**Title:** *The title should indicate in 15 words or less: what are these data, taxonomic (if applicable), where, and when. Include NES-LTER in the title if applicable.*

Dissolved inorganic nutrients from NES-LTER Transect cruises, including 4 macro-nutrients from water column bottle samples, ongoing since 2017.

**Abstract:** *The abstract should provide a description of the dataset, summarizing what are these data, where, when (is the dataset complete or ongoing?), and an overview of why and how collected (put details how in the Methods). Mention the taxonomic standard that you used (if applicable). Please do not use special characters, symbols, or formatting.*

Dissolved inorganic nutrients are measured from water column bottle samples taken on NES-LTER Transect cruises (ongoing since 2017) and include nitrate + nitrite, ammonium, silicate, and phosphate. Sampling frequency is approximately seasonal. Samples were filtered, frozen, then processed at the Woods Hole Oceanographic Institution’s Nutrient Analytical Facility. Each sample may have up to 3 replicates, indicated by a, b, or c in the data table. These macro-nutrients are analyzed in seawater using a colorimetric assay in which light absorbance is measured versus known standards, and final concentrations are calculated in micromole per liter.

**Keywords:**

LTER Core Research Area(s): *please select from primary production, populations, organic matter, inorganic nutrients, and/or disturbance*

LTER controlled vocabulary terms: *please select some terms from* [*LTER controlled vocabulary*](https://vocab.lternet.edu/vocab/vocab/index.php)

Additional terms: *You may also be interested in* [*British Oceanographic Data Centre vocabularies*](https://www.bodc.ac.uk/resources/vocabularies/vocabulary_search/) *or other vocabularies.*

**Methods:** *Separate your methods into steps (e.g., sample collection, data processing). Be specific, include instrument descriptions, provide a citation to a paper or protocol if applicable. Please do not use special characters, symbols, or formatting.*

**CTD and Rosette Bottle and Bucket Sampling on NES-LTER cruises**

Samples were collected from the water column at multiple depths using Niskin bottles on a CTD-rosette system. Samples were collected at the surface (depth = 0) with a bucket.

## Nutrient Filtering Protocol

## We will replace much of the text quoted from an old protocol with text from the current Nutrient\_Sampling\_Protocol.docx in Sosik\_protocols. The following is paraphrased from the WHOI Nutrient Facility Cruise Protocol for Filtering Nutrient Samples, version 23 April 2007. Fill a B-D 60 ml LUER-LOKTM syringe with approximately 10mls of water and partially insert plunger. Shake vigorously to cleanse the inside of the syringe and discard water. Repeat three times. Completely fill syringe with sample. Insert the plunger and remove any air in the syringe. Attach a EMD Millipore sterile Sterivex (0.22um) filter to the syringe. Advance the plunger and force 60mls of water through the filter to rinse the filter of any previous sample. Rinse the filter with a full syringe each time a new sample is introduced to the syringe. After cleaning the filter, refill the syringe and rinse the sample vial 3 times with 5mls of filtered water. For each rinse, replace the cap and shake vigorously. Filter 17 ml of sample directly into the sample vial and replace the cap and proceed to the next sample. Immediately store samples in a -20C freezer and keep frozen until analysis.

## WHOI Nutrient Facility Nutrient Analysis

## Samples are stored at -20 deg C until submitted to the Woods Hole Oceanographic Institution's Nutrient Analytical Facility, https://web.whoi.edu/nutrient/. As of 2013, the facility operates a four-channel segmented flow SEAL AA3 HR Autoanalyzer. Duplicates and spiked additions are run for quality control. Standards are made daily and Certified Reference material is run daily to ensure the standards and/or reagents are good. If the samples fall outside of the duplicate or spike addition quality control they are rerun until they fall within quality control parameters. Precision is 1e-03 microMolePerLiter. All Below Detection Limit values are set to zero. The detection limit is different depending on the nutrient, and the detection limit has gotten lower over the time series with improving technology. Please refer to the Facility's website for current detection limits.

Protocol: https://web.whoi.edu/nutrient/current-rates/

Protocol: Nutrient\_Sampling\_Protocol.docx (found in NES-LTER\_data\_by\_cruise folder)

## Nutrient Data Processing

The data table was made by concatenating cruises called from the REST API of the NES-LTER data system. The data cleaning and metadata template assembly was performed in R Markdown. Further documentation can be found on GitHub, at https://github.com/WHOIGit/nes-lter-fish-diet-isotope.

## Quality Assurance

We assured that the geographic and temporal coverage of the clean data table were within expected ranges.