

BONGO LOPC log from R/V New Horizon cruise NH1008 in Monterey Bay, near MBARI buoy M1 (36.747°N, 122.022°W); 2010 (GATEKEEPERS project)

Website: <https://www.bco-dmo.org/dataset/3735>

Version: 24 September 2012

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Project

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

Contributors	Affiliation	Role
Checkley, David M.	University of California-San Diego (UCSD-SIO)	Principal Investigator, Contact
Dagg, Michael	Louisiana Universities Marine Consortium (LUMCON)	Co-Principal Investigator
Jackson, George A.	Texas A&M University (TAMU)	Co-Principal Investigator
Gegg, Stephen R.	Woods Hole Oceanographic Institution (WHOI BCO-DMO)	BCO-DMO Data Manager

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Dataset Description

BONGO LOPC - Log

From the original .xls file:

NH1008 Bongo-LOPC

Mesh Port/LOPC Stb. Meter No. Intercept 0.2586

Net No. CB5507 CB3506 B15049 Slope 0.0467

[How To Do A BONGO Tow \(.pdf\)](#)

[BONGO Tow Sheet Example](#)

Methods & Sampling

[How To Do A BONGO Tow \(.pdf\)](#)

Data Processing Description

BCO-DMO Processing/Edits

- Generated from original file: "Bongo_LOPC_log_20Sep2012_JFB.xls" contributed by Jessica Forrest-Baldini

- Dates reformatted to YYYYMMDD

- Times reformatted to HHMM
- ISO DateTime format generated
- "NaN" and "n/a" replaced with "nd" (no data)
- BCO-DMO compatible parameters generated

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Data Files

File
BONGO_LOPC_Log.csv (Comma Separated Values (.csv), 5.55 KB) MD5:17300da55ac849c0dc5f728d38d1a0b0 Primary data file for dataset ID 3735

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Parameters

Parameter	Description	Units
Recorded_Station	BONGO/LOPC Recorded Station	Dimensionless
Order_Occupied	BONGO/LOPC Order Occupied	Dimensionless
File_Number	BONGO/LOPC File Number	Text
Latitude	Tow Latitude (South is negative)	decimal degrees
Longitude	Tow Longitude (West is negative)	decimal degrees
ISO_DateTime_Local_Begin_Tow	Begin Tow Date/Time (PDT) ISO formatted	YYYY-MM-DDTHH:MM:SS.xx[+/-TZ]
Date_Begin_Tow	Begin Tow Date (PDT)	YYYYMMDD
Time_Begin_Tow	Begin Tow Time (PDT)	HHMM
ISO_DateTime_Local_End_Tow	End Tow Date/Time (PDT) ISO formatted	YYYY-MM-DDTHH:MM:SS.xx[+/-TZ]
Date_End_Tow	End Tow Date (PDT)	YYYYMMDD
Time_End_Tow	End Tow Time (PDT)	HHMM
Sinking_Min	Sinking Minutes	Minutes
Sinking_Sec	Sinking Seconds	Seconds
Towing_Min	Towing Minutes	Minutes
Towing_Sec	Towing Seconds	Seconds
Total_Min	Total Minutes	Minutes
Total_Sec	Total Seconds	Seconds
Total_Time	Total Time	Seconds
Wire_Out	Wire Out	Meters
Flowmeter_Final	Flowmeter Final (10counts=1rev)	Counts
Flowmeter_Initial	Flowmeter Initial (10counts=1rev)	Counts
Flowmeter_Diff	Flowmeter Difference (10counts=1rev)	Revolutions
Frame_Area	Frame Area	meters ²
RPS	Revolutions Per Second	rev/second
Mrev	Revolutions Per Minute	rev/minutes
Volume_Filtered	Volume Filtered	meters ³

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Instruments

Dataset-specific Instrument Name	Bongo Net
Generic Instrument Name	Bongo Net
Generic Instrument Description	A Bongo Net consists of paired plankton nets, typically with a 60 cm diameter mouth opening and varying mesh sizes, 10 to 1000 micron. The Bongo Frame was designed by the National Marine Fisheries Service for use in the MARMAP program. It consists of two cylindrical collars connected with a yoke so that replicate samples are collected at the same time. Variations in models are designed for either vertical hauls (OI-2500 = NMFS Pairovet-Style, MARMAP Bongo, CalVET) or both oblique and vertical hauls (Aquatic Research). The OI-1200 has an opening and closing mechanism that allows discrete "known-depth" sampling. This model is large enough to filter water at the rate of 47.5 m ³ /minute when towing at a speed of two knots. More information: Ocean Instruments, Aquatic Research, Sea-Gear

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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]

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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.

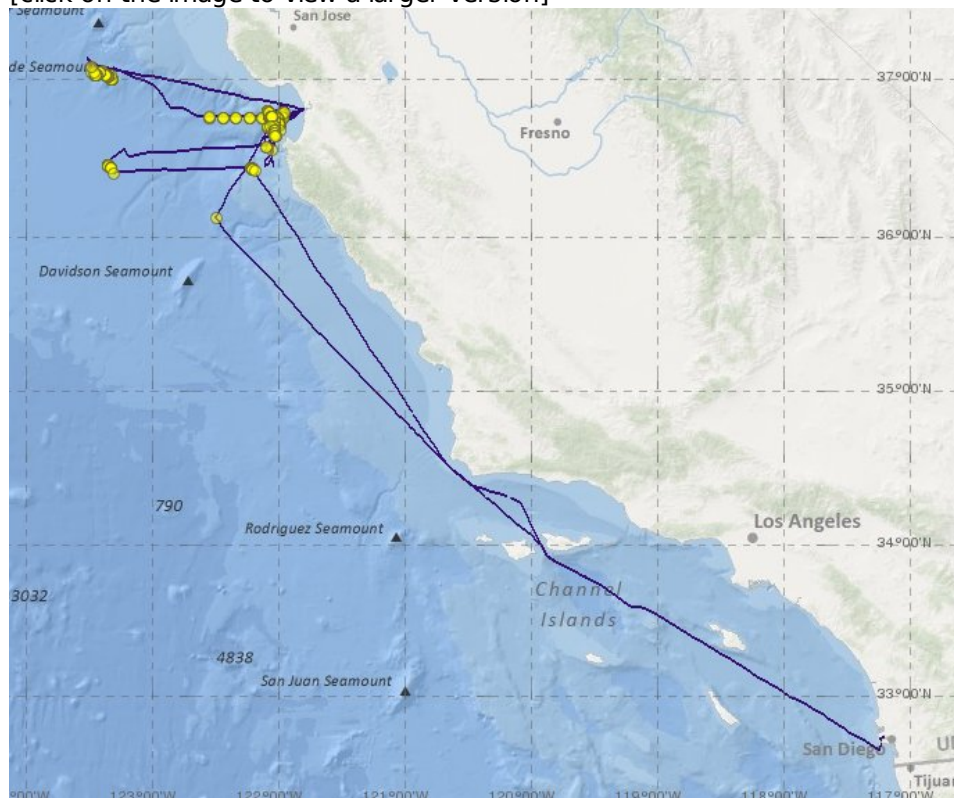
Collaborating institutions include SIO, TAMU, LUMCON, MBARI, BIO, and Université Paris VI. The SOLOPC, modified to measure flux as well as profile, and REFLICS are intended for acquisition and use by other researchers worldwide. The understanding we gain of role of the zooplankton as gatekeepers of the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

Funding Source	Award
NSF Division of Ocean Sciences (NSF OCE)	OCE-0927863
NSF Division of Ocean Sciences (NSF OCE)	OCE-0928139
NSF Division of Ocean Sciences (NSF OCE)	OCE-0928425

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