



SIBES Synoptic Intertidal Benthic Survey

Why sample macrobenthos and sediment grain sizes across the entire Dutch Wadden Sea?

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What?

4554 sampling stations are visited annually on the intertidal mudflats and sampled for macrozoöbenthos and sediment grain size.

Additional subtidal samples (n=1979) have been taken using the same sampling protocol. This makes the subtidal samples directly comparable to the intertidal.

SIBES provides statistically robust estimates that can be used to understand intertidal and subtidal macrozoöbenthos populations across the entire Dutch Wadden Sea.

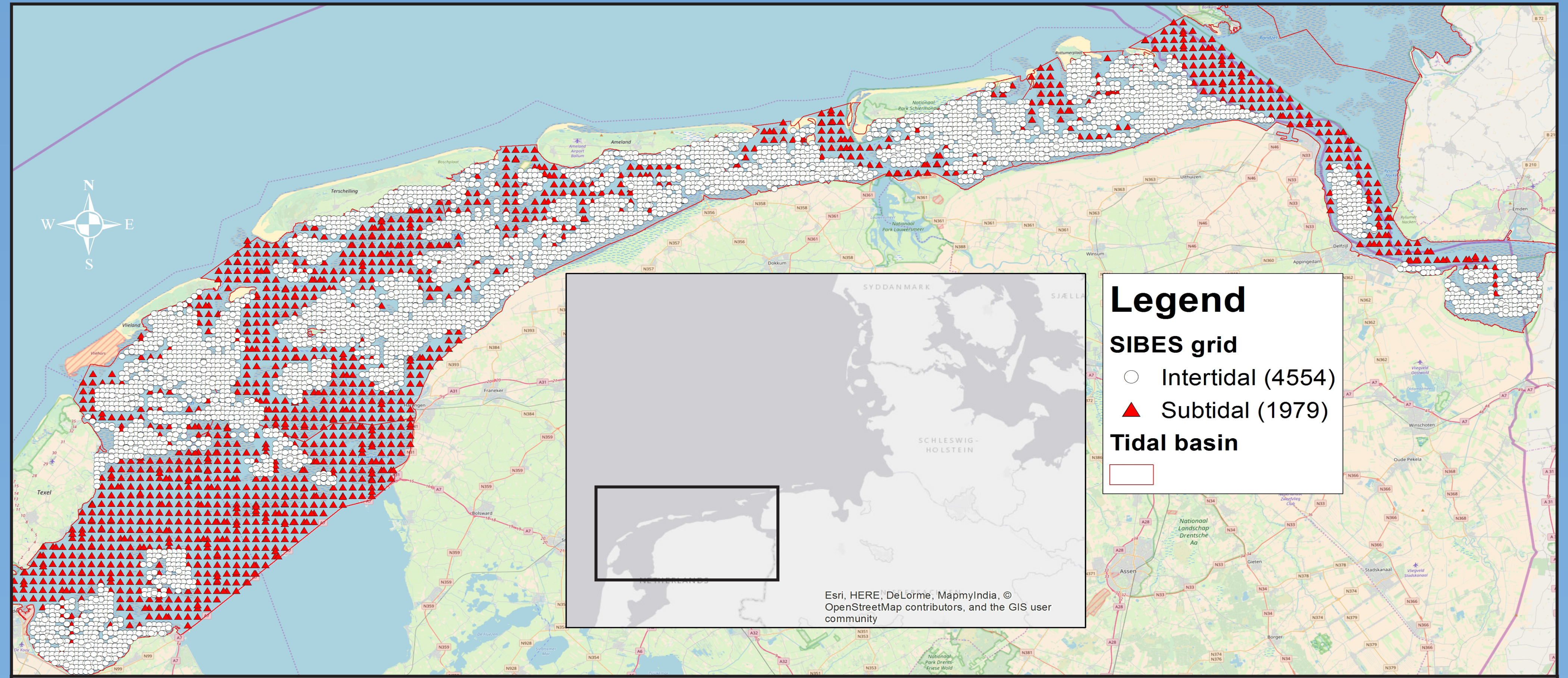


Figure 1. SIBES sampling stations in the Dutch Wadden Sea.

How?

A large team, consisting of scientists, assistants, the crew of RV Navicula, and many students and volunteers, is needed.

The intertidal sampling stations are visited by rubber-boat or by foot. The subtidal samples need to be taken using the Research Vessel and a Box-core. All organisms larger than 1mm are collected. In the laboratory they are identified to species level and their biomass is obtained.

The RV Navicula in combination with a synergistic team is crucial for working in an intertidal environment with ever changing conditions.



Figure 2. Collecting the samples in the field using multiple techniques and processing them in the lab is a real team effort.

Outputs:

- Variations in benthic community and biomass within years (1) and between years (2) (3).
- Understanding food webs (stable isotope analysis) (4).
- Examine potential human impacts due to gas (5) and salt (6) mining and fishing [*Arenicola*, or Lugworm].
- Changes in grain size due to sand suppletion (7).
- Quantify the foraging potential for shorebirds, the Wadden Sea is the most important stopover site on the East Atlantic Flyway (8).
- Following the biotic condition of the Wadden Sea for international obligations i.e. Water Framework Directive and Natura2000.

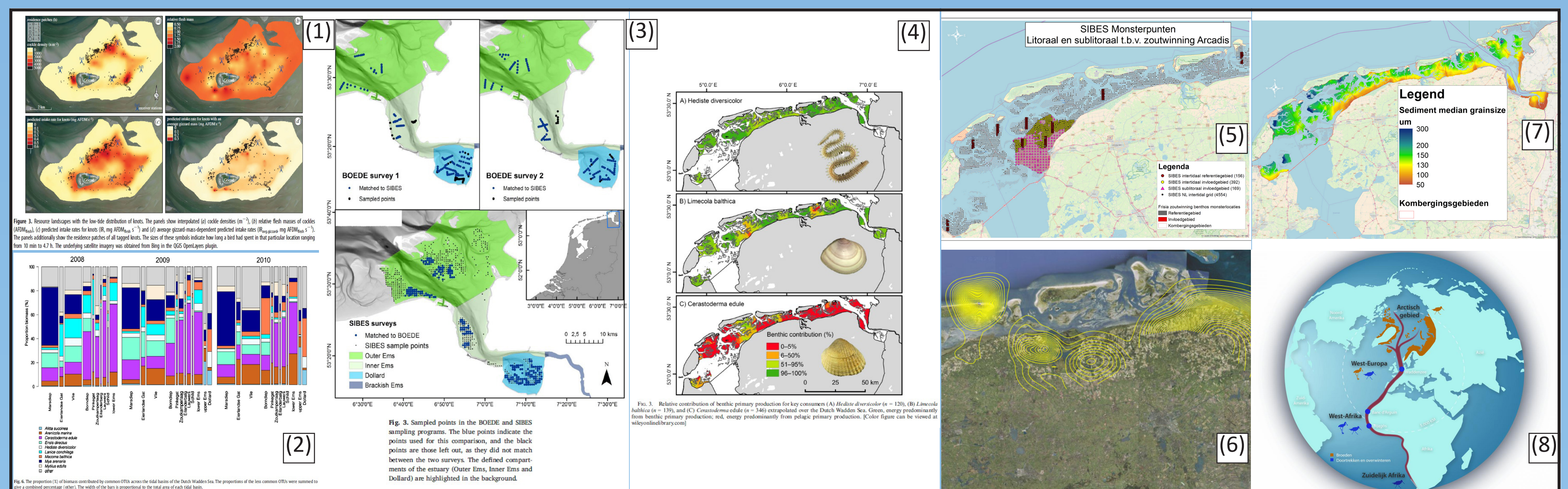


Figure 3. The SIBES data/collection is used in scientific publications, impact assessments, monitoring and management.

Future?

- On the request of the German Nationalpark Niedersächsisches Wattenmeer we have extended our sampling effort into the German Wadden Sea.
- A monitoring of the entire international World Heritage Wadden Sea area could be realized given the support from parties across the trilateral Wadden Sea community.
- The SIBES sampling design and approach has been adopted in other international tidal flat systems with great success (Germany, France, UK, Russia, USA, Mauritania, Oman, Australia and China).

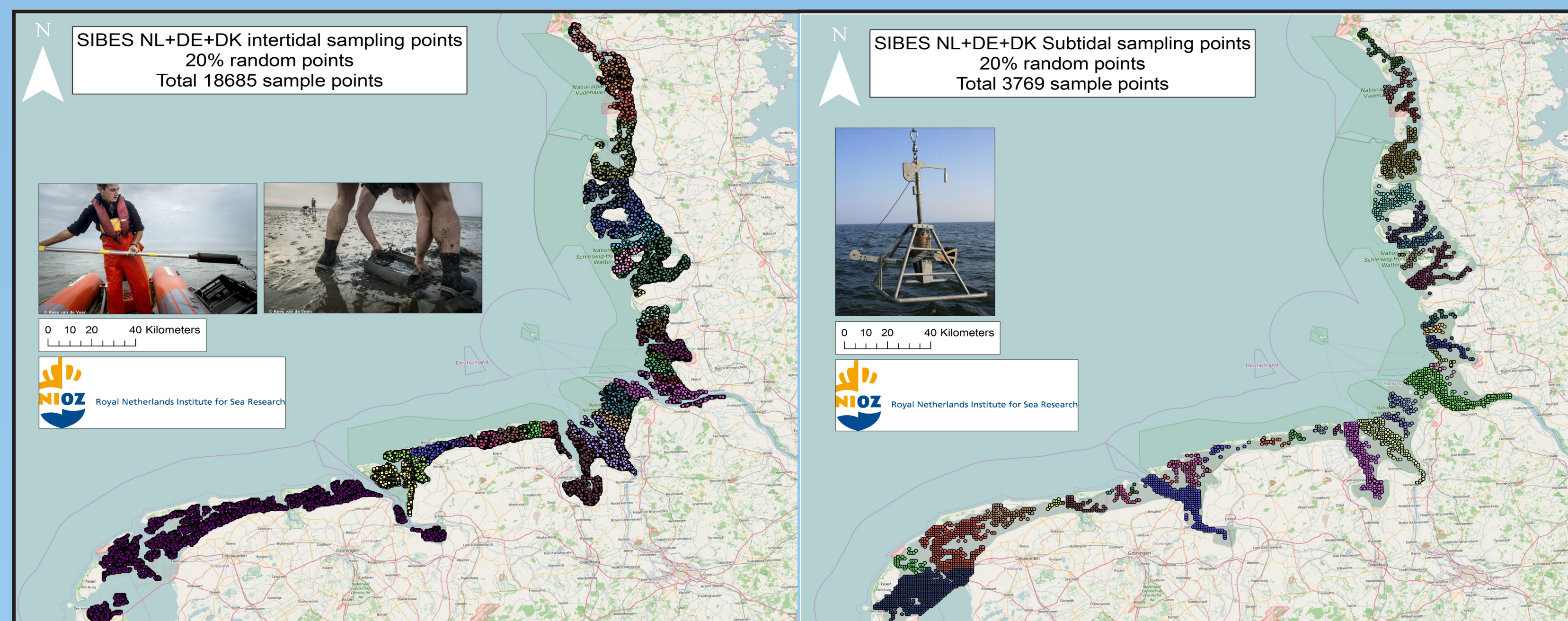


Figure 4. Expanding the SIBES grid for the trilateral Wadden Sea, both intertidal and subtidal.

Acknowledgements

Research programmes like SIBES, with a heavy field and lab component, have a lot of contributors.

We would like to thank them all.

SIBES is made possible by NIOZ, NAM and NWO Sea and Coastal Research (ZKO) funding.

