

To summarize...

- ✓ Seals were more abundant on sandbanks distant to dyke due to space availability, differences in sandbank structure and distance to human activity
- ✓ Seals at sandbank close to dyke were disturbed by pedestrians; Separations were due to environmental and maternal factors.
- ✓ Behavioural response commotion was most frequent due to lower level of energy costs during lactation period.



And now?

Future conservation

needs to consider

- approach distance and human behaviour,
- disturbance perception and sensitivity in harbour seals, and
- physiological effect of disturbance on an individual and the population in the Wadden Sea.



Questions left?

Please do not hesitate to contact me!

Contact: Julia Groothedde
julgr784@googlemail.com



Mother-pup interaction and the impact of anthropogenic disturbance in wild harbour seals (*Phoca vitulina*)

Julia Groothedde
Master's Thesis (2011)
Supervisor: Per Jensen



Background

Harbour seals haul out (=come ashore) in order to rest, breed and moult. For breeding, seals use inter-tidal sandbanks within estuarine environments, e.g. Dutch Wadden Sea, because they are available only at low tide. Eems-Dollard is the only Dutch Wadden Sea core breeding area, consisting of eight major haul-out sites. During the 30-day lactation period seal females care for only one pup at a time and transfer a substantial amount of energy to their pups in form of lipid-rich milk. How do they manage? Females use both stored energy and energy from supplemental feeding, and therefore lose 32% of the body mass they had before birth. Undisturbed haul-out sites and long exposure times are essential for pup growth and survival. Thus if females need to breed close to human activity, this could increase the risk to be exposed to anthropogenic disturbance (= caused by humans).

Why was this study done?

Aim was to get information about

- ? abundance of harbour seals in the Eems-Dollard (How many and where?)
- ? behaviour of mothers and pups (What do they do?)
- ? disturbance in this area (What is disturbing? How often does it happen? Effect?)

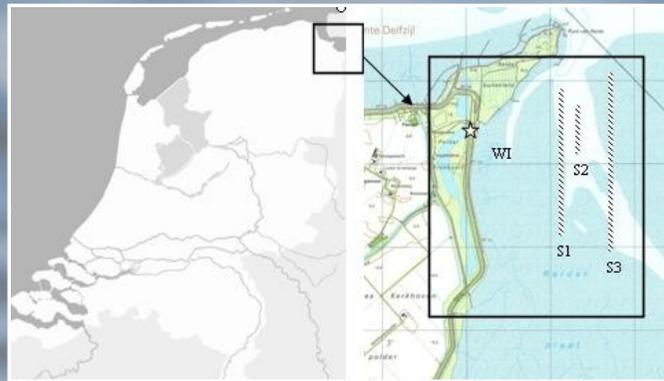


Fig.1 Map of Netherlands and Eems-Dollard (square=research area, star=point of observation, shaped line=sandbanks)

How was it done?

Methods

Time frame: May – July 2010

Observation time: 6 hours (low tide)/day,
app. 4 days/week

In total: 40 days; 227 hours



Material

- 1) Telescope and binoculars,
- 2) weather adjusted clothes

... and a lot of patience to do observations during every weather condition, e.g. storm or extreme heat



Results

1. Abundance

How many seals were where?

- composite picture; different age and sex
- increased towards peaks in June
- sandbank close to dyke longest time emerged
- seals more abundant distant to dyke

2. Mother-pup interaction

- mostly inactive
- mothers initiated more frequently interactions
- suckling durations did not differ between pairs

3. Disturbance

- most frequent pedestrians; important: group size, distance to the seals, human behaviour

- Separations: none after anthropogenic disturbances, but due to environment. Reunions of mother and pup recorded

- most frequent behavioural response was commotion (= head up, looking around)

