Jerico Next – Biological data management

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• Overview Jerico Next Biological data management

• Data management – objectives and activities
• Metadata catalogues
• Marine Data Archive
• Data integration and standardization
1. Part of main objectives of the WP 5 – Data Management

Create an operational link with EMODnet biology in order to facilitate the data exchange between existing marine biological data networks and data generated by the project.
2. Presentation of the tasks and interfaces with other WPs

The main activities will be:

1. Providing tools and services for extraction of comparative biological background data based on EMODNet biology data resources
2. Providing tools and services for performing quality control of biological data gathered within the project
3. Harmonization, integration and taxonomic & geographic standardization of biological sample and sensor data, generated by project (will be applied also on WP4 JRAP1 and JRAP2).
   - Harmonization of pelagic observations (for example collected by flow cytometer).
   - Harmonization of benthic observations (for example data from the French environmental database, Quadrige2).
2. Presentation of the tasks

JRAP1/ Pelagic Biodiversity

- Established methods:
  - Automated water sampling and traditional water sampling
  - Counting and identifying organism using the light and electron microscope
  - Taxonomic (species, functional group) information available

- Actions
  - Can be integrated using existing biological data formats and qc checks & made available using existing infrastructure of EMODnet
2. Presentation of the tasks

JRAP1/ Pelagic Biodiversity

• Novel methods:
  • Imaging Flow Cytometry (in situ and on ship)
  • High Troughput sequencing of 16S and 18S rDNA
  • Data output is more complex, taxonomic annotations often last step

• Actions
  • We will describe datasets (metadata) and link to original datafiles (images, cyz files, fastq)
  • Archive original data files
  • Investigate data schemas for integration
2. Presentation of the tasks

JRAP1/ Pelagic Biodiversity

• Harmonization data for flow cytometer - set up common data system for output Flow cytometer data
  • Document oriented database
  • Outside scope of project, but analysed within Lifewatch
Deliverable 5.4

Report on QC steps of marine biological data management (M12)

Marine biological data: quality control and management practices
Overview biological datatypes

JericoNext

4. Annexes

Annex 1: Table listing data sources and derived parameters for WP3/WP4. It is indicated whether the derived data fits the common data schemas or new data schema need to be explored. Data archival is possible for all data.

<table>
<thead>
<tr>
<th>JRAP</th>
<th>JRAP data sources (sensor or sampling technique)</th>
<th>(Derived) biological parameters</th>
<th>Fit for common data schemas</th>
<th>New data schemas to be explored</th>
<th>Data archival possible</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>(F) polaen</td>
<td>absorption, chlorophyll-a</td>
<td>no</td>
<td>yes</td>
<td>yes</td>
</tr>
<tr>
<td>1</td>
<td>frf</td>
<td>Primary production</td>
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<td>yes</td>
<td>yes</td>
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<tr>
<td>1</td>
<td>Cytosense flow cytometer</td>
<td>Total fluorescence per size class, Total biovolume per size class, characterization of spectral groups</td>
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<td>yes</td>
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<td>Organisms per unit of volume</td>
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<td>Fluorescence parameters</td>
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<tr>
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<tr>
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<td>floccin</td>
<td>Phytoplankton biodiversity and abundance</td>
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<td>no</td>
<td>yes</td>
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<tr>
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<td>Species abundance, Total abundance on higher taxonomic level</td>
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<td>Fluorescence parameters, Chlorophyll-a</td>
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<td>2</td>
<td>Spi</td>
<td>OBI (sediment organism relationship) - BHQ (Benthic habitat quality quantification)</td>
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<td>yes</td>
<td>yes</td>
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<tr>
<td>2</td>
<td>metabarcoding (data)</td>
<td>OTU abundance (Operational Taxonomic Units)</td>
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<td>yes</td>
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<tr>
<td>2</td>
<td>van veen grab</td>
<td>benthic species abundance</td>
<td>yes</td>
<td>no</td>
<td>yes</td>
</tr>
</tbody>
</table>
JRAP1: Pelagic Biodiversity

• Pulse-shape recording Flow Cytometer (+ Image acquisition) (VLIZ, CNRS LOG-MIO-BOREA, RWS, CEFAS)
• Imaging Flow Cytometer (SMHI coll. WHOI, SYKE)
• Flow Cytometer (HZG, SYKE)
• FlowCAM (IFREMER, CNRS-LOV, SYKE, AZTI)
• FastCAM (IFREMER)
• Absorption meter - PSICAM (HZG, SYKE)
• Spectral fluorometer - AOA or Fluoroprobe (CNRS-LOG-BOREA, IFREMER, SYKE)
• PAM or Phyto-PAM (CNRS LOG-BOREA, CEFAS)
• FRRF or spectral FRRF (SYKE, CNRS BOREA-LOG, VLIZ-RWS-NIOZ, CEFAS)
• Underwater Vision Profiler - UVP5 (CNRS-OSU V)
• Data collection JRAP1 & JRAP2 (currently 31 sets)
• Metadata overview being available in EMODnet Biology
• Linking from Jerico-Next website to collection
• New: Geographic interface on data collection
Data Catalog

21 records found with search conditions: [No parameters entered]

Expand all  Collapse all

- JERICO-NEXT Joint Research Activity Project 1: Phytoplankton Biodiversity, more
  - Baltic sea UV5 image data set (July 2017), more
  - Bio-optical measurements in the Baltic Sea, spring 2017–spring 2018, more
  - CAMANOC 2014 Ferry Box CAMANOC 2014 cruise data (English Channel), more
  - IFREMER-SMAI Imaging flow cytometry from SMAI in Tanguersund 2015, more
  - MAREL Canot MAREL Canot data and metadata from Conoils Data Centre (English Channel, since 2004), more
  - Phyceocythrin fluorescence and cell counts of phyceocythrin containing species, ferry Finnmaid Helsinki - Travemunde, summer 2010, more
  - Phytoplankton biodiversity data from a North Sea Cruise with RV Endeavour in June 2019, more
  - Phytoplankton biodiversity data from a North Sea Cruise with RV Simon Stevin in May 2016, more
  - Phytoplankton biodiversity data from a North Sea Cruise with RV Zirfaea in April 2016, more
  - Phytoplankton biodiversity data from a North Sea Cruise with RV Zirfaea in June 2016, more
  - Plancton biodiversity data from a North Sea Cruise with RV Simon Stevin in May 2017, more
  - Silja Serenade farmbox measurements between Helsinki and Stockholm, spring 2017–spring 2018, more
  - A-MIDEX CHROME: Western Mediterranean automated flow cytometry surface sample from Ships of OP crossing Tunis-Marseille and Tunis-Genova between October 2016-January 2017, more

- JERICO-NEXT Joint Research Activity Project 2: Benthic Biodiversity, more
  - Pagure Next 2016. Benthic biodiversity cruise in the Bay of Brest in October 2015, more
  - JERICO-BENT: Impact study of Gironde input on benthic ecosystems at the West-Gironde mud-patch (2016-2018), more
  - Invasive species diversity in the Bay of Brest (2018), more
  - Macrobiotons collected in the Cretan Sea between 2016 and 2017, more
  - Microbial diversity of the Cretan Sea between 2016 and 2017, more
  - Physicochemical characterization of the Cretan Sea between 2015 and 2017, more
IFCB110-SMHI: Imaging flow cytometry from SMHI in Tangesund 2018

Citation

Contact: Karlson, Bengt; Bjoernaham, Michael

Availability: This dataset is licensed under a Creative Commons Attribution 4.0 International License.

Description
An imaging flow cytometer, the Imaging FlowCytobot, was used to investigate phytoplankton abundance and diversity in a coastal system on the Swedish Skagerrak coast. Samples of 5 mL were collected approximately every 25 minutes. An automated winch was used to move the IFCB to different depths. Chlorophyll fluorescence od individual organisms was used to trigger the camera in the instrument. Several thousand images were collected in each sample. Automated image analysis was used to analyze the images produced to identify and count cells of different plankton taxa.

Scope
Themes: Biology > Phytoplankton
Keywords: Ubena, Flow cytometry, ANE, Skagerrak

Geographical coverage
ANE, Skagerrak (Inner Bight)

Temporal coverage
9 August 2016 - 18 October 2016

Contributors
Swedish Meteorological and Hydrological Institute (SMHI); new, dataowner
Karlson, Bengt
Woods Hole Oceanographic Institution (WHOI); new
New: Jerico Next Geographic Interface, embedded in EMODnet Biology
Phytoplankton biodiversity data from a North Sea Cruise with R/V Simon Stevin in May 2016

Contact: data@vln.be

Archived data

Sea_meteo_and_navigationalData.zip
CTD_Data.zip
Flow cytometry_VLM.zip
Flow cytometry_RWS.zip

Available: This dataset is licensed under a Creative Commons Attribution 4.0 International License.

Special collections:
- Belgian marine datasets
- Belgian marine, coastal & estuarine areas
- EMODNET
- JERICO-Next

Description
Phytoplankton data collected in the framework of JERICO-NEXT JRWP1. Data were collected using different methods and sensors (fluorometer, flow cytometer, phytoplankton, FRRF).
Data archival

• Long term preservation of raw data files in Marine Data Archive
• Trusted repository under ICSU World Data System
• Jerico-Next collection
• Personal, Shared or Public
• Allows metadata annotation at file level
During the Jerico-Next cruise, 8-12 May 2017, the FlowCytometry protocols (pr1, pr2, pr3), every 30 minutes.
File: 'Flowcytometry_VLIZ.zip'

**File properties**

- **Filename**: Flowcytometry_VLIZ.zip
- **Direct link**: http://mda.vliz.be/mda/directlink.php
- **Datatype**: In situ Instrument data
- **MIMEtype**: application/x-zip-compressed
- **Authors**: Lennert Tyberghien
- **Dataprovier**: VLIZ
- **Email Dataprovier**:
- **Conditions of use**: 
- **Creation date**: 2016-10-06 13:09:32
- **Submit date**: 2016-10-06 13:02:10
- **Archived by**: Tyberghien Lennert
- **Archive date**: 2016-10-06 13:09:32
- **Path**: Public datasets/Jerico-NEXT/JRAPI/CruiseRVSimonStevin_May2016/
- **Start year**: 2016
- **End year**: 2016
- **Summary**: 
- **Description**: 
- **Changes**: 

**Metadata**
Data integration

- Parameter vocab for FCM created (MIO, BODC)
- Processed data available in OBIS Env (in prep)
- Processed data made available EMODnet download service (in prep)