

Dataset: CTD data from McMurdo Sound, Antarctica from 2012 to 2015 (McMurdo Predator Prey project)

Project(s): Food web dynamics in an intact ecosystem: the role of top predators in McMurdo Sound (McMurdo Predator Prey)

Abstract: CTD data were collected as part of an ecosystem study in McMurdo Sound, which is located at the southern extent of the Ross Sea in the Southern Ocean. The major goal of this multi-disciplinary project was to assess the influence of top-down forcing (predation) on pelagic zooplankton and fish. During the first year (3 November 2012 – 21 January 2013), the CTD was deployed through ice core holes in the fast ice (sea ice attached to land), sampling from near surface to depths between 97 and 175 m. Stations were located along a transect in the middle of McMurdo Sound, perpendicular to the fast ice edge. In the second year (17 November 2014 – 1 January 2015), CTD casts were deployed between 100 and 254 m in depth, at stations along the fast ice edge, and along three transects into the fast ice along the eastern side of McMurdo Sound (Ross Island), in the middle of the Sound, and on the western side of the Sound. Chlorophyll fluorescence sensor measurements on the CTD casts were only made during the 2014/2015 field expedition. For a complete list of measurements, refer to the supplemental document 'Field_names.pdf', and a full dataset description is included in the supplemental file 'Dataset_description.pdf'. The most current version of this dataset is available at: <http://www.bco-dmo.org/dataset/680929>

Description: CTD casts in McMurdo Sound

This dataset includes temperature, salinity, conductivity, oxygen, depth, sound velocity, chlorophyll fluorescence, and pH measurements from McMurdo Sound, Antarctica. Data were collected by CTD, fluorescence, and pH sensors during austral years 2012/2013 and 2014/2015

Acquisition A small hole was drilled in the McMurdo Sound fast ice. The CTD was deployed

Description: below the fast ice to ~ 2 m depth. The CTD was then powered on and allowed to sit a few minutes until the pumps turned on and sensors stabilized and equilibrated. The CTD was then lowered using a hand winch to depths between 97 and 175 m.

Processing These data are not quality controlled. The oxygen sensor failed at some point

Description: during both 2012 and 2014. The conductivity sensor calibrations did not show significant drift, however, a bad cable in 2014 likely caused intermittent data spikes.

There are no fluorescence values in these data for 2012 and the beginning of 2014. The first station with fluorescence is station 108 in 2014. There are no pH values in the 2014 data.

Raw data were saved as hex files and converted to 1 m bin averaged data using the Sea-Bird Electronics Inc. Data Processing Software v.7.23.1. For calibration and instrument information please consult the [CTD header files \(ZIP, 131 files, 440 KB total\)](#). The header files contain header lines generated by Sea-Bird processing software for each cast.

The "Parameter" section of this dataset landing page provides the data parameter names currently used in this data version as well as the original name used in the Sea-Bird Data Processing Software.

BCO-DMO Data Manager Processing Notes:

- * added a conventional header with dataset name, PI name, version date
- * modified parameter names to conform with BCO-DMO naming conventions
- * blank values replaced with no data value 'nd'
- * data from Jan 02 2013 15:00 had some trailing commas and/or extra values at end of lines (0.0). Characters after the last comma were removed.
- * v0 Voltage 0 was duplicated with same variable name, values, and description. Removed second instance
- * For station 212, austral season 2014 the time was in elapsed seconds so added the time in hh:mm instead to match other files. Got the time from a date time string column (timeJ) in the original file.
- * Date format converted to ISO Date format (source timeJ)
- * Data version 2017-05-04 is an update of version 2017-02-08 that includes variable name changes in the data and a timestamp change from local to UTC. Time and date now called time_local, date_local. Other variables are now more descriptive for example "depSM" is now "depth." Added time zone offset parameter.

Instrument Information

Instrument	
Description	<i>local description not specified</i>
Generic Instrument Name	Niskin bottle
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.

Instrument	
Description	<i>local description not specified</i>
Generic Instrument Name	Sea-Bird SBE 43 Dissolved Oxygen Sensor
Generic Instrument Description	The Sea-Bird SBE 43 dissolved oxygen sensor is a redesign of the Clark polarographic membrane type of dissolved oxygen sensors. more information from Sea-Bird Electronics

Instrument	
Description	<i>local description not specified</i>
Generic Instrument Name	Wet Labs ECO-AFL/FL Fluorometer
Generic Instrument Description	The Environmental Characterization Optics (ECO) series of single channel fluorometers delivers both high resolution and wide ranges across the entire line of parameters using 14 bit digital processing. The ECO series excels in biological monitoring and dye trace studies. The potted optics block results in long term stability of the instrument and the optional anti-biofouling technology delivers truly long term field measurements. more information from Wet Labs

Instrument	Sea-Bird SBE-27 pH sensor
Description	<i>local description not specified</i>
Generic Instrument Name	pH Sensor
Generic Instrument Description	General term for an instrument that measures the pH or how acidic or basic a solution is.

Instrument	Seabird SBE 19 Plus
Description	<i>local description not specified</i>
Generic Instrument Name	CTD Sea-Bird SBE SEACAT 19plus
Generic Instrument Description	Self contained self powered CTD profiler. Measures conductivity, temperature and pressure in both profiling (samples at 4 scans/sec) and moored (sample rates of once every 5 seconds to once every 9 hours) mode. Available in plastic or titanium housing with depth ranges of 600m and 7000m respectively. Minature submersible pump provides water to conductivity cell.