]



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