Zooplankton displacement volumes from Bongo net tows from R/V Thomas G. Thompson TT054, TT050 cruises in the Arabian Sea in 1995 (U.S. JGOFS Arabian Sea project)

Website: https://www.bco-dmo.org/dataset/2565
Version: final
Version Date: 1997-02-11

Project
» U.S. JGOFS Arabian Sea (Arabian Sea)

Program
» U.S. Joint Global Ocean Flux Study (U.S. JGOFS)

Contributors	Affiliation	Role
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Dataset Description

Zooplankton displacement volumes from Bongo tows

Methods & Sampling

See Platform deployments for cruise specific documentation

Data Processing Description

TTN054: Displacement Volume and Dry Weight

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Data Files

File
zoo_dv_Bongo_TT050.csv (Comma Separated Values (.csv), 1.74 KB) MD5:93b6b9ab6a9b7750142e2752c9bc1069 version January 14, 1997 Sharon Smith Zooplankton displacement volume data from Bongo net tows Thomas Thompson cruise TTN-050; Process Cruise 5, Arabian Sea
zoo_dv_Bongo_TT054.csv (Comma Separated Values (.csv), 1.81 KB) MD5:c9a32759fa38b650f39b9171bcfe5515 version February 11, 1997 Sharon L. Smith Displacement volume and dry weight data from Bongo net tows Thomas Thompson cruise TTN054, Process Cruise 7

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Parameters

Parameter	Description	Units
event	event number, from event log	MMDDHHmm
sta_std	Arabian Sea standard station identifier	
sta	station number, from event log	
tow	Bongo tow number	
net_mesh	Bongo net:	153 or 335 micron mesh
lat	latitude of net tow (minus = south)	decimal degrees
lon	longitude of net tow (minus = west)	decimal degrees
depth	maximim depth of tow	meters
time_begin	time (UTC) at start of tow	hours/minutes
time_end	time (UTC) at end of tow	hours/minutes
vol_net	total volume of water sampled by net tow	meters cubed (m^3)
zp_dw_1	zooplankton dry weight; 64 to 200 microns	mg/m^3
zp_dw_2	zooplankton dry weight; 200 to 560 microns	mg/m^3
zp_dw_3	zooplankton dry weight; 560 to 1050 microns	mg/m^3
zp_dw_4	zooplankton dry weight; gt 1050 microns	mg/m^3
zp_dw_T	zooplankton dry weight; total	mg/m^3
zp_disp_vol	displacement volume per net	cc/m^3

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Instruments

Dataset-specific Instrument Name	Bongo Nets
Generic Instrument Name	Bongo Net
Dataset-specific Description	The Bongo frames were 60 cm diameter and were fitted with 153 and 335 um Nitex nets.
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 m3/minute when towing at a speed of two knots. More information: Ocean Instruments, Aquatic Research, Sea-Gear

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Deployments

TT054

Website	https://www.bco-dmo.org/deployment/57715
Platform	R/V Thomas G. Thompson
Start Date	1995-11-30
End Date	1995-12-28

Description	**Methods & Sampling** PI: Sharon Smith of: University of Miami dataset: Zooplankton displacement volumes from Bongo tows dates: November 30, 1995 to December 26, 1995 location: N: 22.5043 S: 12.0746 W: 57.3059 E: 68.769 project/cruise: Process 7 TN054, Arabian Sea (Early NE Monsoon) ship: R/V Thomas Thompson Sharon L. Smith Rosenstiel School of Marine and Atmospheric Science University of Miami 4600 Rickenbacker Causeway Miami, FL 33149 Arabian Sea Expedition THOMAS G. THOMPSON TTN054 It is important to note that the size ranges in this data set are NOT identical to those reported by Wishner or Roman for other cruises and samples. nd indicates No Data Station 27 has no corresponding standard station number Dry weight measurements were not made on 335 micron samples Station 1: zp_dw_3 is combined with zp_dw_2 Station 1: 4 red crabs removed from 335 micron sample at sea Station 2: 335 micron net had flowmeter failure; therefore volume filtered in the 153 micron net was applied to the 335 micron net Station 19: 335 micron net; shrimp = 2 cc Station 19: 153 micron net; fish = 4 cc Zooplankton displacement volume measurements of Bongo samples collected during Arabian Sea Cruise TN054 (Process Cruise 7). Sharon L. Smith Rosenstiel School of Marine and Atmospheric Science University of Miami 4600 Rickenbacker Causeway Miami, FL 33149 Zooplankton samples were collected in oblique Bongo net tows which covered approximately the upper 200 m of the water column. The Bongo frames were 60 cm diameter and were fitted with 153 and 335 um Nitex nets. A General Oceanics flow meter model 2030R was secured in the net mouth for the determination of volume filtered. The maximum sampling depth of each tow was determined from a Wildlife Computers Mk3e Time Depth Recorder (TDR) attached to the net frame. The Bongo nets were towed beside the ship at approximately 1.5 to 2 knots through the water. Winch speed was generally 30 meters/minute during deployment and 20 meters/minute during recovery. On board the ship, samples from the 153 um net were split in a modified Folsom Splitter which split the sample into four parts consisting of 50%, 20%, 20% and 10%. In general, 10% was used for dry weight measurements, 20% was preserved for collaborating scientists (Prell, McDonough) and 70% was preserved for displacement volume measurements and taxonomic analysis. The portion of each sample for dry weight measurement was poured through nested sieves of 1050, 560, 200 and 64 um mesh. Each size fraction was then placed on a pre-weighed 9 cm Whatman #1 qualitative filter. The filters were stored in glassine envelopes and placed in a drying oven at 55 to 6 degrees C. Near the end of the cruise the dry weight samples were sealed in cracker tins with desiccant for transport to the laboratory where they were later weighed on a Mettler H20 balance. The samples from the 335 um nets were briefly scanned under a Wild M5 dissecting microscope on the ship to assess the dominant zooplankton taxa and then preserved in their entirety in 4% buffered formaldehyde/seawater for laboratory measurement of displacement volume. In the laboratory, displacement volumes were determined following the methods described by Ahlstrom and Thrailkill (1963), and Kane (1982). In general, samples were poured into 500 or 1000 ml graduated cylinders, depending on the volume of plankton present, the volume of plankton and water was measured, then the sample was poured through a 150 um sieve, allowed to drain, and the volume of water measured. The difference between the two volume measurements was the displacement volume. The displacement volume of each sample was divided by the volume filtered by the net (m^3) and the result is reported here in units of cc/m^3. The size specific dry weights from the 9 cm filters are reported in units of mg/m^3. The size ranges are labeled in the data file as zp_dw_1, zp_dw_2, zp_dw_3, zp_dw_4 and zp_dw_T, and correspond to size fractions of 64-200 um, 200-560 um, 560-1050 um, greater than 1050 um and total dry weight which is the sum of the four size fractions. It is important to note that these size ranges are not identical to those reported by Wishner or Roman for other cruises and samples. References Ahlstrom, E. H. and J. R. Thrailkill, Plankton volume loss with time of preservation, Rep. 9, pp. 57-73, Calif. Coop. Oceanic Fish. Invest., La Jolla, 1963. Kane, J., Effect of season and location on the relationship between zooplankton displacement volume and dry weight in the Northwest Atlantic, Fish. Bull., 80, 631-642, 1982. **Processing Description** TTN054: Displacement Volume and Dry Weight

TT050

Website	https://www.bco-dmo.org/deployment/57711
Platform	R/V Thomas G. Thompson

Start Date	1995-08-18
End Date	1995-09-15
Description	**Methods & Sampling** PI: Sharon Smith of: University of Miami dataset: Zooplankton displacement volumes from Bongo tows dates: November 30, 1995 to December 26, 1995 location: N: 22.5043 S: 12.0746 W: 57.3059 E: 68.769 project/cruise: Process 5 TN050, Arabian Sea (Late SW Monsoon) ship: R/V Thomas Thompson Sharon L. Smith Rosenstiel School of Marine and Atmospheric Science University of Miami 4600 Rickenbacker Causeway Miami, FL 33149 Arabian Sea Expedition THOMAS G. THOMPSON TTN050 nd indicates No Data Stations 28, 29 and 31 have no corresponding Standard Stations Sta 5; net = 153 um; Approximately 20% of sampled spilled in lab, vol_disp corrected accordingly. Sta 15; both nets; Flowmeter failed, therefore vol_net estimated from regressing vol_filt with the time in the water of other Bongo tows with this net. Sta 19; net = 335 um; 1 crab, 7 cc. measured separately. Sta 25; net = 153 um; 1 crab removed from sample at sea, 10 cc. Sta 25; net = 153 um; Flowmeter data for this sample was suspiciously low, therefore the volume filtered for the paired 335 um net was applied here. Sta 27; net = 153 um; 1 crab removed from sample at sea, 40 cc. Sta 28; net = 335 um; Flowmeter data for this sample was suspiciously low, therefore the volume filtered for the paired 153 um net was applied here. Sta 29; net = 153 um; 1 crab removed from sample at sea, 12 cc. Sta 30; net = 153 um; 1 crab removed from sample at sea, 8 cc. Zooplankton displacement volume measurements of Bongo samples collected during Arabian Sea Cruise TN054 (Process Cruise 7). Sharon L. Smith Rosenstiel School of Marine and Atmospheric Science University of Miami 4600 Rickenbacker Causeway Miami, FL 33149 Zooplankton samples were collected in oblique Bongo net tows which covered approximately the upper 200 m of the water column. The Bongo frames were 60 cm diameter and were fitted with 153 and 335 um Nitex nets. A General Oceanics flow meter model 2030R was secured in the net mouth for the determination of volume filtered. The maximum sampling depth of each tow was determined from a Wildlife Computers Mk3e Time Depth Recorder (TDR) attached to the net frame. The Bongo nets were towed beside the ship at approximately 1.5 to 2 knots through the water. Winch speed was generally 30 meters/minute during deployment and 20 meters/minute during recovery. On board the ship, samples from the 153 um net were split in a modified Folsom Splitter which split the sample into four parts consisting of 50%, 20%, 20% and 10%. In general, 10% was used for dry weight measurements, 20% was preserved for collaborating scientists (Prell, McDonough) and 70% was preserved for displacement volume measurements and taxonomic analysis. The portion of each sample for dry weight measurement was poured through nested sieves of 1050, 560, 200 and 64 um mesh. Each size fraction was then placed on a pre-weighed 9 cm Whatman #1 qualitative filter. The filters were stored in glassine envelopes and placed in a drying oven at 55 to 6 degrees C. Near the end of the cruise the dry weight samples were sealed in cracker tins with desiccant for transport to the laboratory where they were later weighed on a Mettler H20 balance. The samples from the 335 um nets were briefly scanned under a Wild M5 dissecting microscope on the ship to assess the dominant zooplankton taxa and then preserved in their entirety in 4% buffered formaldehyde/seawater for laboratory measurement of displacement volume. In the laboratory, displacement volumes were determined following the methods described by Ahlstrom and Thrailkill (1963), and Kane (1982). In general, samples were poured into 500 or 1000 ml graduated cylinders, depending on the volume of plankton present, the volume of plankton and water was measured, then the sample was poured through a 150 um sieve, allowed to drain, and the volume of water measured. The difference between the two volume measurements was the displacement volume. The displacement volume of each sample was divided by the volume filtered by the net (m^3) and the result is reported here in units of cc/m^3. The size specific dry weights from the 9 cm filters are reported in units of mg/m^3. The size ranges are labeled in the data file as zp_dw_1, zp_dw_2, zp_dw_3, zp_dw_4 and zp_dw_T, and correspond to size fractions of 64-200 um, 200-560 um, 560-1050 um, greater than 1050 um and total dry weight which is the sum of the four size fractions. It is important to note that these size ranges are not identical to those reported by Wishner or Roman for other cruises and samples. References Ahlstrom, E. H. and J. R. Thrailkill, Plankton volume loss with time of preservation, Rep. 9, pp. 57-73, Calif. Coop. Oceanic Fish. Invest., La Jolla, 1963. Kane, J., Effect of season and location on the relationship between zooplankton displacement volume and dry weight in the Northwest Atlantic, Fish. Bull., 80, 631-642, 1982. **Processing Description** TTN050: Displacement Volume only

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Project Information

U.S. JGOFS Arabian Sea (Arabian Sea)

Website: http://usjgofs.whoi.edu/research/arabian.html

Coverage: Arabian Sea

The U.S. Arabian Sea Expedition which began in September 1994 and ended in January 1996, had three major components: a U.S. JGOFS Process Study, supported by the National Science Foundation (NSF); Forced Upper Ocean Dynamics, an Office of Naval Research (ONR) initiative; and shipboard and aircraft measurements supported by the National Aeronautics and Space Administration (NASA). The Expedition consisted of 17 cruises aboard the R/V Thomas Thompson, year-long moored deployments of five instrumented surface buoys and five sediment-trap arrays, aircraft overflights and satellite observations. Of the seventeen ship cruises, six were allocated to repeat process survey cruises, four to SeaSoar mapping cruises, six to mooring and benthic work, and a single calibration cruise which was essentially conducted in transit to the Arabian Sea.

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Program Information

U.S. Joint Global Ocean Flux Study (U.S. JGOFS)

Website: http://usjgofs.whoi.edu/

Coverage: Global

The United States Joint Global Ocean Flux Study was a national component of international JGOFS and an integral part of global climate change research.

The U.S. launched the Joint Global Ocean Flux Study (JGOFS) in the late 1980s to study the ocean carbon cycle. An ambitious goal was set to understand the controls on the concentrations and fluxes of carbon and associated nutrients in the ocean. A new field of ocean biogeochemistry emerged with an emphasis on quality measurements of carbon system parameters and interdisciplinary field studies of the biological, chemical and physical process which control the ocean carbon cycle. As we studied ocean biogeochemistry, we learned that our simple views of carbon uptake and transport were severely limited, and a new "wave" of ocean science was born. U.S. JGOFS has been supported primarily by the U.S. National Science Foundation in collaboration with the National Oceanic and Atmospheric Administration, the National Aeronautics and Space Administration, the Department of Energy and the Office of Naval Research. U.S. JGOFS, ended in 2005 with the conclusion of the Synthesis and Modeling Project (SMP).

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Funding

Funding Source	Award
Office of Naval Research (ONR)	unknown Arabian Sea ONR
NSF Division of Ocean Sciences (NSF OCE)	OCE-9310577
NSF Division of Ocean Sciences (NSF OCE)	OCE-9310599
Office of Naval Research (ONR)	N00014-95-10042

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