Tow krill raw counts and species abundance collected from the R/V Thuwal cruise in the Red Sea during January 2014

Website: https://www.bco-dmo.org/dataset/620329
Data Type: Cruise Results
Version: 3
Version Date: 2022-05-26

Project
» Red Sea Krill (Red Sea Krill)

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Abstract
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Coverage

Spatial Extent: **N**:22.5293 **E**:39.0403 **S**:22.4209 **W**:39.0203
Temporal Extent: 2014-01

Dataset Description

Krill species raw counts and abundance per 1000 cubic meters are reported.

Methods & Sampling

Three day trips were made aboard the R/V Thuwal to a location referred to as the Economic City Deep or ECDEEP: a ~700 m deep basin located north of KAUST at 22.5o N, 39.03o E). A 1/4-m MOCNESS (Multiple Opening/Closing Net and Environmental Sensing System; Wiebe et al., 1985) with 200 µm mesh nets was used to sample the zooplankton.

Field sampling: The MOCNESS was obliquely towed four times from the stern A-frame using 11.43 mm conducting cable to 600 m depth with a ship speed nominally of 2 kts (Fig. 2; Table 1). Two MOCNESS tows were taken during daytime, one each on 7 and 8 January 2014, and two night tows were taken on 12 January 2014. The first day tow (m-25-001) was equipped with 5 nets that sampled 600-400, 400-200, 200-100, and 100-0 m. The second day tow (m-25-002) and the two night tows (m-25-003, m-25-004) each had six nets that sampled 600-400, 400-200, 200-100, 100-50, and 50-0 m. The first tow was done without having GPS

data input to the MOCNESS acquisition program, so positions from the bridge were obtained for the tow start and end, and at each opening of a net. GPS positions were logged for the other three tows. The MOCNESS system was equipped with the standard SeaBird temperature and conductivity probes. Volume of water filtered by each net was based on the net frame angle and flowmeter counts using equation 10b in Wiebe et al., 1985.

The samples from the first tow were all preserved in 95% alcohol suitable for genetic analysis. Those from the other three tows were first split in a Folsom splitter (McEwen et al., 1954) and then one half was preserved in alcohol and the other half preserved in formalin. In the KAUST Red Sea Center laboratory, the euphausiids in the alcohol fraction of each of the stratified oblique samples were sorted using a dissecting stereomicroscope, identified using the Baker et al. (1990) guide, and counted.

The column "tow" in this dataset can be joined with the tow numbers in the dataset 'MOC_CTD_RedSea' https://www.bco-dmo.org/dataset/630187.

Data Processing Description

The counts of each euphausiid species for each net were standardized to the number of individuals/1000m3 for each depth stratum using the volume filtered by each net. The cumulative percent abundance (Baker, 1970; Pennak, 1943) was calculated starting from the bottom of each tow (i.e., the bottom of the first depth stratum where a species occurred was assigned 0 percent and the top of the final depth stratum of occurrence was assigned 100%). Depth (m) values of 25%, 50%, and 75% occurrence were interpolated based on the cumulative curve.

BCO-DMO Processing:

- added conventional header with dataset name, PI name, version date
- renamed parameters to BCO-DMO standard
- replaced space with underscore
- replaced blank cells with nd
- added activity, ISO_DateTime_Local columns
- changed cast type from MOC1 to MOC.25

2016-04-22: to enable joining: krill_by_sp and krill_by_tow: Changed instrument (was called cast_type) from MOC.25 to MOC-25 and changed tow from m_25_00# to #.

2016-05-04: created a new dataset by joining 'MOCNESS tow metadata' and earlier version of 'Krill abundance by tow', then manually added hypertext links to the appropriate tow physical data from 'MOC_CTD_RedSea'.

version 3. 2022-05-26:
Hyperlinks within the data table were removed and the linked dataset was instead added structurally as a "Related Dataset" to this Krill dataset page. The hyperlinks were the corresponding tow data rows in the main data table of 'MOC_CTD_RedSea' https://www.bco-dmo.org/dataset/630187 .

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Data Files

File
krill_by_tow_join.csv (Comma Separated Values (.csv), 4.11 KB) MD5:d5605b5362706ce3e4a8af62ff85bf75 Primary data file for dataset ID 620329

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Related Datasets

IsRelatedTo

Wiebe, P. H. (2015) **MOCNESS CTD data from the R/V Thuwal cruise in the Red Sea during January 2014 (Red Sea Krill project).** Biological and Chemical Oceanography Data Management Office (BCO-DMO). (Version 2015-12-28) Version Date 2015-12-28 http://lod.bco-dmo.org/id/dataset/630187 [view at BCO-DMO]
Relationship Description: Data from the same tow.

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Parameters

Parameter	Description	Units
cruise_id	cruise identification	unitless
year	year	yyyy
month_local	local month	mm
site	site name	unitless
depth_tow_max	maximum depth of entire tow	meters
inst	type of gear: MOC.25 is a quarter-meter MOCNESS	unitless
tow	MOCNESS tow number	unitless
day_local	local day	dd
lat_start	latitude at start of tow; north is positive	decimal degrees
lat_end	latitude at end of tow; north is positive	decimal degrees
lon_start	longitude at end of tow; east is positive	decimal degrees
lon_end	longitude at end of tow; east is positive	decimal degrees
net	net number	unitless
vol_filt	volume filtered	cubic meters
station	sequential station	unitless

yrday_local_start	local year-day at start tow	unitless
yrday_local_end	local year-day at end tow	unitless
depth_open	depth at which net was opened	meters
depth_close	depth at which net was closeed	meters
time_start_local	local time at start of tow	HHMM
time_end_local	local time at end of tow	HHMM
samp_fraction_denom	denominator of split fraction. e.g. for 1/2 split - samp_fraction_denom is 2	unitless
depth_interval	depth strata sampled	meters
depth_mid	mid-depth sampled by net	meters
depth_max	maximum depth sampled by net	meters
E_diomedeae_cnt	Euphausia diomedeae raw counts	number in split
E_sibogae_cnt	Euphausia sibogae raw counts	number in split
E_sanzoi_cnt	Euphausia sanzoi raw counts	number in split
S_affine_cnt	Stylocheiron affine raw counts	number in split
S_abbreviatum_cnt	Stylocheiron abbreviatum raw counts	number in split
E_diomedeae_1000m3	Euphausia diomedeae abundance	number/1000m^3
E_sibogae_1000m3	Euphausia sibogae abundance	number/1000m^3
E_sanzoi_1000m3	Euphausia sanzoi abundance	number/1000m^3
S_affine_1000m3	Stylocheiron affine abundance	number/1000m^3

S_abbreviatum_1000m3	Stylocheiron abbreviatum abundance	number/1000m^3

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Instruments

Dataset-specific Instrument Name	MOCNESS-.25 m^2
Generic Instrument Name	MOCNESS.25
Dataset-specific Description	This MOCNESS sampled with either 5 or 6 nets, 200 micron mesh.
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-1/4 carries nine 1/4-m2 nets usually of 64 micrometer mesh and is used to sample the larger micro-zooplankton.

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Deployments

Thuwal-2014-01

Website	https://www.bco-dmo.org/deployment/620087
Platform	R/V Thuwal
Start Date	2014-01-07
End Date	2015-01-12
Description	Three day trips to sample krill at ECDEEP station near Economic City, Saudi Arabia, north of KAUST.

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Project Information

Red Sea Krill (Red Sea Krill)

Coverage: Red Sea

The krill population at station ECDEEP was characterized via MOCNESS sampling and CTD casts.

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Funding

Funding Source	Award
King Abdullah University of Science and Technology (KAUST)	KAUST-Kaartvedt-2014

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