The current ecological situation in the Markermeer is not optimal. The lake, transformed into a freshwater lagoon, is affected by a high input of nutrients, leading to an algal bloom and an oxygen deficit due to oxygen deficiency. These changes result in poor ecological conditions for fauna and flora and vegetation.

The general wind orientation is south-west, thus in case of storm surges, breakwaters are needed. Large waves negatively affect the growth of waterplants.

The planned island group MarkerWadden, based on Vista Landscape Architecture and urban planning, with Svasek Hydraulics - Houtribdijk MarkerWadden, takes into account the Houtribdijk that aids in the recovery of the Wadden Sea.

In what manner can an architectural intervention alongside the MarkerWadden enhance the spatial quality, attractiveness, and the current ecological situation of the Markermeer?

The proposed architecture is twofold; it houses an ecological research and monitoring centre for involved institutions and a visitors centre.

The design concept incorporates matters of sustainability that are best suited for the context, programme and location. It will be showcased with the best possible projection of the future MarkerWadden realisation.

The design concept includes the following sustainability features:

1. Providing shade on the south-west orientation
2. Orientation on the exact south for optimal solar energy
3. Angles between 10 and 30 degrees to the south
4. First dam to optimize the existing waterflow
5. Aided sedimentation process of the MarkerWadden
6. Dam extension to generate a sedimentation process
DELTA INTERVENTIONS
WADDENRITME
HET MARKERWADDEN CENTRUM

As part of the Delta Interventions Studio, the Marker Wadden Centre is designed with a functional section focusing on research centre and lab work. The building features a roof partly covered with PV panels, providing sustainable energy. The structure also includes features such as metal cladding and wooden columns, contributing to both the aesthetic and structural integrity of the design. The main entrance route towards the site is highlighted, emphasizing accessibility and user experience.

Exploded view of structure:
- PV panels / polycarbonate roof cover
- Laminated wooden roof structure
- Stretched metal glass facade panels
- Wooden beam floor / slat floor
- Wood / mixed surface
- Aluminium window frames
- Wooden column
- Steel stability frame
- Wooden / fascia / packed beam / slat / slabs
- Facade panels / concrete precast
- Base / concrete floor / concrete foundations
As part of the Delta Interventions studio.

TU Delft

Entrance hall of the research centre. In the back, the auditorium.
DELTA INTERVENTIONS
WADDENRITME
HET MARKERWADDEN CENTRUM

DETAIL 5
1: GLASS CEILING PRINCIPLE
2: WATERPROOF FIXATION + RUBBER
3: ALUMINUM PROFILES, FIXATION PIN
4: STEEL BEAM
5: ALUMINUM WINDOW FRAME, STEEL BEAM
6: THIN ROBEX WOODEN FAÇADE PANELS
7: FIXATION PROFILES
8: NATURAL VENTILATION SYSTEM

DETAIL 4
1: FACADE PANEL - CONCRETE
2: FINISHING OVERLAY PIECE
3: ALUMINUM WINDOW (W=Glass FRAME)
4: ADDITIONAL FIXATION CUP
5: WATERPROOF - INSULATION LAYER
6: BRIK/WORK BALASTED STEEL
7: THIN PLASTER FINISHING
8: CONCRETE, AERATED
9: FIXATION PROFILES, AERATED CONCRETE
10: BRIK/WORK BALASTED STEEL

DETAIL 3
1: STRETCH METAL + GLASS FACADE PANEL, INSTALLATIONS ZONE
2: INSTALLATIONS, AIR HANDLING UNIT, EXHAUST PART
3: STRETCH METAL + GLASS FACADE PANEL
4: AIR EXHAUST
5: WOODEN-FLOOR
6: ZWARTSTROOM PANEELS INSULATION
7: CEILING PANELS = POLYCARBON, TRANSLUCENT
8: ALUMINUM FRAME
9: THIN STEEL BEAM
10: STEEL FIXATION FRAME
11: INNER FINISHING PANEL
12: WOODEN COLUMN, MAIN CONSTRUCTION
13: STRETCH METAL + GLASS FACADE PANEL
14: STEEL BEAM-TO-BEAM CONNECTION
15: WOODEN BASKETWEAVE ROOF STRUCTURE
16: PV PANELS POLYCARBON PANELS, ROOF COVERING
17: LAMINATED WOODEN BEAM
As part of the Delta Interventions Studio, the Markerwadden Centre with possible Houtribdijk passage - connecting with the monitoring zone, for regulated water exchange and inlet.