Nature Based Solutions in the North Sea region

Progress of Work Package 3 - Midterm event 8 March 2018

R.J.A.Wilmink[1] on behalf of Work Package 3
[1] Rijkswaterstaat - Water, Verkeer en Leefomgeving: rinse.wilmink@rws.nl

Nature-Based solutions (NBS), also known as Building with Nature (BwN) solutions, are implemented to make coasts more resilient to climate change effects, primarily sea level rise. The Building with Nature (BwN) project demonstrates Nature Based solutions that utilize natural processes to deliver flood risk and coastal erosion management whilst enhancing ecosystem services.

The overall objective of the BwN project is to make coasts, estuaries and catchments of the NSR more adaptable and resilient to the effects of climate change. Therefore, a common transnational evidence base is needed to justify investments and optimize the effectiveness of BwN solutions.

Common implemented BwN solutions are beach and/or shoreface nourishments. These aim at counteracting erosion, stabilizing coasts, facilitating other functions and ensuring protection to flooding. The performance of these solutions is divers and hampers wider uptake across NSR (Wilmink, Lodder & Sørensen, 2017)[1].

Work package three of Interreg BwN started the project writing a work plan and to define common understanding of flood risk protection (fig 1 & 2).

Shared understanding resulted in an in depth overview of all common practices in coastal protection (table 1).

	Flood risk reduction goal	Policy goals (criteria)	Compensate erosion goal	NBS/BwN in policy	Nourishment type (Beach / shoreface)
1. DCA (DK, central North Sea coast)	Yes	$P(f):\frac{1}{100}$, exceptional $P(f):\frac{1}{1000}$ (Hold the line)	Yes*	Yes	Both
2. LKN.SH (DE)	Yes	(Hold the line)	Partly	Yes	Both
3. NLWKN (DE)	Yes	Protect other functions (Hold the line and dune safety)	No	Yes	Beach
4. RWS (NL)	Yes	1) $P(f):\frac{1}{300}$ up to $P(f):\frac{1}{100.000}$ 2) Protect coastal functions (Hold the line)	Yes	Yes	Both
5. MDK (BE)	Yes	1) $P(f):\frac{1}{1000}$ 2) No fatal casualties allowed (Hold the line)	No	Yes	Beach and experimental shoreface
6. LST (SE)	No	Shoreline protection (Building prohibited within range coastal zone)	No	No	Beach and experimental shore face

Table 1: Overview of flood risk and coastal management goals per partner.

Work package 3 proceeded to create an overview of data available of each lab and build a transnational database for coastal transect data (fig 3 & 4).
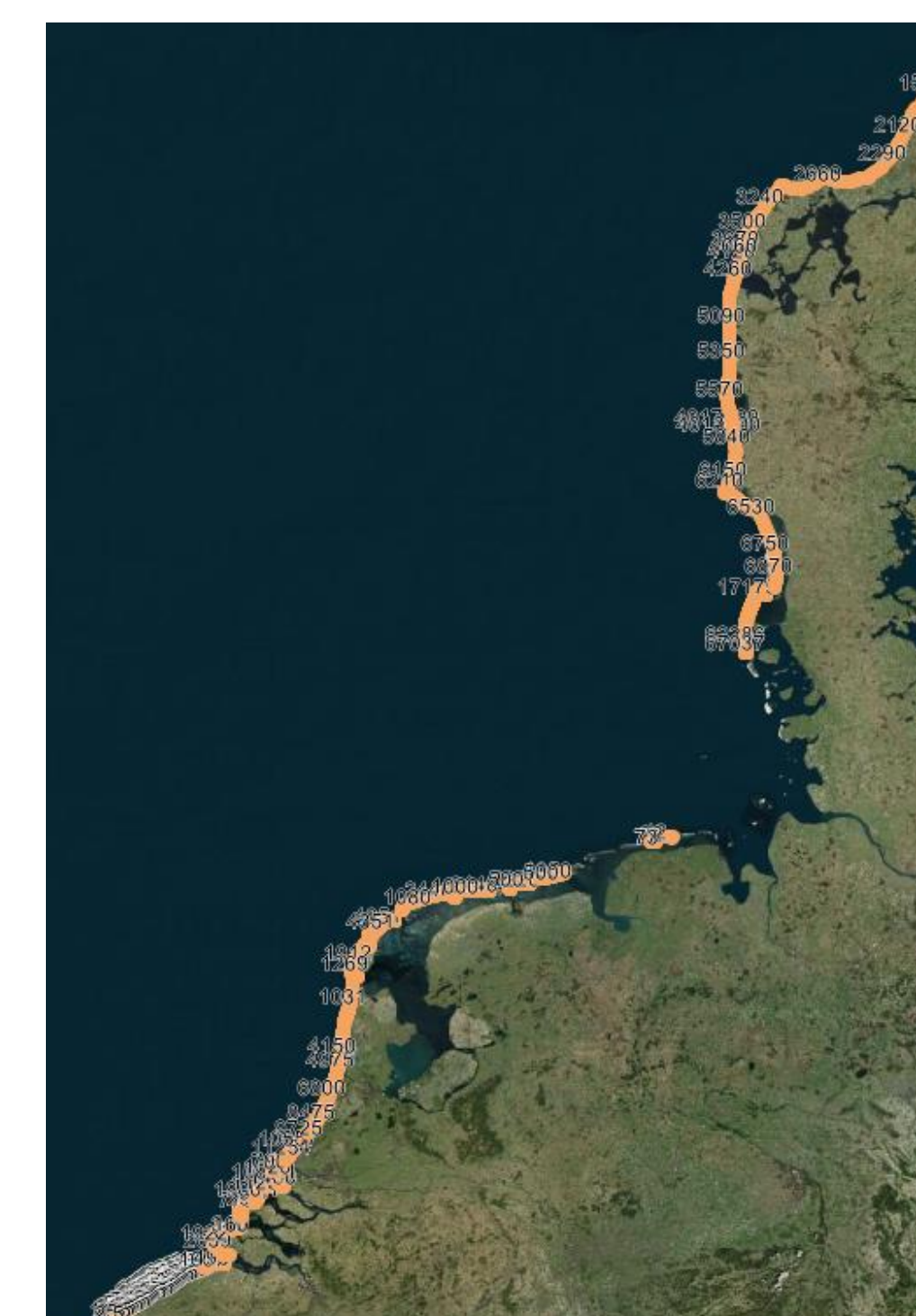

Fig 3: Transnational coastal profiles database

Transnational database:

- 135.432 profiles
- 5840 transect locations
- 4 countries;
  BE , NL, Langeoog, Baltrum, Sylt, Westcoast Denmark
- Measurements between 1874 – 2017 (Almost 150 years in some locations!)

In 2018 the first steps will be taken to analyse performance of executed nourishments in all laboratories using a shared methodology drafted in 2017. The results of the co-analyses will be drafted into guidelines on the implementation and effectiveness of nourishments.
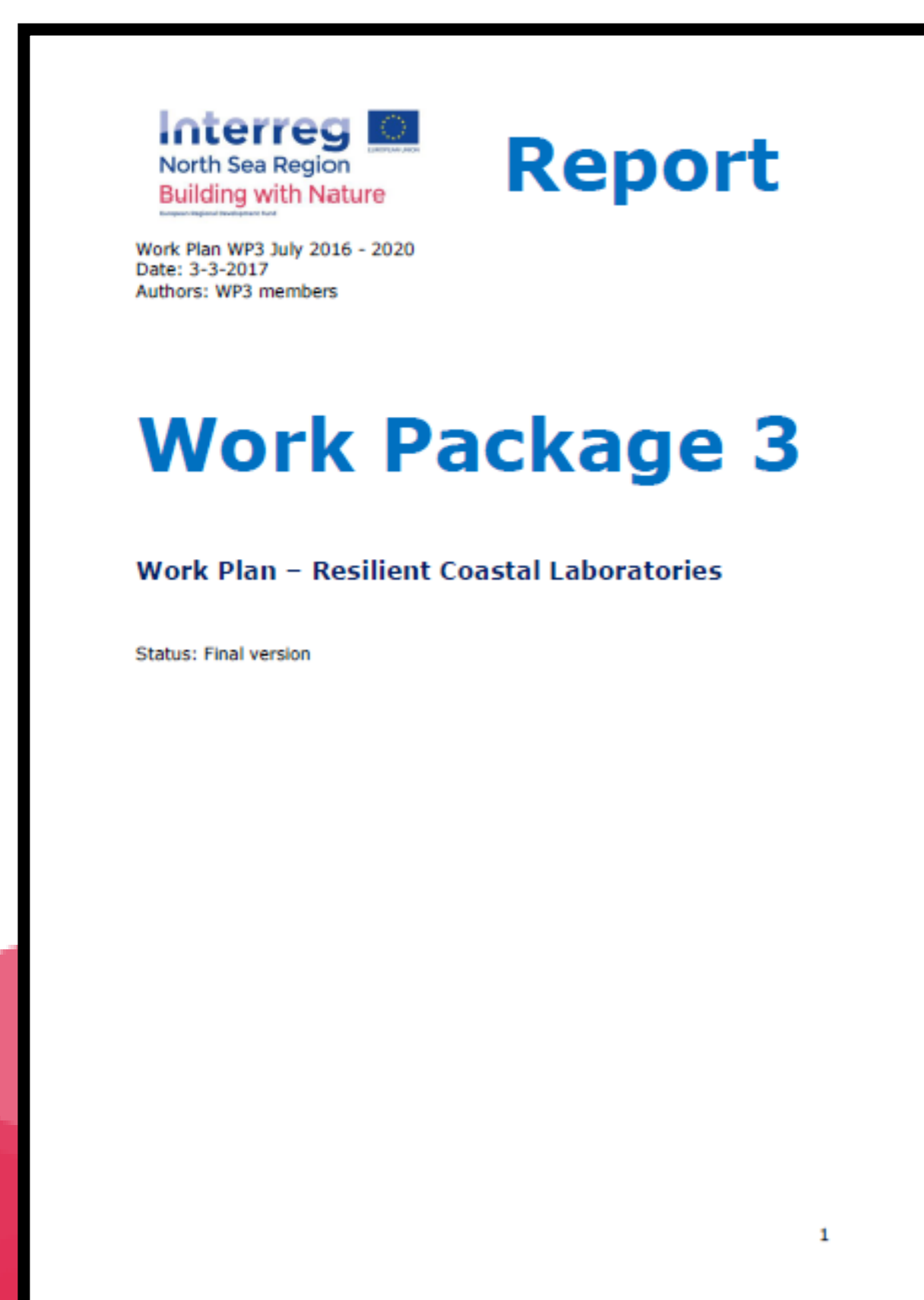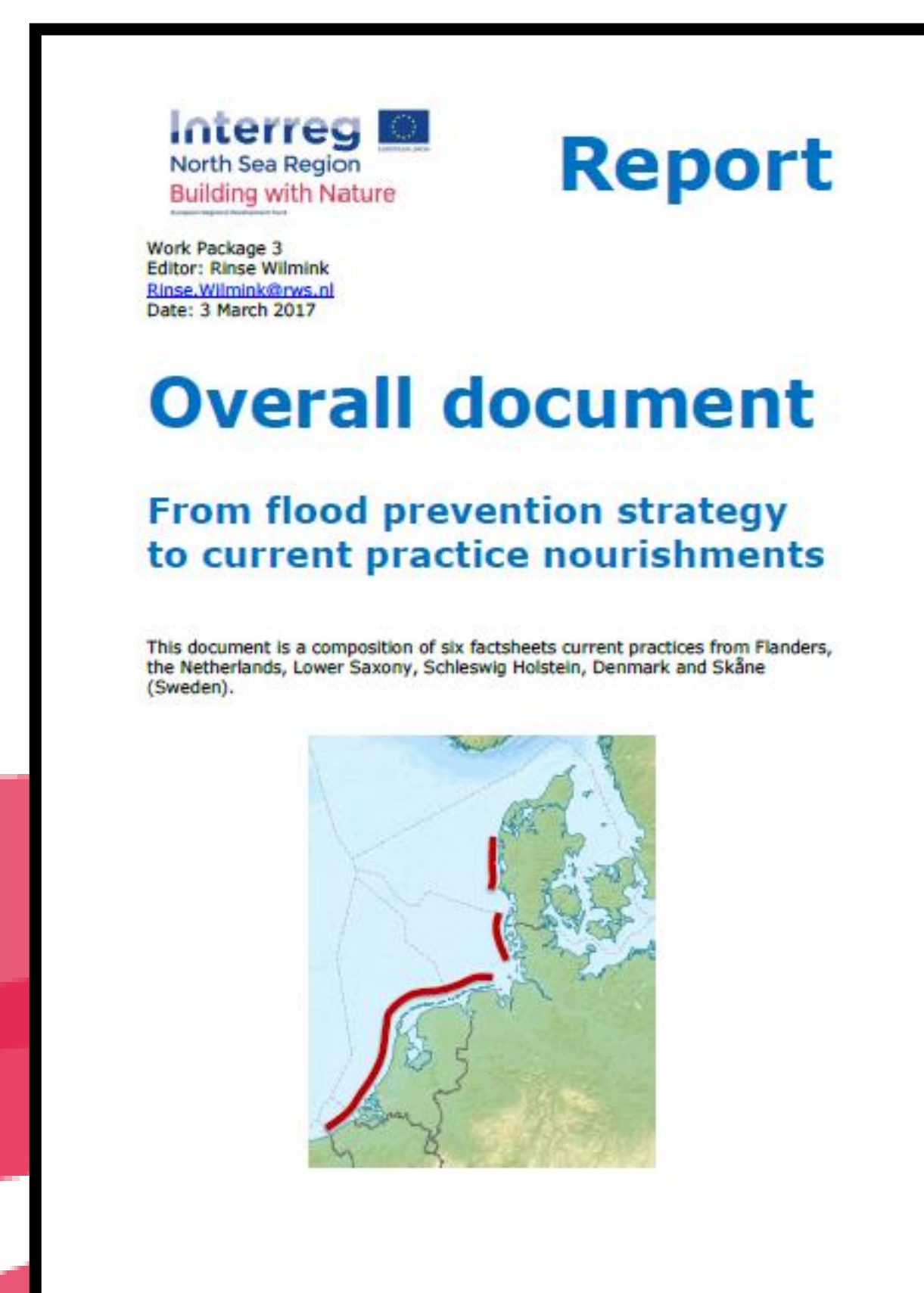

Fig 1: Product 1 - Work plan WP3

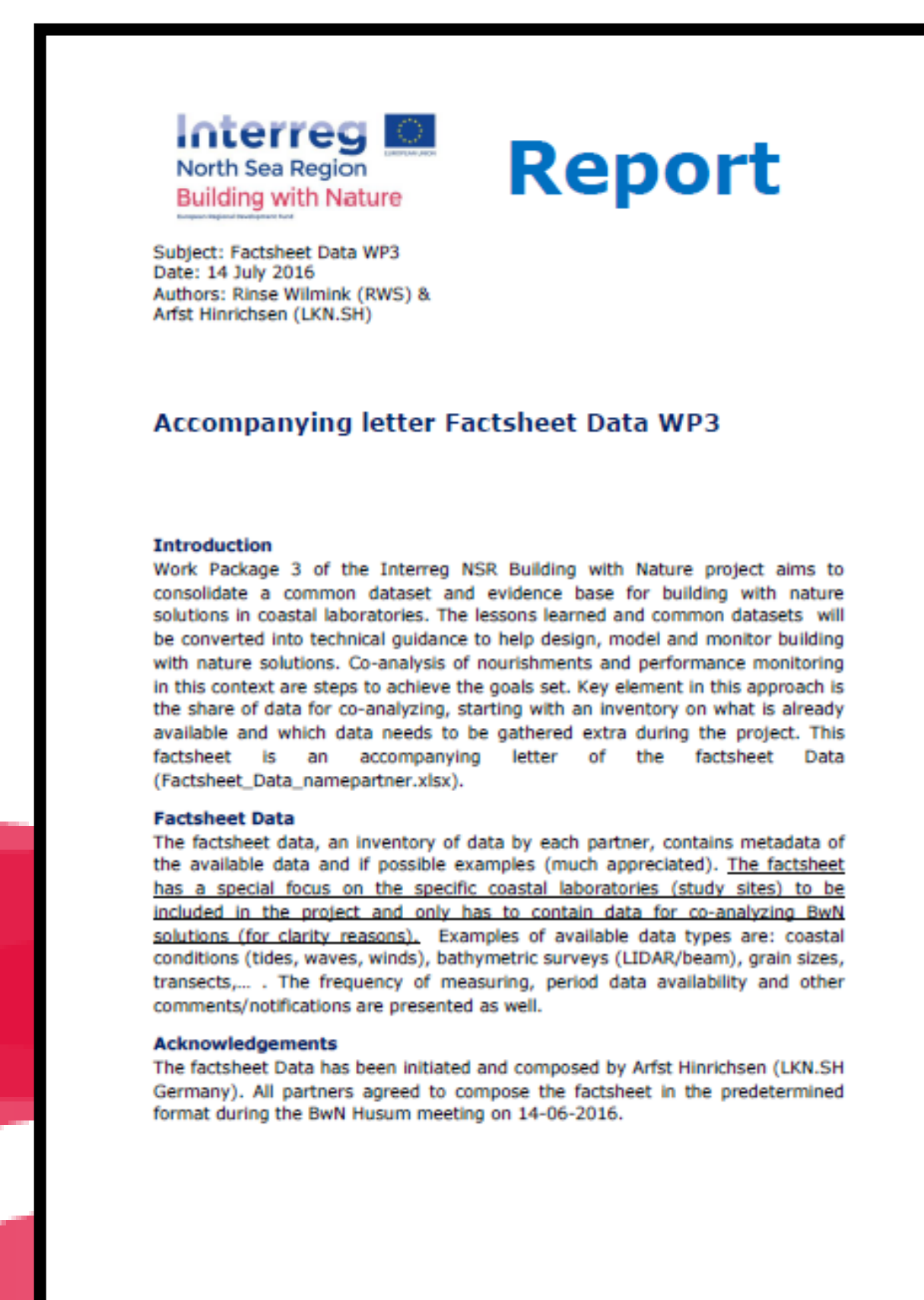Fig 2: Product 2 - Comparison current practices

Fig 4: Product 3 – Factsheet data

Fig 5: Product 4 – Shared methodology co-analyses

[1] Wilmink R.J.A., Lodder Q.J., Sørensen, P (2017), Assessment of the design and behavior of nourishments in the North Sea Region. Proceedings Coastal Dynamics 2017, Helsingør, No. 043, 801-809.