

MOCNESS Summary Data from R/V Polarstern ANT-XXIV_1 (PS24-1) from October to November 2007 (CMarZ_2004-2010 project)

Website: <https://www.bco-dmo.org/dataset/3275>

Version: 24 Nov. 2009

Version Date: 2009-11-24

Project

» [Census of Marine Zooplankton-2004-2010](#) (CMarZ_2004-2010)

Program

» [Census of Marine Life](#) (CoML)

Contributors	Affiliation	Role
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Dataset Description

Summary of environmental data collected by the MOCNESS systems' (1 and 10 meter-square) electronics packages.

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Data Files

File
mocness_tabs_PS24.csv (Comma Separated Values (.csv), 9.78 KB) MD5:9126162074342e7285fa8d7ccb08ca08
Primary data file for dataset ID 3275

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Parameters

Parameter	Description	Units
tow	tow number	
lat_start	latitude start of MOCNESS cast, negative = South	DD.D
lon_start	longitude start of MOCNESS cast, negative = West	DDD.D
depth_w	depth of water, seafloor depth from the shipboard 12kHz Knudsen echosounder; seafloor in eventlog	meters
net	MOCNESS net number, (0-8)	
yrday_local	year day as a decimal, based on Julian calendar, local time	YYY.Y
num_obs	number of observations	
vol_filt	volume filtered	meters ³
press	depth of observation or sample	meters
temp	temperature of water	degrees C
potemp	potential temperature or theta	degrees C
sal	salinity calculated from conductivity	
sigma_0	potential density	kg/m ³
angle	angle of net frame relative to vertical (0-89 degrees)	degrees
hzvel	horizontal net velocity	m/min
vtvel	vertical net velocity	m/min

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Instruments

Dataset-specific Instrument Name	MOCNESS1
Generic Instrument Name	MOCNESS1
Dataset-specific Description	335 micron mesh, 9 nets
Generic Instrument Description	The Multiple Opening/Closing Net and Environmental Sensing System or MOCNESS is a family of net systems based on the Tucker Trawl principle. The MOCNESS-1 carries nine 1-m ² nets usually of 335 micrometer mesh and is intended for use with the macrozooplankton. All nets are black to reduce contrast with the background. A motor/toggle release assembly is mounted on the top portion of the frame and stainless steel cables with swaged fittings are used to attach the net bar to the toggle release. A stepping motor in a pressure compensated case filled with oil turns the escapement crankshaft of the toggle release which sequentially releases the nets to an open then closed position on command from the surface. -- from the MOCNESS Operations Manual (1999 + 2003).

Dataset-specific Instrument Name	MOCNESS10
Generic Instrument Name	MOCNESS10
Dataset-specific Description	5 nets, 335 micron mesh
Generic Instrument Description	The Multiple Opening/Closing Net and Environmental Sensing System (MOCNESS) is based on the Tucker Trawl principle (Tucker, 1951). The MOCNESS-10 (with 10 m ² nets) carries 6 nets of 3.0-mm circular mesh which are opened and closed sequentially by commands through conducting cable from the surface (Wiebe et al., 1976). In this system, "the underwater unit sends a data frame, comprising temperature, depth, conductivity, net-frame angle, flow count, time, number of open net, and net opening/closing, to the deck unit in a compressed hexadecimal format every 2 seconds and from the deck unit to a microcomputer every 4 seconds" (Wiebe et al., 1985).

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Deployments

ANT-XXIV_1

Website	https://www.bco-dmo.org/deployment/57857
Platform	R/V Polarstern
Report	http://epic.awi.de/28985/1/Sch2009ad.pdf
Start Date	2007-10-26
End Date	2007-11-27

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Project Information

Census of Marine Zooplankton-2004-2010 (CMarZ_2004-2010)

Website: <http://www.cmarz.org/>

Coverage: Global ocean

The Census of Marine Zooplankton (CMarZ) is a field project of the Census of Marine Life (see www.CoML.org). CMarZ is working toward a taxonomically comprehensive assessment of biodiversity of animal plankton throughout the world ocean. The project goal is to produce accurate and complete information on zooplankton species diversity, biomass, biogeographical distribution, genetic diversity, and community structure by 2010. Our taxonomic focus is the animals that drift with ocean currents throughout their lives (i.e., the holozooplankton, Fig. 1). This assemblage currently includes ~6,800 described species in fifteen phyla; our expectation is that at least that many new species will be discovered as a result of our efforts. The census encompasses unique marine environments and those likely to be inhabited by endemic and undescribed zooplankton species.

Program Information

Census of Marine Life (CoML)

Website: <http://www.coml.org/>

Coverage: global

The Census of Marine Life is a global network of researchers in more than 80 nations engaged in a 10-year scientific initiative to assess and explain the diversity, distribution, and abundance of life in the oceans. The world's first comprehensive Census of Marine Life - past, present, and future - will be released in 2010.

The stated purpose of the Census of Marine Life is to assess and explain the diversity, distribution, and abundance of marine life. Each plays an important role in what is known, unknown, and may never be known about what lives in the global ocean.

First, diversity. The Census aims to make for the first time a comprehensive global list of all forms of life in the sea. No such unified list yet exists. Census scientists estimate that about 230,000 species of marine animals have been described and reside in jars in collections in museums of natural history and other repositories. Since the Census began in 2000, researchers have added more than 5600 species to the lists. They aim to add many thousands more by 2010. The database of the Census already includes records for more than 16 million records, old and new. By 2010, the goal is to have all the old and the new species in an on-line encyclopedia with a webpage for every species. In addition, we will estimate how many species remain unknown, that is, remain to be discovered. The number could be astonishingly large, perhaps a million or more, if all small animals and protists are included. For comparison, biologists have described about 1.5 million terrestrial plants and animals.

Second, distribution. The Census aims to produce maps where the animals have been observed or where they could live, that is, the territory or range of the species. Knowing the range matters a lot for people concerned about, for example, possible consequences of global climate change.

Third, abundance. No Census is complete without measures of abundance. We want to know not only that there is such a thing as a Madagascar crab but how many there are. For marine life, populations are being estimated either in numbers or in total kilos, called biomass.

To complete the context, it is important to understand the top motivations for the Census of Marine Life. Most importantly, much of the ocean is unexplored. Most of the records in its database are for observations near the surface, and down to 1000 meters. No observations have been made in most of the deep ocean, while most of the ocean is deep.

Another important issue is that diversity varies in space. Marine hot spots, like the rain forests of the land, exist off for large fish off the coasts of Brazil and Australia. The goal is to know much more about marine hot spots, to help conserve these large fish. Their abundance and thus their diversity is changing, especially for commercially important species. Between 1952 and 1976, for example, fishermen and their customers emptied many areas of the ocean of tuna.

The Census has evolved a strategy of 14 field projects to touch the major habitats and groups of species in the global ocean. Eleven field projects address habitats, such as seamounts or the Arctic Ocean. Three field projects look globally at animals that either traverse the seas or appear globally distributed: the top predators such as tuna and the plankton and the microbes. The projects employ a mix of technologies. These include acoustics or sound, optics or cameras, tags placed on individual animals that store or report data, and genetics, as well as some actual capture of animals. The technologies complement one another. Sound can survey large areas in the ocean, while light cannot. Light can capture detail and characters that sound cannot. And genetics can make identifications from fragments of specimens or larvae where pictures tell little.

This mix of curiosity, need to know, technology, and scientists willing to investigate the unexplored and undiscovered will result in a Census of Marine Life in 2010 that provides a much clearer picture of what lives below the surface around the globe. Several reasons make such a report timely, indeed urgent. Crises in the sea are reported regularly. One recent study predicted the end of commercial fishery globally by 2050, if

current trends persist. Better information is needed to fashion the management that will sustain fisheries, conserve diversity, reverse losses of habitat, reduce impacts of pollution, and respond to global climate change. Hence, there are biological, economic, philosophical and political reasons to push for greater exploration and understanding of the ocean and its inhabitants. Indeed, the United Nations Convention on Biological Diversity requires signatories to collect information on living resources, but, as yet, no nation has a complete baseline of such information. The Census of Marine Life's global network of researchers will help to fill this knowledge gap, providing critical information to help guide decisions on how to manage global marine resources for the future.

[Text copied from the CoML web site, November 5, 2008]

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Funding

Funding Source	Award
Alfred P. Sloan Foundation (Sloan)	unknown CMarZ_2004-2010 Sloan

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