

Instrumentation for Measurements at the Water Surface

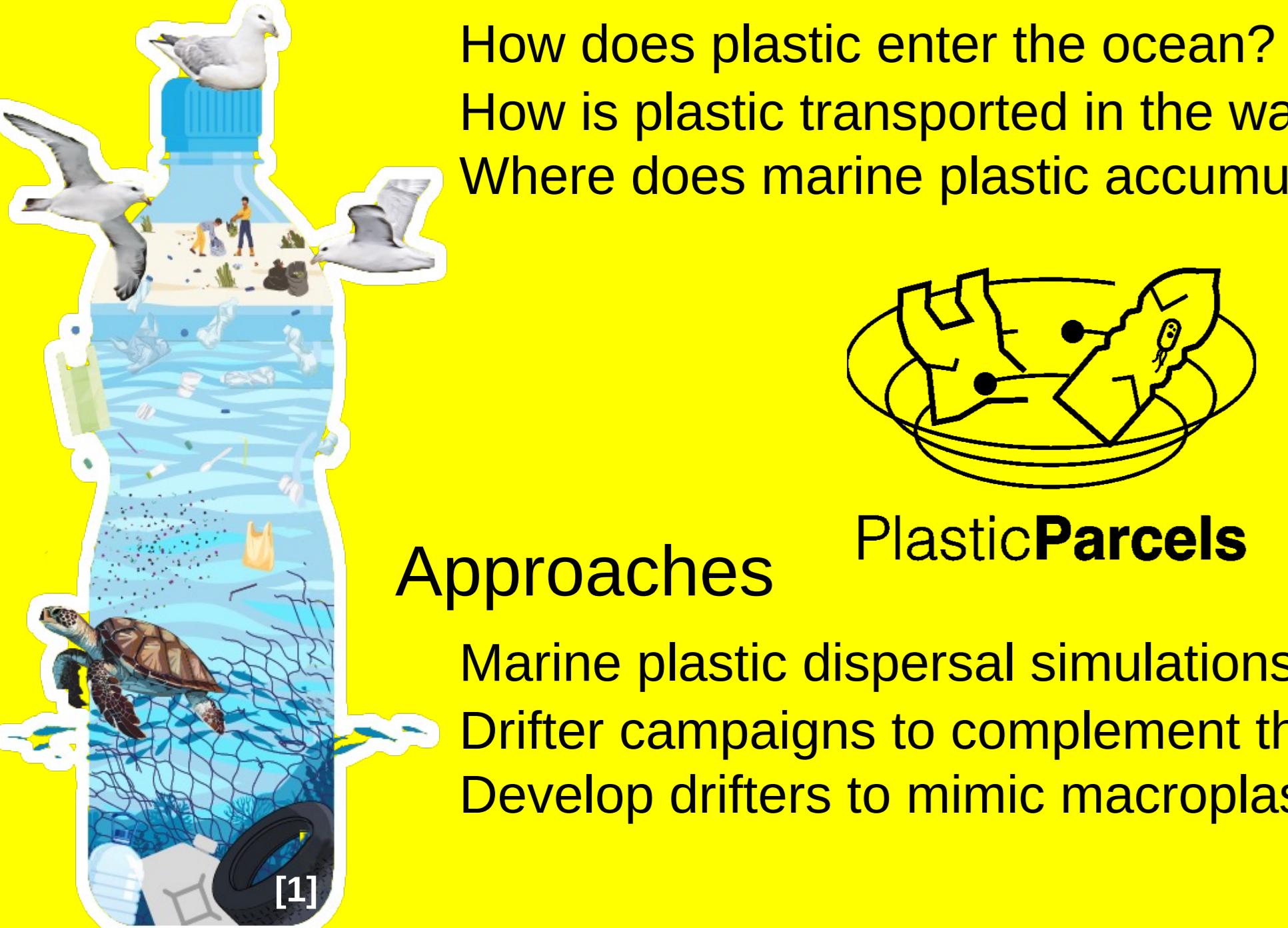
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Tracking Marine Macroplastics

Research questions

- How does plastic enter the ocean?
- How is plastic transported in the water?
- Where does marine plastic accumulate?

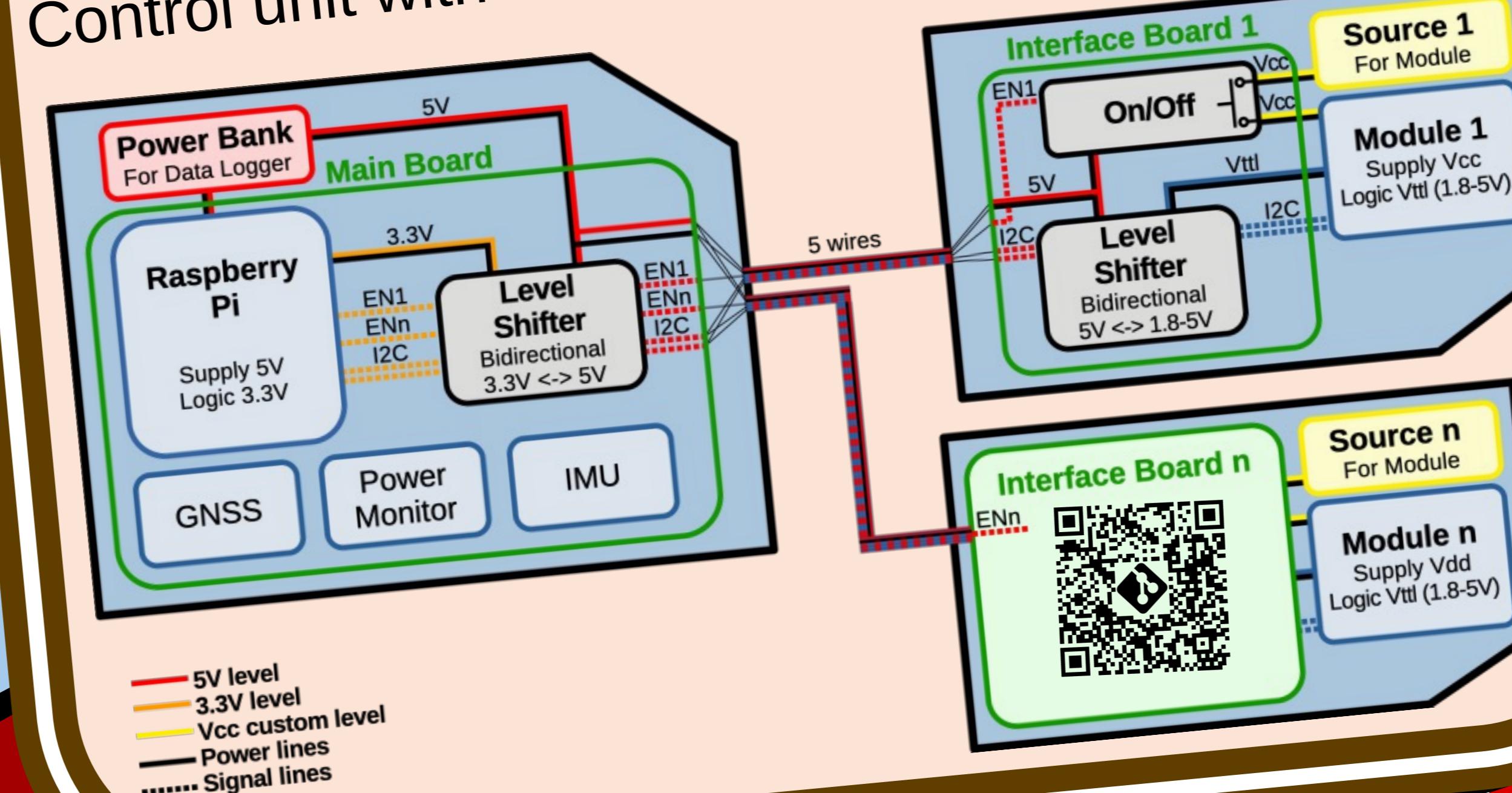


Approaches

- Marine plastic dispersal simulations
- Drifter campaigns to complement theory and simulations
- Develop drifters to mimic macroplastics

Modular Datalogging System

Control unit with I2C interface & digital power switch



Transmission Technologies

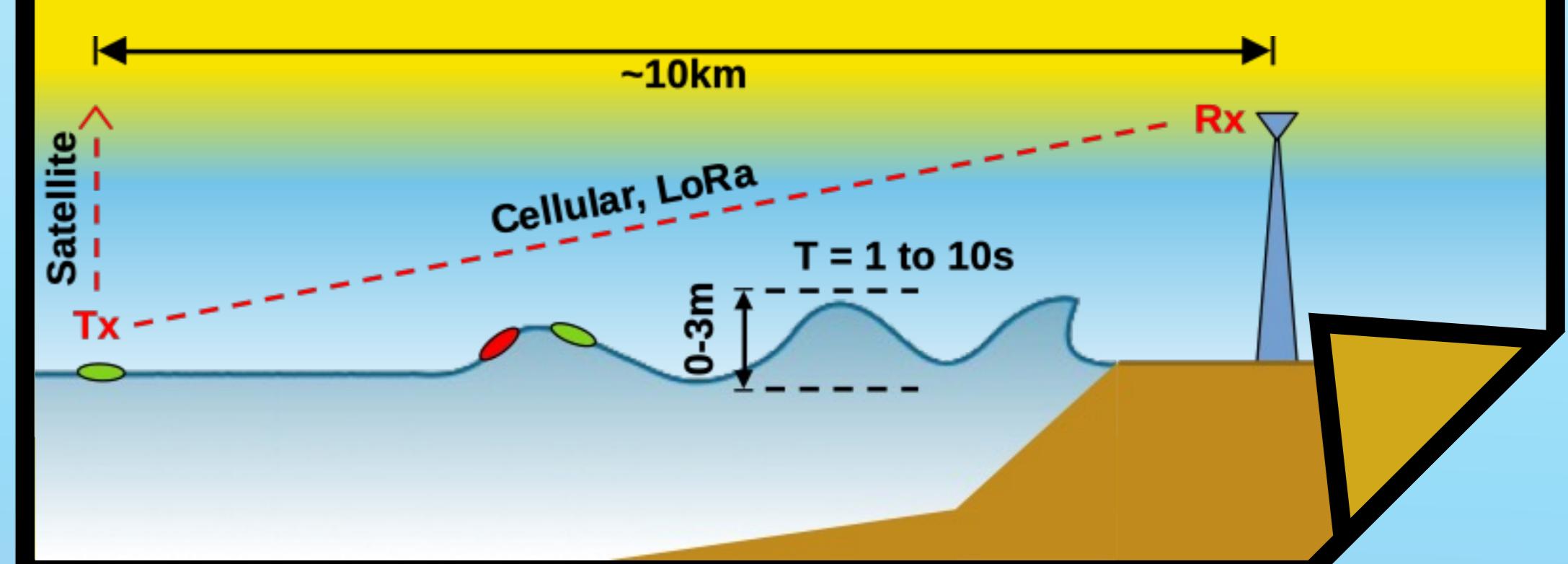
From the water surface to shore

LoRa, Cellular (2G, 4G, ...)

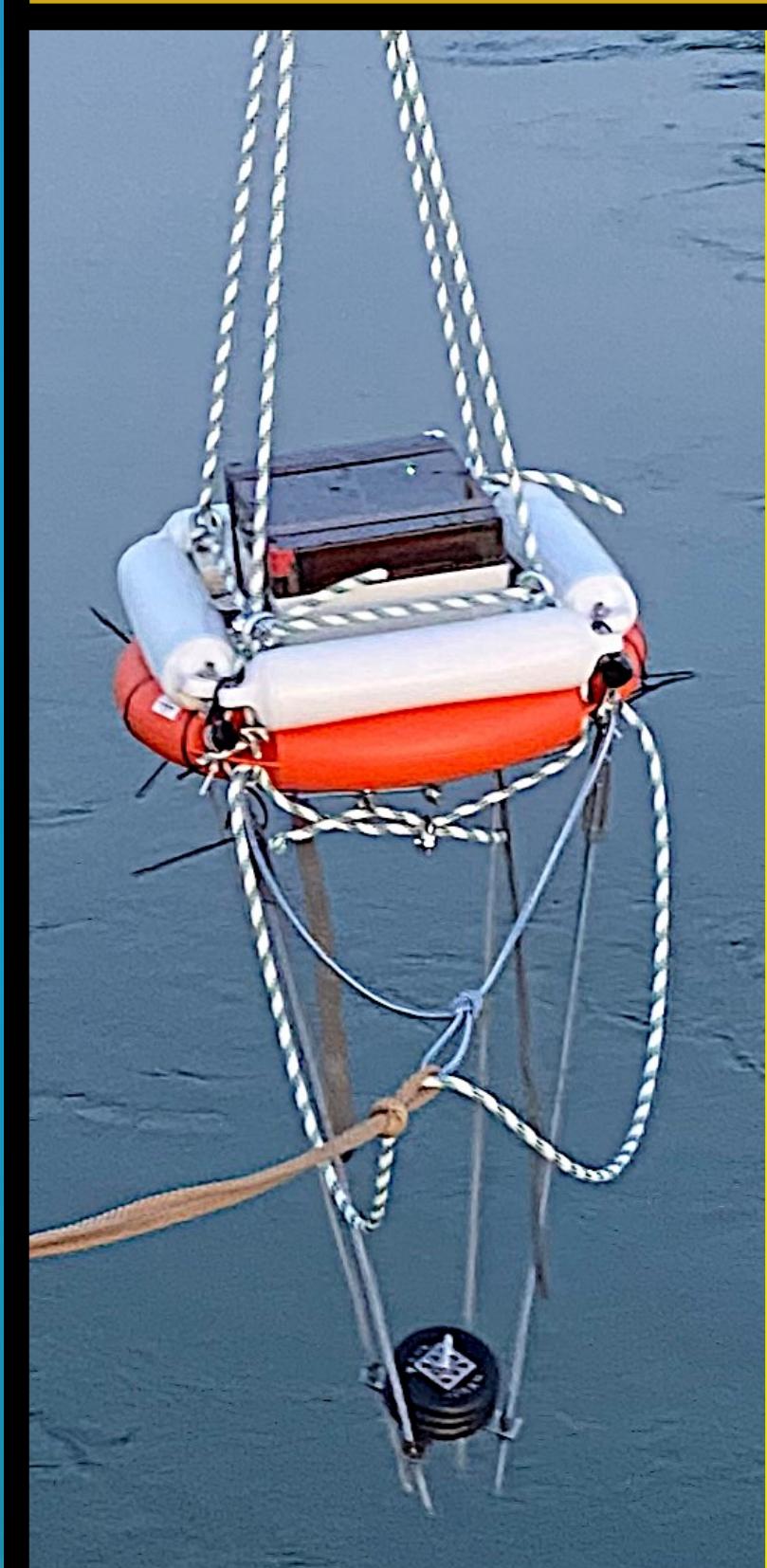
Measuring quality for different

Sea conditions

Distances from coast



DIY Buoy



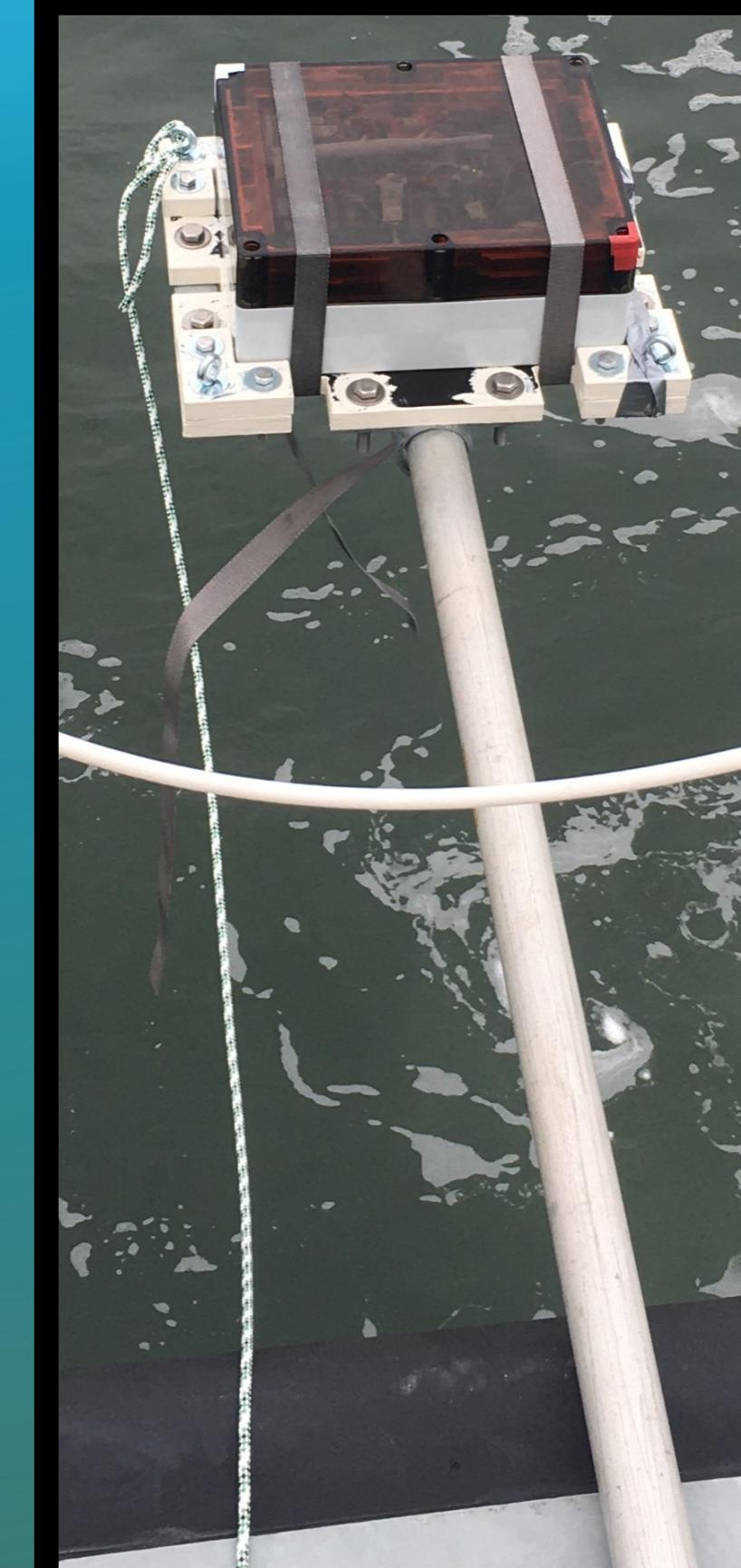
Floating platform of 30x24cm

Adjustable dynamics
Float (fenders)
Counterweight (weights, position)

Dimensions: 1m tall, 0.6m wide

Design goals
Ease of assembly
Ease of transport
Common materials

Floating Waterproof Testbed



Volume 30x24x12cm

Carrier system to position
On water surface by tolling
In-air close to ship deck

Internal mounting
Acrylic plastic plates
Cut with laser cutter

Example use case
Datalogger
Transmission modules
IMU, GNSS,
Power Monitor



Utrecht
University

TU Delft

Lili's Proto Lab

NWO

[1] Figure modified, OSPAR, <https://www.ospar.org/>

[2] Campaign 2023 in Wadden Sea, <https://doi.org/10.5281/zenodo.14199027>