

Net sampling zooplankton data series for cruise Dana D1198

Principal Investigator

Dr. Andy Visser, Danish Institute for Fisheries Research (DIFRES), Charlottenlund, Denmark.

Collaborator

Dr. Hiroaki Saito – DIFRES.

Content of data series

Parameter		Parameter code	Comments
Gut pigment content (nanogram chlorophyll-equivalent per individual):			
<i>Calanus spp.</i> female	mean	GPIGFAAU	<i>C. finmarchicus</i> + <i>C. helgolandicus</i>
	SD	SDGPFAAU	as above
<i>Calanus spp.</i> C5	mean	GPIGFAAE	as above
	SD	SDGPFAAE	as above
<i>Calanus spp.</i> C4	mean	GPIGFAAD	as above
	SD	SDGPFAAD	as above
<i>Metridia lucens</i> female	mean	GPIGFABU	none
	SD	SDGPFABU	none
<i>Metridia lucens</i> C5	mean	GPIGFABE	none
	SD	SDGPFABE	none
<i>Centropages typicus</i> female	mean	GPIGFADU	none
	SD	SDGPFADU	none
<i>Centropages typicus</i> C5	mean	GPIGFADE	none
	SD	SDGPFADU	none
<i>Pseudocalanus parvus</i> female	mean	GPIGFAEU	none
	SD	SDGPFADU	none
Egg production rate (egg per female per day):			
<i>Calanus finmarchicus</i>	mean	MSEP302F	<i>C. finmarchicus</i> + <i>C. helgolandicus</i>
	SD	SDME302F	as above
<i>Metridia lucens</i>	mean	MSEP304L	none
	SD	SDME304L	none
<i>Centropages typicus</i>	mean	MSEP349T	none
	SD	SDME349T	none

Originators' protocol

Zooplankton samples were collected using a WP-2 net of 57 cm diameter fitted with a 200 µm mesh. Sampling was carried out by vertical hauls from 40 metres up to the surface at ca. 6 hour intervals. Each station comprised 1 to 6 hauls.

For gut pigment analysis, collected samples were immediately filtered through nylon mesh filters (mesh size: 200 µm). The collected zooplankton were placed in a petri dish and frozen using freeze spray. Samples were then stored in the dark in deep-freezer (-70 °C) until further analysis. On return to the laboratory, dominant copepods were identified under the dissecting microscope according to species, stage and sex, and sorted. During this process, the plankton samples were kept chilled. Sorted animals were then rinsed with filtered sea water and transferred into 5 ml 90% acetone for pigment extraction. In order to obtain a detectable amount of pigments, 10 to 30 specimens were generally used for each extraction. The samples were kept in the dark in a refrigerator (ca. 4 °C). After 24 hours, extracted chlorophyll pigment was measured using a Turner 111 fluorometer (Holm-Hansen et al., 1965) calibrated using chlorophyll *a* standard (Sigma). In most cases, signal levels were 2 to 3 orders of magnitude higher than the noise level. Typically, gut pigment content was measured using between 3 and 10 replicate extracted samples. However, for less dominant species and stages, especially

Paracalanus elongatus and *Centropages typicus* males, only single or duplicate measurements were possible.

Egg production measurements were carried out daily throughout the cruise on three copepod species (*Calanus spp.*, *Metridia lucens* and *Centropages typicus*). Copepods were sorted and a single female (for *C. spp.*) or a pair of females (for *M. lucens* and *C. typicus*) was then transferred into 500 ml or 1000 ml glass bottles filled with pre-filtered surface water. Standard 24-hour bottle incubation technique was used, with bottles mounted on a slowly rotating wheel in a constant temperature laboratory (10° C) in the dark. After incubation the number of living females and the number of eggs produced were counted. Egg production rate at each station was determined as the average production rate measured on 5 to 10 replicate incubation bottles per species.

BODC processing

The data were loaded into a database under the ORACLE Relational Database Management System without modification.

Comments on data quality from data originator

Throughout the period of study *Calanus spp.* refers to two co-occurring *Calanus* species *C. finmarchicus* and *C. helgolandicus*.

Reference

Holm-Hansen O, Lorenzen CJ, Holmes RW, Strickland JDH (1965) Fluorometric determination of chlorophyll. J Cons Perm Int Expl Mer, 30(1), 3-15.