

Notes on Niskin bottle sampling and use: depth of sample, operator, observations, type of experiments run on the sample, from RV/Endeavor EN556 and EN584, 2015 and 2016 (Patterns of activities project)

Website: <https://www.bco-dmo.org/dataset/717427>

Data Type: Cruise Results

Version:

Version Date: 2017-10-20

Project

» [Latitudinal and depth-related contrasts in enzymatic capabilities of pelagic microbial communities: Predictable patterns in the ocean?](#) (Patterns of activities)

Contributors	Affiliation	Role
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Dataset Description

This dataset includes notes on each Niskin bottle sample collected on EN556 and EN584 and what the water was used for.

Methods & Sampling

For mesocosm (large volume) incubation experiments (referred to as “LV” incubations), a 30L Niskin bottle rosette was used to collect the water. Separate casts were used to collect surface water, bottom water, and water from the depth at which oxygen showed a minimum, according to the CTD.

Data Processing Description

BCO-DMO Processing Notes:

- added conventional header with dataset name, PI name, version date
- modified parameter names to conform with BCO-DMO naming conventions
- added cruise_id, split statoni and cast into separate columns

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Data Files

File
niskin_bottle_cast_notes.csv (Comma Separated Values (.csv), 11.58 KB) MD5:f1cab2f269dba19981657ec2e0c8fef5
Primary data file for dataset ID 717427

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Related Datasets

IsReferencedBy

Arnosti, C. (2022) **Measurements of peptidase and glucosidase activities in large volume mesocosm incubations on RV/Endeavor EN584, July 2016 (Patterns of activities project)**. Biological and Chemical Oceanography Data Management Office (BCO-DMO). (Version 1) Version Date 2022-12-07 doi:10.26008/1912/bco-dmo.717532.1 [[view at BCO-DMO](#)]
Relationship Description: Use this Niskin Bottle and cast list EN584 to link specific casts and bottles to each experiment.

IsRelatedTo

Arnosti, C. (2023) **Hydrolysis rates from bulk water sample incubations from R/V Endeavor cruise EN556 in 2015**. Biological and Chemical Oceanography Data Management Office (BCO-DMO). (Version 2) Version Date 2023-03-14 doi:10.26008/1912/bco-dmo.719712.2 [[view at BCO-DMO](#)]

Lloyd, C., Balmonte, J. Paul, Brown, S. A., Arnosti, C., Ghobrial, S. (2025) **Polysaccharide hydrolysis rates from bulk water and 3 μ m retained fraction (particle-associated) incubations in the Northwest Atlantic aboard the R/V Endeavor cruise EN584 from Jun to Jul 2016**. Biological and Chemical Oceanography Data Management Office (BCO-DMO). (Version 1) Version Date 2025-11-26 <http://lod.bco-dmo.org/id/dataset/986681> [[view at BCO-DMO](#)]
Relationship Description: Includes notes on Niskin bottle sampling and use on EN584.

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Parameters

Parameter	Description	Units
cruise_id	cruise identifier	unitless
station	station identifier	unitless
cast	cast number	unitless
date	cast date formatted as yyyy-mm-dd	unitless
lat	latitude; north is positive	decimal degrees
lon	longitude; east is positive	decimal degrees

Bottle_1	Notes pertaining to bottle 1	unitless
Bottle_2	Notes pertaining to bottle 2	unitless
Bottle_3	Notes pertaining to bottle 3	unitless
Bottle_4	Notes pertaining to bottle 4	unitless
Bottle_5	Notes pertaining to bottle 5	unitless
Bottle_6	Notes pertaining to bottle 6	unitless
Bottle_7	Notes pertaining to bottle 7	unitless
Bottle_8	Notes pertaining to bottle 8	unitless
Bottle_9	Notes pertaining to bottle 9	unitless
Bottle_10	Notes pertaining to bottle 10	unitless
Bottle_11	Notes pertaining to bottle 11	unitless
Bottle_12	Notes pertaining to bottle 12	unitless
comment_station	comments pertaining to the station	unitless

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Instruments

Dataset-specific Instrument Name	30 liter Niskin bottles
Generic Instrument Name	Niskin bottle
Dataset-specific Description	Used to collect water for large volume mesocosm experiments
Generic Instrument Description	A Niskin bottle (a next generation water sampler based on the Nansen bottle) is a cylindrical, non-metallic water collection device with stoppers at both ends. The bottles can be attached individually on a hydrowire or deployed in 12, 24, or 36 bottle Rosette systems mounted on a frame and combined with a CTD. Niskin bottles are used to collect discrete water samples for a range of measurements including pigments, nutrients, plankton, etc.

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Deployments

EN556

Website	https://www.bco-dmo.org/deployment/717216
Platform	R/V Endeavor
Start Date	2015-04-27
End Date	2015-05-02
Description	Project: Latitudinal and Depth-Related Contrasts in Enzymatic Capabilities of Pelagic Microbial Communities. Cruise track obtained from rvdata.us control-point navigation (http://www.rvdata.us/catalog/EN556)

EN584

Website	https://www.bco-dmo.org/deployment/717087
Platform	R/V Endeavor
Start Date	2016-06-29
End Date	2016-07-13
Description	Latitudinal and Depth-related Contrasts in Enzymatic Capabilities of Pelagic Microbial Communities. Cruise track obtained from rvdata.us control-point navigation, (http://www.rvdata.us/catalog/EN584)

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Project Information

Latitudinal and depth-related contrasts in enzymatic capabilities of pelagic microbial communities: Predictable patterns in the ocean? (Patterns of activities)

Coverage: Atlantic Ocean, Arctic Ocean, Pacific Ocean, Greenland

NSF Award Abstract:

Heterotrophic microbial communities are key players in the marine carbon cycle, transforming and respiring organic carbon, regenerating nutrients, and acting as the final filter in sediments through which organic matter passes before long-term burial. Microbially-driven carbon cycling in the ocean profoundly affects the global carbon cycle, but key factors determining rates and locations of organic matter remineralization are unclear. In this study, researchers from the University of North Carolina at Chapel Hill will investigate the ability of pelagic microbial communities to initiate the remineralization of polysaccharides and proteins, which together constitute a major pool of organic matter in the ocean. Results from this study will be predictive on a large scale regarding the nature of the microbial response to organic matter input, and will provide a mechanistic framework for interpreting organic matter reactivity in the ocean.

Broader Impacts: This study will provide scientific training for undergraduate and graduate students from underrepresented groups. The project will also involve German colleagues, thus strengthening international scientific collaboration.

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Funding

Funding Source	Award
NSF Division of Ocean Sciences (NSF OCE)	OCE-1332881

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