

SEVENTH FRAMEWORK PROGRAMME THEME 7 Environment

Collaborative project (Large-scale Integrating Project)

Project no: 246 933

Project Acronym: EURO-BASIN

Project title: European Basin-scale Analysis, Synthesis and Integration

**Deliverable 3.2 Preliminary report on community productivity efficiency, trophic structure and ecosystem state**

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Organisation name of the lead contractor of this deliverable: University of Nordland, Bodø, Norway (UoN)

Start date of project: 31.12.2010 Duration: 48 months

Project Coordinator: Michael St John, DTU Aqua

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Theme 6 Environment

Dissemination Level		
PU	Public	
PP	Restricted to other programme participants (including the Commission)	X
RE	Restricted to a group specified by the consortium (including the Commission)	
CO	Confidential, only for members of the consortium (including the Commission)	

## **Deliverable 3.2 Preliminary report on community productivity efficiency, trophic structure and ecosystem state**

### Task 3.3 Classification of different regimes by size spectra

The data obtained in T3.2 will be used to identify the key pelagic habitats and their relation to major physical regions. This task will calculate biomass spectra, their slopes to study biomass flow, community structures and trophic interactions in the targeted regions. Species abundance distributional data from the field sampling programme will be used to relate the above analyses to food web information.

This task will be strongly dependent on support from UHAM and MRI-HAFRO who will employ Video Plankton Recorders compositions to identify key species and abundance reconstruction size spectra derived from LOPC, from UoN. Further information on size spectra will be acquired via net sampling and applied in interpreting the size spectra to be delivered to T1.2. The ground truth for size groups > nekton will be supported by VPR data stored in WP1. Contact data from size groups > nekton will be compiled directly into the biomass spectra using data derived in T3.2 and T2.15.

Classification of different regimes by size spectra will be important for T7.3 in the development of a bio-economic model of fish commodities in the North Atlantic.

Responsible: Sünne Basedow (UoN), Participants: IMR, MRI-HAFRO, UHAM, SAHFOS

Start: Month 16\*, End: Month 48

\* Task activities started 10 month earlier (month 6) to align with the start of the cruise campaign 2012

### **Executive Summary:**

The report preliminary summarizes the trophic situation within the mesozooplankton community in the North Atlantic observed during the EURO-BASIN Cruise Campaign 2012-2013, and gives a rough overview over productivity estimates within the different basins of the North Atlantic. In general trophic indices were on the high end and typical for a winter zooplankton community. Average zooplankton productivity was relatively low, but differences between the basins were observed with e.g. higher productivity in the Labrador Sea than elsewhere.

Analyses presented here are based on data collected with a laser optical plankton counter in the North Atlantic and on data collected by a video plankton recorder in Icelandic waters during the field activities within T3.2. Comparisons to trophic indices estimated by stable isotopes within WP4 have started and will be finished within the next reporting period. Further work is planned to exploit data collected by the video plankton recorder and a first glimpse is presented in this report. Vital rates estimated in WP4 will also be used to compare and ground-truth estimates obtained based on biovolume spectrum models. Data on size spectra of higher trophic levels will be included in the future when they become available.

Future work is also planned with the aim to characterize zooplankton habitats in relation to abiotic parameters based on features of the biovolume spectra. This will be important for WP7 in the development of a bio-economic model of fish commodities in the North Atlantic.

### **Relevance to the project & potential policy impact:**

The task has no direct impact on policy relevance but will inform WP7 that will provide a bio-economic model of fish commodities, which is highly relevant for a future management of living resources.

**Access to Data and/or model code (where relevant):**

The data analyzed are provided both by EURO-BASIN partners and by North American colleagues (not formal members of the consortium). The consortium provided data is currently being archived in the PANGAEA data base ([www.pangaea.de](http://www.pangaea.de)).

G.O. Sars cruise data will be available mid-2014 and all Video Plankton Recorder data will be made available as soon as the analyses of the data are completed. LOPC data will be made available by mid-December 2013. Digital Object Identifiers (DOI) handles will be issued as soon as archiving is complete, and will be included in all future peer-reviewed publications.

**Report:**

*The full report is restricted to restricted to other programme participants (including the Commission)*

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