CTD profile data 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/3711
Version: 05 September 2012
Version Date: 2012-09-05

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

Table of Contents

Dataset Description

CTD - Profile Data - Binned Downcasts

Methods & Sampling

(In progress)

Data Processing Description

BCO-DMO Processing/Edits
- Generated from CTD Profile Casts header data (CTD/binned_downcast/XXXhdr.txt and XXXasc.txt files) contributed by Jessica Forrest-Baldini
- Awk routine "NewHorizon_CTDasc_2_BCODMO.awk" generated to convert XXXasc.txt files to bco-dmo formatted files
- ISO DateTime format generated
- Spaces converted to tabs
- BCO-DMO compatible parameter header generated

[table of contents | back to top]

Data Files

File
CTD_Profiles.csv (Comma Separated Values (.csv), 2.26 MB) MD5:aac53ba1e8e90e3c483cc87a151f8bb4 Primary data file for dataset ID 3711

[table of contents | back to top]

Parameters

Parameter	Description	Units
CTD_Cast	CTD Cast Number/Id	Dimensionless
ISO_DateTime_UTC	CTD Date/Time from Header File (UTC) ISO formatted	YYYY-MM-DDTHH:MM:SS.xxZ
Date	CTD Date from Header File (UTC)	YYYYMMDD
Time	CTD Time from Header File (UTC)	HHMMSS
Latitude	CTD Latitude from Header File (South is negative)	decimal degrees
Longitude	CTD Longitude from Header File (West is negative)	decimal degrees
Depth	CTD Max depth	meters
prDM	Pressure Digiquartz	db
t090C	Temperature ITS-90	deg C
t190C	Temperature 2 ITS-90	deg C
c0	Conductivity	mS/cm
c1	Conductivity 2	mS/cm
bat	Beam Attenuation Chelsea/Seatech/WET Labs CStar	1/m
sbeox0	Oxygen SBE 43	ml/l
flSP	Fluorescence Seapoint	(tbd)
par	PAR/Irradiance Biospherical/Licor	(tbd)
spar	SPAR/Surface Irradiance	(tbd)
upoly0	Upoly 0 UVP	Nephelometric Turbidity Units (NTU)
altM	Altimeter	meters
lat	Latitude (South is negative)	decimal degrees
lon	Longitude (West is negative)	decimal degrees
depSM	Depth salt water lat = 36.7985	meters
sigma_e00	Density sigma-theta	Kg/m^3
sal00	Salinity Practical	PSU
sal11	Salinity Practical 2	PSU
svCM	Sound Velocity Chen-Millero	m/s
accM	Acceleration WS = 2	m/s^2
nbin	number of scans per bin	integer
flag	flag	nd

[table of contents | back to top]

Instruments

Dataset-specific Instrument Name	CTD Sea-Bird SBE 911plus
Generic Instrument Name	CTD Sea-Bird SBE 911plus
	* Sea-Bird SBE 9 Data File: * FileName = C:/CTD/Checkley/045.hex * Software Version Seasave V 7.20b * Temperature SN = 4308 * Conductivity SN = 2319 * Number of Bytes Per Scan = 44 * Number of Voltage Words = 5 * Number of Scans Averaged by the Deck Unit = 1 * Append System Time to Every Scan * System UpLoad Time = Jul 23 2010 06:25:50 * NMEA Latitude = 36 27.22 N * NMEA Longitude = 123 21.12 W * NMEA UTC (Time) = Jul 23 2010 06:26:01 * Store Lat/Lon Data = Append to Every Scan ** R/V New Horizon ** NH1008 # nquan = 22 # nvalues = 200 # units = specified # name 0 = prDM: Pressure, Digiquartz [db] # name 1 = t090C: Temperature [ITS-90, deg C] # name 2 = t190C: Temperature, 2 [ITS-90, deg C] # name 3 = c0mS/cm: Conductivity [mS/cm] # name 4 = c1mS/cm: Conductivity, 2 [mS/cm] # name 5 = bat: Beam Attenuation, Chelsea/Seatech/WET Labs CStar [1/m] # name 6 = sbeox0ML/L: Oxygen, SBE 43 [ml/l] # name 7 = flSP: Fluorescence, Seapoint # name 8 = par: PAR/Irradiance, Biospherical/Licor # name 9 = spar: SPAR/Surface Irradiance # name 10 = upoly0: Upoly 0, UVP # name 11 = altM: Altimeter [m] # name 12 = latitude: Latitude [deg] # name 13 = longitude: Longitude [deg] # name 14 = depSM: Depth [salt water, m], lat = 36.4537 # name 15 = sigma-é00: Density [sigma-theta, Kg/m^3] # name 16 = sal00: Salinity, Practical [PSU] # name 17 = sal11: Salinity, Practical, 2 [PSU] # name 18 = svCM: Sound Velocity [Chen-Millero, m/s] # name 19 = accM: Acceleration [m/s^2], WS = 2 # name 20 = nbin: number of scans per bin # name 21 = flag: flag # span 0 = 5.000, 204.000 # span 1 = 7.2372, 13.9303 # span 2 = 7.2381, 13.9305 # span 3 = 34.625168, 40.216492 # span 4 = 34.633576, 40.223021 # span 5 = 0.5044, 0.7080 # span 6 = 1.79033, 6.01384 # span 7 = 3.7136e-02, 8.3820e-01 # span 8 = 1.0000e-12, 1.0000e-12 # span 9 = -2.301e+00, 2.8170e+01 # span 10 = 0.0000000, 0.0000000 # span 11 = 38.40, 100.77 # span 12 = 36.45350, 36.45374 # span 13 = -123.35206, -123.35194 # span 14 = 4.963, 202.401 # span 15 = 25.0105, 26.5530 # span 16 = 33.1967, 34.0267 # span 17 = 33.1989, 34.0350 # span 18 = 1481.60, 1501.52 # span 19 = -0.80, 0.49 # span 20 = 5, 108 # span 21 = 0.0000e+00, 0.0000e+00 # interval = decibars: 1 # start_time = Jul 23 2010 06:26:01 # bad_flag = -9.990e-29 # Sensors count="15" # sensor Channel="1" # !-- Frequency 0, Temperature -- # TemperatureSensor SensorID="55" # SerialNumber 4308/SerialNumber # CalibrationDate 26-Apr-2010 /CalibrationDate # UseG_J 1/UseG_J # A 4.36407076e-003/A # B 6.45448128e-004/B # C 2.27855611e-005/C # D 1.92340747e-006/D # F0_Old 1000.000/F0_Old # G 4.36387038e-003/G # H 6.45235808e-004/H # I 2.27528596e-005/I # J 1.92187718e-006/J # F0 1000.000/F0 # Slope 1.00000000/Slope # Offset 0.0000/Offset # /TemperatureSensor # sensor # sensor Channel="2" # !-- Frequency 1, Conductivity -- # ConductivitySensor SensorID="3" # SerialNumber 2319/SerialNumber # CalibrationDate 12-Jun-09 /CalibrationDate # UseG_J 1/UseG_J # !-- Cell const and series R are applicable only for wide range sensors. -- # SeriesR 0.0000/SeriesR # CellConst 2000.0000/CellConst # ConductivityType 0/ConductivityType # Coefficients equation="0" # A 0.00000000e+000/A # B 0.00000000e+000/B # C 0.00000000e+000/C # D 0.00000000e+000/D # M 0.0/M # CPcor -9.57000000e-008/CPcor # /Coefficients # Coefficients equation="1" # G -1.03211898e+001/G # H 1.50018726e+000/H # I -3.82697724e-004/I # J 1.04707946e-004/J # CPcor -9.57000000e-008/CPcor # CTcor 3.2500e-006/CTcor # !-- WBOTC not applicable unless ConductivityType = 1. -- # WBOTC 0.00000000e+000/WBOTC # /Coefficients # Slope 1.00000000/Slope # Offset 0.00000/Offset # /ConductivitySensor # sensor # sensor Channel="3" # !-- Frequency 2, Pressure, Digiquartz with TC -- # PressureSensor SensorID="45" # SerialNumber 0569/SerialNumber # CalibrationDate

Dataset-specific Description	09-OCT-08/CalibrationDate # C1 -4.261906e+004/C1 # C2 -3.648911e-001/C2 # C3 1.474535e-002/C3 # D1 3.768543e-002/D1 # D2 0.000000e+000/D2 # T1 3.044473e+001/T1 # T2 -4.107907e-004/T2 # T3 3.624599e-006/T3 # T4 1.375951e-008/T4 # Slope 1.00000000/Slope # Offset 0.00000/Offset # T5 0.000000e+000/T5 # AD590M 1.286170e-002/AD590M # AD590B -8.288260e+000/AD590B # /PressureSensor # sensor # sensor Channel="4" # !-- Frequency 3, Temperature, 2 -- # TemperatureSensor SensorID="55" # SerialNumber 4476/SerialNumber # CalibrationDate 26-Apr-2010 /CalibrationDate # UseG_J 1/UseG_J # A 4.33254179e-003/A # B 6.34742502e-004/B # C 2.08458165e-005/C # D 1.83956740e-006/D # F0_Old 1000.000/F0_Old # G 4.33235170e-003/G # H 6.34536082e-004/H # I 2.08144943e-005/I # J 1.83816873e-006/J # F0 1000.000/F0 # Slope 1.00000000/Slope # Offset 0.0000/Offset # /TemperatureSensor # sensor # sensor Channel="5" # !-- Frequency 4, Conductivity, 2 -- # ConductivitySensor SensorID="3" # SerialNumber 1880/SerialNumber # CalibrationDate 11-Mar-10 /CalibrationDate # UseG_J 1/UseG_J # !-- Cell const and series R are applicable only for wide range sensors. -- # SeriesR 0.0000/SeriesR # CellConst 2000.0000/CellConst # ConductivityType 0/ConductivityType # Coefficients equation="0" # A 0.00000000e+000/A # B 0.00000000e+000/B # C 0.00000000e+000/C # D 0.00000000e+000/D # M 0.0/M # CPcor -9.57000000e-008/CPcor # /Coefficients # Coefficients equation="1" # G -4.13035335e+000/G # H 5.04469106e-001/H # I -6.68952597e-004/I # J 5.84538832e-005/J # CPcor -9.57000000e-008/CPcor # CTcor 3.2500e-006/CTcor # !-- WBOTC not applicable unless ConductivityType = 1. -- # WBOTC 0.00000000e+000/WBOTC # /Coefficients # Slope 1.00000000/Slope # Offset 0.00000/Offset # /ConductivitySensor # sensor # sensor Channel="6" # !-- A/D voltage 0, Transmissometer, Chelsea/Seatech/WET Lab CStar -- # TransChelseaSeatechWetlabCStarSensor SensorID="59" # SerialNumber CTS492DR/SerialNumber # CalibrationDate 1 MARCH 2010/CalibrationDate # M 19.3810/M # B -1.1630/B # PathLength 0.250/PathLength # /TransChelseaSeatechWetlabCStarSensor # sensor # sensor Channel="7" # !-- A/D voltage 1, Oxygen, SBE 43 -- # OxygenSensor SensorID="38" # SerialNumber 0255/SerialNumber # CalibrationDate 12 May, 2010/CalibrationDate # Use2007Equation 1/Use2007Equation # CalibrationCoefficients equation="0" # !-- Coefficients for Owens-Millard equation. -- # Boc 0.0000/Boc # Soc 0.0000e+000/Soc # offset 0.0000/offset # Pcor 0.00e+000/Pcor # Tcor 0.0000/Tcor # Tau 0.0/Tau # /CalibrationCoefficients # CalibrationCoefficients equation="1" # !-- Coefficients for Sea-Bird equation - SBE calibration in 2007 and later. -- # Soc 5.7620e-001/Soc # offset -0.5123/offset # A -3.4352e-003/A # B 1.1172e-004/B # C -2.1729e-006/C # D0 2.5826e+000/D0 # D1 1.92634e-004/D1 # D2 -4.64803e-002/D2 # E 3.6000e-002/E # Tau20 2.1100/Tau20 # H1 -3.3000e-002/H1 # H2 5.0000e+003/H2 # H3 1.4500e+003/H3 # /CalibrationCoefficients # /OxygenSensor # sensor # sensor Channel="8" # !-- A/D voltage 2, Fluorometer, Seapoint -- # FluoroSeapointSensor SensorID="11" # SerialNumber SCF 3004/SerialNumber # CalibrationDate n/a/CalibrationDate # !-- The following is an array index, not the actual gain setting. -- # GainSetting 1/GainSetting # Offset 0.000/Offset # /FluoroSeapointSensor # sensor # sensor Channel="9" # !-- A/D voltage 3, PAR/Irradiance, Biospherical/Licor -- # PAR_BiosphericalLicorChelseaSensor SensorID="42" # SerialNumber 4506/SerialNumber # CalibrationDate 12 Mar. 2009/CalibrationDate # M 1.00000000/M # B 0.00000000/B # CalibrationConstant 4218909300.00000000/CalibrationConstant # Multiplier 1.00000000/Multiplier # Offset -3.83666028/Offset # /PAR_BiosphericalLicorChelseaSensor # sensor # sensor Channel="10" # !-- A/D voltage 4, Altimeter -- # AltimeterSensor SensorID="0" # SerialNumber 1055/SerialNumber # CalibrationDate 05/15/2003/CalibrationDate # ScaleFactor 15.000/ScaleFactor # Offset 0.000/Offset # /AltimeterSensor # sensor # sensor Channel="11" # !-- A/D voltage 5, Free -- # sensor # sensor Channel="12" # !-- A/D voltage 6, User Polynomial -- # UserPolynomialSensor SensorID="61" # SerialNumber UVP2/SerialNumber # CalibrationDate /CalibrationDate # SensorName UVPsensorName # A0 0.00000000/A0 # A1 1.00000000/A1 # A2 0.00000000/A2 # A3 0.00000000/A3 # /UserPolynomialSensor # sensor # sensor Channel="13" # !-- A/D voltage 7, Free -- # sensor # sensor Channel="14" # !-- SPAR voltage, Unavailable -- # sensor # sensor Channel="15" # !-- SPAR voltage, SPAR/Surface Irradiance -- # SPAR_Sensor SensorID="51" # SerialNumber

	6367/SerialNumber # CalibrationDate 18 Mar. 2009/CalibrationDate # ConversionFactor 16126.48000000/ConversionFactor # RatioMultiplier 1.00000000/RatioMultiplier # /SPAR_Sensor # sensor # sensors # datcnv_date = Nov 02 2010 19:33:05, 7.20g # datcnv_in = C:Documents and SettingsjforrestbaldiniDesktopCheckley45.hex C:Documents and SettingsjforrestbaldiniDesktopNH1008-R1_v2_jfb.con # datcnv_skipover = 6793 # datcnv_ox_hysteresis_correction = yes # datcnv_ox_tau_correction = yes # wildedit_date = Nov 02 2010 19:33:20, 7.20g # wildedit_in = C:Documents and SettingsjforrestbaldiniDesktopprocessed_2_JFB45.cnv # wildedit_pass1_nstd = 2.0 # wildedit_pass2_nstd = 20.0 # wildedit_pass2_mindelta = 0.000e+000 # wildedit_npoint = 100 # wildedit_vars = prDM t090C t190C c0mS/cm c1mS/cm bat sbeox0ML/L flSP par spar upoly0 altM # wildedit_excl_bad_scans = yes # celltm_date = Nov 02 2010 19:33:32, 7.20g # celltm_in = C:Documents and SettingsjforrestbaldiniDesktopprocessed_2_JFB45.cnv # celltm_alpha = 0.0300, 0.0300 # celltm_tau = 7.0000, 7.0000 # celltm_temp_sensor_use_for_cond = primary, secondary # filter_date = Nov 02 2010 19:33:48, 7.20g # filter_in = C:Documents and SettingsjforrestbaldiniDesktopprocessed_2_JFB45.cnv # filter_low_pass_tc_A = 0.030 # filter_low_pass_tc_B = 0.150 # filter_low_pass_A_vars = # filter_low_pass_B_vars = prDM # loopedit_date = Nov 02 2010 19:34:01, 7.20g # loopedit_in = C:Documents and SettingsjforrestbaldiniDesktopprocessed_2_JFB45.cnv # loopedit_minVelocity = 0.000 # loopedit_surfaceSoak: minDepth = 5.0, maxDepth = 20, useDeckPress = 1 # loopedit_excl_bad_scans = yes # Derive_date = Nov 02 2010 19:34:21, 7.20g # Derive_in = C:Documents and SettingsjforrestbaldiniDesktopprocessed_2_JFB45.cnv C:Documents and SettingsjforrestbaldiniDesktopNH1008-R1_v2_jfb.con # derive_time_window_dzdt = seconds: 2 # binavg_date = Nov 02 2010 19:34:33, 7.20g # binavg_in = C:Documents and SettingsjforrestbaldiniDesktopprocessed_2_JFB45.cnv # binavg_bintype = decibars # binavg_binsize = 1 # binavg_excl_bad_scans = yes # binavg_skipover = 0 # binavg_surface_bin = yes, min = 0.000, max = 2.000, value = 0.000 # file_type = ascii *END*
Generic Instrument Description	The Sea-Bird SBE 911 plus is a type of CTD instrument package for continuous measurement of conductivity, temperature and pressure. The SBE 911 plus includes the SBE 9plus Underwater Unit and the SBE 11plus Deck Unit (for real-time readout using conductive wire) for deployment from a vessel. The combination of the SBE 9 plus and SBE 11 plus is called a SBE 911 plus. The SBE 9 plus uses Sea-Bird's standard modular temperature and conductivity sensors (SBE 3 plus and SBE 4). The SBE 9 plus CTD can be configured with up to eight auxiliary sensors to measure other parameters including dissolved oxygen, pH, turbidity, fluorescence, light (PAR), light transmission, etc.). more information from Sea-Bird Electronics

[table of contents | back to top]

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
	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] **Methods & Sampling** * Sea-Bird SBE 9 Data File: * FileName = C:/CTD/Checkley/045.hex * Software Version Seasave V 7.20b * Temperature SN = 4308 * Conductivity SN = 2319 * Number of Bytes Per Scan = 44 * Number of Voltage Words = 5 * Number of Scans Averaged by the Deck Unit = 1 * Append

System Time to Every Scan * System UpLoad Time = Jul 23 2010 06:25:50 * NMEA Latitude = 36 27.22 N * NMEA Longitude = 123 21.12 W * NMEA UTC (Time) = Jul 23 2010 06:26:01 * Store Lat/Lon Data = Append to Every Scan ** R/V New Horizon ** NH1008 # nquan = 22 # nvalues = 200 # units = specified # name 0 = prDM: Pressure, Digiquartz [db] # name 1 = t090C: Temperature [ITS-90, deg C] # name 2 = t190C: Temperature, 2 [ITS-90, deg C] # name 3 = c0mS/cm: Conductivity [mS/cm] # name 4 = c1mS/cm: Conductivity, 2 [mS/cm] # name 5 = bat: Beam Attenuation, Chelsea/Seatech/WET Labs CStar [1/m] # name 6 = sbeox0ML/L: Oxygen, SBE 43 [ml/l] # name 7 = flSP: Fluorescence, Seapoint # name 8 = par: PAR/Irradiance, Biospherical/Licor # name 9 = spar: SPAR/Surface Irradiance # name 10 = upoly0: Upoly 0, UVP # name 11 = altM: Altimeter [m] # name 12 = latitude: Latitude [deg] # name 13 = longitude: Longitude [deg] # name 14 = depSM: Depth [salt water, m], lat = 36.4537 # name 15 = sigma-é00: Density [sigma-theta, Kg/m^3] # name 16 = sal00: Salinity, Practical [PSU] # name 17 = sal11: Salinity, Practical, 2 [PSU] # name 18 = svCM: Sound Velocity [Chen-Millero, m/s] # name 19 = accM: Acceleration [m/s^2], WS = 2 # name 20 = nbin: number of scans per bin # name 21 = flag: flag # span 0 = 5.000, 204.000 # span 1 = 7.2372, 13.9303 # span 2 = 7.2381, 13.9305 # span 3 = 34.625168, 40.216492 # span 4 = 34.633576, 40.223021 # span 5 = 0.5044, 0.7080 # span 6 = 1.79033, 6.01384 # span 7 = 3.7136e-02, 8.3820e-01 # span 8 = 1.0000e-12, 1.0000e-12 # span 9 = -2.301e+00, 2.8170e+01 # span 10 = 0.0000000, 0.0000000 # span 11 = 38.40, 100.77 # span 12 = 36.45350, 36.45374 # span 13 = -123.35206, -123.35194 # span 14 = 4.963, 202.401 # span 15 = 25.0105, 26.5530 # span 16 = 33.1967, 34.0267 # span 17 = 33.1989, 34.0350 # span 18 = 1481.60, 1501.52 # span 19 = -0.80, 0.49 # span 20 = 5, 108 # span 21 = 0.0000e+00, 0.0000e+00 # interval = decibars: 1 # start_time = Jul 23 2010 06:26:01 # bad_flag = -9.990e-29 # Sensors count="15" # sensor Channel="1" # !-- Frequency 0, Temperature -- # TemperatureSensor SensorID="55" # SerialNumber 4308/SerialNumber # CalibrationDate 26-Apr-2010 /CalibrationDate # UseG_J 1/UseG_J # A 4.36407076e-003/A # B 6.45448128e-004/B # C 2.27855611e-005/C # D 1.92340747e-006/D # F0_Old 1000.000/F0_Old # G 4.36387038e-003/G # H 6.45235808e-004/H # I 2.27528596e-005/I # J 1.92187718e-006/J # F0 1000.000/F0 # Slope 1.00000000/Slope # Offset 0.0000/Offset # /TemperatureSensor # sensor # sensor Channel="2" # !-- Frequency 1, Conductivity -- # ConductivitySensor SensorID="3" # SerialNumber 2319/SerialNumber # CalibrationDate 12-Jun-09 /CalibrationDate # UseG_J 1/UseG_J # !-- Cell const and series R are applicable only for wide range sensors. -- # SeriesR 0.0000/SeriesR # CellConst 2000.0000/CellConst # ConductivityType 0/ConductivityType # Coefficients equation="0" # A 0.00000000e+000/A # B 0.00000000e+000/B # C 0.00000000e+000/C # D 0.00000000e+000/D # M 0.0/M # CPcor -9.57000000e-008/CPcor # /Coefficients # Coefficients equation="1" # G -1.03211898e+001/G # H 1.50018726e+000/H # I -3.82697724e-004/I # J 1.04707946e-004/J # CPcor -9.57000000e-008/CPcor # CTcor 3.2500e-006/CTcor # !-- WBOTC not applicable unless ConductivityType = 1. -- # WBOTC 0.00000000e+000/WBOTC # /Coefficients # Slope 1.00000000/Slope # Offset 0.00000/Offset # /ConductivitySensor # sensor # sensor Channel="3" # !-- Frequency 2, Pressure, Digiquartz with TC -- # PressureSensor SensorID="45" # SerialNumber 0569/SerialNumber # CalibrationDate 09-OCT-08/CalibrationDate # C1 -4.261906e+004/C1 # C2 -3.648911e-001/C2 # C3 1.474535e-002/C3 # D1 3.768543e-002/D1 # D2 0.000000e+000/D2 # T1 3.044473e+001/T1 # T2 -4.107907e-004/T2 # T3 3.624599e-006/T3 # T4 1.375951e-008/T4 # Slope 1.00000000/Slope # Offset 0.00000/Offset # T5 0.000000e+000/T5 # AD590M 1.286170e-002/AD590M # AD590B -8.288260e+000/AD590B # /PressureSensor # sensor # sensor Channel="4" # !-- Frequency 3, Temperature, 2 -- # TemperatureSensor SensorID="55" # SerialNumber 4476/SerialNumber # CalibrationDate 26-Apr-2010 /CalibrationDate # UseG_J 1/UseG_J # A 4.33254179e-003/A # B 6.34742502e-004/B # C 2.08458165e-005/C # D 1.83956740e-006/D # F0_Old 1000.000/F0_Old # G 4.33235170e-003/G # H 6.34536082e-004/H # I 2.08144943e-005/I # J 1.83816873e-006/J # F0 1000.000/F0 # Slope 1.00000000/Slope # Offset 0.0000/Offset # /TemperatureSensor # sensor # sensor Channel="5" # !-- Frequency 4, Conductivity, 2 -- # ConductivitySensor SensorID="3" # SerialNumber 1880/SerialNumber # CalibrationDate 11-Mar-10 /CalibrationDate # UseG_J 1/UseG_J # !-- Cell const and series R are applicable only for wide range sensors. -- # SeriesR 0.0000/SeriesR # CellConst

Description	2000.0000/CellConst # ConductivityType 0/ConductivityType # Coefficients equation="0" # A 0.00000000e+000/A # B 0.00000000e+000/B # C 0.00000000e+000/C # D 0.00000000e+000/D # M 0.0/M # CPcor -9.57000000e-008/CPcor # /Coefficients # Coefficients equation="1" # G -4.13035335e+000/G # H 5.04469106e-001/H # I -6.68952597e-004/I # J 5.84538832e-005/J # CPcor -9.57000000e-008/CPcor # CTcor 3.2500e-006/CTcor # !-- WBOTC not applicable unless ConductivityType = 1. -- # WBOTC 0.00000000e+000/WBOTC # /Coefficients # Slope 1.00000000/Slope # Offset 0.00000/Offset # /ConductivitySensor # sensor # sensor Channel="6" # !-- A/D voltage 0, Transmissometer, Chelsea/Seatech/WET Lab CStar -- # TransChelseaSeatechWetlabCStarSensor SensorID="59" # SerialNumber CTS492DR/SerialNumber # CalibrationDate 1 MARCH 2010/CalibrationDate # M 19.3810/M # B -1.1630/B # PathLength 0.250/PathLength # /TransChelseaSeatechWetlabCStarSensor # sensor # sensor Channel="7" # !-- A/D voltage 1, Oxygen, SBE 43 -- # OxygenSensor SensorID="38" # SerialNumber 0255/SerialNumber # CalibrationDate 12 May, 2010/CalibrationDate # Use2007Equation 1/Use2007Equation # CalibrationCoefficients equation="0" # !-- Coefficients for Owens-Millard equation. -- # Boc 0.0000/Boc # Soc 0.0000e+000/Soc # offset 0.0000/offset # Pcor 0.00e+000/Pcor # Tcor 0.0000/Tcor # Tau 0.0/Tau # /CalibrationCoefficients # CalibrationCoefficients equation="1" # !-- Coefficients for Sea-Bird equation - SBE calibration in 2007 and later. -- # Soc 5.7620e-001/Soc # offset -0.5123/offset # A -3.4352e-003/A # B 1.1172e-004/B # C -2.1729e-006/C # D0 2.5826e+000/D0 # D1 1.92634e-004/D1 # D2 -4.64803e-002/D2 # E 3.6000e-002/E # Tau20 2.1100/Tau20 # H1 -3.3000e-002/H1 # H2 5.0000e+003/H2 # H3 1.4500e+003/H3 # /CalibrationCoefficients # /OxygenSensor # sensor # sensor Channel="8" # !-- A/D voltage 2, Fluorometer, Seapoint -- # FluoroSeapointSensor SensorID="11" # SerialNumber SCF 3004/SerialNumber # CalibrationDate n/a/CalibrationDate # !-- The following is an array index, not the actual gain setting. -- # GainSetting 1/GainSetting # Offset 0.000/Offset # /FluoroSeapointSensor # sensor # sensor Channel="9" # !-- A/D voltage 3, PAR/Irradiance, Biospherical/Licor -- # PAR_BiosphericalLicorChelseaSensor SensorID="42" # SerialNumber 4506/SerialNumber # CalibrationDate 12 Mar. 2009/CalibrationDate # M 1.00000000/M # B 0.00000000/B # CalibrationConstant 4218909300.00000000/CalibrationConstant # Multiplier 1.00000000/Multiplier # Offset -3.83666028/Offset # /PAR_BiosphericalLicorChelseaSensor # sensor # sensor Channel="10" # !-- A/D voltage 4, Altimeter -- # AltimeterSensor SensorID="0" # SerialNumber 1055/SerialNumber # CalibrationDate 05/15/2003/CalibrationDate # ScaleFactor 15.000/ScaleFactor # Offset 0.000/Offset # /AltimeterSensor # sensor # sensor Channel="11" # !-- A/D voltage 5, Free -- # sensor # sensor Channel="12" # !-- A/D voltage 6, User Polynomial -- # UserPolynomialSensor SensorID="61" # SerialNumber UVP2/SerialNumber # CalibrationDate /CalibrationDate # SensorName UVPsensorName # A0 0.00000000/A0 # A1 1.00000000/A1 # A2 0.00000000/A2 # A3 0.00000000/A3 # /UserPolynomialSensor # sensor # sensor Channel="13" # !-- A/D voltage 7, Free -- # sensor # sensor Channel="14" # !-- SPAR voltage, Unavailable -- # sensor # sensor Channel="15" # !-- SPAR voltage, SPAR/Surface Irradiance -- # SPAR_Sensor SensorID="51" # SerialNumber 6367/SerialNumber # CalibrationDate 18 Mar. 2009/CalibrationDate # ConversionFactor 16126.48000000/ConversionFactor # RatioMultiplier 1.00000000/RatioMultiplier # /SPAR_Sensor # sensor # sensors # datcnv_date = Nov 02 2010 19:33:05, 7.20g # datcnv_in = C:Documents and SettingsjforrestbaldiniDesktopCheckley45.hex C:Documents and SettingsjforrestbaldiniDesktopNH1008-R1_v2_jfb.con # datcnv_skipover = 6793 # datcnv_ox_hysteresis_correction = yes # datcnv_ox_tau_correction = yes # wildedit_date = Nov 02 2010 19:33:20, 7.20g # wildedit_in = C:Documents and SettingsjforrestbaldiniDesktopprocessed_2_JFB45.cnv # wildedit_pass1_nstd = 2.0 # wildedit_pass2_nstd = 20.0 # wildedit_pass2_mindelta = 0.000e+000 # wildedit_npoint = 100 # wildedit_vars = prDM t090C t190C c0mS/cm c1mS/cm bat sbeox0ML/L flSP par spar upoly0 altM # wildedit_excl_bad_scans = yes # celltm_date = Nov 02 2010 19:33:32, 7.20g # celltm_in = C:Documents and SettingsjforrestbaldiniDesktopprocessed_2_JFB45.cnv # celltm_alpha = 0.0300, 0.0300 # celltm_tau = 7.0000, 7.0000 # celltm_temp_sensor_use_for_cond = primary, secondary # filter_date = Nov 02 2010 19:33:48, 7.20g # filter_in = C:Documents and

	SettingsjforrestbaldiniDesktopprocessed_2_JFB45.cnv # filter_low_pass_tc_A = 0.030 # filter_low_pass_tc_B = 0.150 # filter_low_pass_A_vars = # filter_low_pass_B_vars = prDM # loopedit_date = Nov 02 2010 19:34:01, 7.20g # loopedit_in = C:Documents and SettingsjforrestbaldiniDesktopprocessed_2_JFB45.cnv # loopedit_minVelocity = 0.000 # loopedit_surfaceSoak: minDepth = 5.0, maxDepth = 20, useDeckPress = 1 # loopedit_excl_bad_scans = yes # Derive_date = Nov 02 2010 19:34:21, 7.20g # Derive_in = C:Documents and SettingsjforrestbaldiniDesktopprocessed_2_JFB45.cnv C:Documents and SettingsjforrestbaldiniDesktopNH1008-R1_v2_jfb.con # derive_time_window_dzdt = seconds: 2 # binavg_date = Nov 02 2010 19:34:33, 7.20g # binavg_in = C:Documents and SettingsjforrestbaldiniDesktopprocessed_2_JFB45.cnv # binavg_bintype = decibars # binavg_binsize = 1 # binavg_excl_bad_scans = yes # binavg_skipover = 0 # binavg_surface_bin = yes, min = 0.000, max = 2.000, value = 0.000 # file_type = ascii *END*

[table of contents | back to top]

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?

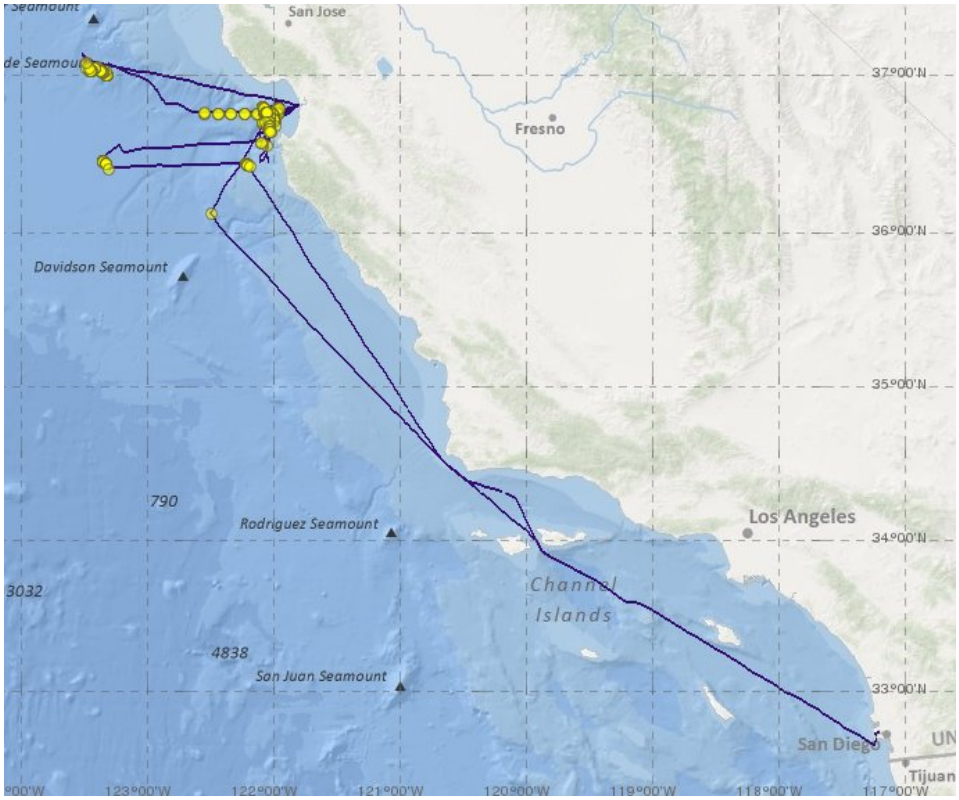
A range of observations suggest that zooplankton act as gatekeepers for material leaving the euphotic zone. This study will investigate the interactions of zooplankton with other particles using a suite of autonomous and tethered instruments in conjunction with finescale water sampling. The SOLOPC (Sounding 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]



[table of contents | back to top]

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

[table of contents | back to top]