In the year 1990 nearly all mussel beds in the Wadden Sea had disappeared. While in the eastern part of the Dutch Wadden Sea the beds have restored, restoration in the western part did not occur. In order to investigate mussel bed stability and chances for restoration in the western part of the Wadden Sea project Mosselwad was started. At UU we research the relation between hydrodynamical forcing and mussel bed stability. Here we show that for the mussel bed at De Cocksdorp, Texel there is a clear relation between wave forcing and the spatial distribution of mussel cover.

**Field Measurements**

**Focussing on:**
- Establishing model parameters.
- Determining bed stability
- Studying hydrodynamics in detail.

Each year during fall
1.5 month

**Modelling**

- Wave model (SWAN)
- Calibration with field data

**Creating input grids**

Mapping to model grid:
- DGPS height map
- RWS data
- Mussel coverage
  Grids with small grid spacing near and inside mussel bed.

**Boundary conditions**

- Sea side wave heights
- Sea side wave period
- Sediment properties
- Wind (KNMI)

**Calibration**

Measurements of:
- Wave heights
- Wave direction
- Orbital velocities

**Results**

Wave forcing decreases over bed and increases shore ward of the bed.

Study on bathymetry before mussel settlement shows:
Sea side edge of the mussel bed coincides with wave force (orbital velocity) minimum.

**Mussel bed located in optimal location with respect to wave forcing**