

Seabed4U

Seabed CommUnity Initiative: communicating sustainability challenges of marine sand use in a changing world

DURATION 15/03/2019 – 15/03/2021	BUDGET 20 000 €
Valorisation of the BRAIN-be project TILES	

PROJECT DESCRIPTION

Seabed4U valorises the main outcomes of the Brain-be TILES project on Transnational and Integrated Long-term marine Exploitation Strategies of seabed aggregate resources. The primary deliverable of TILES, a **voxel-based resource decision support system (DSS)**, providing data and models on the quality and quantity of extractable marine sands, now forms the basis of **wider international debate** on the long-term use of marine sands. A first reflection on how to proceed was provided by the TILES **Code of Sand**, distributed as a fan with 17 key messages on sand, its use and management. However, a **communication and training strategy is key** to increase a wider community awareness. Seabed4U will bring together and synthesize the TILES information into a single-entry **online community platform**. Aim is to provide an add-on framework facilitating the consolidation and upgrading of information relevant to marine sand extraction, whilst also discussing on further technological developments. In its platform, Seabed4U will promote European initiatives on seabed and resource mapping as well, such as EMODnet-Geology (DG MARE) and Geo-ERA Raw Materials (EU-H2020; under the umbrella of EuroGeoSurveys). It will help pave the way for further digitization and applicability of the **geological knowledge base**.

Synthesized, Seabed4U has three main objectives:

- (1) Foresight on research pathways, securing the long-term use of marine sands;
- (2) Raising community awareness on the use and management of a finite aggregate resource;
- (3) Building an online community platform on *#SeabedMatters*.

Tools and approaches

Seabed4U will be implemented through three main work packages.

WP1 Major sustainability challenges of marine sand use

Task 1.1 Sustainability of marine sand use

Sand is not a critical raw material, though there are growing concerns on sand use and increasing scarcity. Some call this *'The looming tragedy of the sand commons'* or how a seemingly common pool resource also poses global sustainability challenges. The TILES Code of Sand will be further scientifically grounded and submitted for publication to a Special Issue of the Geological Society of London following the conference **Resources for Future Generations** (Vancouver (CA), 2018). It will set the scene of a more **international discussion on research pathways securing the long-term use of marine sands** which will be organised as **webinars**. Appropriate distribution channels of the outcome will be evaluated (e.g., European Marine Board; EuroGeoSurveys). Participation in such a discussion/user group is expressed in the Letters of Intent from governmental and field organisations, as well as scientific institutes.

WP2 Community Awareness

Task 2.1 Seabed Matters

- Grouped under **#SeabedMatters**, seabed-related information, with focus on sustainability, will be posted on social media (Twitter, LinkedIn, Facebook, Instagram). Earlier posts on the TILES outcome received more than 6000 views (from one account only) stimulating using these channels for increased community awareness.
- The creation of a series of **Story Maps**, combining textual and visual (*incl.* mapping) information in a most attractive way, is targeted to tell the story of sand, its use and management. Minimally four story maps will be created around **use cases**.



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- With #SeabedMatters and the Story Maps, **fact sheets** will become available that lower the threshold on an uptake of results and viewpoints in **press media**. TILES final conference already gained interest with interviews and press releases highlighting also good practices in sand exploitation and management, hitherto largely underrepresented in the media.
- When relevant, visual information and the story maps will be posted on the RBINS Museum community website: <https://www.naturalsciences.be/en/museum/community>

Task 2.2 Hands-on training and educational events

- Since 'no one size fits all' plan works to transfer knowledge and practice to the diverse stakeholder groups, **dedicated working groups** are envisaged. Minimally, the aggregate industry and windmill industry will be targeted, as well as governmental institutions such as those responsible for Marine Spatial Planning. Aim is to provide hands-on training on the TILES tools, to discuss functionalities, and address dealing with data and model uncertainty.
- At least two **educational events** will be chosen to bring the seabed closer to the younger generations. Since professors are involved in the partnership some of the material will be discussed with **students** during classes (e.g., within the MSc programme Oceans and Lakes). Furthermore, we will participate to **wider-community initiatives with children** (e.g. Science Week, or an appropriate RBINS Museum event).

WP3 Towards a community-built information platform

Task 3.1 Consolidating

- The main TILES results (data portal, decision support, environmental models, Code of Sand) are now stand-alone products that need a **common lay-out and integration into one platform** to become more effective towards stakeholders.
- Integration of the #SeabedMatters discussion will be integrated for **wider outreach**, as well as third party initiatives.

Task 3.2 Maintaining and updating

- Based on the discussion on tool functionalities with stakeholders (Task 2.2) necessary **modifications** will be done in the course of Seabed4U.
- **Long-term maintenance solutions** of the platform, and of the products it hosts, will be investigated. It is clear that up-to-date seabed information is critical to support many human activities at sea (e.g., aggregates, windmills, cable routing), as well as the management of it, in view of minimising environmental impact, and/or to underpin decision making (e.g. Marine Spatial Plan, Nature restoration). The financing mechanism behind the 'Dutch Key Register of the Subsurface' will be evaluated. Paid by the government, it ensures seabed users of best available data and demands in return that all new data are standardised and stored in databases and used in models. **Cooperation models**, e.g., with industry, will be discussed too (e.g., through incentives; credit building; green label).

Task 3.3 Brainstorming the future

- The coupling, and integration of models and their post processing within the voxel-based resource DSS remains highly innovative. TILES pioneered in many facets and projects future developments. Big challenges relate to: updating automatically the voxel models when significant new data become available; 4D *dynamic* coupling of numerical environmental models to geological voxel models; and modularly expanding the resource DSS and/or the community-built modelling suite Coherens that is at the heart of the environmental assessment model. Such modular expansion is considered critical when addressing the sustainability of marine sand use in a regional to global context (e.g. links to ecosystem services, material flow (land-sea; region-to-region), socio-economics). A **white paper** will **synthesize technological requirements** in view of pressing environmental challenges.

CONTACT INFORMATION

Coordinator

Vera VAN LANCKER

Royal Belgian Institute of Natural Sciences (RBINS)

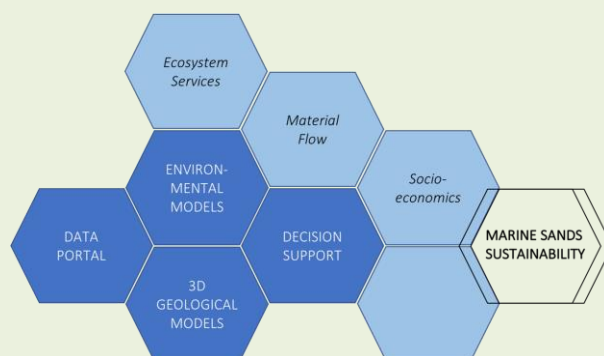
vera.vanlancker@naturalsciences.be

Partners

Guy DE TRÉ

Universiteit Gent (UGent)

guy.detre@ugent.be



*Projected modular expansion of the TILES data products (deep blue), to be discussed with external collaborators
TILES Decision Support Tool: <http://news.bmdc.be/tiles-dss/>*

BELGIAN SCIENCE POLICY OFFICE

WTC III - Simon Bolivarlaan 30 Boulevard Simon Bolivar

B-1000 Brussels

Tel. +32 (0)2 238 34 11

<http://www.belspo.be/brain-be/> • Email : BRAIN-be@belspo.be