MSFD: an opportunity for harmonised data management

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MSFD: INSPIRE used as the reporting standard for metadata and data

The Marine Strategic Framework Directive strives for Good Environmental Status of marine waters by 2020 and requires the Member States to report a wide array of criteria for eleven themes or descriptors. For Belgium, the criteria cover biodiversity, habitats, population health, eutrophication, seafloor morphology, hydrology, contaminants in the environment and in seafood, macrolitter and the introduction of energy (noise). It is the first time that the (meta)data has to be reported according to the INSPIRE requirements. For Belgium, MUMM (Management Unit of the Mathematical Model of the North Sea, OD Nature, RBINS), is coordinating the monitoring activities and collaborates with experts from different scientific institutes to prepare the second assessment of the status of the Belgian marine waters. The monitoring data is managed and disseminated to the EC and the public by the Belgian Marine Data Centre (BMDC). The primary data has been collected by monitoring activities or collated from other sources by several marine specialists.

Harmonised monitoring reporting impossible without transversal approach

The very diverse array of data types (in situ or track, polygon or gridded; many data themes), the INSPIRE requirements and the necessity to maximize the reuse of the collected data have led to the need of a streamlined data flow, that creates new and incorporates existing processes. BMDC's Data and Inventory Tracking System (DITS) (Lagring et al., 2014) codebase was modified to allow the derivation of facets, that can be used to fulfill specific reporting needs and abstract away some of the functionality and metadata fields that are common to a specific reporting theme. Such facets are pluggable in the new website of BMDC. The MSFD facet allows the primary submission of data files and serves three purposes: providing an anchor for the data file(s) during the MSFD reporting by MUMM, providing an entry point for in-situ or track data to be ingested and data managed in the central oceanographic database (IDOD) of BMDC, and fulfilling the obligation Belgium has with regards to INSPIRE.

The in-situ data falls within the INSPIRE theme 'Oceanographic Geographical Features', which makes use of the Observations and Measurements scheme to describe the data. In IDOD mappings are made with the NERC vocabularies, eg. P02 or P01, that describe the observedProperty in O&M. Surface-based data is represented as shapefiles in a GeoServer system; the shapefiles' attributes are enriched in order to make the INSPIRE transformations as easy as possible. The metadata of a DITS dataset is exposed in ISO 19115:2003 through an API which allows the harvesting by systems like GeoNetwork and the propagation to the Belgian National Spatial Data Infrastructure. Specific data transformations have been written to extract data into the INSPIRE-compliant GML format according to the

recommendations by the INSPIRE maintenance and implementation group (MIG) and the TG DATA of MSFD; the transformed data is hosted at the Belgian National Geographic Institute.