

Masterplan Wind – Seabirds Cruise Report December 2010

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Report number C184/10



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Cover Photo: Immature Great Black-backed Gull (Steve Geelhoed)

Distribution maps: Rob van Bemmelen

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Summary

Geelhoed SCV & Witte RH, 2010.

Masterplan Wind – Seabirds. Cruise Report December 2010.

IMARES Report C184/10, 20 pp.

This cruise report provides an overview of the ninth survey in a series of seabirds at sea surveys that are carried out in 2010 and 2011 over the Dutch Continental Shelf (DCS) of the North Sea and adjoining waters. This ninth survey in the series was carried out in December 2010. Two seabird observers joined a cruise that was aimed at surveying plankton, by taking plankton samples at more or less hourly intervals. In between the plankton stations, the ship steamed full speed (speed ranging from 10-16 knots) and seabirds were surveyed during all daylight hours while the ship was steaming.

Due to adverse weather conditions surveys could be only conducted on two days. The sailed route during these two days was similar to the previous surveys.

Therefore a disappointing total of 130 counting bouts of on average almost 5 minutes each were conducted. These stretched over a total of 280.6 km and covered, at a strip width of 300 m, a total survey area of 84.2 km² (Table 1). A total of 905 individuals of 11 bird species and 3 marine mammals (2 Harbour Porpoises and 1 Common Seal) were recorded (Table 3). Observation conditions varied from poor to moderate, and had a negative impact on the probability to detect seabirds and porpoises in particular.

Guillemots were patchily distributed, with low densities in most parts of the study area. The Dogger Bank held high densities along the north and east flank. In this area several Little Auks were seen as well. Great Black-backed Gulls and Black-legged Kittiwakes were the most numerous gull species. Both were seen in low densities.

1 Introduction

This cruise report presents the seabird and marine mammal data collected during the ninth "fish eggs and fish larvae" survey, in a series of 12 monthly surveys from April 2010 till March 2011. These surveys cover the entire Dutch Continental Shelf (DCS); the first two surveys also covered waters south and west of the DCS. The grid with sampling stations for the "fish eggs and fish larvae" survey was adjusted after these surveys in order to focus more on the DCS; the westernmost stations were shifted to the east. The primary research topic during all cruises is plankton research (fish eggs and fish larvae), but the vessel conducting these surveys is an excellent platform for additional research on other vulnerable biota, such as seabirds. The plankton work is carried out 24 hours per day, i.e. also at night. Seabirds can only be surveyed during daylight, so the aim of the project is to survey seabirds during all daylight hours. Coverage of the area is therefore less than 100% as the survey ship continues working during the night.

2 Aim of the project and methods used

The aim of the project is to provide seabirds at sea data for as much of the DCS as possible, at a high level of observational detail. The data collected during these surveys are to be compared with aerial survey data collected for the Masterplan Wind by Bureau Waardenburg and a long-term set of earlier aerial data collected by Rijkswaterstaat. During the shipboard surveys, seabirds and marine mammals are surveyed using standard ESAS ship-based survey techniques (fully described in the first cruise report in this series, see Leopold et al. 2010).

3 Results

3.1 Narrative

07-12-2010

Boarding the Tridens in the evening. Due to repairs of the ship's engines the departure was delayed almost 2 days. Left Scheveningen Harbour at 22.00 hrs.

08-12-2010

North crossing the Dogger Bank. Counting period: 8.10-15.10 hrs. Sighting conditions were moderate, with a seastate 4 Beaufort. On the southern half of the Dogger Bank a concentration of Guillemots, with smaller numbers of Razorbills, was encountered. Noteworthy species were Pomarine Skua (juvenile) and Little Auk (3 groups, 5 individuals). No cetaceans.

09-12-2010

During the night the NW wind increased to 7 Beaufort and 4 m wave height, making a survey (for auks and cetaceans) impossible.

10-12-2010

The wind had veered to the West and decreased to 4 Beaufort. With a seastate 4 and an overcast sky observation conditions were moderate. Counting period: 8.15-15.05 hrs. Two Harbour Porpoises and one harbor seal.

11-12-2010

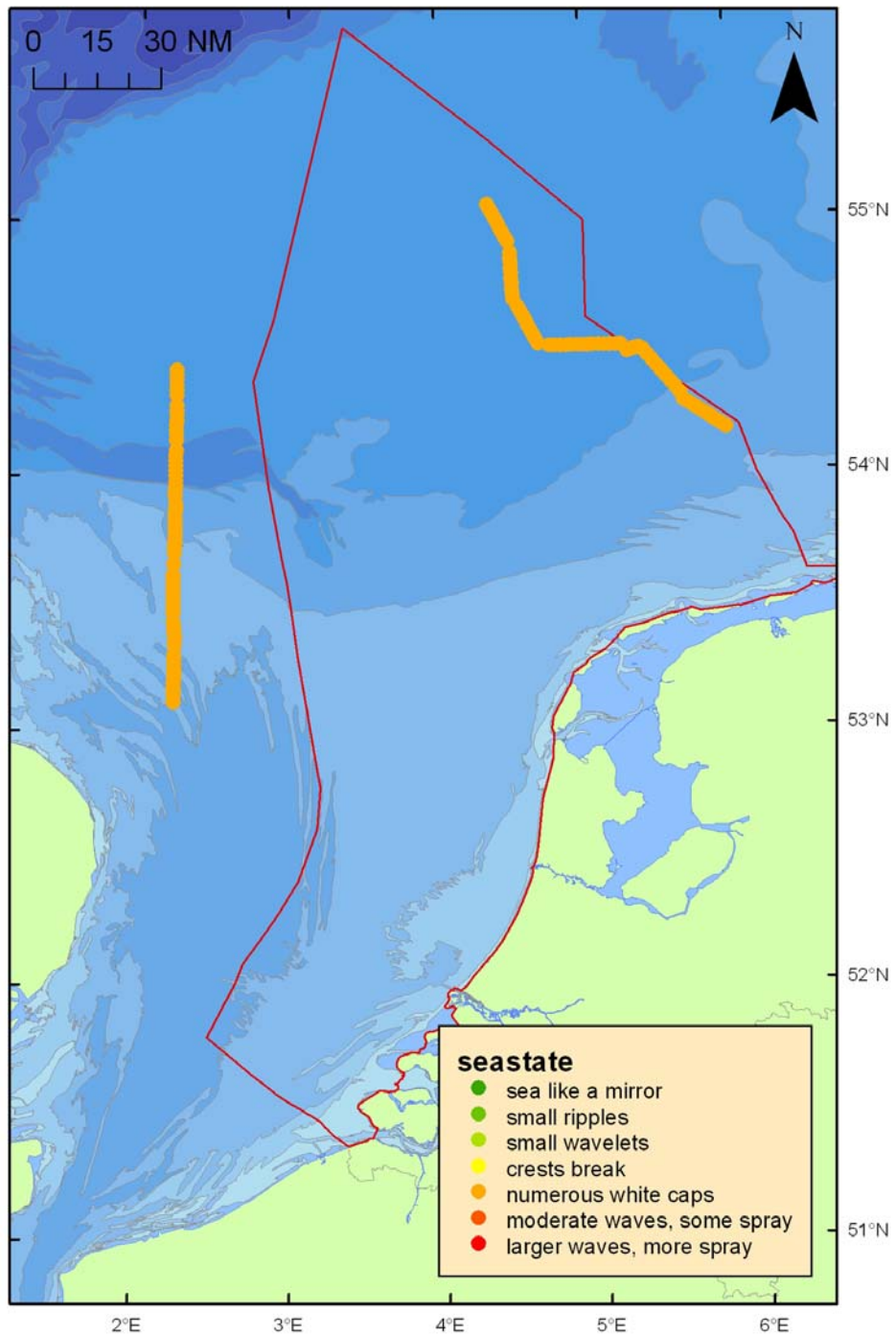
Heading back to Scheveningen, with half speed in order to do maintenance work on the engines cooling systems. Arrival outside Scheveningen at 10.00 hrs. Anchoring before entering the harbour at 12.00 hrs.

During the week, a total of 130 counting bouts of on average almost 5 minutes each were conducted. These stretched over a total of 280.6 km and covered, at a strip width of 300 m, a total survey area of 84.2 km² (Table 1). A total of 905 individuals of 11 bird species and 3 marine mammals (2 Harbour Porpoises and 1 Common Seal) were recorded (Table 3). Observation conditions varied from poor to moderate.

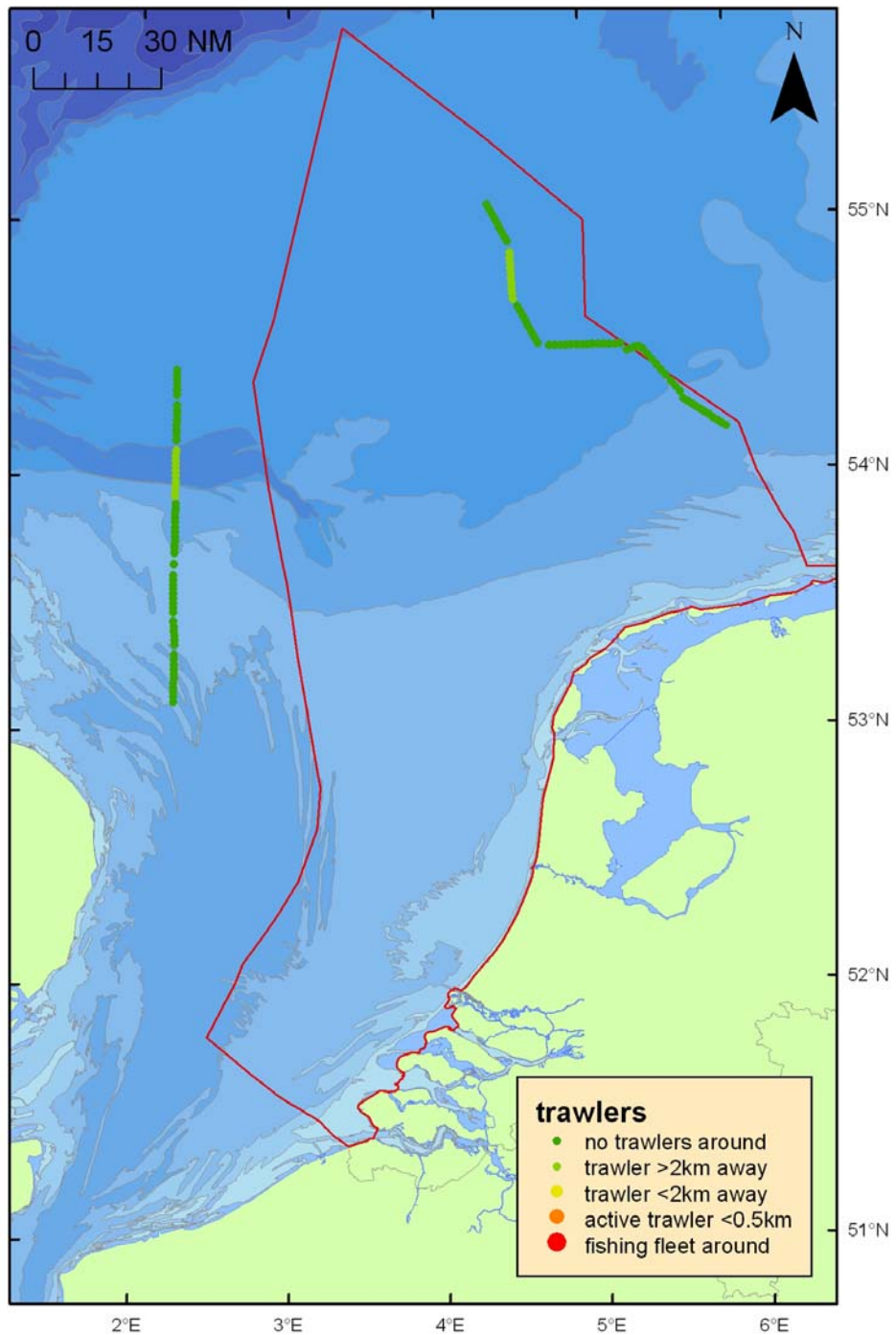
Overleaf, the surveyed tracks are plotted against the seastates encountered along the route (first map), and the presence of active fishing vessels and set-nets (the latter were not seen, second map).

Table 1. Total survey effort per seastate.

Seastate (Beaufort)	Surveyed area (km ²)	Surveyed distance (km)
0	-	-
1	-	-
2	-	-
3	-	-
4	84.2	280.6



Effort and seastates. Seabirds and marine mammals were surveyed along the plotted routes. Beaufort seastates along the survey route are presented.



Floating matter. Active trawlers seen during the survey and presence of set-nets.

3.2 Detection probabilities

Detection probabilities are reviewed here for objects that were seen mostly on or in the water (as opposed to in flight): auks and Harbour Porpoises. Auks are normally rather hard to detect on the water as they often occur in small groups and are dark-backed, which makes them hard to spot under less sunny conditions and at greater distances. Auks dive at the approach of the vessel. Harbour Porpoises are supposedly even harder to detect, as they live mostly under water (they only surface to breath, as opposed to auks that only dive to feed: “surfacers” versus “divers”). Porpoises near the track line are often disturbed by the approaching vessel and might flee away suddenly, with a conspicuous splash, known as “rooster tail”. Animals at greater perpendicular distances are less prone to disturbance and are more often missed.

Only Guillemots and Razorbills were seen in sufficient numbers to produce a detection curve (Table 2), in order to estimate the number of missed animals. Since the survey conditions in December were moderate at best, the percentage missed Guillemots (56%) and Razorbills (37%) was the highest of all previous surveys, during which the observation conditions were on average better.

Table 2. Numbers of sightings of Guillemots and Razorbills (irrespective of group size), in relation to perpendicular distance bands during the entire December survey.

	Band	Guillemot	Razorbill
Observed	A	46	2
	B	57	7
	C	60	3
	D	33	0
Missed	C	43	6
	D	70	9
	Total	113	15
	Percentage	56	37

Table 3. Summary of all birds, mammals and other items recorded during the counts.

Species	Soort		08-Dec	10-Dec	Total
Counts with no birds	<i>Tellingen zonder vogels</i>		3	11	14
Northern Fulmar	<i>Noordse Stormvogel</i>	<i>Fulmarus glacialis</i>	24	17	41
Northern Gannet	<i>Jan van Gent</i>	<i>Sula bassana</i>	28	8	36
Pomarine Skua	<i>Middelste Jager</i>	<i>Stercorarius pomarinus</i>	1		1
Little Gull	<i>Dwergmeeuw</i>	<i>Larus minutus</i>		2	2
Common Gull	<i>Stormmeeuw</i>	<i>Larus canus</i>	1	7	8
Herring Gull	<i>Zilvermeeuw</i>	<i>Larus argentatus</i>	5	11	16
Gr. Black-backed Gull	<i>Grote Mantelmeeuw</i>	<i>Larus marinus</i>	19	24	43
Black-legged Kittiwake	<i>Drieteenmeeuw</i>	<i>Rissa tridactyla</i>	73	22	95
Common Guillemot	<i>Zeekoet</i>	<i>Uria aalge</i>	504	81	585
Razorbill	<i>Alk</i>	<i>Alca torda</i>	43	16	59
Little Auk	<i>Kleine Alk</i>	<i>Alle alle</i>	5		5
Harbour Porpoise	<i>Bruinvis</i>	<i>Phocoena phocoena</i>		2	2
Common Seal	<i>Gewone Zeehond</i>	<i>Phoca vitulina</i>		1	1
			706	202	908

3.3 Distributions

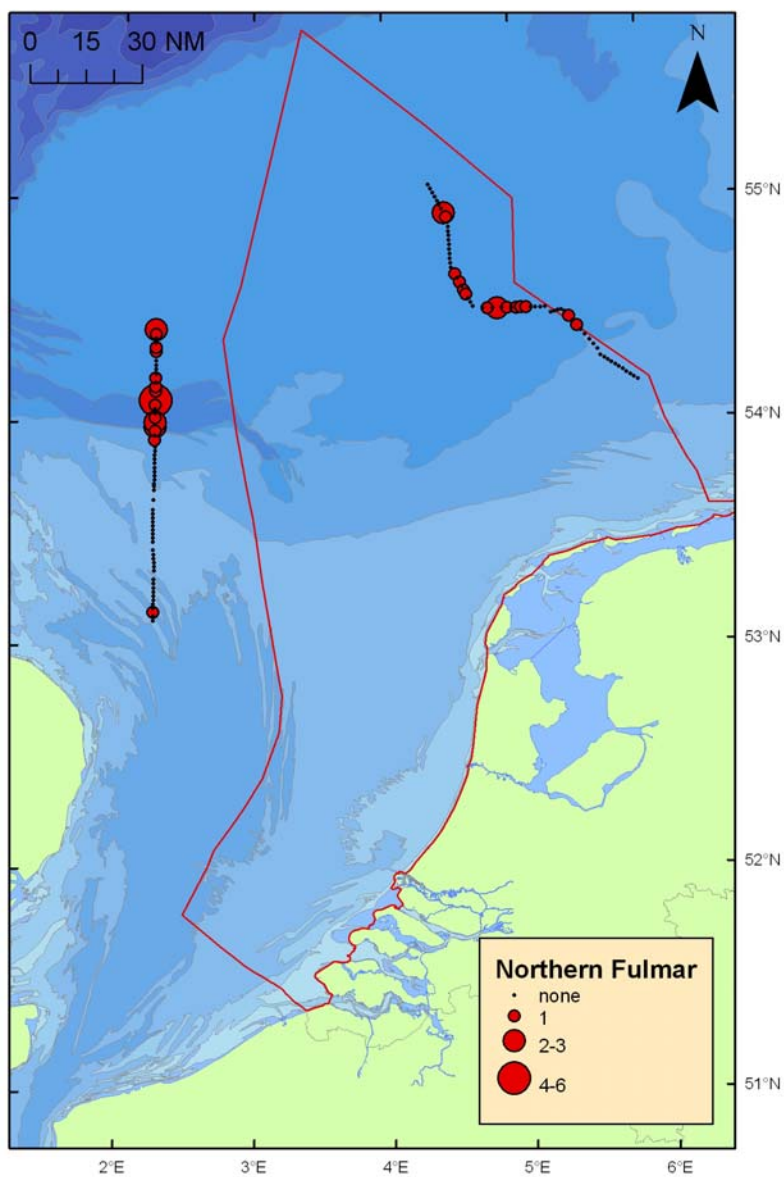
On the distribution maps on the next pages, the margin of the Dutch Continental Shelf (DCS) is indicated by a red line and on-effort (=sailing while surveying seabirds and marine mammals) indicated by grey dots. Depth contours are represented in blue shades.

1. Rare birds

During the previous surveys several bird species were seen in sufficient numbers to warrant a distribution map in the cruise report. Just a few wintering species were seen in sufficient numbers to present a distribution map. Apart from these species a few rare birds were seen. Records worth mentioning are a Pomarine Skua and three small groups of Little Auks along the Doggerbank. Migrating birds were virtually absent.

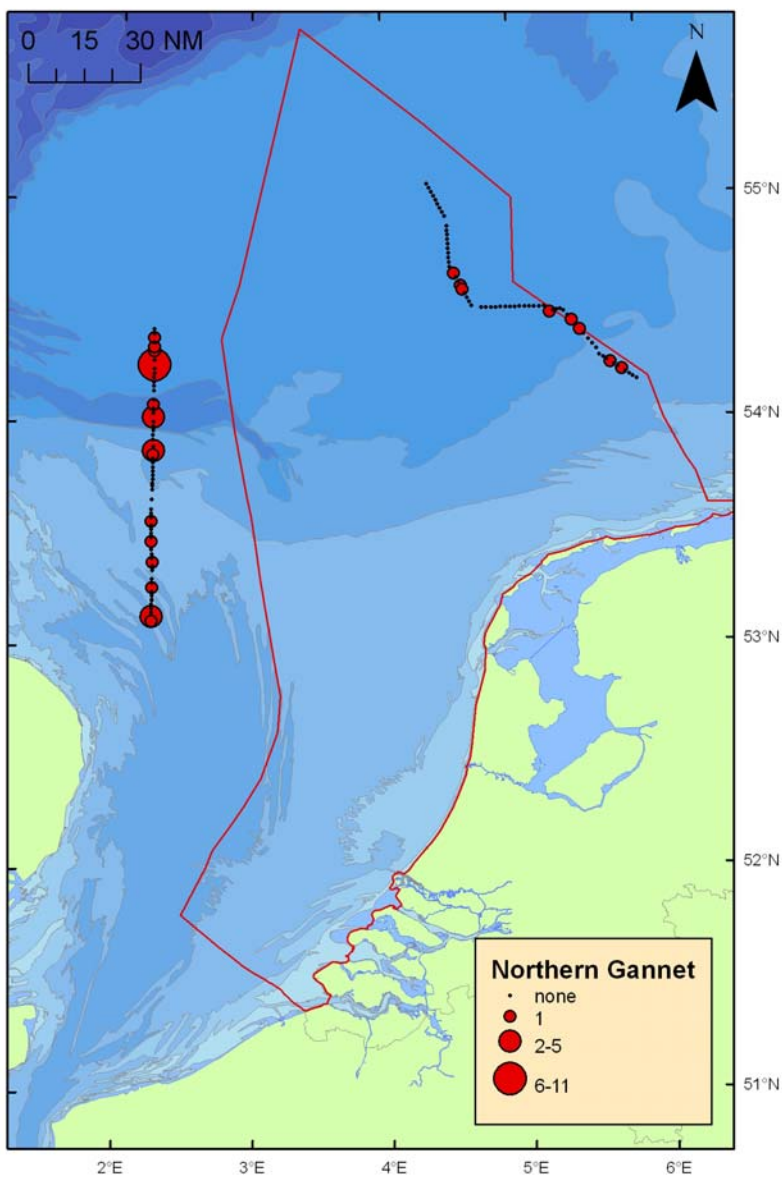
2. Northern Fulmar

Fulmars were scarce once again, with a northerly distribution. Overall densities were low. One bird belonged to the dark colour-phase, the others to the light colour-phase (n =40). Moulting birds constituted 21% of all scored individuals (n = 14).



3. Northern Gannet

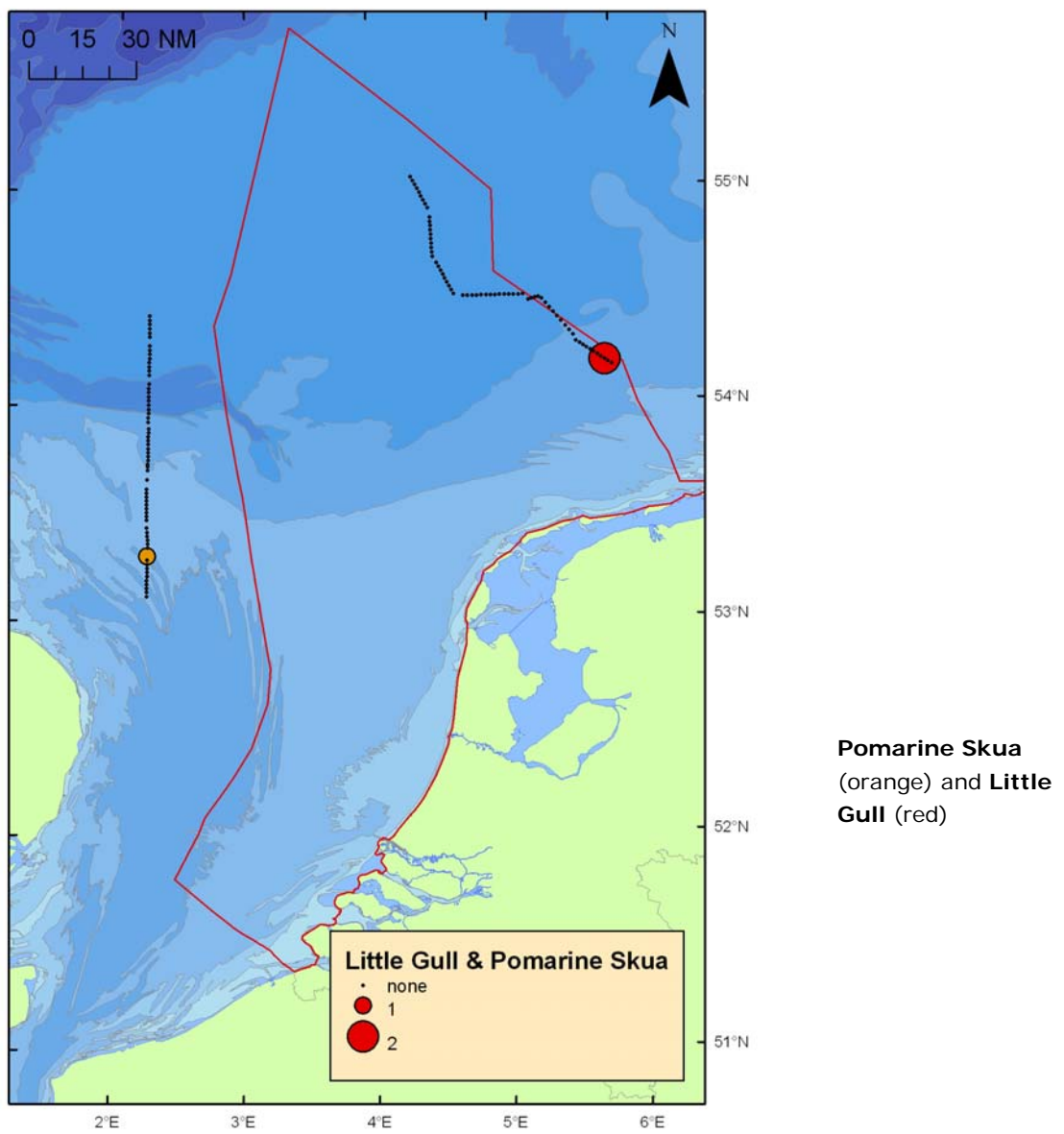
Gannets were scarce but wide-spread. Most Gannets were seen flying. None were seen within the transect. Most birds were adult (81.8%, n = 22), the remainder older immatures. Compared to the surveyed track in the northeast numbers tended to be higher along the westerly route as.



Northern Gannet

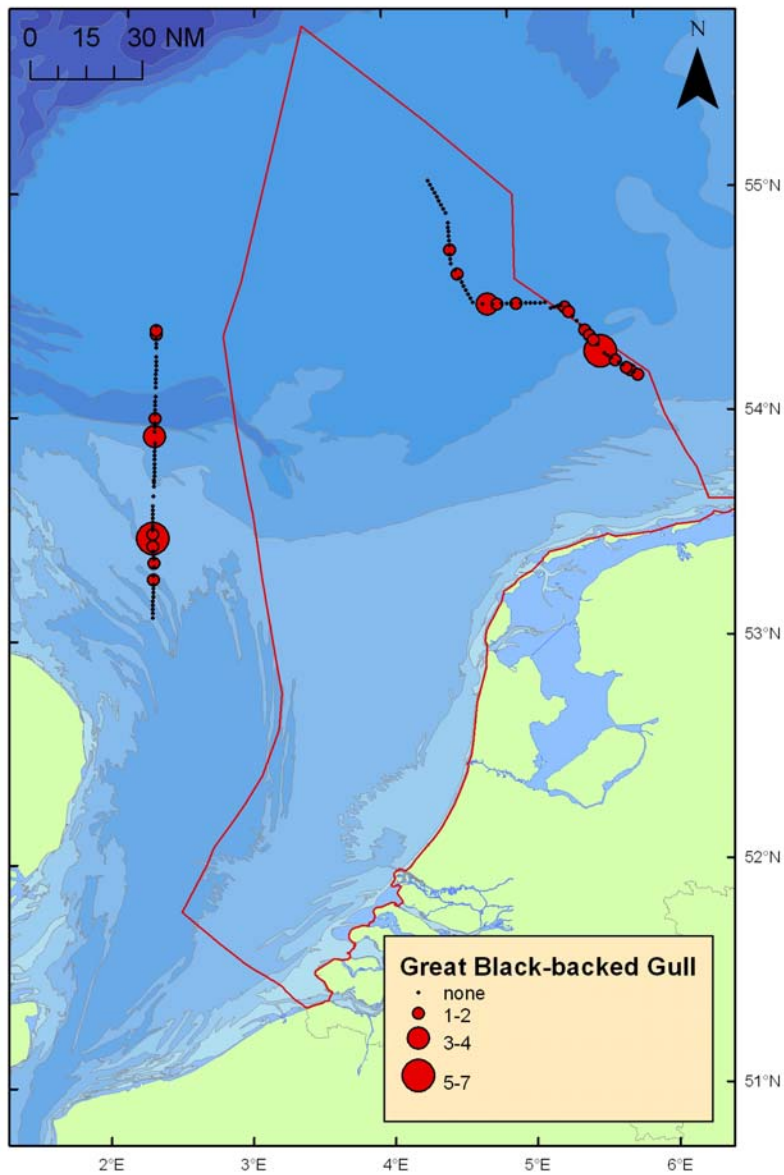
4. Skuas and Little Gull

Both species were very scarce. One immature Pomarine skua was seen in English waters on the 8th. Two apparently migrating adult Little Gulls were seen in the northeastern part of the DCS on the 10th.



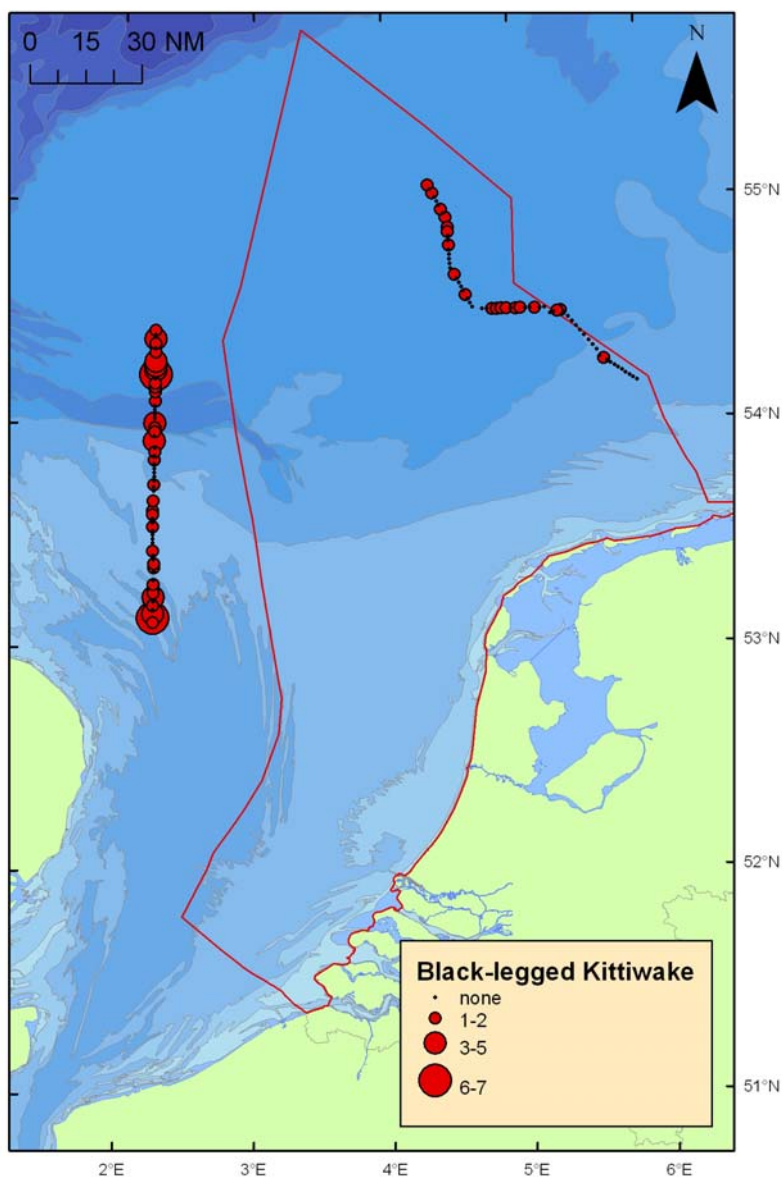
5. Great Black-backed Gull

Great Black-backed Gulls were scarce but wide-spread. A considerable proportion (38%, $n = 42$) of the gulls was associated with the research vessel, none were associated with fishing vessels. More than half of the animals was juvenile or immature (54.8%, $n = 42$), with almost twice as many juveniles as immatures.



6. Black-legged Kittiwake

The highest densities of Kittiwakes were found outside the DCS, in UK waters. Contrary to the previous surveys the eastern Dogger Bank did not hold high densities. Many Kittiwakes associated with the research vessel (26.9%, n = 93); no birds were seen in the vicinity of fishing vessels or platforms where the highest concentrations were seen during previous surveys. Most Kittiwakes were adults (69.8%, n = 93), almost a third was juvenile (28.0%) and the remaining two birds were immature.



Kittiwake

7. Common Guillemot

Guillemots were widely distributed in most parts of the studied transects. The majority of the birds were seen outside the DCS, where almost 90% off the total number was recorded. Higher numbers were seen in the northeastern part of the DCS as well.

Compared to the previous surveys moult to breeding plumage clearly progressed, with now more than 10% of individuals in transition or breeding plumage (see Table 4).

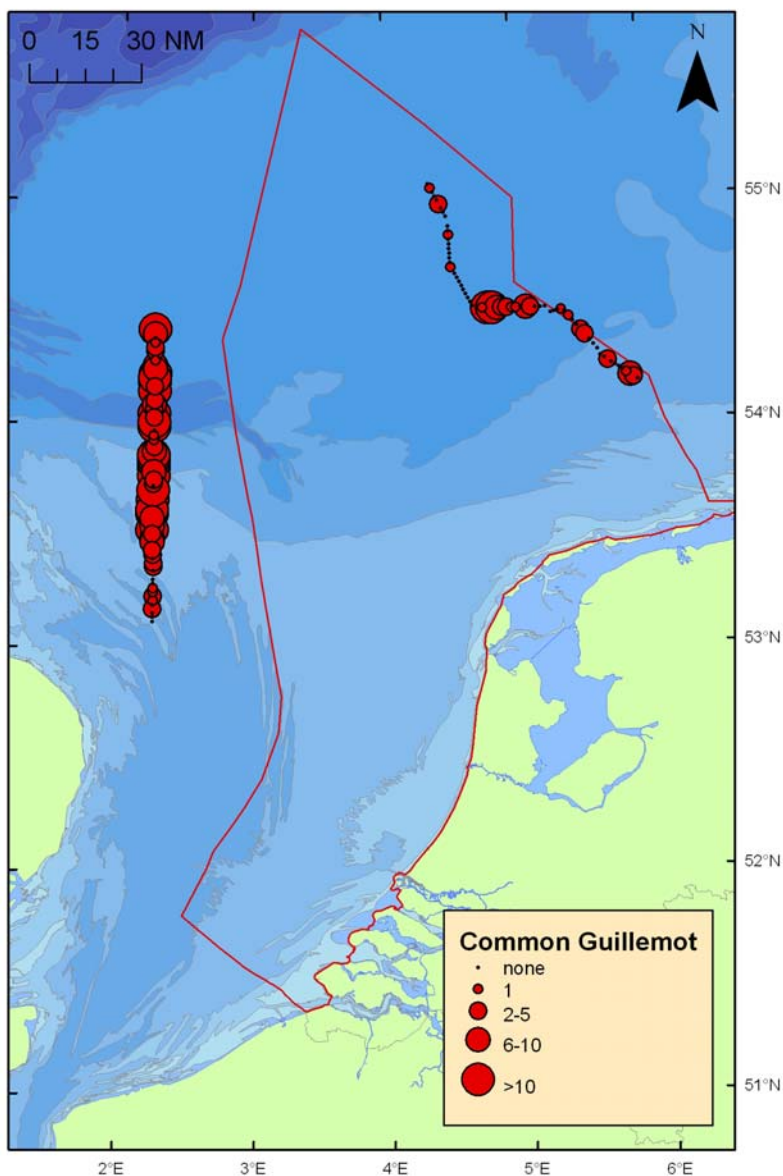


Table 4. Plumages of Common Guillemots at sea during the December 2010 survey.

Plumage	N	%
Full breeding	29	6.4
Transition	40	4.4
Full winter	401	89.2
Total	450	

Common Guillemot

8. Razorbill

Though the numbers were lower than from Common Guillemots Razorbills showed more or less the same distribution pattern, with the highest numbers in the Botney Cut area and in the northeast along the German border. With only one bird in transition plumage moult to breeding plumage was not as progressed as in Guillemot (Table 5).

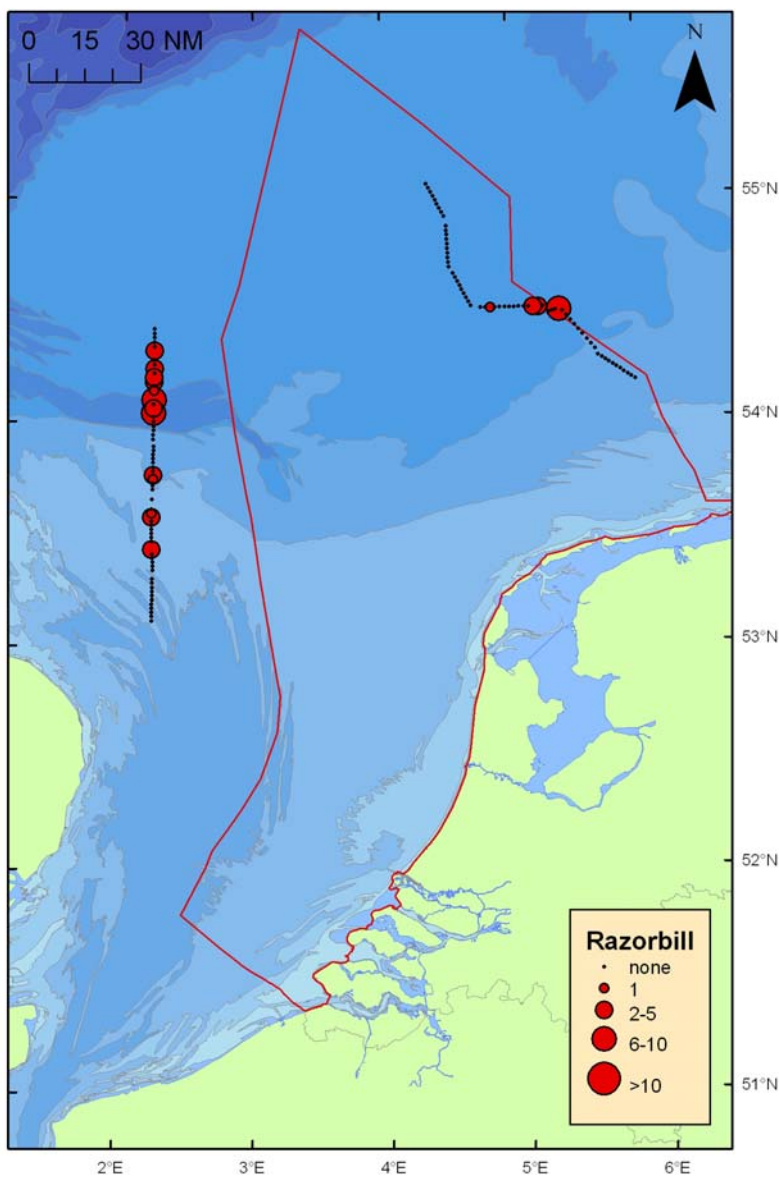


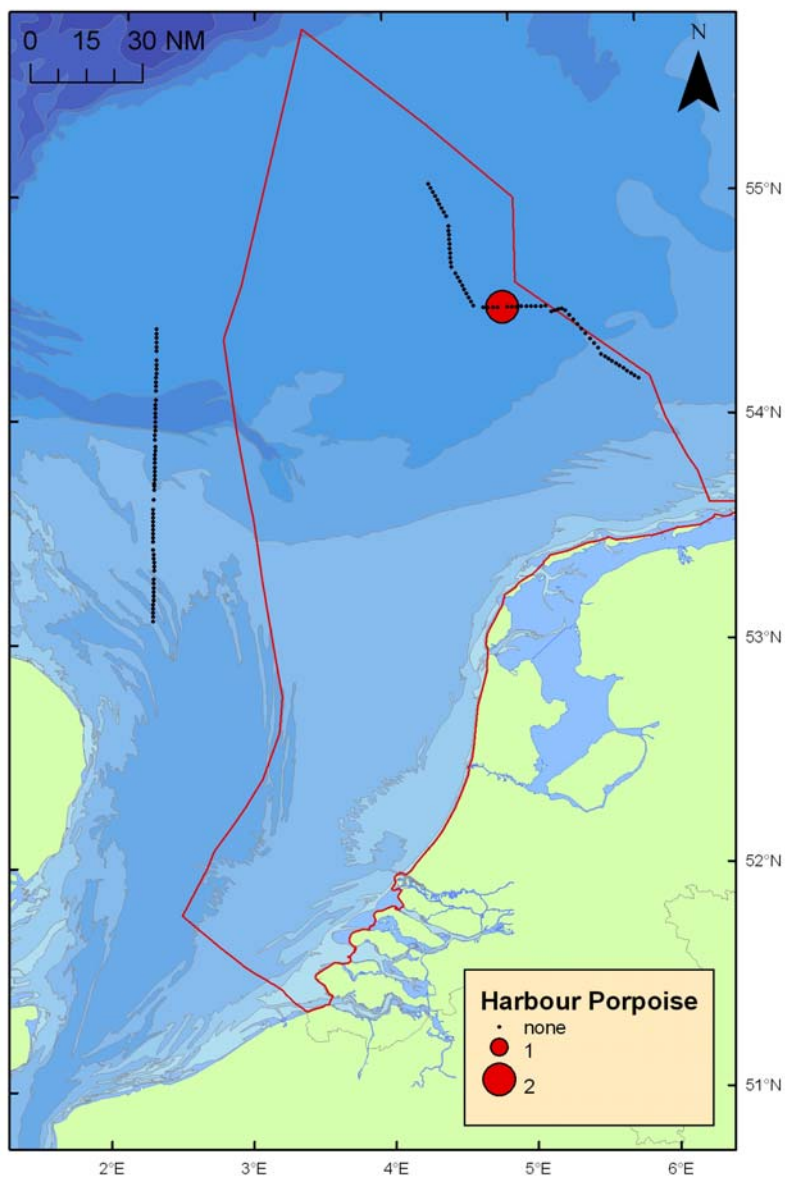
Table 5. Plumages of Razorbills at sea during the December 2010 survey.

Plumage	N	%
Full breeding	-	-
Transition	1	1.7
Full winter	57	98.3
Total	58	

Razorbill

9. Harbour Porpoise

Only one observation of Harbour Porpoise was made; 2 individuals were seen along the German border north of the Wadden isles on the 10th. Observation conditions for this species were predominantly moderate or poor though.



Harbour porpoise

4 Conclusions

This ninth survey was less successful than the previous ones. Weather conditions varied from poor to moderate. Surveys could only be conducted on two days. Common Guillemots and Razorbills were among the most widespread species, with highest densities present around the Dogger Bank and in the northeastern part of the Dutch Continental Shelf. Black-legged Kittiwakes and Great Black-backed Gulls were predominantly associated with the research vessel, making a good survey difficult.

5 Acknowledgements

We like to thank Rijkswaterstaat for the opportunity of conducting these surveys, that will add substantially to our knowledge of the occurrence of seabirds on the DCS and adjoining waters. Working on board of the *Tridens* was a pleasant experience, due to the good working conditions supported by captain Kinne and his crew of the *Tridens*, by the RWS meetleider and by our fellow IMARES scientists.

6 Quality Guarantee

IMARES utilises an ISO 9001:2008 certified quality management system (certificate number: 57846-2009-AQ-NLD-RvA). This certificate is valid until 15 December 2012. The organisation has been certified since 27 February 2001. The certification was issued by DNV Certification B.V. Furthermore, the chemical laboratory of the Environmental Division has NEN-AND-ISO/IEC 17025:2005 accreditation for test laboratories with number L097. This accreditation is valid until 27 March 2013 and was first issued on 27 March 1997. Accreditation was granted by the Council for Accreditation.

7 References

Leopold M.F., Verdaat H. & van Bemmelen R. 2010. Masterplan Wind – Seabirds. Cruise Report April 2010. IMARES Report C054/10.

8 Justification

Rapport C184/10
Project Number: 430.25015.02

The scientific quality of this report has been peer reviewed by a colleague scientist and the head of the department of IMARES.

Approved: Drs. M.F. Leopold

Signature:



Date: 22 December 2010

Approved: J. Asjes, MSc.
Head of Fish Department

Signature:



Date: 10 March, 2011