Cellular carbon (C) and nitrogen (N) data of the Karlodinium veneficum growth experiment conducted in the Horn Point Laboratory between June 2021- January 2022.

Website: https://www.bco-dmo.org/dataset/907463
Data Type: experimental
Version: 1
Version Date: 2023-09-01

Project
» Ecology and Oceanography of Harmful Algal Blooms (EcoHAB)

Contributors	Affiliation	Role
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Abstract
Using a multifactorial design, we studied the interactive effects of temperature (15, 20, 25, 28 and 30 0C), salinity (5, 10, 15, 20 and 30) and light (low-100 and high-300 µmol photons m−2 s−1) on growth, thermal niche properties and cellular carbon (C) and nitrogen (N) of the toxic dinoflagellate, Karlodinium veneficum, originated from the Chesapeake Bay. Here we report the daily growth data measured as raw fluorescence at each experimental combination in quadruplicates and the C and N cell quota data measured in the final samples for each experimental combination in duplicates.

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Coverage

Temporal Extent: 2021-06-11 - 2021-11-12

Dataset Description

These data (after processing) were published in Vidyarathna et al (2023) as Figure 1, Figure 3 and supplementary table 1 and 3.

Methods & Sampling

Samples (15 mL) for cellular organic C and N were filtered onto 25 mm pre-combusted glass-fiber filters (2h at 450 °C, GF/F, Whatman), dried at 60 °C for 24 h and then stored in a desiccator prior to analyses. Cellular C and N were then quantified with a CHN elemental analyzer (ECS 4010 Elemental combustion system; Costech Instruments, USA), with phenylalanine and EDTA used as standards.

Data Processing Description

No data processing, these are the raw data.

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Data Files

File
907463_v1_chn.csv (Comma Separated Values (.csv), 8.20 KB) MD5:5a468afbfa831313c18a59c85059c0da Primary data file for dataset 907463.

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Related Publications

Vidyarathna, N. K., Ahn, S. H. (Sophia), & Glibert, P. M. (2023). Thermal niche of the dinoflagellate Karlodinium veneficum across different salinity and light levels. Journal of Plankton Research, 45(4), 604–613. https://doi.org/10.1093/plankt/fbad019
Results

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Related Datasets

IsRelatedTo

Vidyarathna, N., Glibert, P. A., Ahn, S. H. (2023) **Daily growth data of the Karlodinium veneficum growth experiment conducted in the Horn Point Laboratory between June 2021- January 2022.** Biological and Chemical Oceanography Data Management Office (BCO-DMO). (Version 1) Version Date 2023-09-01 doi:10.26008/1912/bco-dmo.907393.1 [view at BCO-DMO]
Relationship Description: Data are part of same experiment.

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Parameters

Parameter	Description	Units
sample_no	Sample number (id)	unitless
treatment	Culture condition (salinity, light and temperature). LL=Low light (100), HL=High light (300)	unitless
filtered_volume	Volume filtered from each culture replicate	milliliters (mL)
Cell_density	Final cell density of each culture	cells per mL (cells/mL)
N_percent	Percentage of N in the sample (filter) analyzed	percent (%)
C_percent	Percentage of C in the sample (filter) analyzed	percent (%)
N_mg	weight of N in the sample (filter) analyzed	milligrams (mg)
C_mg	weight of C in the sample (filter) analyzed	milligrams (mg)
Carbon_blank_corrected	blank corrected weight of C in the sample (filter) analyzed	milligrams (mg)
C_to_N_mass	C/N ratio (mass)	unitless
C_umol	C content converted to umol	micromoles (umol)
N_umol	Ncontent converted to umol	micromoles (umol)
C_to_N_atomic	C/N ratio (atomic)	unitless
C_per_cell	C content nnormalized per cell	picograms of Carbon per cell (pg/cell)
N_per_cell	Ncontent nnormalized per cell	picograms of Nitrogen per cell (pg/cell)

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Instruments

Dataset-specific Instrument Name	CHN elemental analyzer- ECS 4010 Elemental combustion system; Costech Instruments, USA
Generic Instrument Name	CHN Elemental Analyzer
Generic Instrument Description	A CHN Elemental Analyzer is used for the determination of carbon, hydrogen, and nitrogen content in organic and other types of materials, including solids, liquids, volatile, and viscous samples.

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Project Information

Ecology and Oceanography of Harmful Algal Blooms (EcoHAB)

Website: https://coastalscience.noaa.gov/science-areas/habs/ecohab/

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Funding

Funding Source	Award
National Oceanic and Atmospheric Administration (NOAA)	NA17NOS4780180

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