Hydrographic Profiles - BAR5 in the Arctic Ocean, nearshore, Barrow, Alaska from 2010-2012 (ArcticNITRO project)

Website: https://www.bco-dmo.org/dataset/558061
Version: 07 May 2015
Version Date: 2015-05-07

Project
» Does competition for nitrogen between autotrophs and heterotrophs control carbon fluxes in the western coastal Arctic? (ArcticNITRO)

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Dataset Description

Hydrographic Profiles - BAR5 Data 2011/08

Methods & Sampling

(tbd)

Data Processing Description

BCO-DMO Processing Notes
- Generated from original file "ArcticNITRO_CTD_data.xlsx, sheets: "081511, 081711, 081811" contributed by Patricia Yager
- Parameter names edited to conform to BCO-DMO naming convention found at Choosing Parameter Name
- "nd" (no data) inserted into blank cells

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Data Files

File
HydroProfiles_BAR5.csv (Comma Separated Values (.csv), 6.39 KB) MD5:56ab2aae3ad789eca98704785c287858 Primary data file for dataset ID 558061

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Parameters

Parameter	Description	Units
Sampling_Event	Sampling Event Id	text
ArcticNITRO_Alias	Sampling Event Id Alias	text
Date	Date Sampled (local Alaska time)	YYYYMMDD
Station	Station Id	text
Time_Sampled	Time Sampled (local Alaska time)	HH:MM
Latitude	Latitude	decimal degrees
Longitude	Longitude	decimal degrees
Water_Depth	Water Depth	meters
Ice_Thickness	Ice Thickness	meters
Snow_Thickness	Snow Thickness	centimeters
Surface_Water_Temp	Surface Water Temp	degrees Celsius
Depth	Depth	meters
Temp	Temperature	degrees Celsius
DO_Sat	Oxygen Saturation	percentage
pH	pH	pH Units
Turb	Turbidity	NTU
Chla	Chl a	(tbd)
DO	Dissolved Oxygen	mg/l
Salinity	Salinity	PSU

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Deployments

ArcticNitro_Barrow

Website	https://www.bco-dmo.org/deployment/535682
Platform	ArcticNitro
Start Date	2010-08-30
End Date	2012-01-19
Description	Extracted from the NSF proposalStudy sites: Because of its unique combination of year-round access to the coastal Arctic Ocean and strong scientific support system (Barrow Arctic Science Consortium we propose to make our primary winter and summer measurements from Barrow, Alaska. At 71°N, Barrow receives 24- hour sunlight between May 10 and August 2, and is in 24-h darkness between November 18 and January 24. Less than 1 km from shore, shelf depths exceed 10m, and significantly deeper waters (>100 m) are not far away. Twice each year (January and July) for two years, working from Barrow, we will use either small boat or skidoo to travel offshore to sample seawater. We anticipate having access to surface waters of 10-20 m depth within a mile of the town of Barrow. We plan to sample biological and biogeochemical inventories along three offshore transects, with 3-5 depths that sample through the surface mixed layer and into the subsurface layer, accessing both the eastward coastal and the offshore westward currents (Weingartner 2006). More extensive rate measurements and incubation studies will be made at selected sites and depths The rationale for the transects is to sample the microbial community response to the cross-shelf and depth gradients DIN availability. Nearshore stations will be N-limited throughout the water column in the summer. Offshore stations may have significant NO3 below summer stratification. As part of SNACS (Study of the Northern Alaska Coastal) C. Ashjian and colleagues have recently completed summer research near Barrow, using small (43') boats to investigate environmental controls on zooplankton populations. They will have nutrient profiles offshore, which will help guide our study. During the summer, we will coordinate with native Inupiat subsistence whalers (Barrow Whaling Captain Association. In the winter, safe travel over the ice by foot or snow machine, as far out as the nearshore lead, will offer access to the ocean using an ice auger. We will not be able to sample far offshore during winter, but gradients will be weaker due to mixing.

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Project Information

Does competition for nitrogen between autotrophs and heterotrophs control carbon fluxes in the western coastal Arctic? (ArcticNITRO)

Website: http://arcticnitro.org

Coverage: Nearshore Arctic Ocean; Barrow, Alaska; 71.25-71.50N, 156-157W

The Arctic is changing. Warm air is melting the sea ice at an accelerating pace, impacting the marine ecosystem. Further changes on land mean higher river discharge, rising seas, thawing of permafrost, and coastal erosion.

For the Arctic continental shelf, these physical changes impact the creatures that live there in major ways, ultimately altering the pathways and magnitude of energy transfer to fish, sea birds and marine mammals, and impacting the people dependant on those resources. Our challenge today is to understand what is happening in specific Arctic ecosystems to assess future change.

Understanding the microorganisms in Arctic coastal ecosystems is important because microbes dominate the biological biomass, production, and remineralization in marine systems. They are the "composters." Microbes are also the major producers and consumers of carbon dioxide and other greenhouse gases.

This study is focused on the climate-sensitive relationship between these microbes -- particularly the competition for nitrogen between phytoplankton/algae and bacteria -- and the productivity of the food web that depends on these organisms.

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Funding

Funding Source	Award
NSF Arctic Sciences (NSF ARC)	PLR-0909839
NSF Arctic Sciences (NSF ARC)	PLR-0910252
NSF Arctic Sciences (NSF ARC)	PLR-0909647

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