



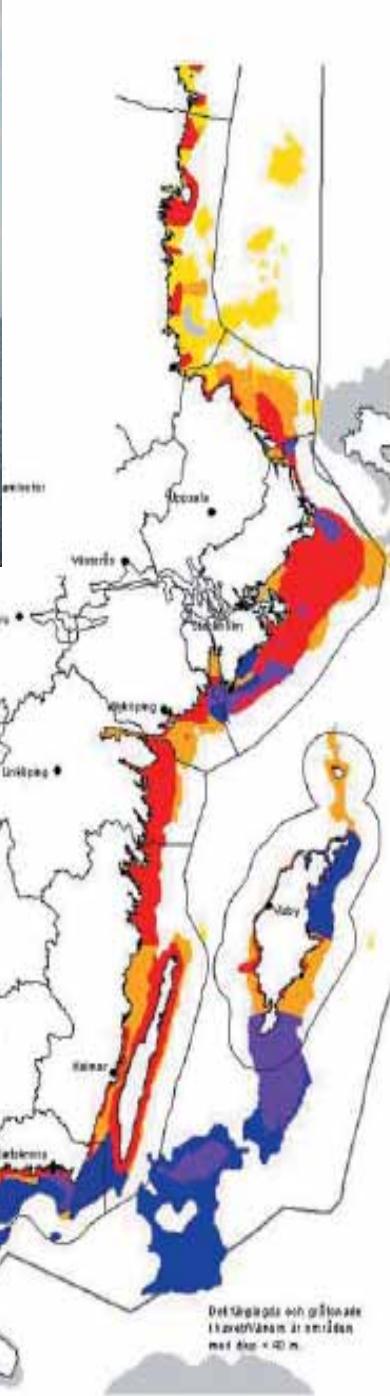
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Offshore-windmills and seaducks in Sweden

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Planning for offshore windmills in Sweden

Planning areas

Other interests involved

No other interests

Should not be used

Nature conservation interests

Other interests

Both

Offshore windmills in Sweden in different stages of planning



■ Klocktärnan, 120 – 180MW

■ Väktaren, 60MW

■ Storgrundet, 120 – 180MW

■ Klasården, 42MW

■ Utgrunden II, 90MW

■ Kårehamn, 50MW

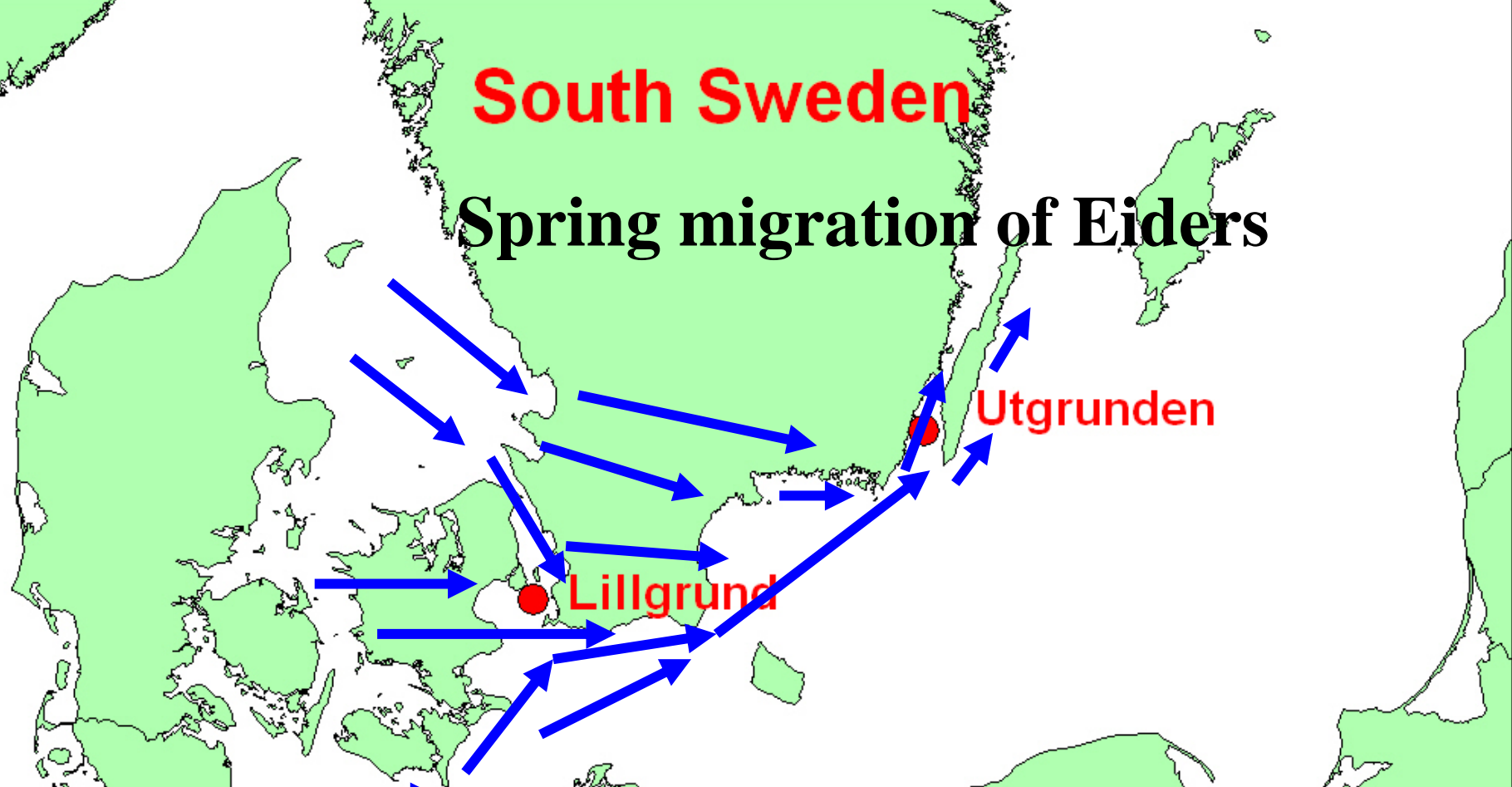
■ Skottarevet, 90 – 150MW

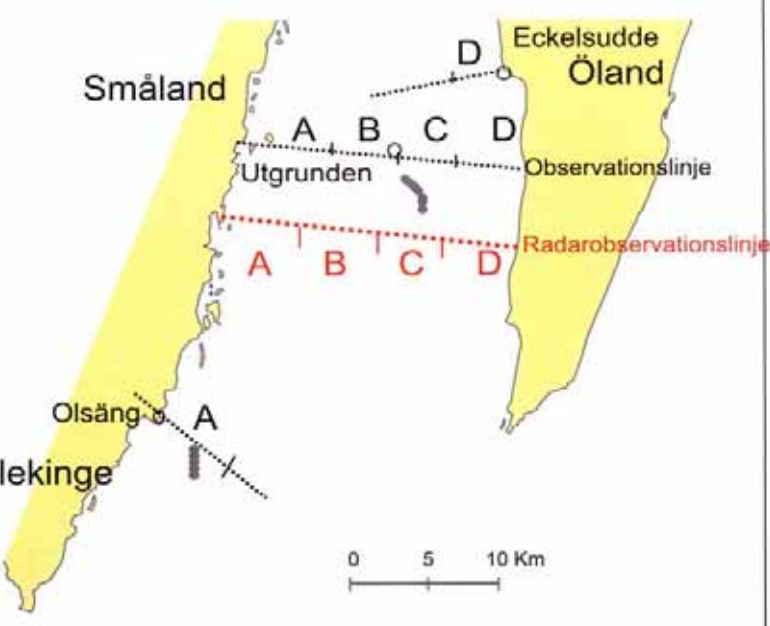
■ Lillgrund, 120MW

■ Kriegers Flak, 640MW

South Sweden

Spring migration of Eiders

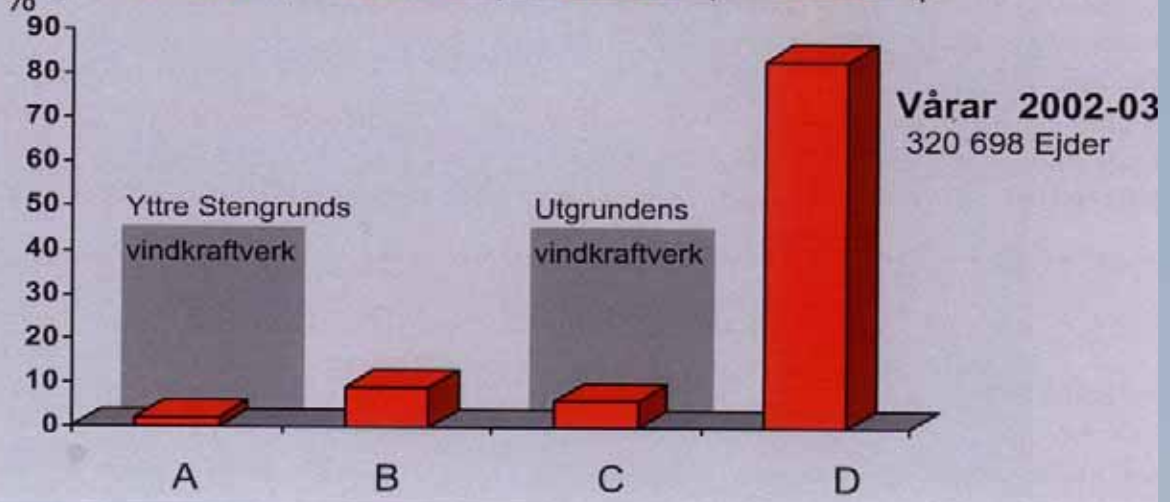
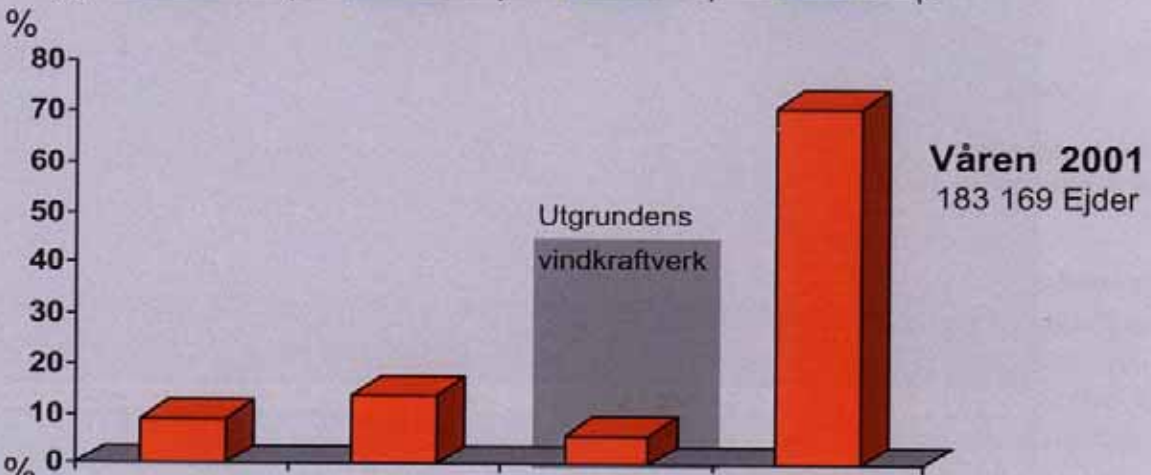
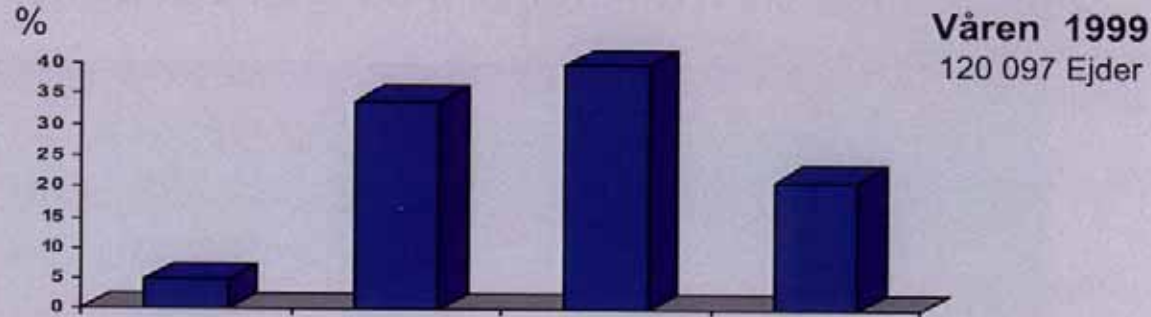
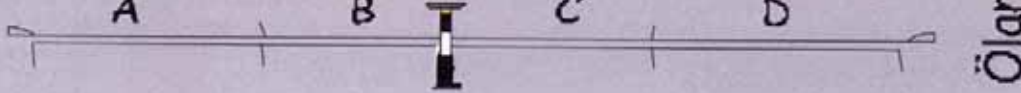




Utgrunden Kalmarsund

Seaduck Research

1. Radar studies of seabird migration (mainly eiders)
2. Visual observations of migration.
3. Behavioural studies of the reactions of flying seaducks close to the windmills (Incl. mortality risks)
4. Behavioural observations of (feeding activity) seaducks close to the windmills

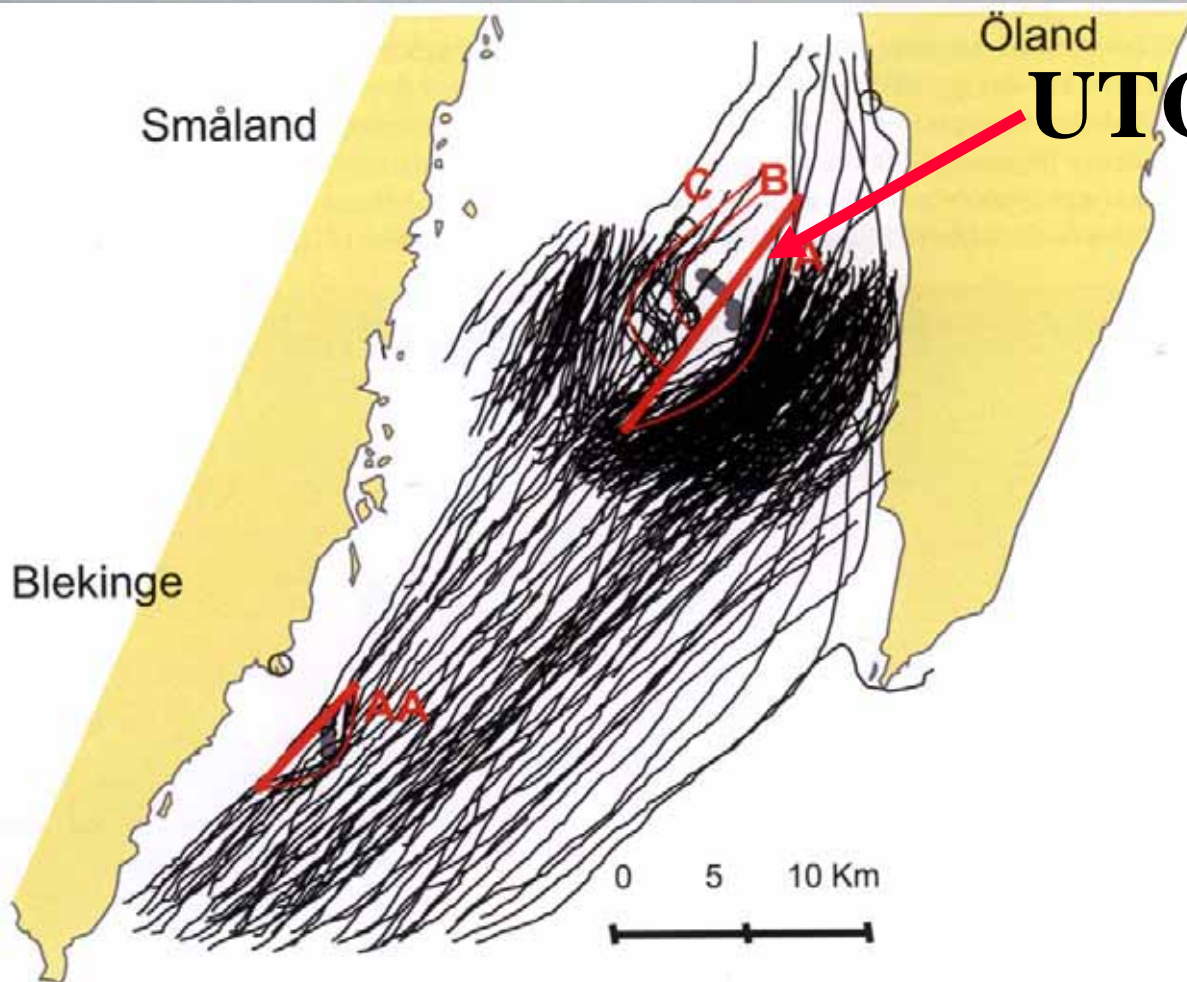


Eider migration in four zones of Kalmarsund before and after building of windmills





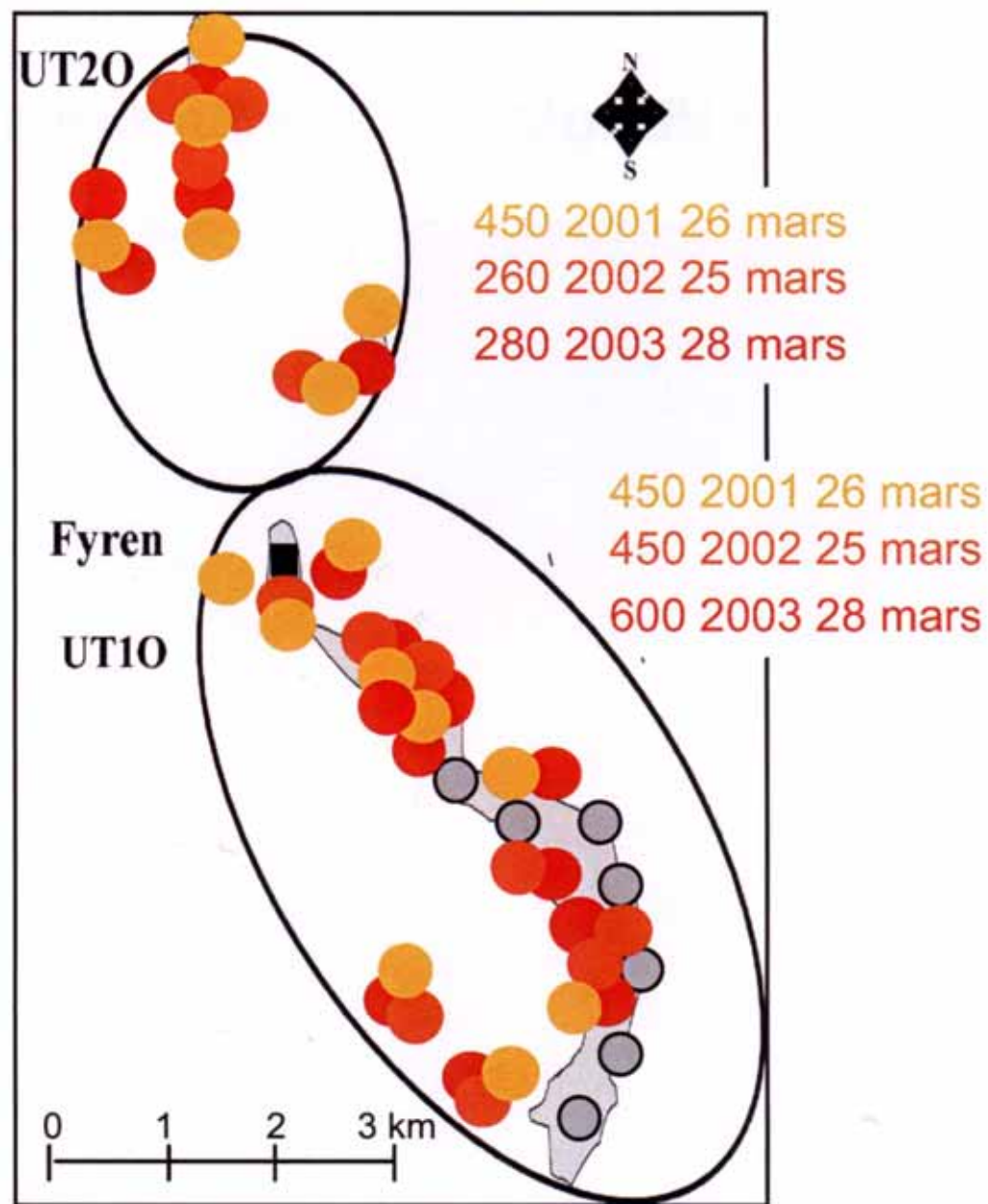
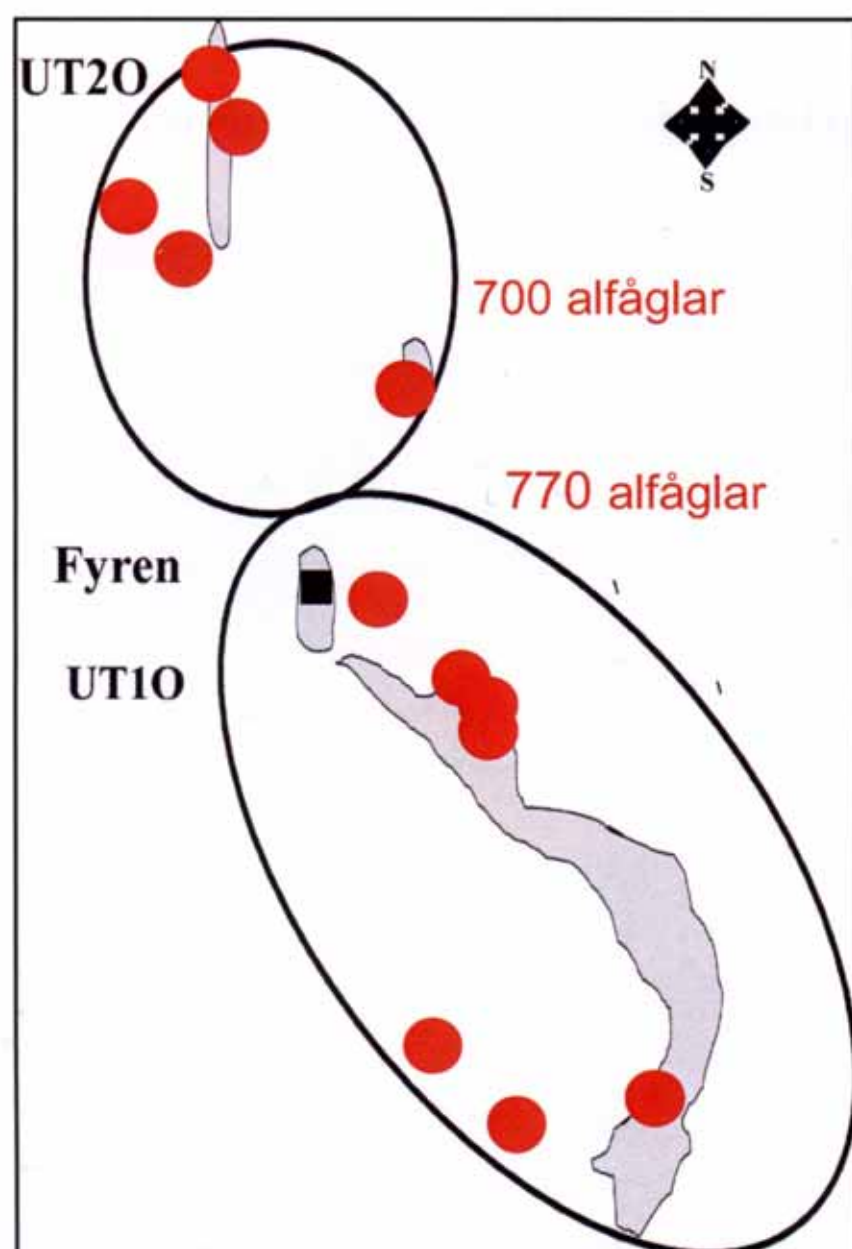
Eider spring migration Kalmarsund



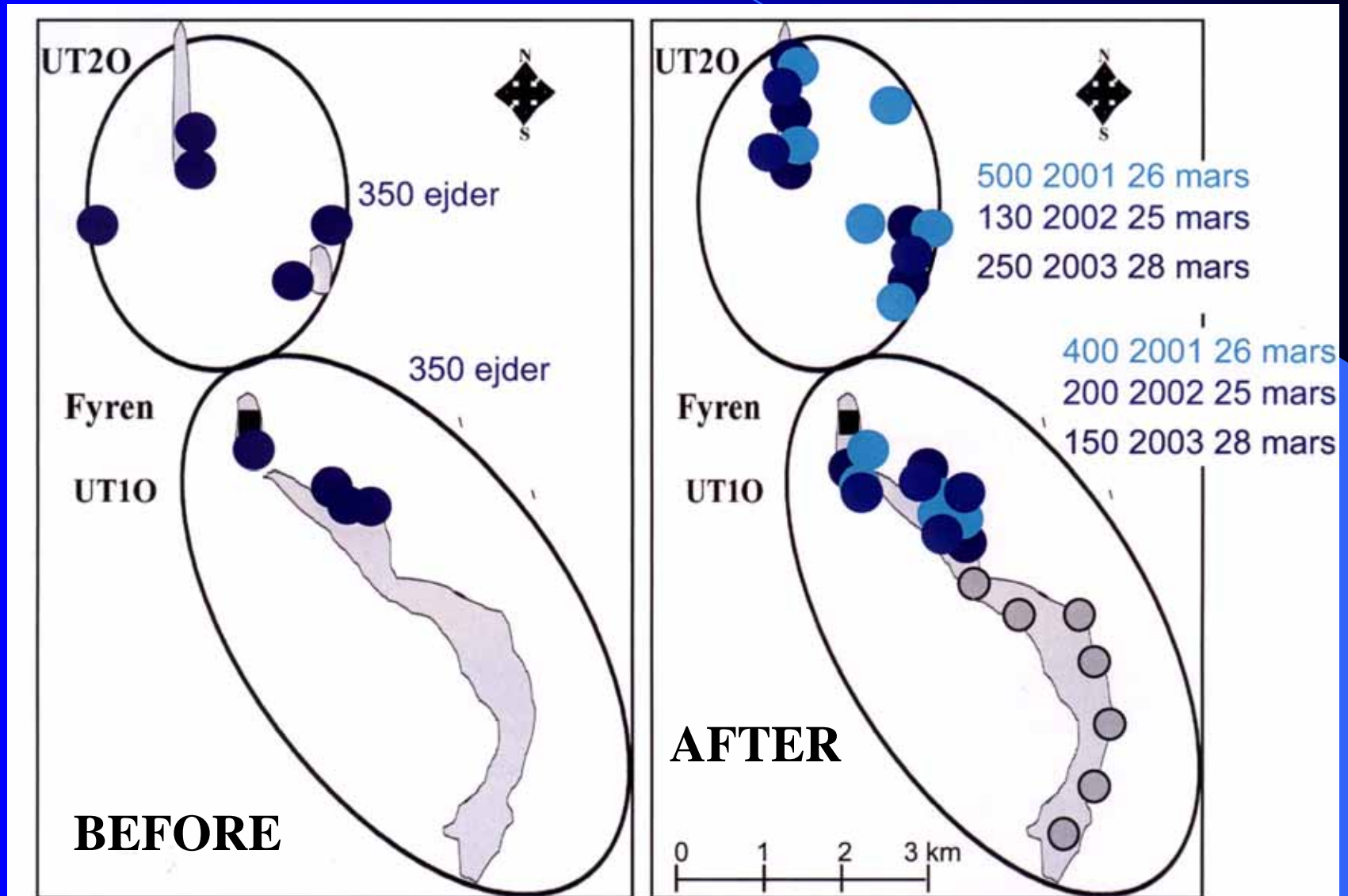
UTGRUNDEN



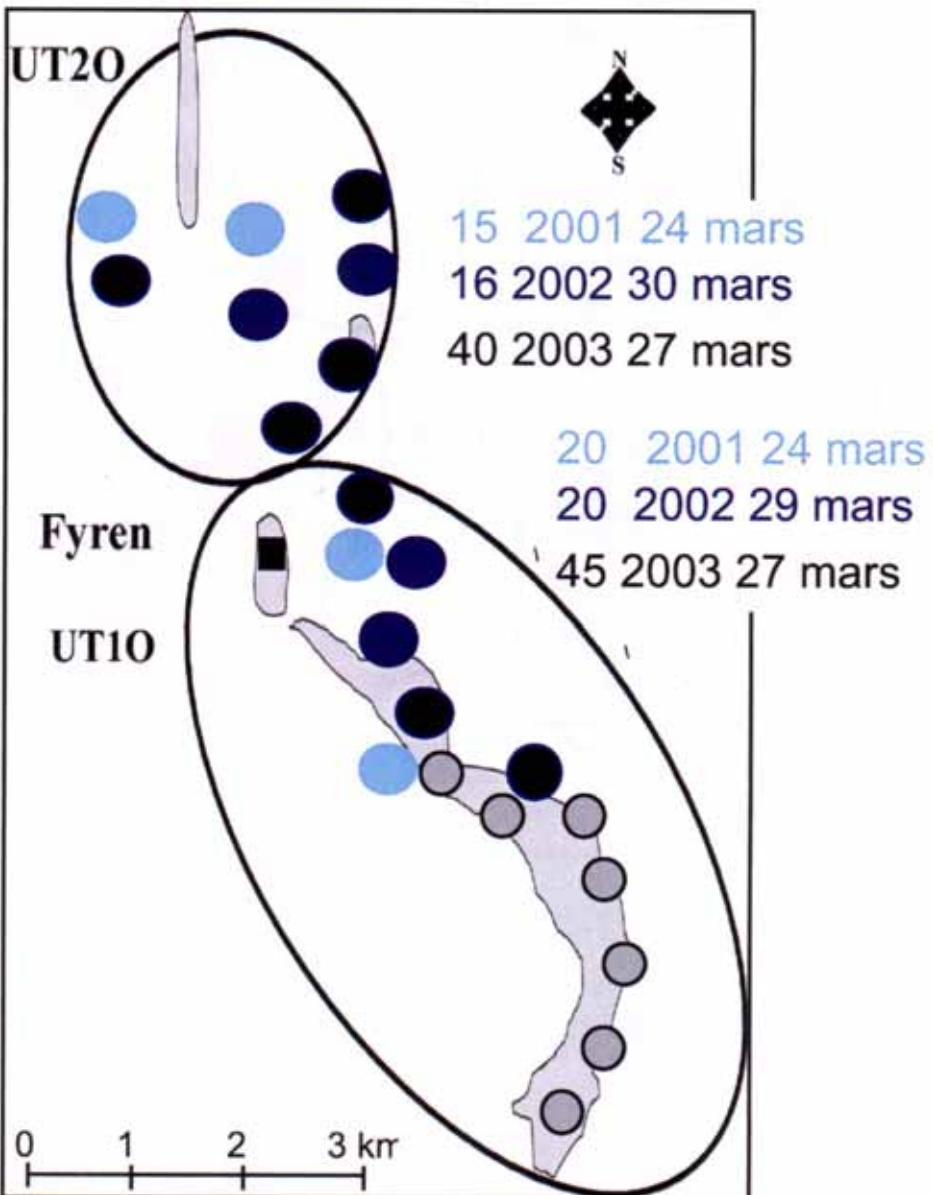
Clangula hyemalis Utgrunden



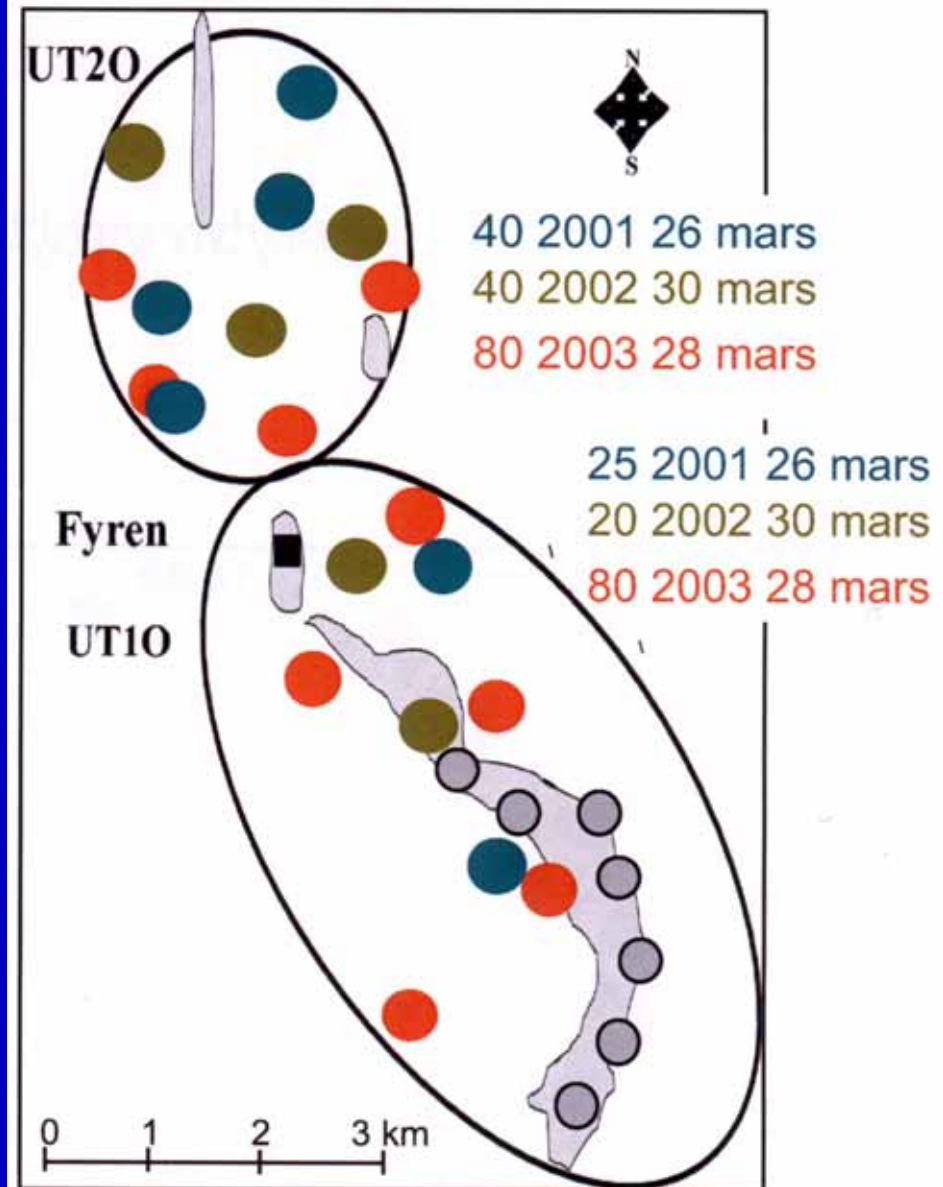
Eiders *Somateria mollissima* at Utgrunden

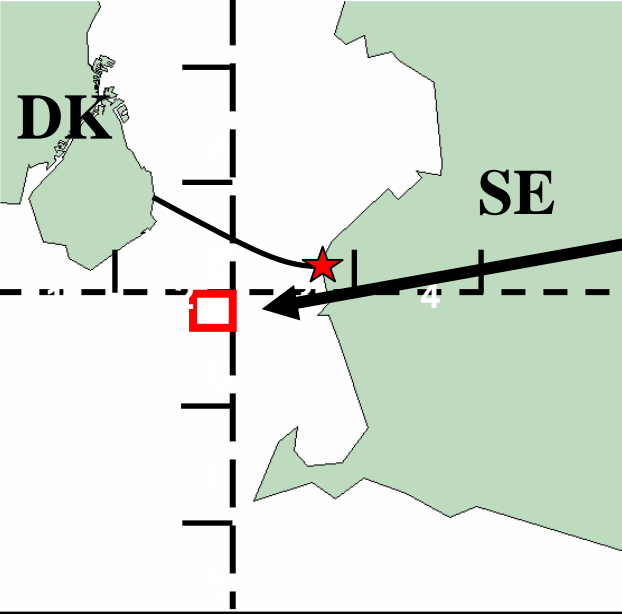


Melanitta nigra



Mergus serrator





Lillgrund, Öresund

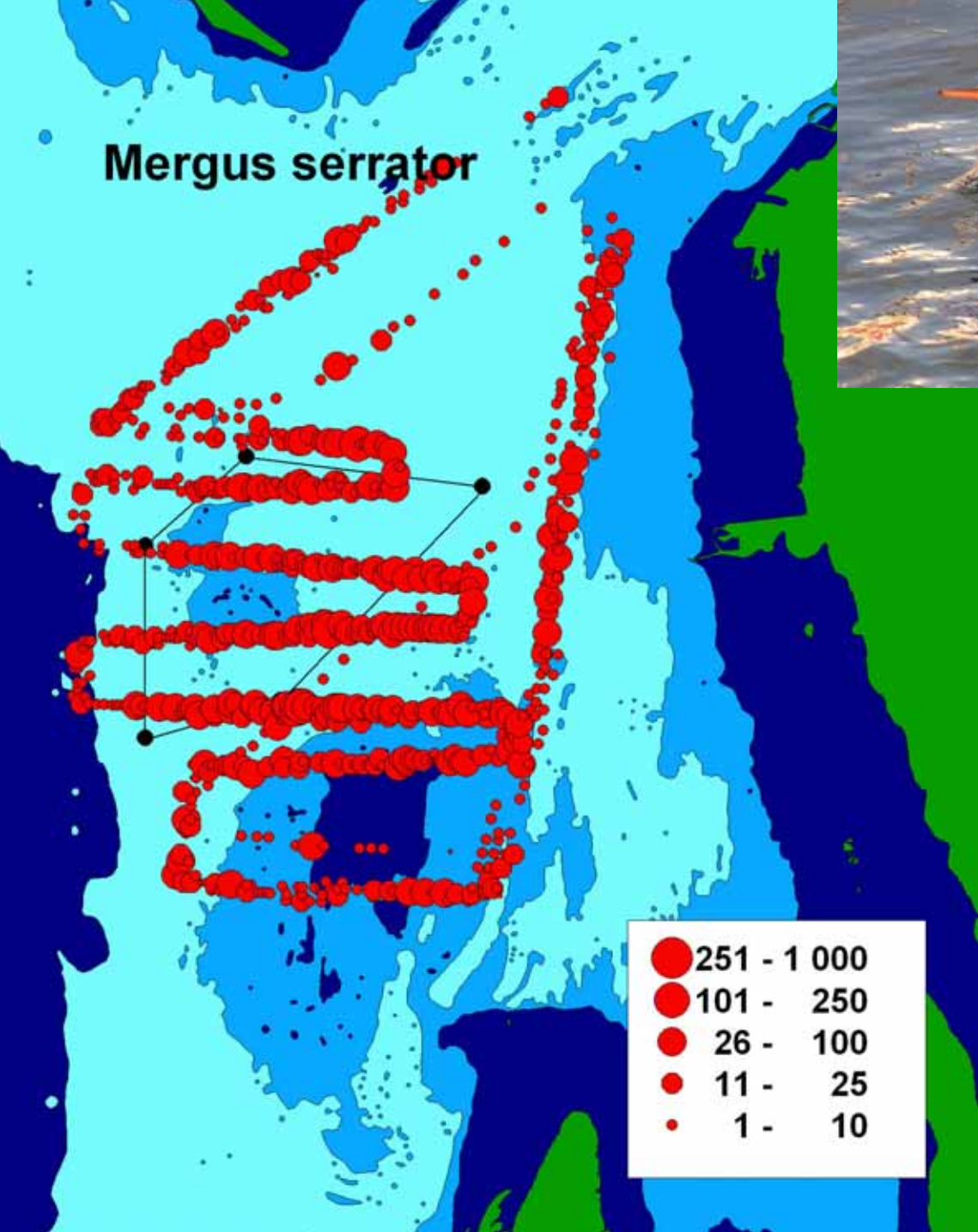
Impact assessment

(3 years before/after)

- 1. Radar studies of migration (surveillance and tracking)**
- 2. Visual observations of migration (incl. Behaviour)**
- 3. Boat surveys in the area. Regional aerial surveys.**
- 4. Behavioural observations of flying birds after establishment of the plant (incl. mortality risks).**
- 5. Feeding ecology of seaducks in cooperation with benthic studies.**



Mergus serrator

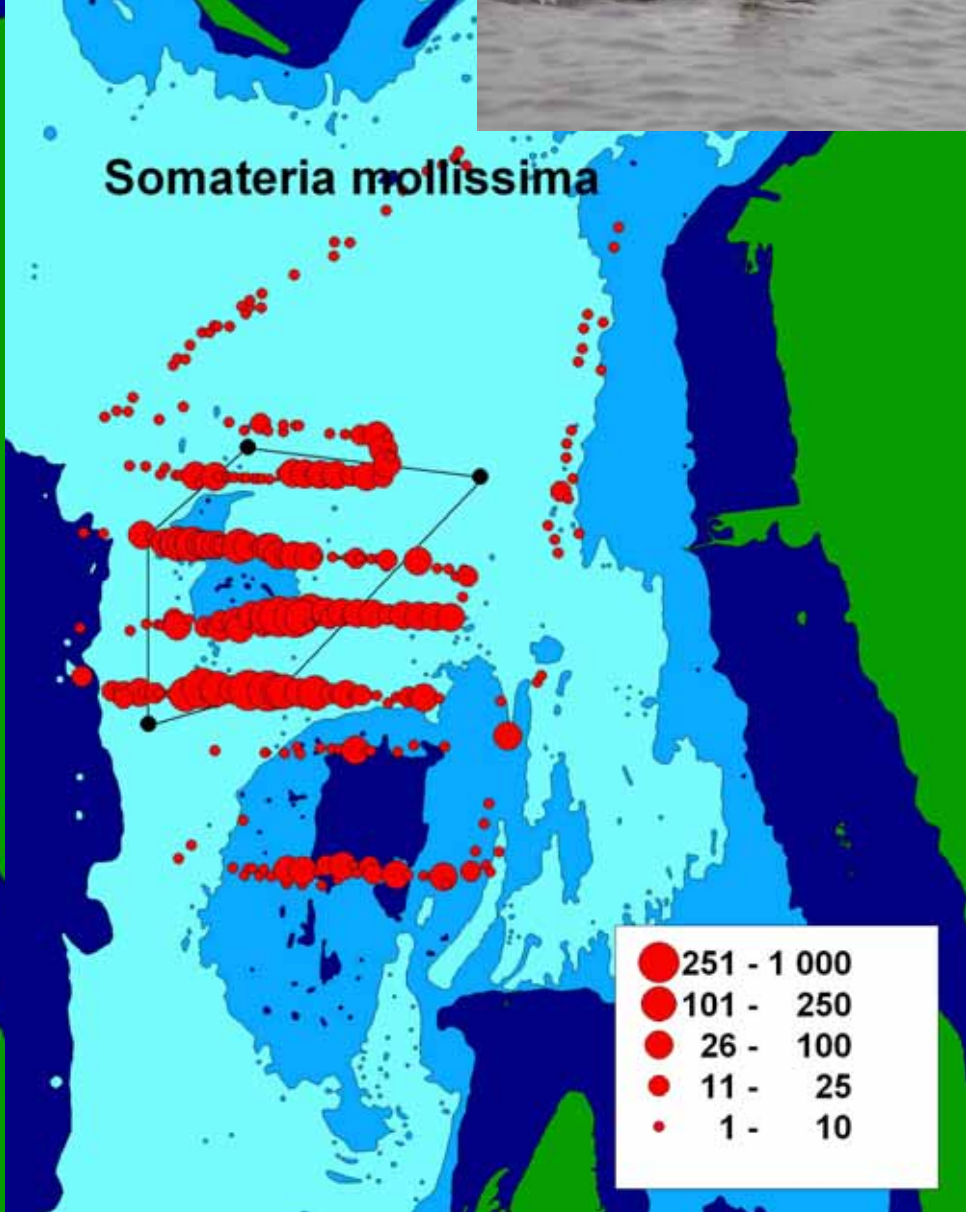
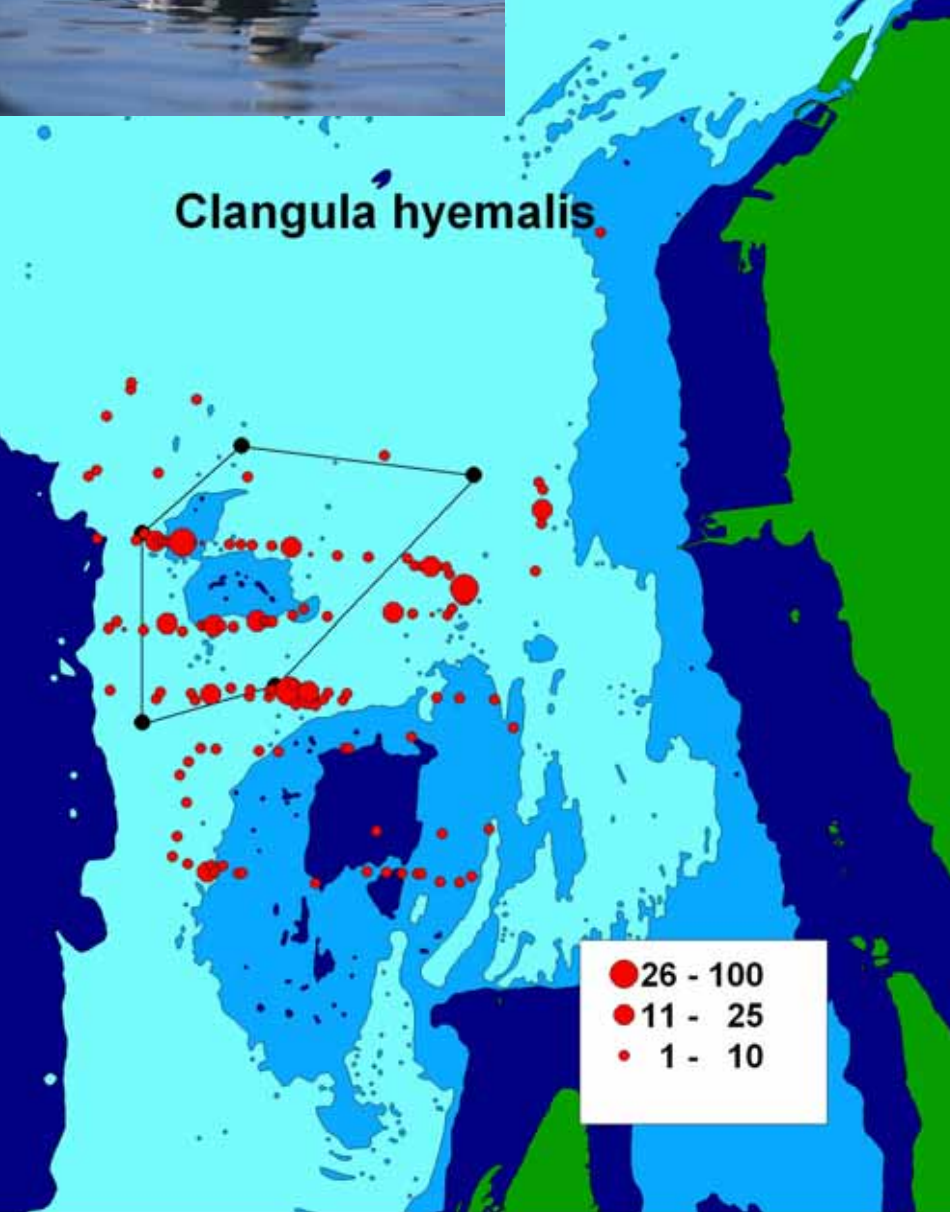


**Accumulated totals
from 10 boat surveys**



Clangula hyemalis

Somateria mollissima



Possible conflicts between seaducks and windmills in the Swedish Baltic areas

Key species

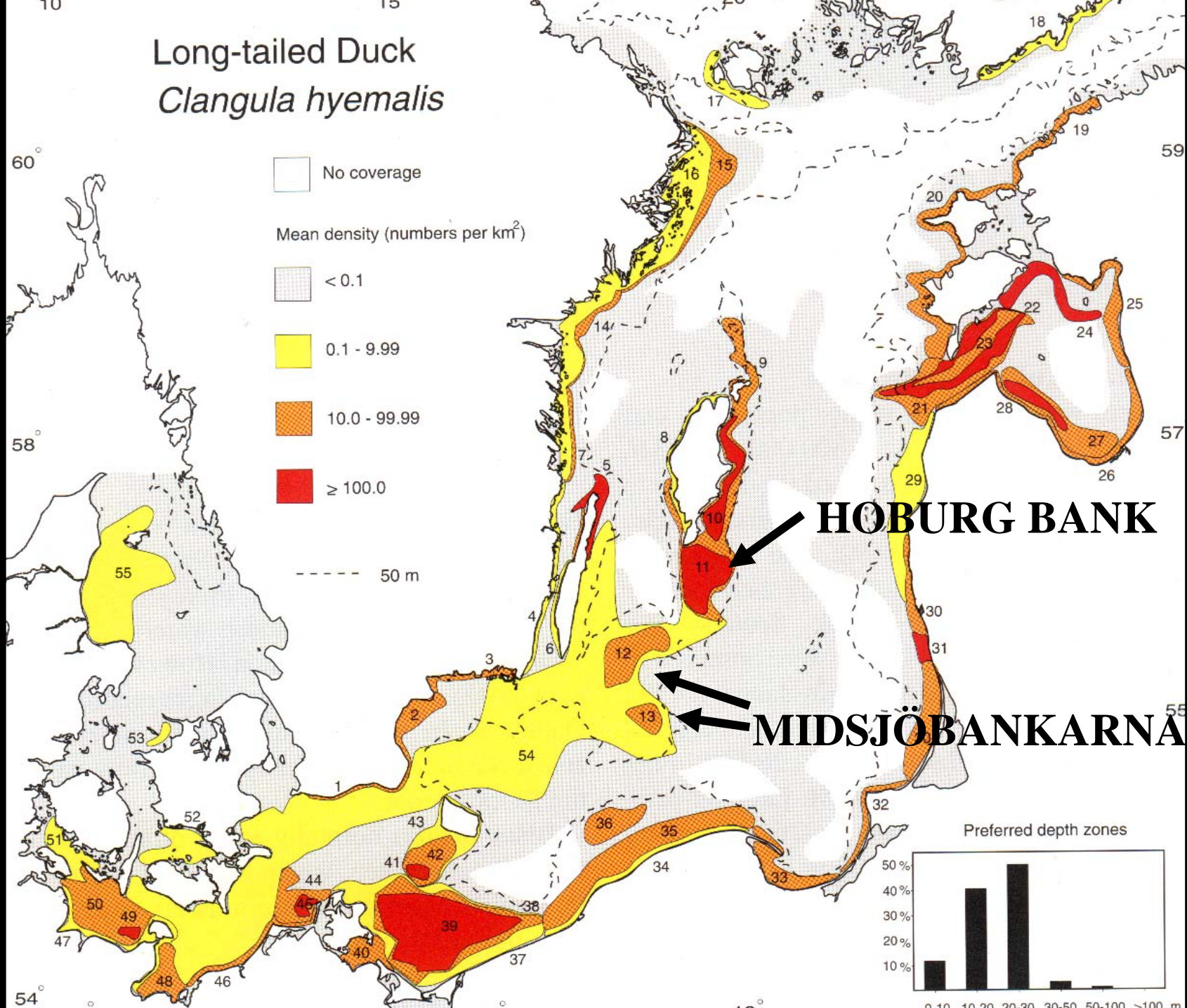


More than 800 000 Eiders migrates through Swedish waters to and from breeding areas in the archipelagos. The overall population has decreased recently.



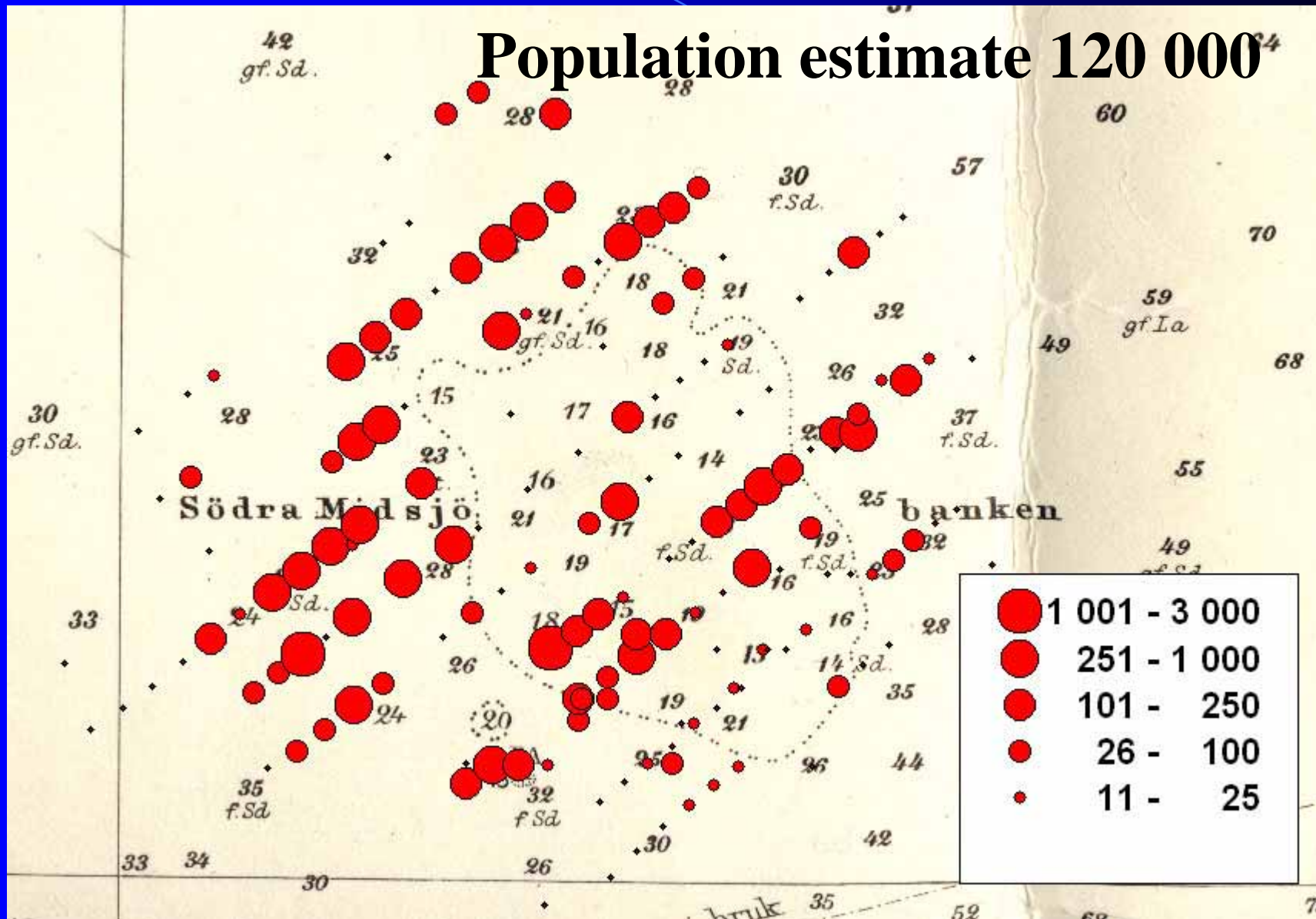
Total winter population in the Baltic 4.2 million (=most of west-paleartic population), 1/3 in Swedish waters. Concentrated to offshore banks. Only one survey, maybe decreasing.

Long-tailed Duck *Clangula hyemalis*



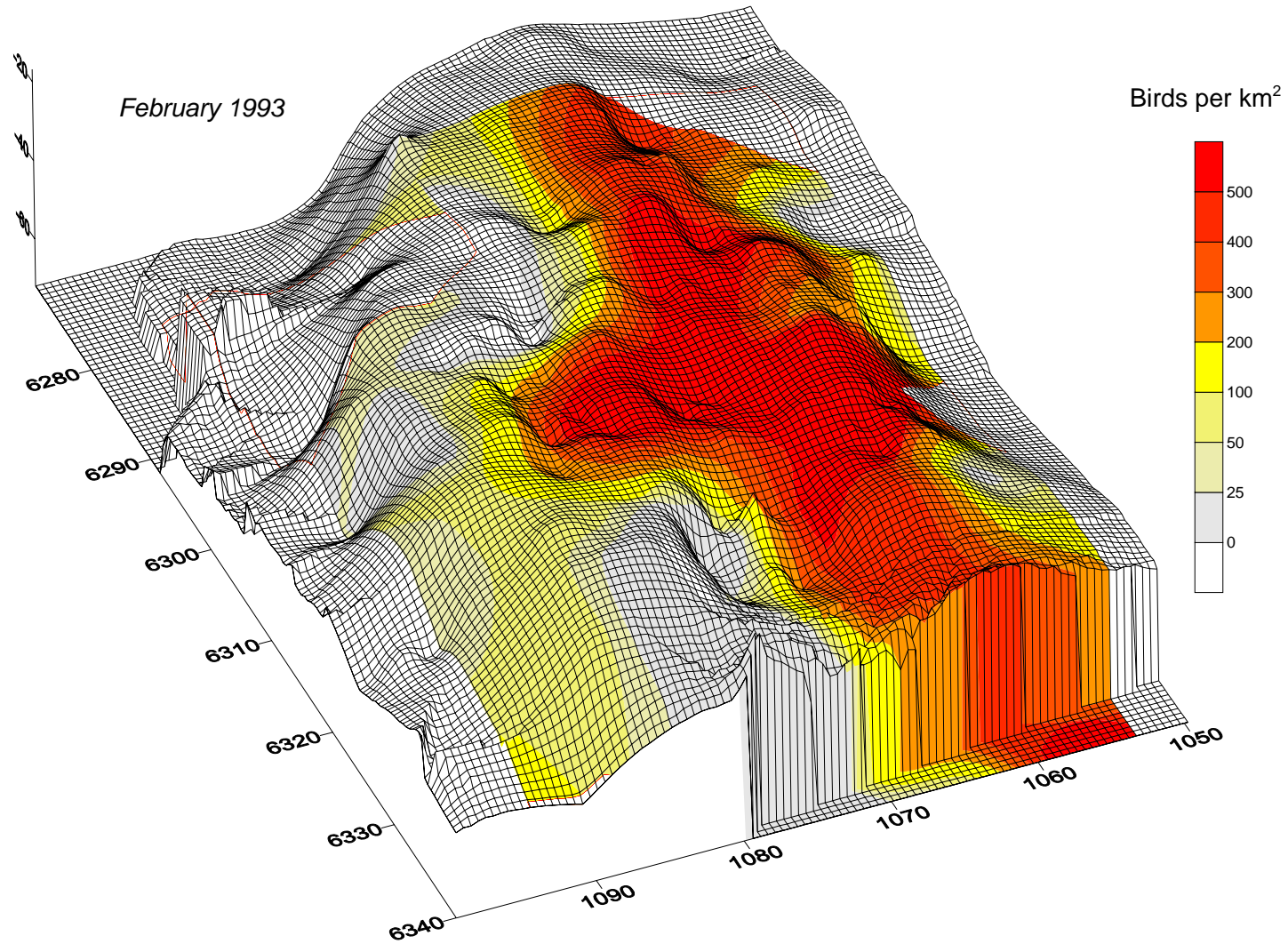
Aerial survey of Long-tailed Duck in spring

Population estimate 120 000



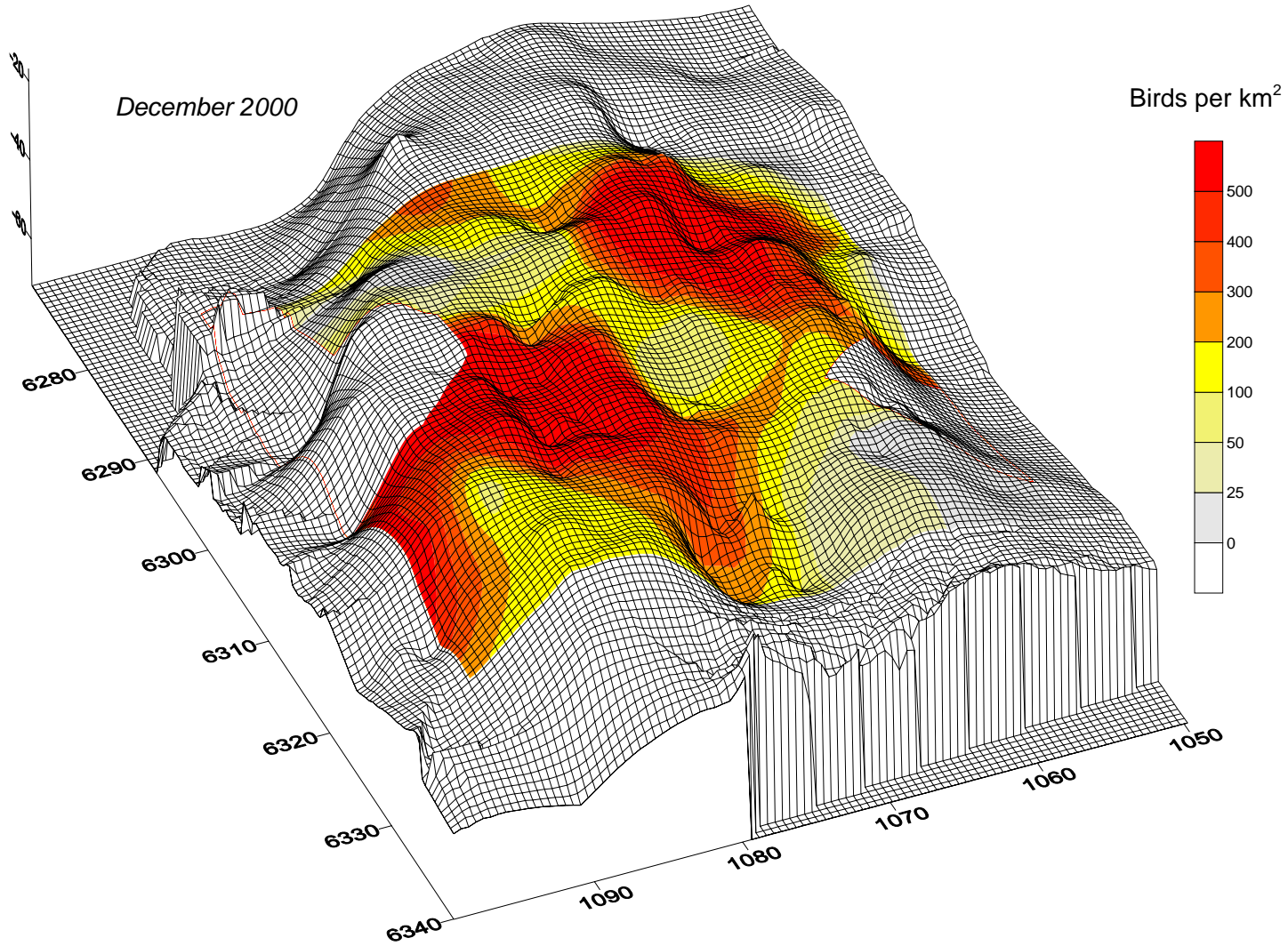
HOBURG BANK

FEBRUARY 1993



HOBURG BANK

DECEMBER 2000





**THANK YOU FOR YOUR
ATTENTION!!**

