

# Trends of Migratory and Wintering Waterbirds in the Wadden Sea 1987/1988-2010/2011



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Progress Report

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Joint Monitoring Group of Migratory Birds in the Wadden Sea  
(JMMB)

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2013  
Common Wadden Sea Secretariat  
Trilateral Monitoring and Assessment Group  
Joint Monitoring Group of Migratory Birds in the Wadden Sea

## Content

Introduction	5
Monitoring migratory and wintering birds, the JMMB program	5
Methods and Acknowledgements	5
Trends Overview	7
Proportion of Flyway Population	10
Summary Trends According to indicators	11
Species Accounts	15
Great Cormorant	17
Eurasian Spoonbill	18
Barnacle Goose	19
Dark-bellied Brent Goose	20
Common Shelduck	21
Eurasian Wigeon	22
Common Teal	23
Mallard	24
Northern Pintail	25
Northern Shoveler	26
Common Eider	27
Eurasian Oystercatcher	28
Pied Avocet	29
Great Ringed Plover	30
Kentish Plover	31
European Golden Plover	32
Grey Plover	33
Northern Lapwing	34
Red Knot	35
Sanderling	36
Curlew Sandpiper	37
Dunlin	38
Ruff	39
Bar-tailed Godwit	40
Whimbrel	41
Eurasian Curlew	42
Spotted Redshank	43
Common Redshank	44
Common Greenshank	45
Ruddy Turnstone	46
Common Black-headed Gull	47
Common Gull	48
Herring Gull	49
Great Black-backed Gull	50
References	51
Counting Units in the Wadden Sea	52
Species List	54

## Monitoring migratory and wintering birds, the JMMB program

The Wadden Sea constitutes one of the world's most important wetlands for migratory waterbirds. It is the single most important staging and moulting area and an important wintering area for waterbirds on the East Atlantic Flyway from the Arctic to South Africa. The Joint Monitoring of Migratory Birds (JMMB) program is carried out in the framework of the Trilateral Monitoring and Assessment Program (TMAP), and constitutes an internationally coordinated long-term monitoring program. It covers a large connected ecoregion stretching from Den Helder in The Netherlands to Esbjerg in Denmark; regular ground counts for most species and areas plus aerial counts for sea ducks involves hundreds of observers and several institutes and agencies.

After the publication of trends, comprehensive species accounts and assessments in the most recent reports (Blew *et al.* 2005 and Blew *et al.* 2007), the JMMB group agreed, that from now on a yearly update of these trend calculation shall be published on this website. Here, trends of 34 waterbird species for the international Wadden Sea and the four regions - The Netherlands, the Federal States of Germany, Niedersachsen and Schleswig-Holstein, and Denmark will be presented.

Details of the "Joint Monitoring program of Migratory Birds in the Wadden Sea" are given in Rösner *et al.*, (1993) and updated in Blew *et al.*, (2005). This program, consisting of international synchronous counts, spring-tide counts and aerial counts (only Common Eider), has been carried out by all Wadden Sea countries since 1992. Some differences between the countries' programs exist, due to different national approaches and older already existing counting programs, but these do not hamper the overall goal for calculating trends. Because many usable counting data before 1992 exist as well, it has been decided to include counts back to the season 1987/1988.

The area considered is the Wadden Sea Cooperation Area. This is, in general terms, the area seaward of the main dike (or, where the main dike is absent, the spring-high-tide-water line, and in the rivers, the brackish-water limit) up to 3 nautical miles from the baseline or the offshore boundaries of the Conservation Area (Essink *et al.*, 2005). The total area covers 14,700 km<sup>2</sup>, with 4,534 km<sup>2</sup> of tidal flats.

## Methods and Acknowledgements

### Introduction

As part of the JMMB program, trends of 34 waterbird species for the international Wadden Sea and the four regions - The Netherlands, the Federal States of Germany, Niedersachsen/ Hamburg and Schleswig-Holstein, and Denmark will be presented.

### Data and methods

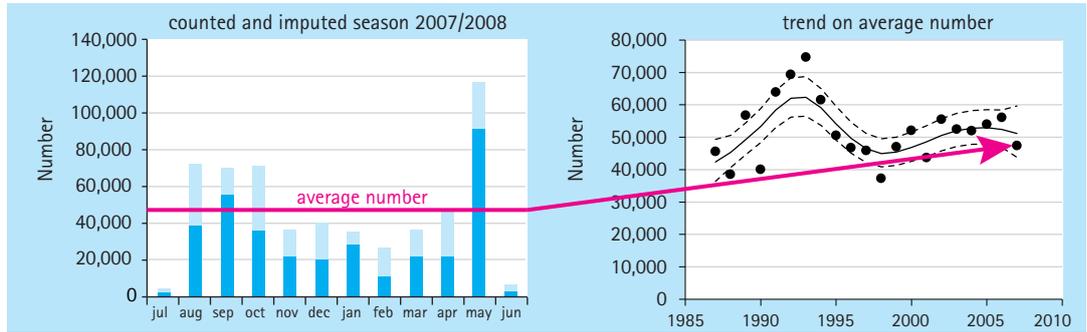
Data used in the analyses are a mixture of total counts (two internationally, up to five nationally) and counts of a selection of sites which are counted more frequently (12-25 times a season). At present a total of 594 counting units are defined in the Wadden Sea, which are included in the analyses. For this report, the original counting data, available at the smallest level have been used.

Trends are calculated and presented for 34 waterbird species. These are species which use the Wadden Sea during stop-over on migration or as a wintering area with large parts of their flyway population. Species which only occur in low numbers or species which cannot be counted with sufficient representativeness have been excluded from the analyses (for a more detailed explanation see Rösner *et al.*, 1994).

Despite a large dataset with lots of real count data available also missing counts are present. A complete dataset involves counts for all counting units in all months of the year. To analyse the waterbird count data, UINDEX (Bell, 1995) was used to account for missing counts in the dataset, and then TrendSpotter is applied to calculate trends (Visser, 2004, Soldaat *et al.* 2007). The program UINDEX is estimating bird numbers for missing counts (imputing) taking into account site-, year- and month-factors (Underhill & Prys-Jones 1994). Sites are grouped in four regional strata representing the four different Wadden Sea "countries". The counted and imputed values for each month are added to yearly averages for the respective "bird-years", covering the period from July to June of the following year (Figure 1a). After that with the program TrendSpotter so-called "flexible trends" are calculated. These are particularly suitable for time series data with different periods of decreasing, stable or increasing trends (Visser 2004, Soldaat *et al.*, 2007). A trend line calculated by TrendSpotter hardly deviates from a moving average or a smoothed trend line

Figure 1 a

Example of the treatment of data for the trend analyses. First the seasonal pattern is reconstructed by using counted numbers and imputed numbers for each month for a certain species (left graph of the figure, dark blue is counted, light blue is imputed). Then the average over all months is taken and this is the 'yearly estimate' to be used in the trend analyses (right graph). The trend line and confidence limits are calculated over all year estimates.

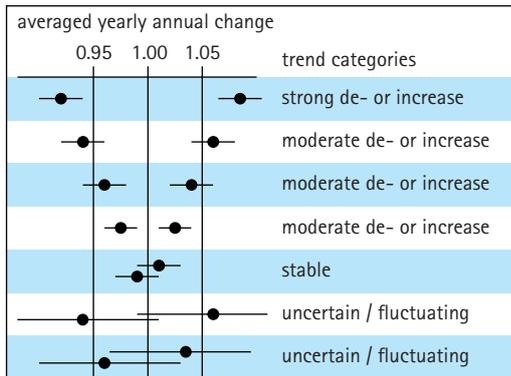


as calculated by a Generalized Additive Model (GAM) (e.g. Atkinson *et al.*, 2006). TrendSpotter calculates also confidence intervals and differences between the trend level of the last year and each of the preceding years can be assessed (Soldaat *et al.* 2007). This way trend estimates can be given for any period, as for example the last 10 years and the whole time period, as in the current analyses.

Trend estimates given within the text are used as categories (Figure 1b).

Figure 1 b

Trend classification used to express annual changes in waterbird numbers. Dots represent trend values, horizontal lines their 95% confidence limits.



**Acknowledgements**

In Denmark the counts were carried out by the National Environmental Research Institute (NERI, University of Aarhus). Aerial counts were carried out by NERI up to 1992, and during the years after they were organized through a collaboration between NERI and Ribe Environmental Center, Ministry of the Environment.

In Schleswig-Holstein the monitoring was initiated by the Ornithological Society Schleswig-Holstein (OAG SH) in the 1960s; regular monitoring was jointly organized by the OAG SH and the World Wide Fund for Nature (WWF) in 1987 and during the first period until 1994 funded by the federal state Schleswig-Holstein and the Federal Ministry of Environment (Federal Environment Agency) as part of an ecosystem research project. Since then it was funded by the National Park Administration Schleswig-Holstein Wad-

den Sea. The coordination of the project moved from WWF to the Schutzstation Wattenmeer e.V. in 2004. The aerial surveys of Common Eider and Shelduck were separately financed by the National Park Administration Schleswig-Holstein Wadden Sea.

In Niedersachsen and the Hamburg regions the counts were organized by the Bird Conservation Station in the Lower Saxony Water Management, Coastal Defence and Nature Conservation Agency (NLWKN), formerly Lower Saxony Agency for Ecology (NLÖ). The aerial surveys of Common Eider were financed by the Lower Saxony Wadden Sea National Park Authority.

The waterbird counts in the Dutch Wadden Sea are part of the national monitoring program of waterbirds in The Netherlands, which is a cooperation between the Ministry of Agriculture, Nature and Food Quality, the Ministry of Water Management and Public Works, Statistics The Netherlands (CBS), Vogelbescherming Nederland and SOVON Dutch Centre for Field Ornithology. The aerial surveys of Common Eider were carried out under the responsibility of the Ministry of Water Management and Public Works.

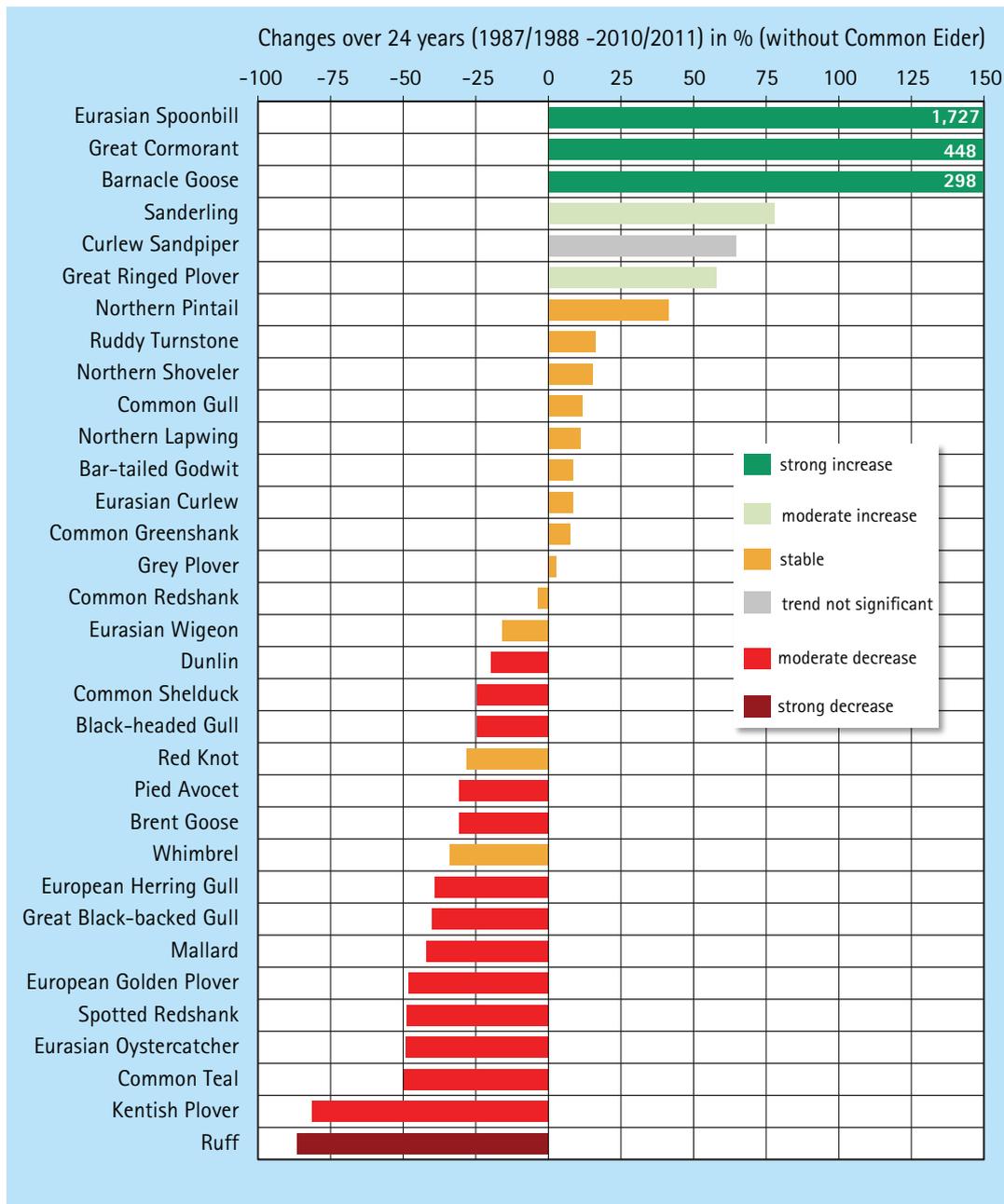
## Trends Overview

Species	Long-term 24-years trend 1987/1988 - 2010/2011					Short-term 10-year trend 2000/2001 - 2010/2011				
	WS	DK	SH	Nds/ HH	NL	WS	DK	SH	Nds/ HH	NL
Great Cormorant	↑↑	↑	↑↑	↑↑	↑↑	↓	↓↓	↑	→	→
Eurasian Spoonbill	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑
Barnacle Goose	↑↑	↑↑	↑	↑	↑↑	↑	—	→	—	↑
Brent Goose	↓	↓	↓	↓	→	↓	↓	→	↓	→
Common Shelduck	↓	↓	↓	↓	↑	→	↓↓	↓	→	↑
Eurasian Wigeon	→	↓	↓	↑	↓	→	↓↓	↓	→	↓
Common Teal	↓	→	↓	↓	→	—	—	↓	—	—
Mallard	↓	↓	↓	↓	↓	↓	—	→	↓	↓
Northern Pintail	→	—	→	→	↑	—	—	↑	—	—
Northern Shoveler	→	↑	↑	→	→	→	—	↑	→	→
Common Eider	no long term trend available - counts started only 1993					↓	↓	—	—	↓
Eurasian Oystercatcher	↓	↓	↓	↓	↓	↓	↓↓	↓	↓	↓
Pied Avocet	↓	↓	↓	↓	→	→	↓	→	↓	→
Great Ringed Plover	↑	—	↑	↓	↑↑	↑	—	↑	—	↑
Kentish Plover	↓↓	↓	↓	↓↓	↓	↓↓	↓↓	↓	↓↓	↓
European Golden Plover	↓	↓	↓	↓	→	↓	↓	→	↓	↓
Grey Plover	→	↑	↓	↓	↑	→	→	→	↓	→
Northern Lapwing	→	→	→	→	↑	→	→	→	→	→
Red Knot	↓	—	↓	→	→	→	—	↓	—	→
Sanderling	↑	↑	→	→	↑	↑	↑	→	→	↑
Curlew Sandpiper	—	—	—	↓↓	—	—	↓↓	—	↓↓	—
Dunlin	↓	↓	↓	→	↑	↓	↓	↓	→	↑
Ruff	↓↓	↓↓	↓↓	↓	↓	↓↓	↓↓	↓↓	—	↓↓
Bar-tailed Godwit	→	↓	↓	→	↑	→	↓	↓	→	↑
Whimbrel	→	↓↓	—	↓	↑	→	↓	—	↓	—
Eurasian Curlew	→	↑	↓	→	↑	→	→	↓	→	↑
Spotted Redshank	↓	→	↓	→	↓	↓	→	↓	→	↓
Common Redshank	→	→	↓	↓	↑	→	→	→	→	↑
Common Greenshank	→	→	↓	→	↑	→	—	↓	→	↑
Ruddy Turnstone	→	→	→	↑	→	—	↓↓	→	↑	—
Black-headed Gull	↓	↓	↓	↓	→	↓	↓	→	↓	→
Common Gull	→	↓	↓	→	↑	→	↓	↓	—	→
European Herring Gull	↓	→	↓	↓	↓	↓	→	↓	↓	↓
Great Black-backed Gull	↓	↓	↓	↓	→	↓	↓↓	↓	↓	↓

strong increase
 strong decrease
 moderate increase
 moderate decrease
 stable
 uncertain

Table 1  
Trends until 2010/2011  
- The whole 24 and last  
10 years time period. The  
species names in the table  
are sorted according to the  
Euring Code.

Figure 2  
Trend categories for the 24-year period for the International Wadden Sea and the four countries, calculated with TrendSpotter on yearly estimates, ranked after trend category and value.



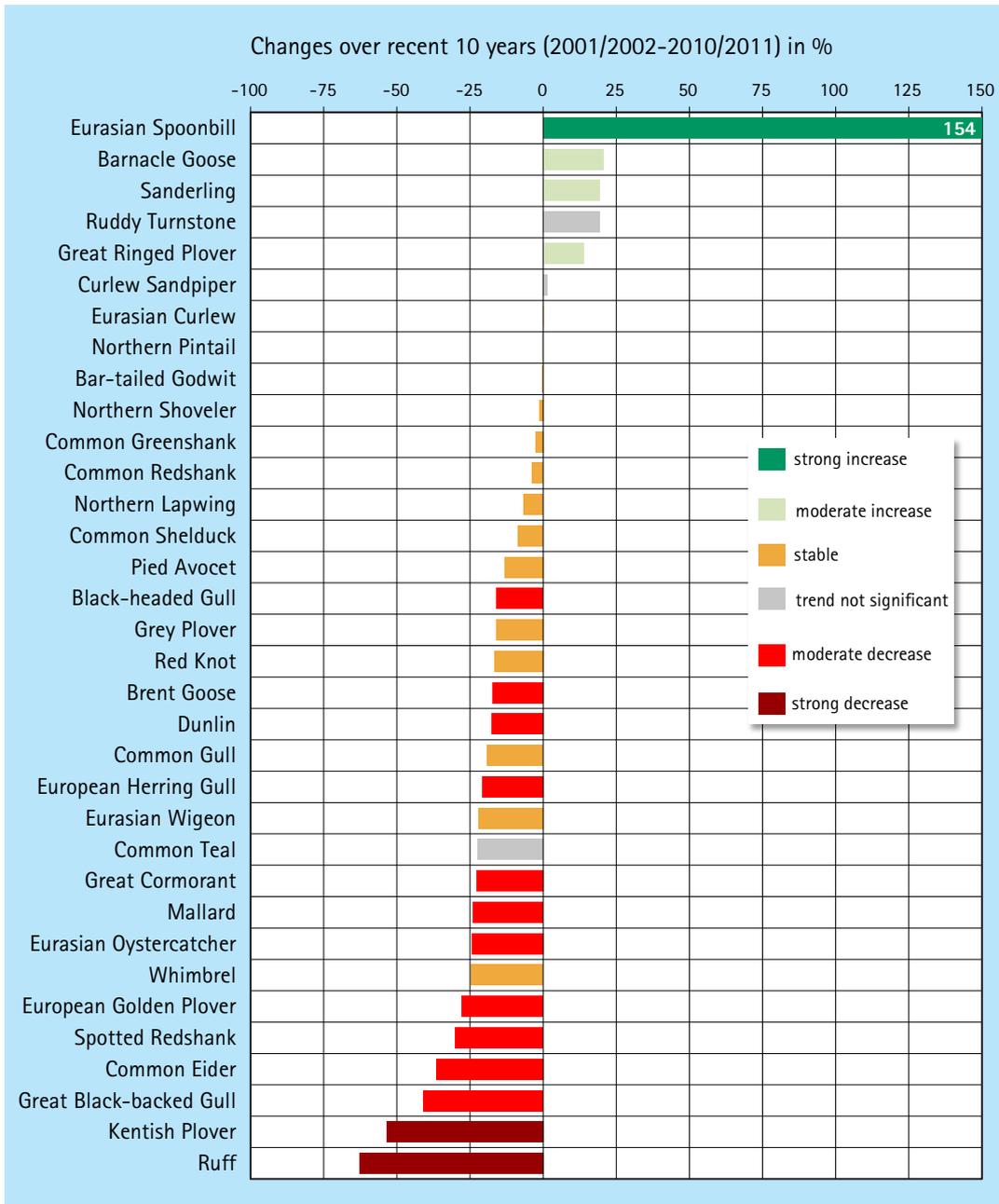
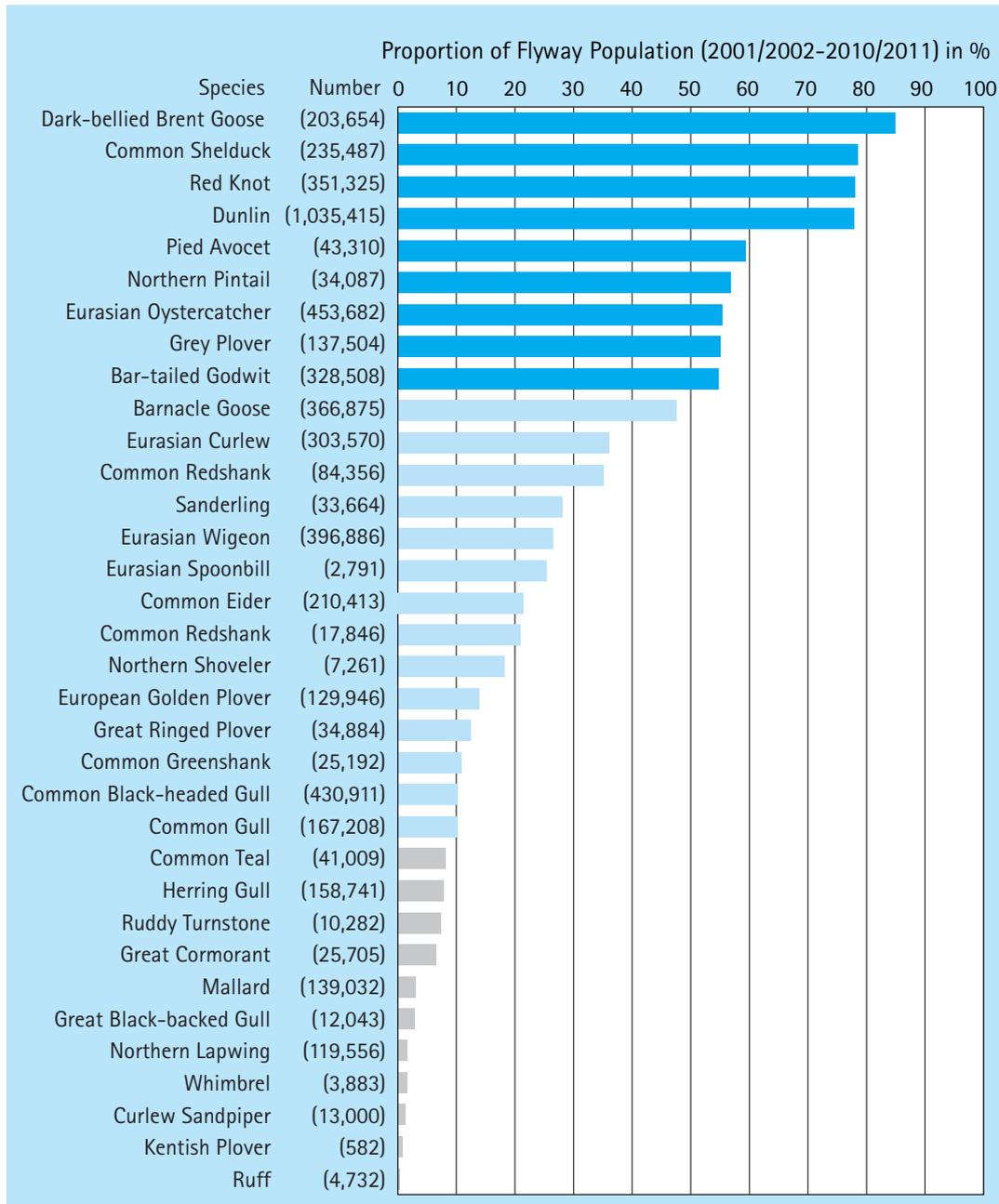


Figure 3  
Trend categories for the 10-year period for the International Wadden Sea and the four countries, calculated with TrendSpotter on yearly estimates, ranked after trend category and value.

## Proportion of flyway population

Figure 4  
Proportion of flyway population with regard to estimated numbers (Wetlands International 2013).



## Summary Trends According to Indicators

In order to help to identify possible relationships between the species' trends and their ecological traits, trends of single species were combined. Each bird species has been allocated to each of four different guilds, namely food, feeding habitat, breeding and wintering grounds.

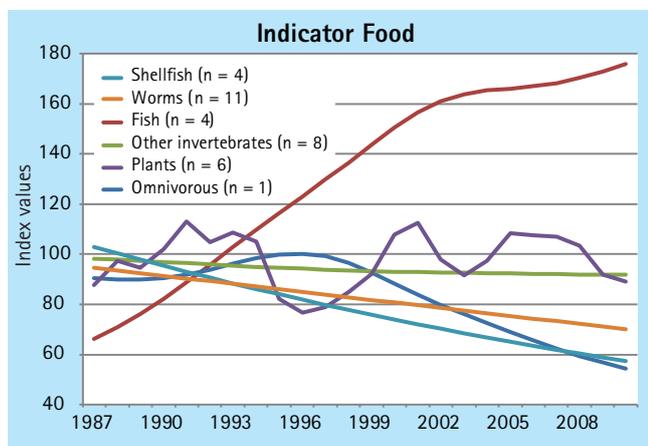
The decisions for these allocations have not been clear-cut in all cases; in particular regarding food or feeding habitat, the choice was to pick those which represented the main food or feeding habitat, respectively.

For the combined indices the geometrical mean of species-specific indices have been used.

### Results

#### Food

Species depending on fish show a positive development, while those feeding more or less opportunistically on "other invertebrates" are stable. The herbivorous species seem to decline now after a stable period up to 2000, species feeding on worms or shellfish are on the decline. The only omnivorous species, Greater Black-backed Gull, is also declining.



#### Feeding Habitat

Species utilizing beaches or tidal areas are stable, and those using the salt marshes have been stable, but are declining during the recent 10 years; the species of the coastal grasslands (European Golden Plover, Northern Lapwing, Ruff) are all on the decline.

#### Breeding Range

Trends are stable for the arctic breeders and decreasing for the non-arctic breeders.

#### Wintering Range

Trends are decreasing for those species wintering in Europe, while those wintering in Africa are even increasing.

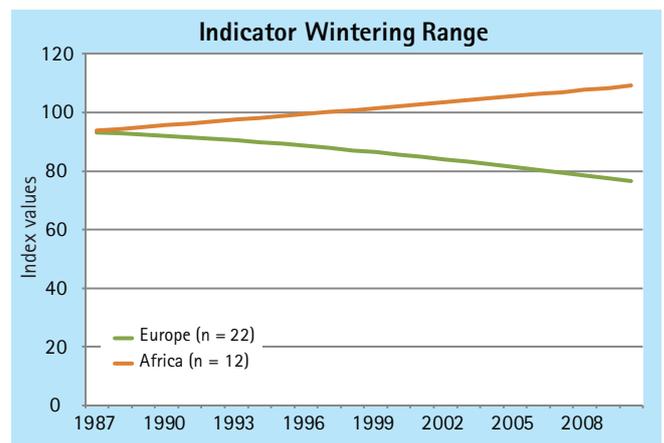
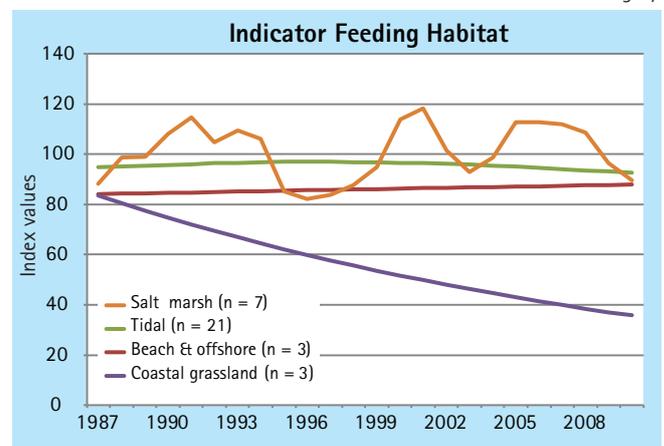
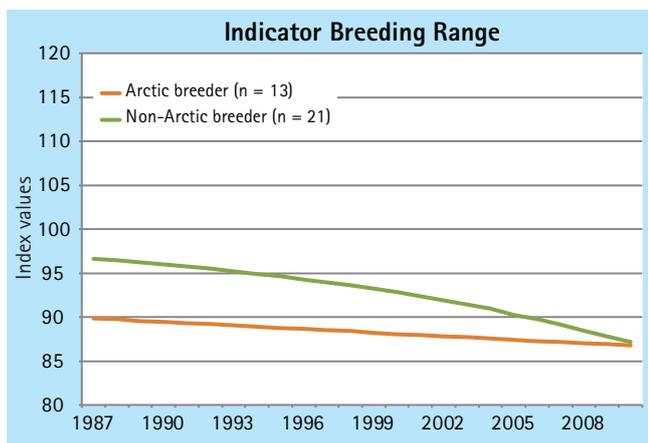


Figure 5-8 Combined trends according to food guilds, feeding habitat, breeding range and wintering range (see Table 2-4). Trends were aggregated by using the geometrical mean of TrendSpotter trend lines of single species within each category.

## 12 Summary trends according to indicators

Table 2  
Selection of species  
according to food

Species	Food					
	Shellfish	Worms	Fish	Other invertebrates	Plants	Omnivorous
Great Cormorant			x			
Eurasian Spoonbill			x			
Barnacle Goose					x	
Brent Goose					x	
Common Shelduck				x		
Eurasian Wigeon					x	
Common Teal					x	
Mallard					x	
Northern Pintail					x	
Northern Shoveler				x		
Common Eider	x					
Eurasian Oystercatcher	x					
Pied Avocet		x				
Great Ringed Plover		x				
Kentish Plover		x				
European Golden Plover		x				
Grey Plover		x				
Northern Lapwing		x				
Red Knot	x					
Sanderling		x				
Curlew Sandpiper		x				
Dunlin		x				
Ruff		x				
Bar-tailed Godwit		x				
Whimbrel				x		
Eurasian Curlew				x		
Spotted Redshank			x			
Common Redshank				x		
Common Greenshank			x			
Ruddy Turnstone				x		
Black-headed Gull				x		
Common Gull				x		
European Herring Gull	x					
Great Black-backed Gull						x
<b>Total number of species</b>	<b>4</b>	<b>11</b>	<b>4</b>	<b>8</b>	<b>6</b>	<b>1</b>

Photo:  
Barend van Gernerden.



Species	Feeding Habitat				
	Salt marsh	Tidal	Dunes	Beach & offshore	Coastal grassland
Great Cormorant		x			
Eurasian Spoonbill		x			
Barnacle Goose	x				
Brent Goose	x				
Common Shelduck		x			
Eurasian Wigeon	x				
Common Teal	x				
Mallard	x				
Northern Pintail	x				
Northern Shoveler	x				
Common Eider		x			
Eurasian Oystercatcher		x			
Pied Avocet		x			
Great Ringed Plover		x			
Kentish Plover		x			
European Golden Plover					x
Grey Plover		x			
Northern Lapwing					x
Red Knot		x			
Sanderling				x	
Curlew Sandpiper		x			
Dunlin		x			
Ruff					x
Bar-tailed Godwit		x			
Whimbrel		x			
Eurasian Curlew		x			
Spotted Redshank		x			
Common Redshank		x			
Common Greenshank		x			
Ruddy Turnstone				x	
Black-headed Gull		x			
Common Gull		x			
European Herring Gull		x			
Great Black-backed Gull				x	
<b>Total number of species</b>	<b>7</b>	<b>21</b>	<b>0</b>	<b>3</b>	<b>3</b>

Table 3  
Selection of species  
according to feeding  
habitat.

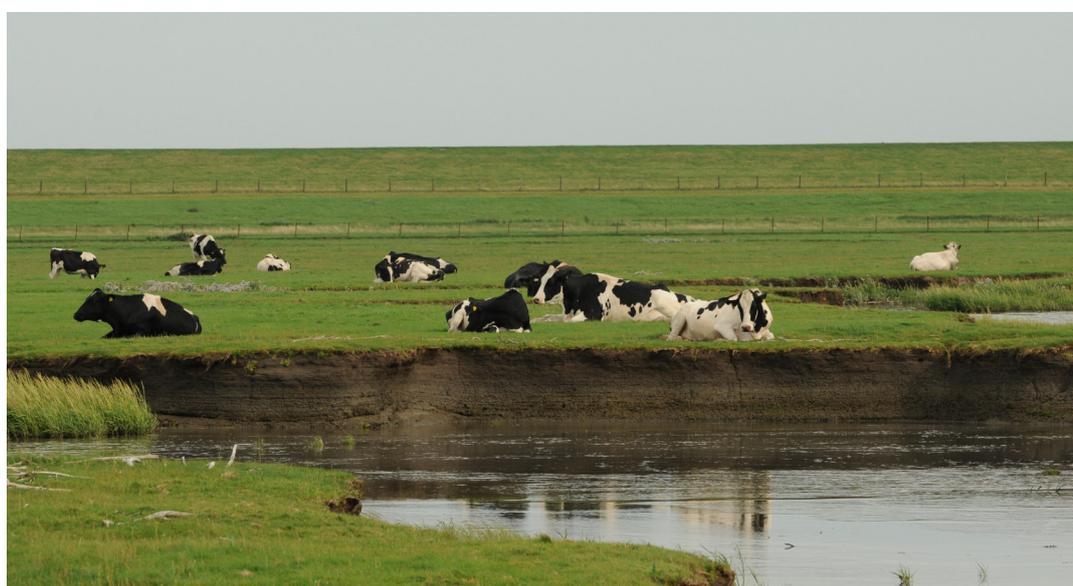


Photo:  
Gundolf Reichert.

Table 4  
Selection of species according to breeding and wintering range.

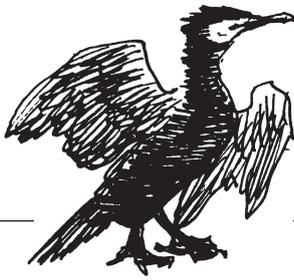
Species	Breeding range		Wintering range	
	Arctic breeder	Non-arctic breeder	Europe	Africa
Great Cormorant		x	x	
Eurasian Spoonbill		x		x
Barnacle Goose	x		x	
Brent Goose	x		x	
Common Shelduck		x	x	
Eurasian Wigeon		x	x	
Common Teal		x	x	
Mallard		x	x	
Northern Pintail		x		x
Northern Shoveler		x	x	
Common Eider		x	x	
Eurasian Oystercatcher		x	x	
Pied Avocet		x	x	
Great Ringed Plover	x			x
Kentish Plover		x	x	
European Golden Plover		x	x	
Grey Plover	x			x
Northern Lapwing		x	x	
Red Knot	x			x
Sanderling	x			x
Curlew Sandpiper	x			x
Dunlin	x		x	
Ruff	x			x
Bar-tailed Godwit	x			x
Whimbrel	x			x
Eurasian Curlew	x		x	
Spotted Redshank		x		x
Common Redshank		x	x	
Common Greenshank		x		x
Ruddy Turnstone	x		x	
Black-headed Gull		x	x	
Common Gull		x	x	
European Herring Gull		x	x	
Great Black-backed Gull		x	x	
<b>Total number of species</b>	<b>13</b>	<b>21</b>	<b>22</b>	<b>12</b>

## Species Accounts

Photo:  
John Frikke







Great Cormorant

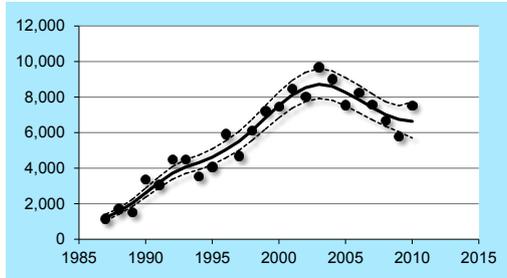
*Phalacrocorax carbo*

00720

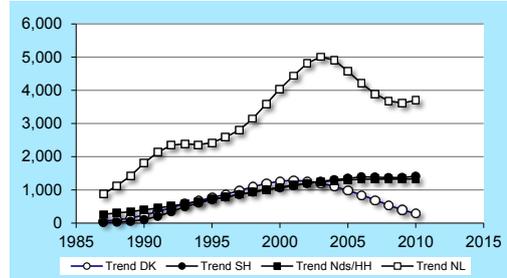
DK: Skarv

D: Kormoran

NL: Aalscholver



(A) Overall trend in the International Wadden Sea

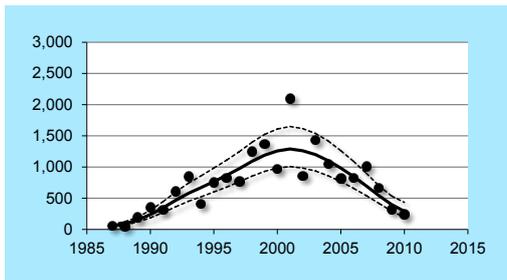


(B) Trends in the different countries compared

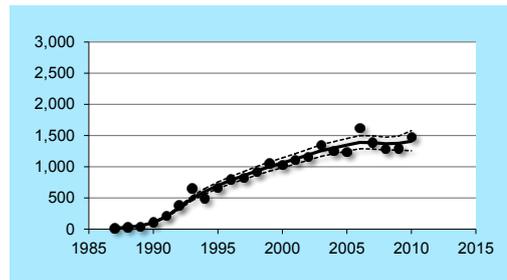
Figure 9-14 Trends of Great Cormorant in the International Wadden Sea (WS) and the four regions 1987/1988-2010/2011; dots represent annual averages; trendline calculated by Trendspotter (solid line) together with the  $\pm$  95 % confidence limits (dotted line).

Explanatory Note

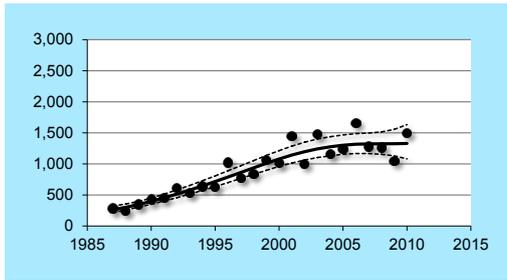
Great Cormorant numbers show a remarkable increase in the Wadden Sea from the 1980s up until 2003 during all seasons, reflecting the increase in the breeding populations in Northern Europe. This long-term increase has recently turned into a sustained decrease most visible in the Netherlands and Denmark; lately, these negative trends are also indicated in Schleswig-Holstein and Niedersachsen/Hamburg, while the long-term trend is still an increase.



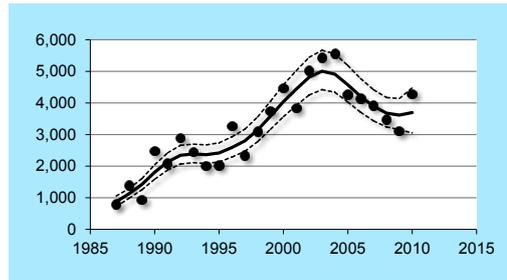
(C) Denmark



(D) Schleswig-Holstein



(E) Niedersachsen/Hamburg



(F) The Netherlands

Trends for Great Cormorant in the Wadden Sea

Figures represent the trend 1987/1988 to 2010/2011, taking into account data from all months to express an overall trend for the entire year. Numbers on the y-axis represent monthly mean occurrences. Dots are the individual yearly estimates, solid lines the trend calculated by TrendSpotter, dotted lines the 95% confidence limits of the trend lines.

Area	Period	1987/88 - 2010/11	1998/99 - 2010/11
(A)/(B) International Wadden Sea		↑↑	↓
(C) Denmark		↑	↓↓
(D) Schleswig-Holstein		↑↑	↑
(E) Niedersachsen/Hamburg		↑↑	→
(F) The Netherlands		↑↑	→

↑↑ strong increase   ↓↓ strong decrease   ↑ moderate increase  
 ↓ moderate decrease   → stable   □ uncertain

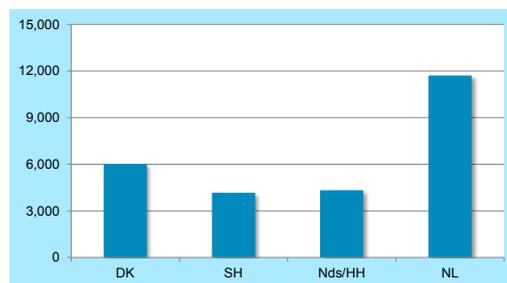


Figure 15 Absolute numbers of Great Cormorant in the four regions calculated by average of the 3 maximum numbers in the period 2001/2002-2010/2011.



# Eurasian Spoonbill

01440

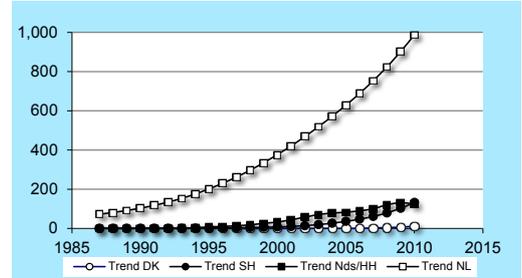
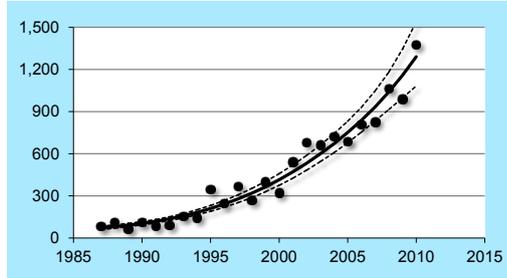
*Platalea leucorodia*

DK: Skestork

D: Löffler

NL: Lepelaar

Figure 16-21 Trends of Eurasian Spoonbill in the International Wadden Sea (WS) and the four regions 1987/1988-2010/2011; dots represent annual averages; trendline calculated by Trendspotter (solid line) together with the ± 95 % confidence limits (dotted line).

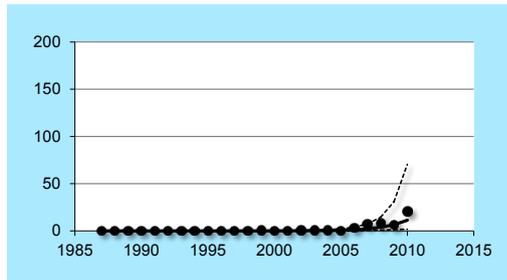


(A) Overall trend in the International Wadden Sea

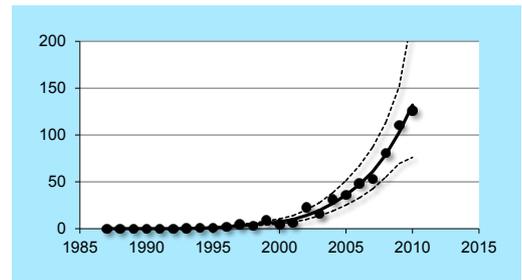
(B) Trends in the different countries compared

### Explanatory Note

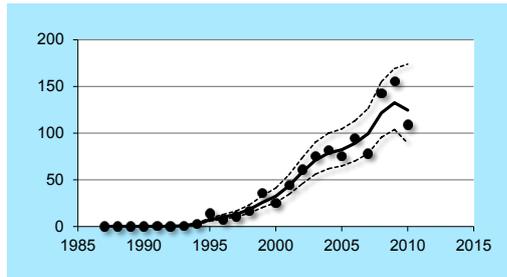
The Wadden Sea is near the northern border of the Eurasian Spoonbill breeding range, but numbers increase up to now especially in the Netherlands, but also in Niedersachsen/Hamburg and Schleswig-Holstein. The non-breeding numbers reflect the breeding population and numbers are increasing in all parts of the Wadden Sea.



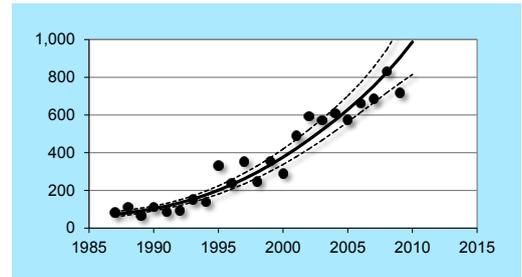
(C) Denmark



(D) Schleswig-Holstein



(E) Niedersachsen/Hamburg



(F) The Netherlands

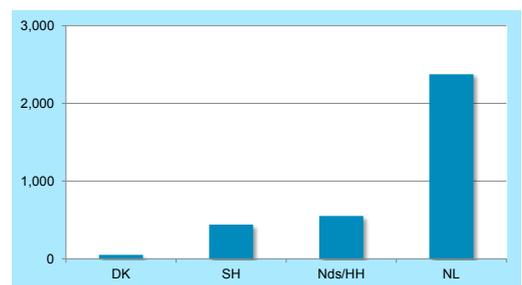
### Trends for Eurasian Spoonbill in the Wadden Sea

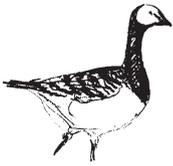
Figures represent the trend 1987/1988 to 2010/2011, taking into account data from all months to express an overall trend for the entire year. Numbers on the y-axis represent monthly mean occurrences. Dots are the individual yearly estimates, solid lines the trend calculated by TrendSpotter, dotted lines the 95% confidence limits of the trend lines.

Figure 22 Absolute numbers of Eurasian Spoonbill in the four regions calculated by average of the 3 maximum numbers in the period 2001/2002-2010/2011.

Area	Period	1987/88 - 2010/11	1998/99 - 2010/11
(A)/(B) International Wadden Sea		↑↑	↑↑
(C) Denmark		↑↑	↑↑
(D) Schleswig-Holstein		↑↑	↑↑
(E) Niedersachsen/Hamburg		↑↑	↑↑
(F) The Netherlands		↑↑	↑↑

↑↑ strong increase   ↓↓ strong decrease   ↑ moderate increase  
 ↓ moderate decrease   → stable   □ uncertain





Barnacle Goose

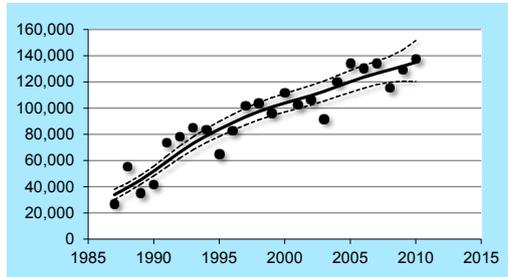
*Branta leucopsis*

01670

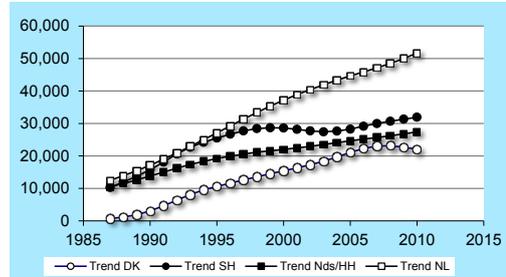
DK: Bramgå

D: Weißwangengans

NL: Brandgans



(A) Overall trend in the International Wadden Sea

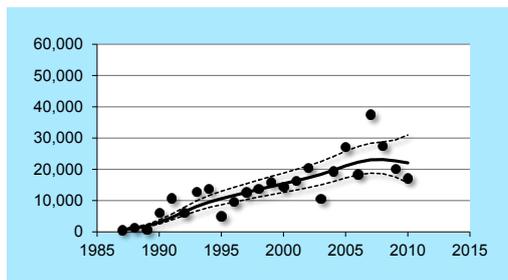


(B) Trends in the different countries compared

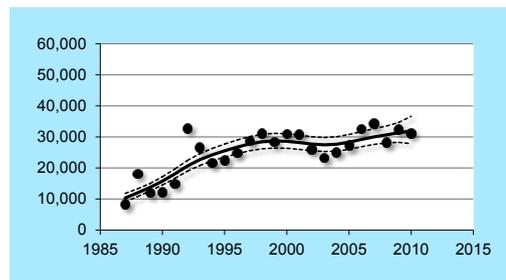
Figure 23-28 Trends of Barnacle Goose in the International Wadden Sea (WS) and the four regions 1987/1988-2010/2011; dots represent annual averages; trendline calculated by Trendspotter (solid line) together with the  $\pm$  95 % confidence limits (dotted line).

Explanatory Note

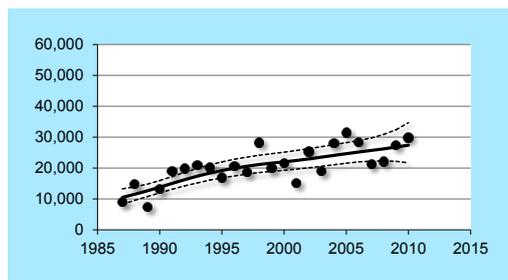
The Barnacle Goose flyway population is increasing, and this trend is also reflected clearly by the numbers in the Wadden Sea. Though fluctuations occur in Niedersachsen/Hamburg and the Netherlands, the short-term trend estimate is stable. During the last 10 years the species has prolonged its staging period in spring and its departure has moved into May.



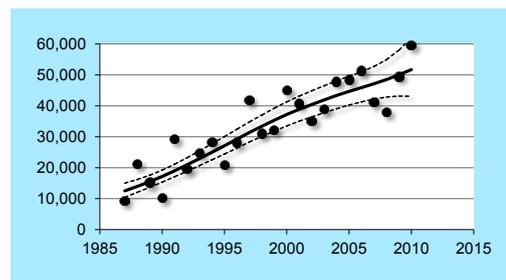
(C) Denmark



(D) Schleswig-Holstein



(E) Niedersachsen/Hamburg



(F) The Netherlands

Trends for Barnacle Goose in the Wadden Sea

Figures represent the trend 1987/1988 to 2010/2011, taking into account data from all months to express an overall trend for the entire year. Numbers on the y-axis represent monthly mean occurrences. Dots are the individual yearly estimates, solid lines the trend calculated by TrendSpotter, dotted lines the 95% confidence limits of the trend lines.

Area	Period	1987/88 - 2010/11	1998/99 - 2010/11
(A)/(B) International Wadden Sea		↑↑	↑
(C) Denmark		↑↑	—
(D) Schleswig-Holstein		↑	→
(E) Niedersachsen/Hamburg		↑	—
(F) The Netherlands		↑↑	↑

↑↑ strong increase    ↓↓ strong decrease    ↑ moderate increase  
 ↓ moderate decrease    → stable    — uncertain

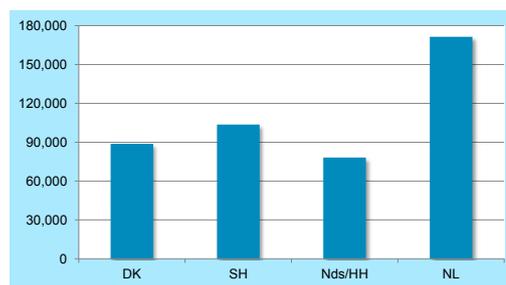


Figure 29 Absolute numbers of Barnacle Goose in the four regions calculated by average of the 3 maximum numbers in the period 2001/2002-2010/2011.

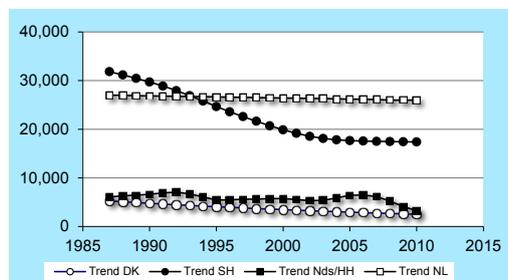
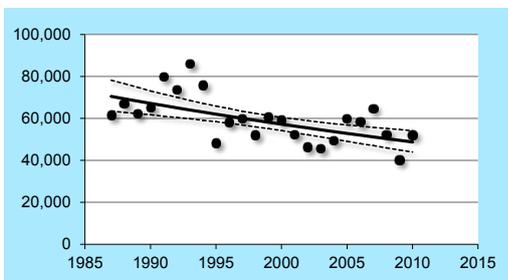
# Dark-bellied Brent Goose

01680

*Branta bernicla bernicla*

DK: Mørkbuget Knortegås D: Dunkelbäuchige Ringelgans NL: Rotgans

Figure 30-35 Trends of Dark-bellied Brent Goose in the International Wadden Sea (WS) and the four regions 1987/1988-2010/2011; dots represent annual averages; trendline calculated by Trendspotter (solid line) together with the  $\pm$  95 % confidence limits (dotted line).

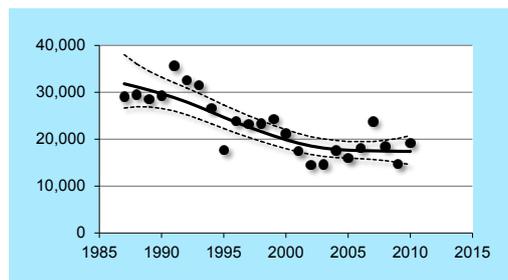
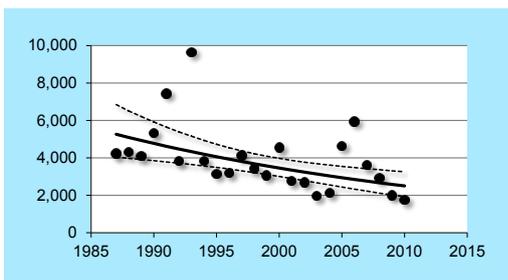


(A) Overall trend in the International Wadden Sea

(B) Trends in the different countries compared

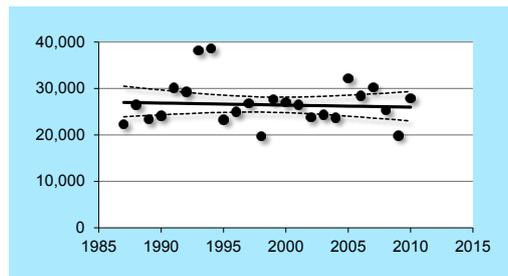
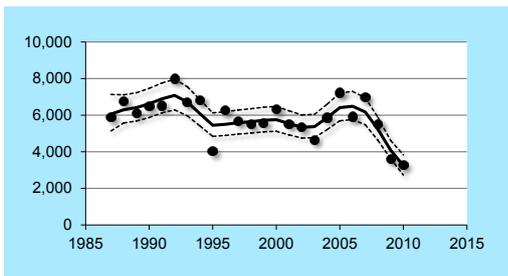
**Explanatory Note**

The Dark-bellied Brent Goose population has increased until the mid 1990s and decreased afterwards. Due to those fluctuations, the overall trends in the Wadden Sea appear to be stable, which also applies for the Netherlands and Niedersachsen/Niedersachsen. Within the fluctuations, both Denmark and Schleswig-Holstein show decreasing trends.



(C) Denmark

(D) Schleswig-Holstein



(E) Niedersachsen/Hamburg

(F) The Netherlands

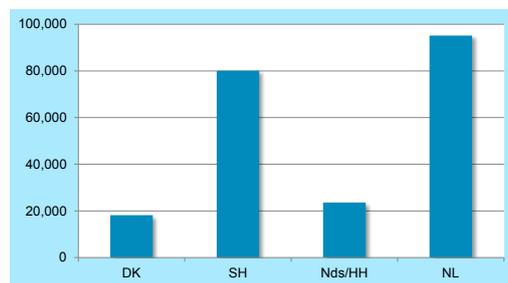
**Trends for Dark-bellied Brent Goose in the Wadden Sea**

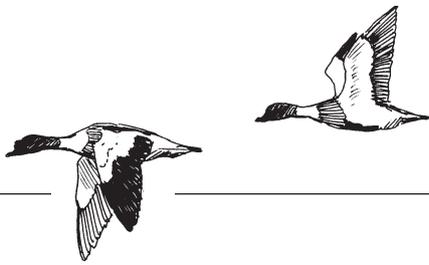
Figures represent the trend 1987/1988 to 2010/2011, taking into account data from all months to express an overall trend for the entire year. Numbers on the y-axis represent monthly mean occurrences. Dots are the individual yearly estimates, solid lines the trend calculated by TrendSpotter, dotted lines the 95% confidence limits of the trend lines.

Figure 36 Absolute numbers of Dark-bellied Brent Goose in the four regions calculated by average of the 3 maximum numbers in the period 2001/2002-2010/2011.

Area	Period	1987/88 - 2010/11	1998/99 - 2010/11
(A)/(B) International Wadden Sea		↓	↓
(C) Denmark		↓	↓
(D) Schleswig-Holstein		↓	↗
(E) Niedersachsen/Hamburg		↓	↓
(F) The Netherlands		↗	↗

↑ strong increase    ↓ strong decrease    ↑ moderate increase  
↓ moderate decrease    ↔ stable    □ uncertain





Common Shelduck

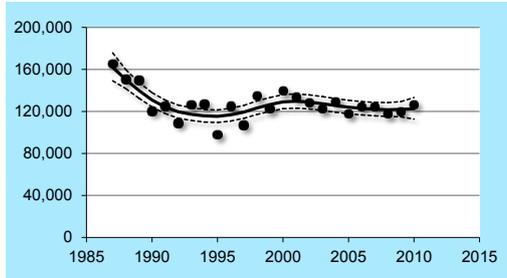
*Tadorna tadorna*

01730

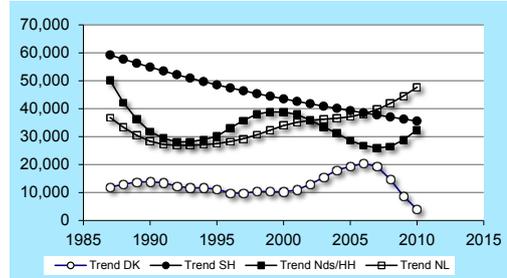
DK: Gravand

D: Brandgans

NL: Bergeend



(A) Overall trend in the International Wadden Sea



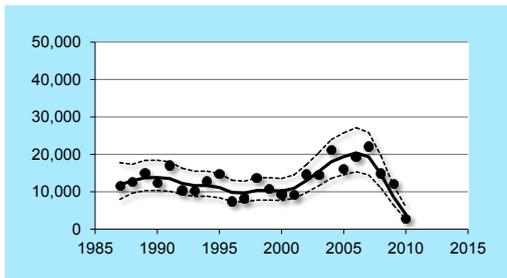
(B) Trends in the different countries compared

Figure 37-42 Trends of CommonShelduck in the International Wadden Sea (WS) and the four regions 1987/1988-2010/2011; dots represent annual averages; trendline calculated by Trendspotter (solid line) together with the ± 95 % confidence limits (dotted line).

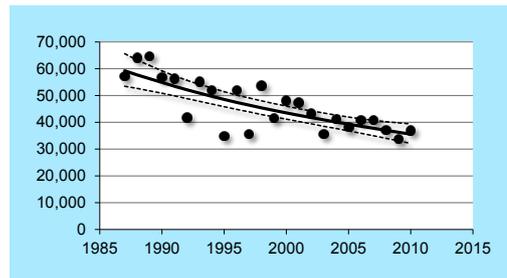
**Explanatory Note**

Some 80% of the Common Shelduck flyway population can be found in the Wadden Sea. Overall numbers – counted from the ground throughout the year – decreased up to the mid 1990’s and seemed to level off. However, due to a continuous slight decrease after 2000, the long-term Wadden Sea trend is decreasing, the 10-year trend still stable. Decreases occur both in Schleswig-Holstein and Niedersachsen/Hamburg, while trends in Denmark and the Netherlands are stable, fluctuating or slightly increasing.

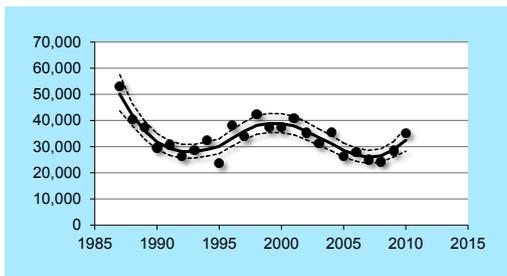
The Shelduck moulting population, with its main concentration in the Schleswig-Holstein Wadden Sea, has been increasing up to 2000, but is continuously decreasing thereafter. The long-term trend is now stable, but the short-term trend clearly decreasing.



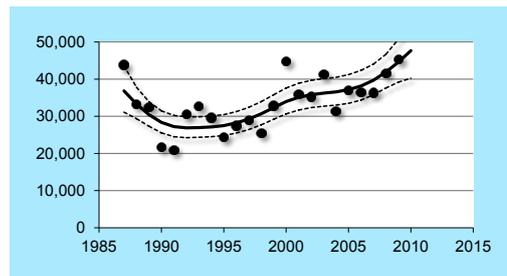
(C) Denmark



(D) Schleswig-Holstein



(E) Niedersachsen/Hamburg



(F) The Netherlands

**Trends for Common Shelduck in the Wadden Sea**

Figures represent the trend 1987/1988 to 2010/2011, taking into account data from all months to express an overall trend for the entire year. Numbers on the y-axis represent monthly mean occurrences. Dots are the individual yearly estimates, solid lines the trend calculated by TrendSpotter, dotted lines the 95% confidence limits of the trend lines.

Area	Period	1987/88 - 2010/11	1998/99 - 2010/11
(A)/(B) International Wadden Sea		↓	→
(C) Denmark		↓	↓ ↓
(D) Schleswig-Holstein		↓	↓
(E) Niedersachsen/Hamburg		↓	→
(F) The Netherlands		↑	↑

↑ strong increase  
 ↓ strong decrease  
 ↑ moderate increase  
↓ moderate decrease  
 → stable  
 — uncertain

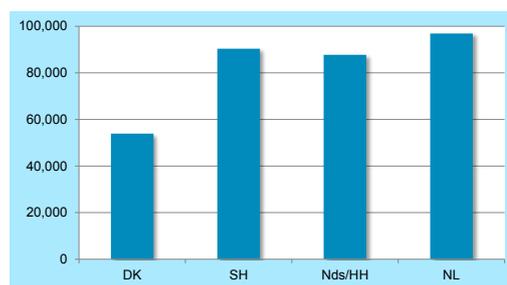
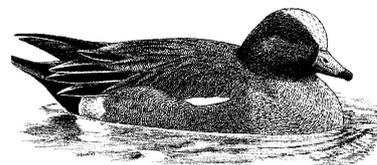


Figure 43 Absolute numbers of Common Shelduck in the four regions calculated by average of the 3 maximum numbers in the period 2001/2002-2010/2011.



# Eurasian Wigeon

01790

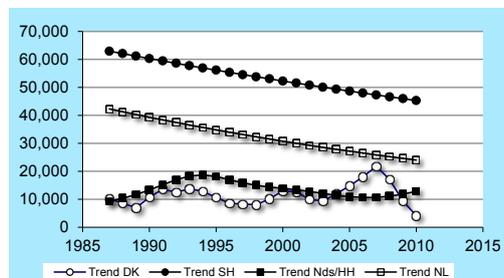
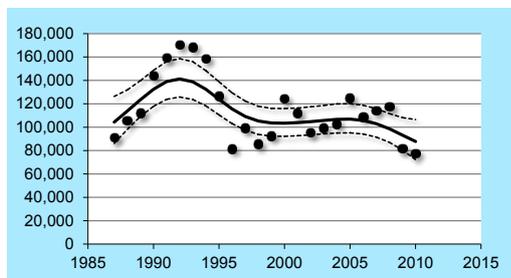
*Anas penelope*

DK: Pibeand

D: Pfeifente

NL: Smient

Figure 44-49 Trends of Eurasian Wigeon in the International Wadden Sea (WS) and the four regions 1987/1988-2010/2011; dots represent annual averages; trendline calculated by Trendspotter (solid line) together with the  $\pm$  95 % confidence limits (dotted line).

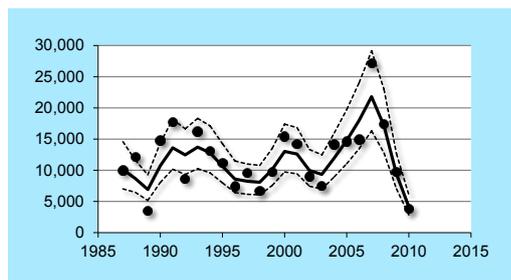


(A) Overall trend in the International Wadden Sea

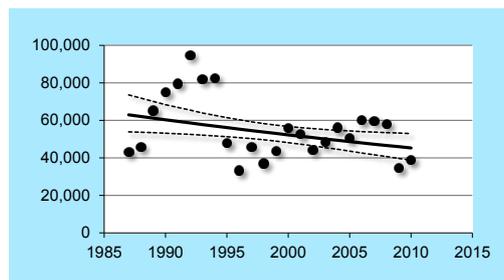
(B) Trends in the different countries compared

### Explanatory Note

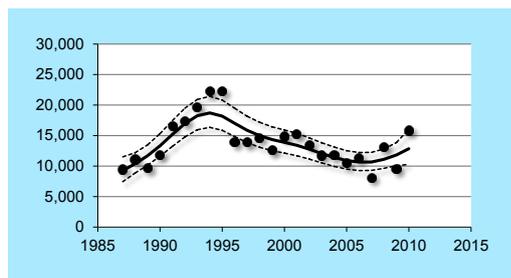
The trend of the Eurasian Wigeon has seen increasing numbers up to the mid 1990s; following two cold winters in 1996 and 1997 numbers decreased, but stabilized thereafter. Thus long and short term overall Wadden Sea trends are stable now. Decreasing trends are found in the Netherlands and now also in Schleswig-Holstein as well as a short-term decrease in Niedersachsen/Hamburg. Denmark shows stable trends.



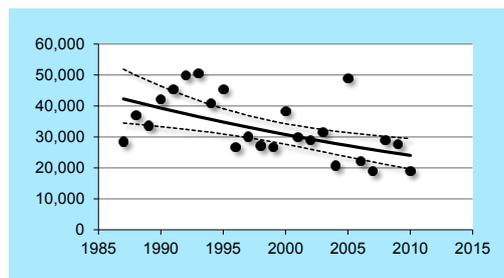
(C) Denmark



(D) Schleswig-Holstein



(E) Niedersachsen/Hamburg



(F) The Netherlands

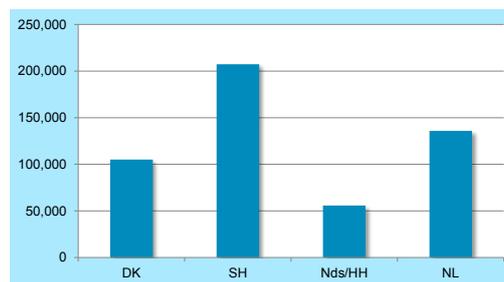
### Trends for Eurasian Wigeon in the Wadden Sea

Figures represent the trend 1987/1988 to 2010/2011, taking into account data from all months to express an overall trend for the entire year. Numbers on the y-axis represent monthly mean occurrences. Dots are the individual yearly estimates, solid lines the trend calculated by TrendSpotter, dotted lines the 95% confidence limits of the trend lines.

Figure 50 Absolute numbers of Eurasian Wigeon in the four regions calculated by average of the 3 maximum numbers in the period 2001/2002-2010/2011.

Area	Period	1987/88 - 2010/11	1998/99 - 2010/11
(A)/(B) International Wadden Sea		→	→
(C) Denmark		↓	↓↓
(D) Schleswig-Holstein		↓	↓
(E) Niedersachsen/Hamburg		↑	→
(F) The Netherlands		↓	↓

↑ strong increase    ↓ strong decrease    ↑ moderate increase  
↓ moderate decrease    → stable      uncertain



Common Teal

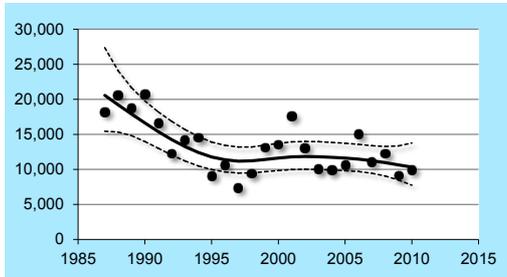
*Anas crecca*

01840

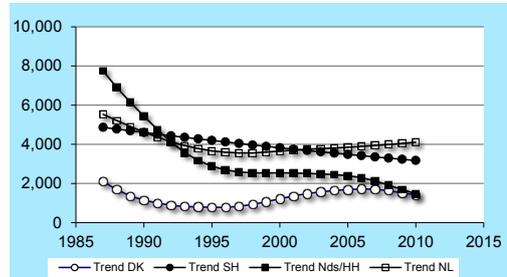
DK: Krikand

D: Krickente

NL: Wintertaling



(A) Overall trend in the International Wadden Sea

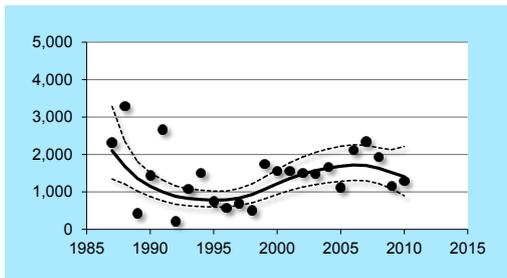


(B) Trends in the different countries compared

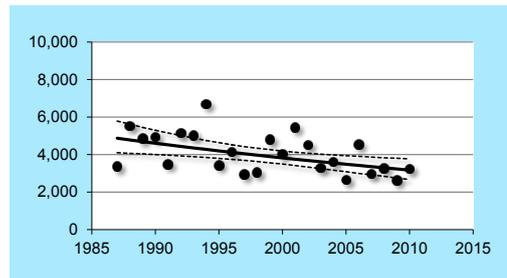
Figure 51-56 Trends of Common Teal in the International Wadden Sea (WS) and the four regions 1987/1988-2010/2011; dots represent annual averages; trendline calculated by Trendspotter (solid line) together with the  $\pm$  95 % confidence limits (dotted line).

Explanatory Note

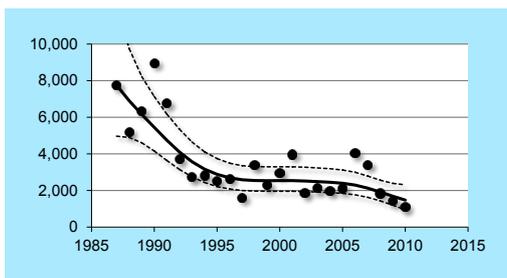
Despite an increasing flyway population, the Common Teal numbers in the Wadden Sea show a decrease now both during the long- and short-term trends. This decrease is also visible in Schleswig-Holstein, large fluctuations, however, do not allow for the short-term trends in the other regions. Since Teal numbers in the Wadden Sea only represent 10% of the flyway population, trends in the Wadden Sea depend more on climate and habitat availability than on flyway trends.



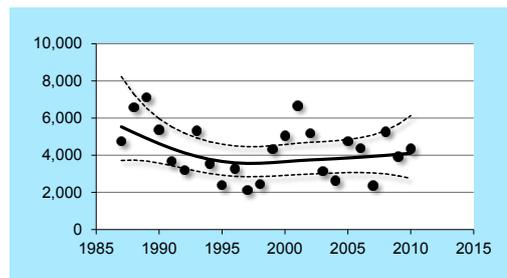
(C) Denmark



(D) Schleswig-Holstein



(E) Niedersachsen/Hamburg



(F) The Netherlands

Trends for Common Teal in the Wadden Sea

Figures represent the trend 1987/1988 to 2010/2011, taking into account data from all months to express an overall trend for the entire year. Numbers on the y-axis represent monthly mean occurrences. Dots are the individual yearly estimates, solid lines the trend calculated by TrendSpotter, dotted lines the 95% confidence limits of the trend lines.

Area	Period	1987/88 - 2010/11	1998/99 - 2010/11
(A)/(B) International Wadden Sea		↓	—
(C) Denmark		→	—
(D) Schleswig-Holstein		↓	↓
(E) Niedersachsen/Hamburg		↓	—
(F) The Netherlands		→	—

↑ strong increase    ↓ strong decrease    ↑ moderate increase  
↓ moderate decrease    → stable    — uncertain

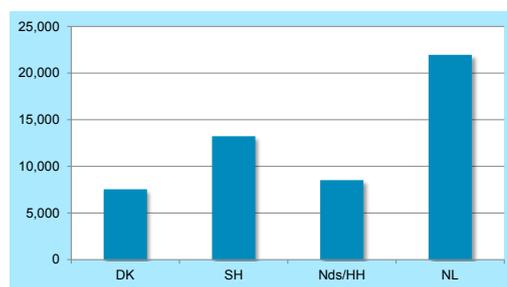


Figure 57 Absolute numbers of Common Teal in the four regions calculated by average of the 3 maximum numbers in the period 2001/2002-2010/2011.

# Mallard

01860

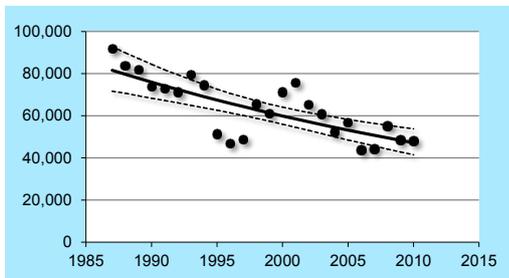
## *Anas platyrhynchos*

DK: Gråand

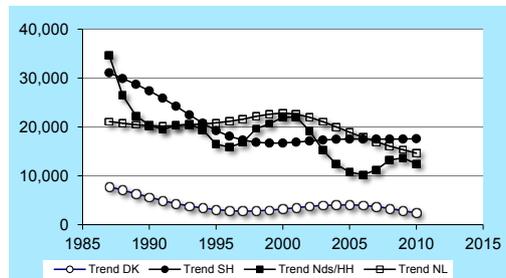
D: Stockente

NL: Wilde Eend

Figure 58-63  
Trends of Mallard in the International Wadden Sea (WS) and the four regions 1987/1988-2010/2011; dots represent annual averages; trendline calculated by Trendspotter (solid line) together with the ± 95% confidence limits (dotted line).



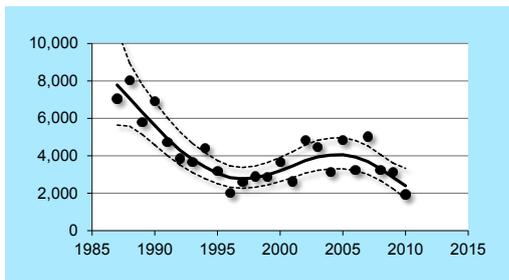
(A) Overall trend in the International Wadden Sea



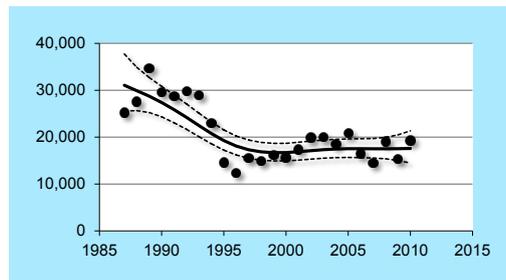
(B) Trends in the different countries compared

### Explanatory Note

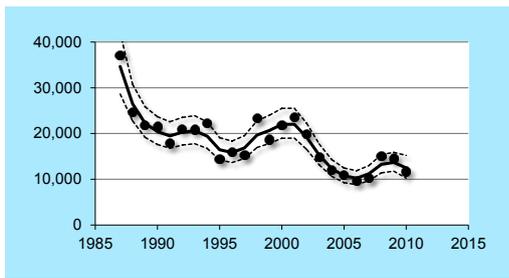
The Mallard occurs in the Wadden Sea only with less than 5% of its flyway populations. The overall trends are moderate but long-lasting decreases in the entire Wadden Sea; while the northern region trends (DK, SH) stabilized, yet with large fluctuations, the southern regions show continuing decreases.



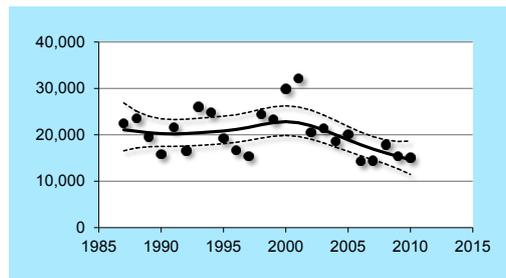
(C) Denmark



(D) Schleswig-Holstein



(E) Niedersachsen/Hamburg



(F) The Netherlands

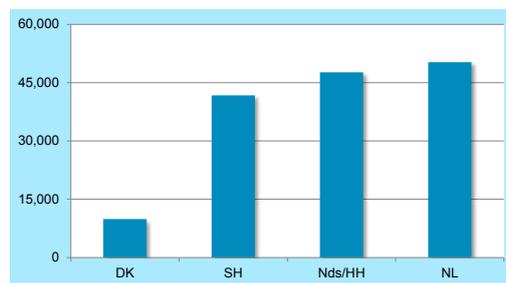
### Trends for Mallard in the Wadden Sea

Figures represent the trend 1987/1988 to 2010/2011, taking into account data from all months to express an overall trend for the entire year. Numbers on the y-axis represent monthly mean occurrences. Dots are the individual yearly estimates, solid lines the trend calculated by TrendSpotter, dotted lines the 95% confidence limits of the trend lines.

Figure 64  
Absolute numbers of Mallard in the four regions calculated by average of the 3 maximum numbers in the period 2001/2002-2010/2011.

Area	Period	1987/88 - 2010/11	1998/99 - 2010/11
(A)/(B) International Wadden Sea		↓	↓
(C) Denmark		↓	—
(D) Schleswig-Holstein		↓	↗
(E) Niedersachsen/Hamburg		↓	↓
(F) The Netherlands		↓	↓

↑ strong increase    ↓ strong decrease    ↑ moderate increase  
↓ moderate decrease    ↔ stable    — uncertain



Northern Pintail

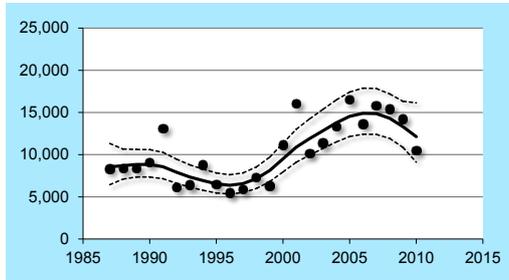
*Anas acuta*

01890

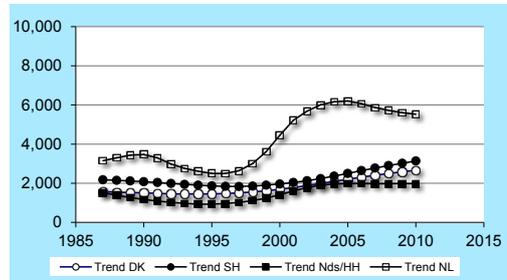
DK: Spidsand

D: SpieBente

NL: Pijlstaart



(A) Overall trend in the International Wadden Sea

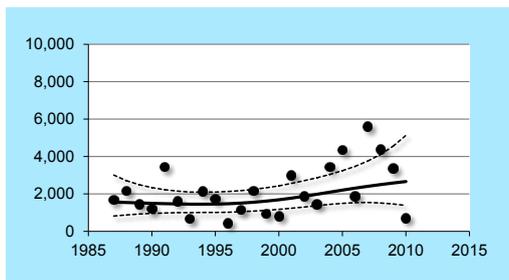


(B) Trends in the different countries compared

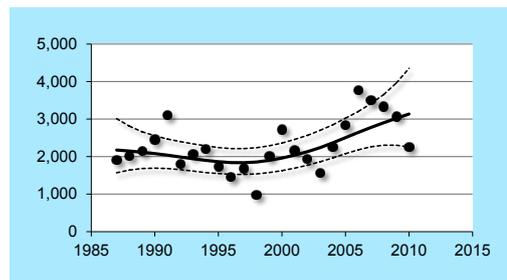
Figure 65-70 Trends of Northern Pintail in the International Wadden Sea (WS) and the four regions 1987/1988-2010/2011; dots represent annual averages; trendline calculated by Trendspotter (solid line) together with the  $\pm$  95 % confidence limits (dotted line).

Explanatory Note

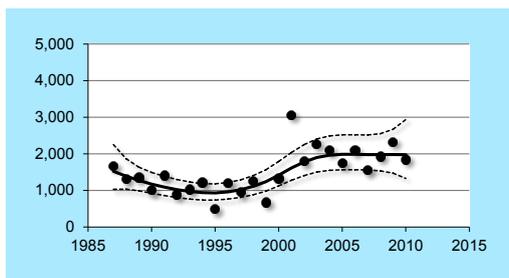
While the Northern Pintail flyway population trend is stable, the developments in the Wadden Sea, however, holding up to 50% of the flyway population, show large fluctuations, resulting, however, in long-term and short-term increasing trends in most regions.



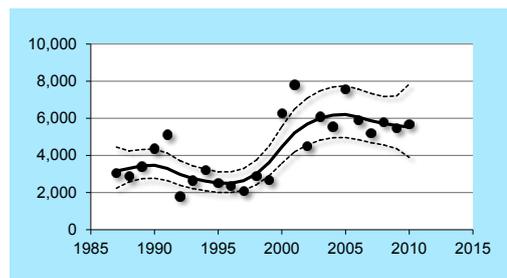
(C) Denmark



(D) Schleswig-Holstein



(E) Niedersachsen/Hamburg



(F) The Netherlands

Trends for Northern Pintail in the Wadden Sea

Figures represent the trend 1987/1988 to 2010/2011, taking into account data from all months to express an overall trend for the entire year. Numbers on the y-axis represent monthly mean occurrences. Dots are the individual yearly estimates, solid lines the trend calculated by TrendSpotter, dotted lines the 95% confidence limits of the trend lines.

Area	Period	1987/88 - 2010/11	1998/99 - 2010/11
(A)/(B) International Wadden Sea		→	—
(C) Denmark		—	—
(D) Schleswig-Holstein		→	↑
(E) Niedersachsen/Hamburg		→	—
(F) The Netherlands		↑	—

↑ strong increase    ↓ strong decrease    ↑ moderate increase  
↓ moderate decrease    → stable    — uncertain

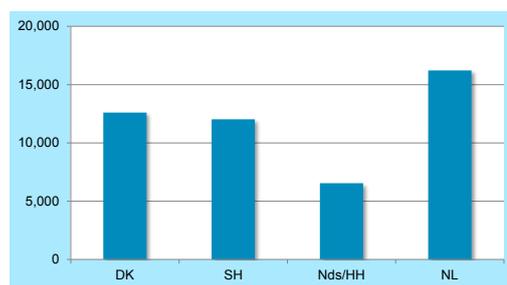


Figure 71 Absolute numbers of Northern Pintail in the four regions calculated by average of the 3 maximum numbers in the period 2001/2002-2010/2011.

# Northern Shoveler

01940

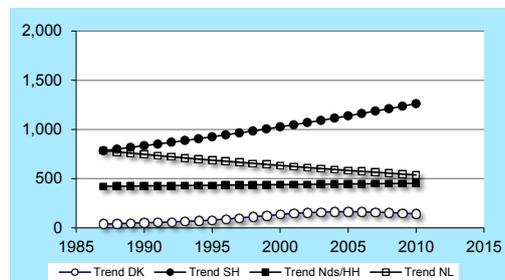
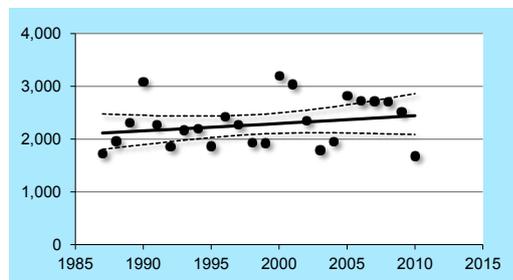
*Anas clypeata*

DK: Skeand

D: Löffelente

NL: Slobeend

Figure 72-77  
Trends of Northern Shoveler in the International Wadden Sea (WS) and the four regions 1987/1988-2010/2011; dots represent annual averages; trendline calculated by Trendspotter (solid line) together with the ± 95% confidence limits (dotted line).

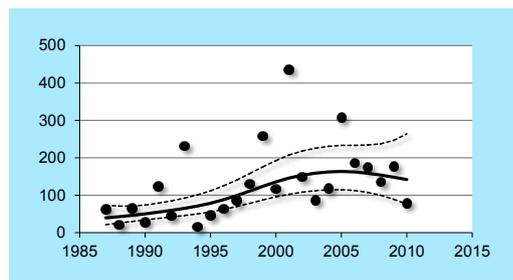


(A) Overall trend in the International Wadden Sea

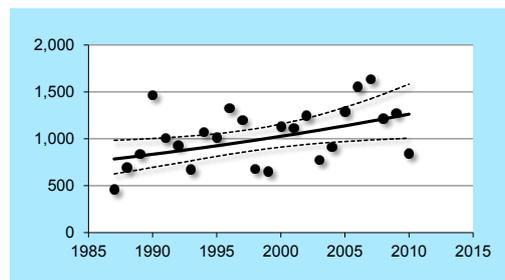
(B) Trends in the different countries compared

### Explanatory Note

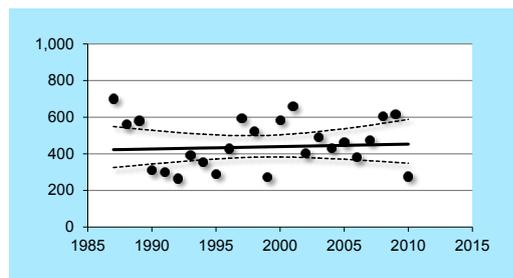
The numbers of Northern Shoveler using the Wadden Sea represent some 20% of the flyway population. The overall Wadden Sea trend is stable, including slight increases in Denmark and Schleswig-Holstein, and an apparent stable situation in Niedersachsen/Hamburg and in the Netherlands.



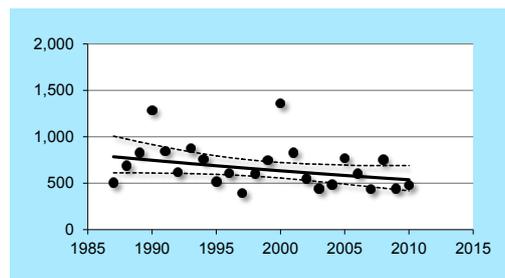
(C) Denmark



(D) Schleswig-Holstein



(E) Niedersachsen/Hamburg



(F) The Netherlands

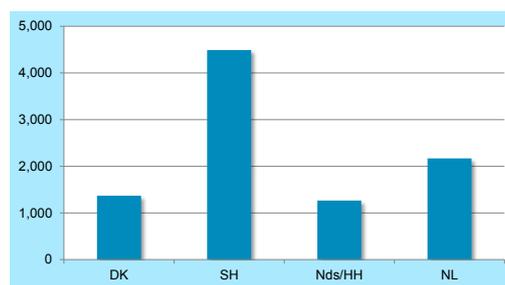
### Trends for Northern Shoveler in the Wadden Sea

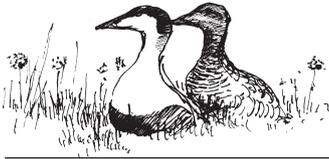
Figures represent the trend 1987/1988 to 2010/2011, taking into account data from all months to express an overall trend for the entire year. Numbers on the y-axis represent monthly mean occurrences. Dots are the individual yearly estimates, solid lines the trend calculated by TrendSpotter, dotted lines the 95% confidence limits of the trend lines.

Figure 78  
Absolute numbers of Northern Shoveler in the four regions calculated by average of the 3 maximum numbers in the period 2001/2002-2010/2011.

Area	Period	1987/88 - 2010/11	1998/99 - 2010/11
(A)/(B) International Wadden Sea		→	→
(C) Denmark		↑	—
(D) Schleswig-Holstein		↑	↑
(E) Niedersachsen/Hamburg		→	→
(F) The Netherlands		→	→

↑ strong increase   ↓ strong decrease   ↑ moderate increase  
 ↓ moderate decrease   → stable   — uncertain





Common Eider

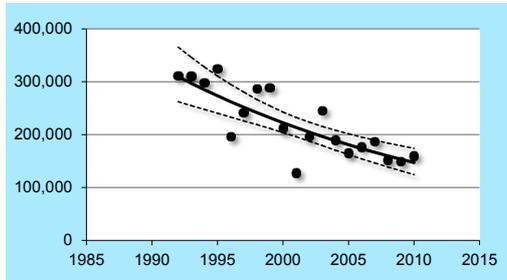
*Somateria mollissima*

02060

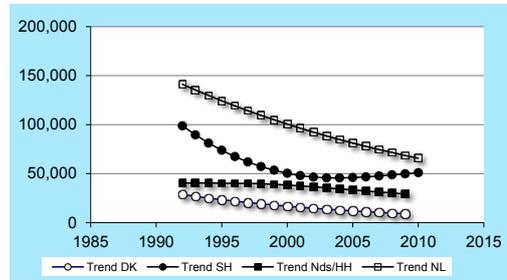
DK: Ederfugl

D: Eiderente

NL: Eidereend



(A) Overall trend in the International Wadden Sea

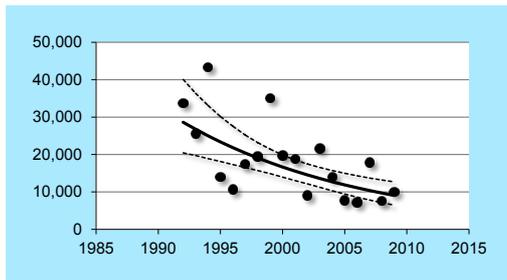


(B) Trends in the different countries compared

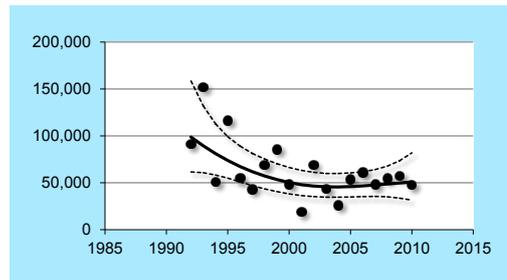
Figure 79-84 Trends of Common Eider in the International Wadden Sea (WS) and the four regions 1987/1988-2010/2011; dots represent annual averages; trendline calculated by Trendspotter (solid line) together with the  $\pm$  95 % confidence limits (dotted line).

Explanatory Note

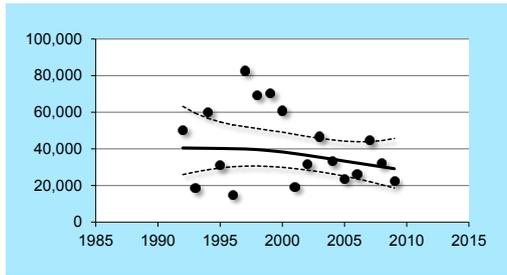
Common Eider numbers counted from the airplane at mid winter (only since 1993) were stable in the Wadden Sea only for the first years up to 1995/1996 and continuously decreased thereafter. This decrease also applies for the 10-year trends in the Netherlands and in Denmark, while numbers in Niedersachsen/Hamburg and Schleswig-Holstein are fluctuating.



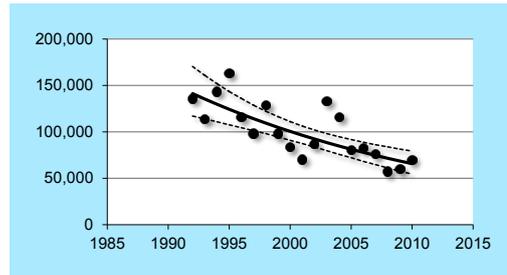
(C) Denmark



(D) Schleswig-Holstein



(E) Niedersachsen/Hamburg



(F) The Netherlands

Trends for Common Eider in the Wadden Sea

Figures represent the trend 1992/1993 to 2010/2011, taking into account data from all months to express an overall trend for the entire year. Numbers on the y-axis represent monthly mean occurrences. Dots are the individual yearly estimates, solid lines the trend calculated by TrendSpotter, dotted lines the 95% confidence limits of the trend lines.

Area	Period	no long term trend available - counts started in 1993	1998/99 - 2010/11
(A)/(B) International Wadden Sea			↓
(C) Denmark			↓
(D) Schleswig-Holstein			—
(E) Niedersachsen/Hamburg			—
(F) The Netherlands			↓

↑ strong increase    ↓ strong decrease    ↑ moderate increase  
↓ moderate decrease    → stable    — uncertain

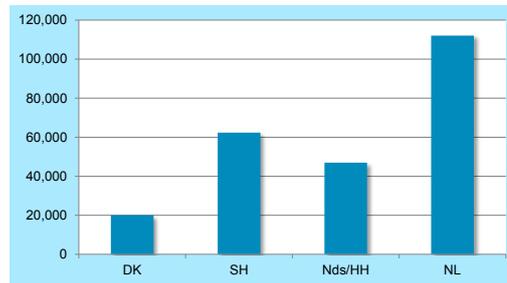


Figure 85 Absolute numbers of Common Eider in the four regions calculated by average of the 3 maximum numbers in the period 2001/2002-2010/2011. Numbers are derived by aerial counts.



# Eurasian Oystercatcher

04500

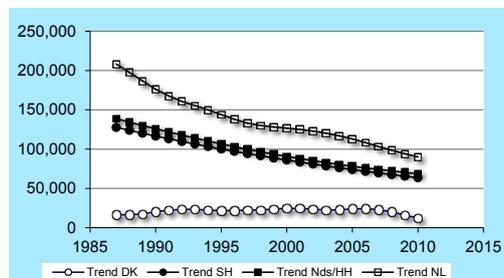
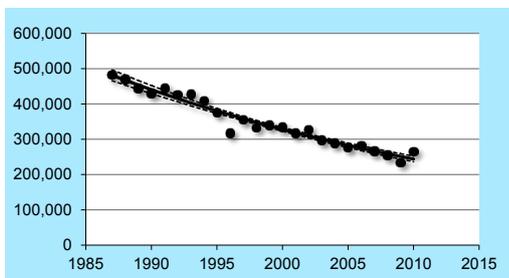
*Haematopus ostralegus*

DK: Strandskade

D: Austernfischer

NL: Scholekster

Figure 86-91  
Trends of Eurasian Oystercatcher in the International Wadden Sea (WS) and the four regions 1987/1988-2010/2011; dots represent annual averages; trendline calculated by Trendspotter (solid line) together with the  $\pm$  95 % confidence limits (dotted line).

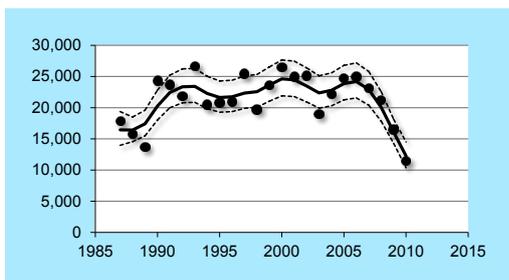


(A) Overall trend in the International Wadden Sea

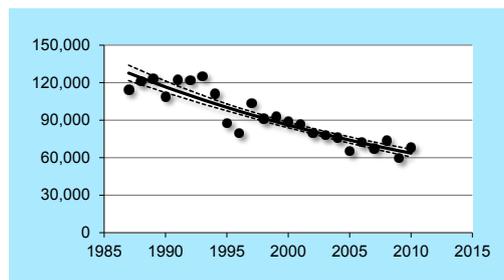
(B) Trends in the different countries compared

### Explanatory Note

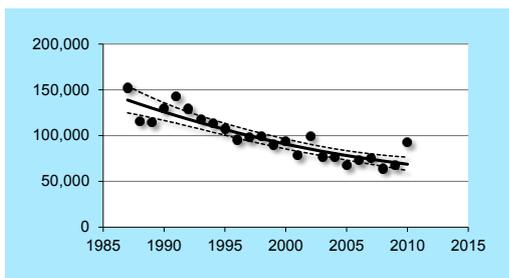
Up to 50% of the Eurasian Oystercatcher flyway population can be counted in the Wadden Sea. Overall Wadden Sea numbers show a striking regular and long-lasting decrease also in all regions. The last season, again, added an even lower point to all figures, now also in Denmark.



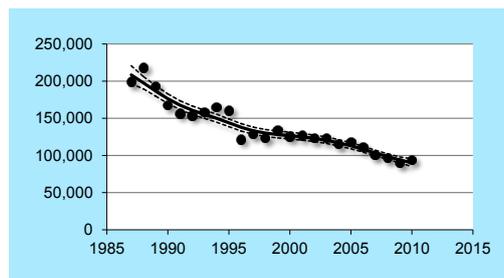
(C) Denmark



(D) Schleswig-Holstein



(E) Niedersachsen/Hamburg



(F) The Netherlands

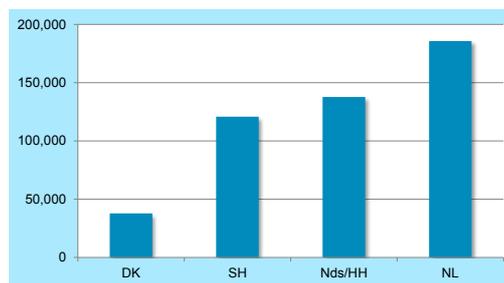
### Trends for Eurasian Oystercatcher in the Wadden Sea

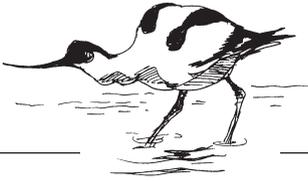
Figures represent the trend 1987/1988 to 2010/2011, taking into account data from all months to express an overall trend for the entire year. Numbers on the y-axis represent monthly mean occurrences. Dots are the individual yearly estimates, solid lines the trend calculated by TrendSpotter, dotted lines the 95% confidence limits of the trend lines.

Figure 92  
Absolute numbers of Eurasian Oystercatcher in the four regions calculated by average of the 3 maximum numbers in the period 2001/2002-2010/2011.

Area	Period	1987/88 - 2010/11	1998/99 - 2010/11
(A)/(B) International Wadden Sea		↓	↓
(C) Denmark		↓	↓↓↓
(D) Schleswig-Holstein		↓	↓
(E) Niedersachsen/Hamburg		↓	↓
(F) The Netherlands		↓	↓

↑ strong increase    ↓ strong decrease    ↑ moderate increase  
↓ moderate decrease    → stable    ■ uncertain





Pied Avocet

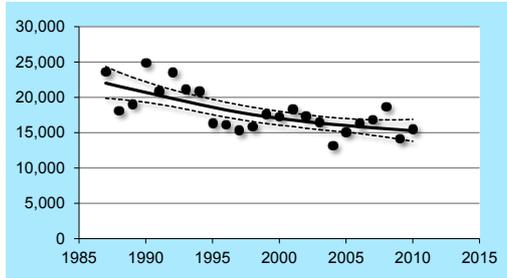
*Recurvirostra avocetta*

04560

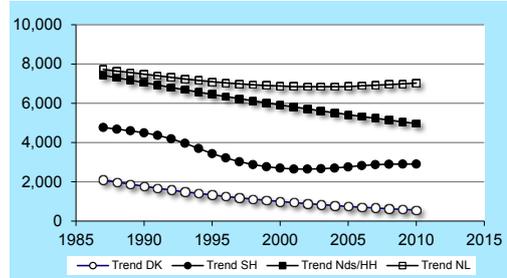
DK: Klyde

D: Säbelschnäbler

NL: Kluut



(A) Overall trend in the International Wadden Sea

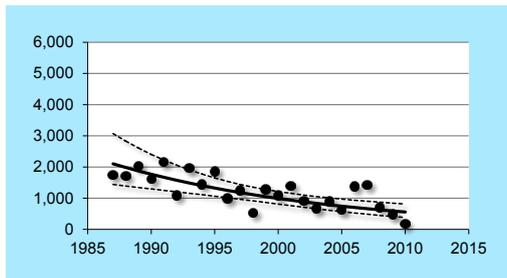


(B) Trends in the different countries compared

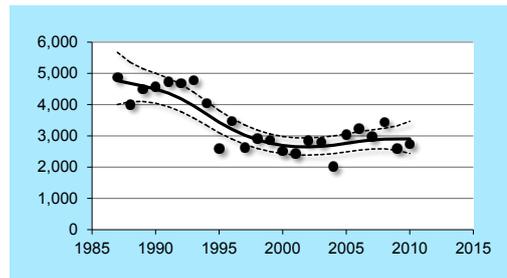
Figure 93-98 Trends of Pied Avocet in the International Wadden Sea (WS) and the four regions 1987/1988-2010/2011; dots represent annual averages; trendline calculated by Trendspotter (solid line) together with the  $\pm 95\%$  confidence limits (dotted line).

**Explanatory Note**

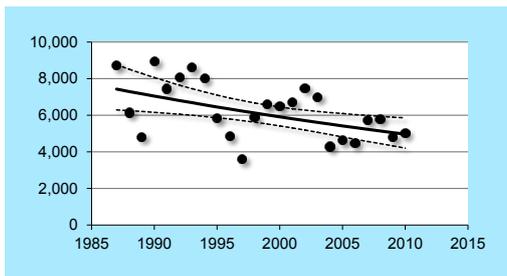
Peak numbers of Pied Avocet occur during autumn, when more than 50% of its flyway population can be found in the Wadden Sea. The trend for the flyway population is stable, however, the overall trend in the Wadden Sea is a moderate but continuous decrease, even though results since 1995 seem to be rather levelled. The decrease is also visible in all regions but the Netherlands, where the trends are stable.



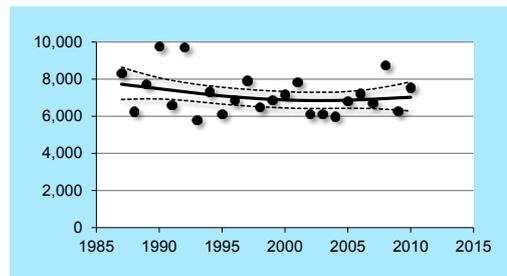
(C) Denmark



(D) Schleswig-Holstein



(E) Niedersachsen/Hamburg



(F) The Netherlands

**Trends for Pied Avocet in the Wadden Sea**

Figures represent the trend 1987/1988 to 2010/2011, taking into account data from all months to express an overall trend for the entire year. Numbers on the y-axis represent monthly mean occurrences. Dots are the individual yearly estimates, solid lines the trend calculated by TrendSpotter, dotted lines the 95% confidence limits of the trend lines.

Area	Period	1987/88 - 2010/11	1998/99 - 2010/11
(A)/(B) International Wadden Sea		↓	→
(C) Denmark		↓	↓
(D) Schleswig-Holstein		↓	→
(E) Niedersachsen/Hamburg		↓	↓
(F) The Netherlands		→	→

↑ strong increase    ↓ strong decrease    ↑ moderate increase  
↓ moderate decrease    → stable    — uncertain

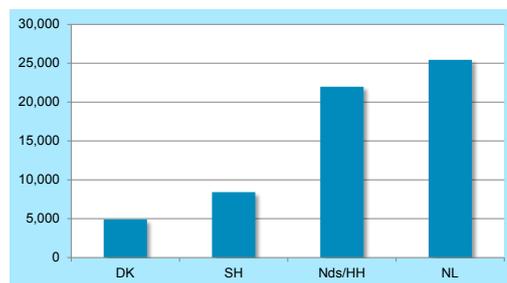
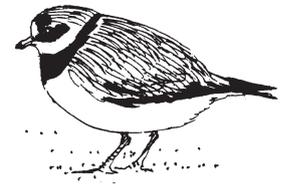


Figure 99 Absolute numbers of Pied Avocet in the four regions calculated by average of the 3 maximum numbers in the period 2001/2002-2010/2011.



# Great Ringed Plover

04700

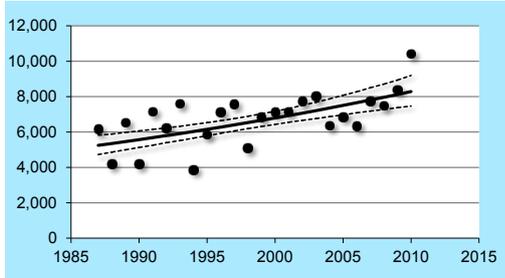
*Charadrius hiaticula*

DK: Stor Præstekrave

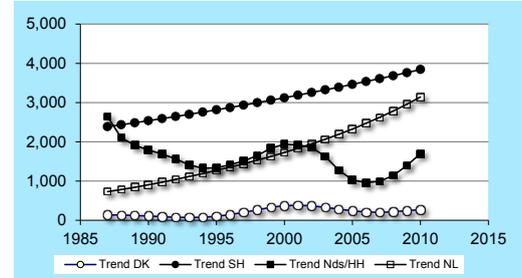
D: Sandregenpfeifer

NL: Bontbekplevier

Figure 100-105  
Trends of Great Ringed Plover in the International Wadden Sea (WS) and the four regions 1987/1988-2010/2011; dots represent annual averages; trendline calculated by Trendspotter (solid line) together with the  $\pm$  95 % confidence limits (dotted line).



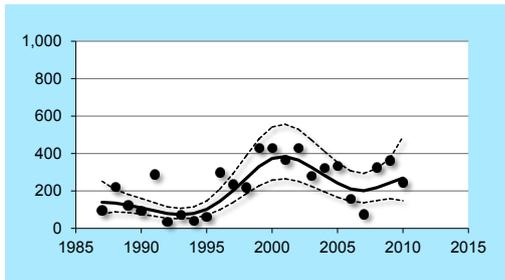
(A) Overall trend in the International Wadden Sea



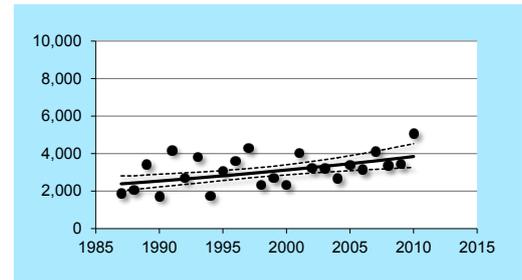
(B) Trends in the different countries compared

### Explanatory Note

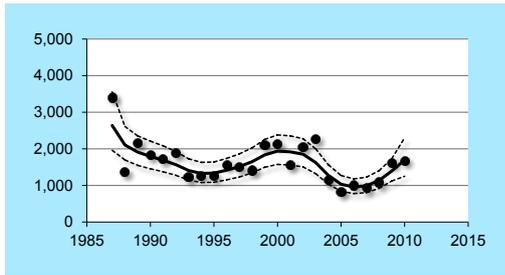
Three populations of Great Ringed Plover pass the Wadden Sea during migration, *C. h. hiaticula* being present from October to April, but large numbers of both the arctic breeding *C. h. tundrae* and *C. h. psammodyroma* coming through during May. Overall results are fluctuating, but show a moderate increase for the entire Wadden Sea and even a strong long-term increase for the Netherlands. Numbers in Niedersachsen/Hamburg are decreasing overall, fluctuating in Denmark.



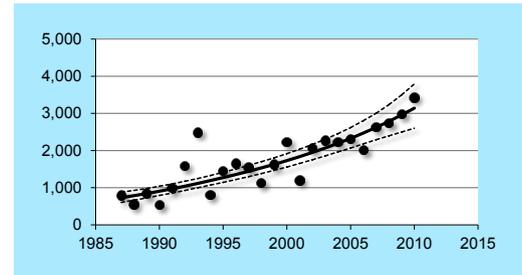
(C) Denmark



(D) Schleswig-Holstein



(E) Niedersachsen/Hamburg



(F) The Netherlands

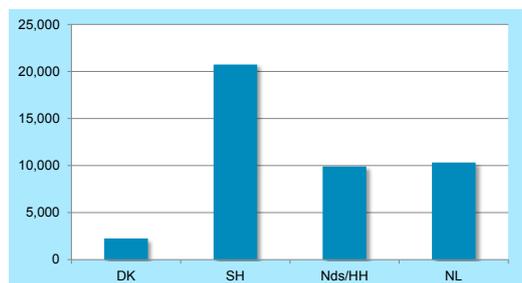
### Trends for Great Ringed Plover in the Wadden Sea

Figures represent the trend 1987/1988 to 2010/2011, taking into account data from all months to express an overall trend for the entire year. Numbers on the y-axis represent monthly mean occurrences. Dots are the individual yearly estimates, solid lines the trend calculated by TrendSpotter, dotted lines the 95% confidence limits of the trend lines.

Figure 106  
Absolute numbers of Great Ringed Plover in the four regions calculated by average of the 3 maximum numbers in the period 2001/2002-2010/2011.

Area	Period	1987/88 - 2010/11	1998/99 - 2010/11
(A)/(B) International Wadden Sea		↑	↑
(C) Denmark		—	—
(D) Schleswig-Holstein		↑	↑
(E) Niedersachsen/Hamburg		↓	—
(F) The Netherlands		↑ ↑	↑

↑ ↑ strong increase   ↓ ↓ strong decrease   ↑ moderate increase  
 ↓ moderate decrease   → stable   — uncertain



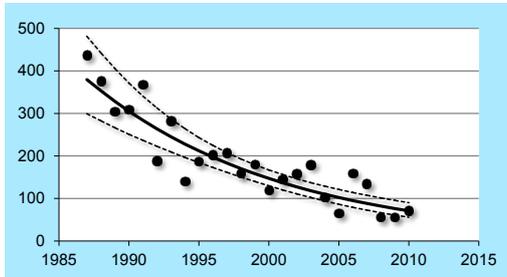


Kentish Plover

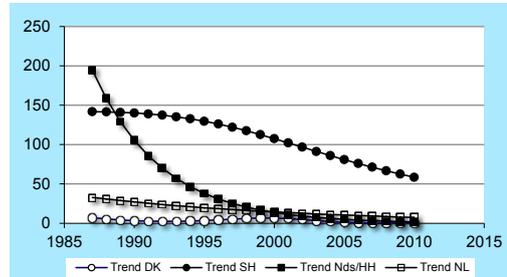
*Charadrius alexandrinus*

04770

DK: Hvidbrystet Præstekrave D: Seeregenpfeifer NL: Strandplevier



(A) Overall trend in the International Wadden Sea

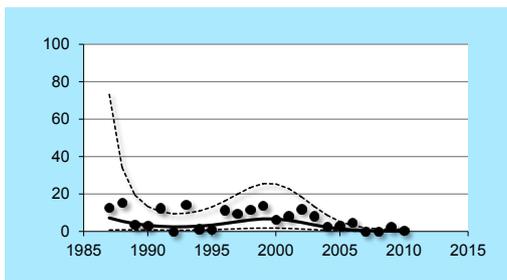


(B) Trends in the different countries compared

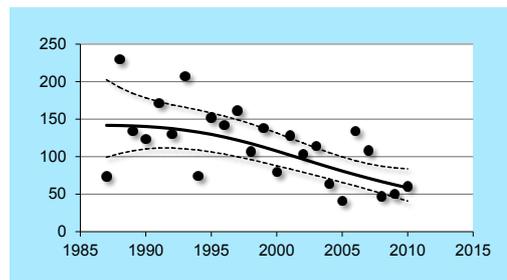
Figure 107-112 Trends of Kentish Plover in the International Wadden Sea (WS) and the four regions 1987/1988-2010/2011; dots represent annual averages; trendline calculated by Trendspotter (solid line) together with the  $\pm$  95 % confidence limits (dotted line).

Explanatory Note

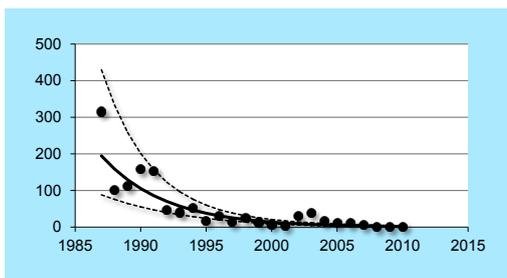
For the Kentish Plover, the Wadden Sea holds less than 1% of the entire flyway population, and overall very low numbers are registered during the synchronous counts. Both during spring and autumn these birds represent the local breeding population. The trend in the overall Wadden Sea and all of its regions is decreasing both in the long- and short-term.



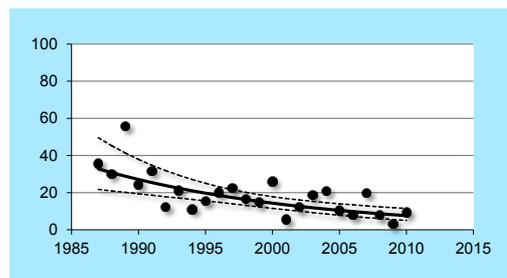
(C) Denmark



(D) Schleswig-Holstein



(E) Niedersachsen/Hamburg



(F) The Netherlands

Trends for Kentish Plover in the Wadden Sea

Figures represent the trend 1987/1988 to 2010/2011, taking into account data from all months to express an overall trend for the entire year. Numbers on the y-axis represent monthly mean occurrences. Dots are the individual yearly estimates, solid lines the trend calculated by TrendSpotter, dotted lines the 95% confidence limits of the trend lines.

Area	Period	1987/88 - 2010/11	1998/99 - 2010/11
(A)/(B) International Wadden Sea		↓ ↓	↓ ↓ ↓
(C) Denmark		↓	↓ ↓ ↓
(D) Schleswig-Holstein		↓	↓
(E) Niedersachsen/Hamburg		↓ ↓ ↓	↓ ↓ ↓
(F) The Netherlands		↓	↓

↑ strong increase  
 ↓ strong decrease  
 ↑ moderate increase  
↓ moderate decrease  
 → stable  
 — uncertain

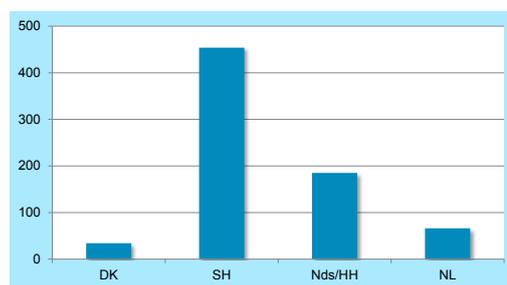


Figure 113 Absolute numbers of Kentish Plover in the four regions calculated by average of the 3 maximum numbers in the period 2001/2002-2010/2011.

# European Golden Plover

04850

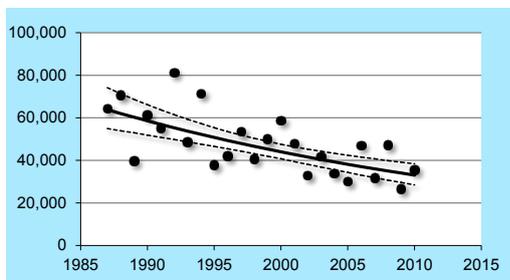
*Pluvialis apricaria*

DK: Hjejle

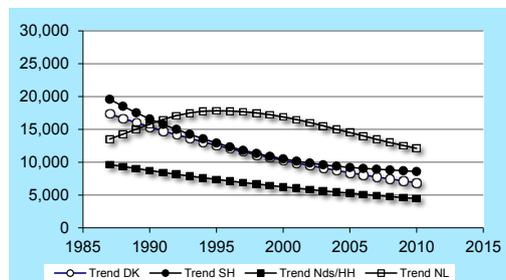
D: Goldregenpfeifer

NL: Goudplevier

Figure 114-119 Trends of European Golden Plover in the International Wadden Sea (WS) and the four regions 1987/1988-2010/2011; dots represent annual averages; trendline calculated by Trendspotter (solid line) together with the  $\pm$  95 % confidence limits (dotted line).



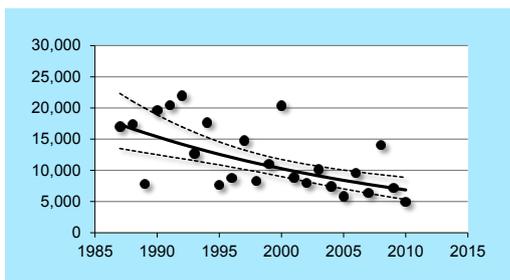
(A) Overall trend in the International Wadden Sea



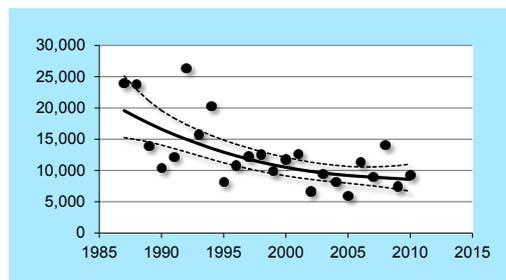
(B) Trends in the different countries compared

### Explanatory Note

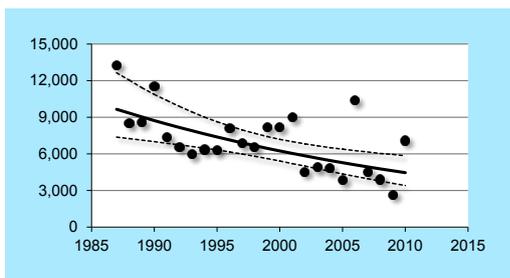
Of the European Golden Plover, three sub-populations may occur in the Wadden Sea, with the largest share belonging to the sub-population *P. a. altifrons*, which breeds in Northern Europe and winters in Central and Western Europe and North-West Africa. Only a small part of that population is covered by the coordinated counts in the Wadden Sea as most birds roost on fields and meadows further inland. The overall trend in the Wadden Sea and its regions is decreasing in both the long- and the short-term trends; only in the Netherlands, the long-term trend is still stable, but maybe turning into a decrease.



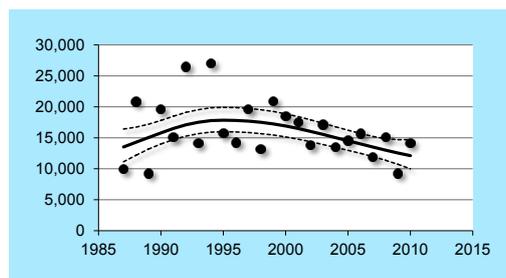
(C) Denmark



(D) Schleswig-Holstein



(E) Niedersachsen/Hamburg



(F) The Netherlands

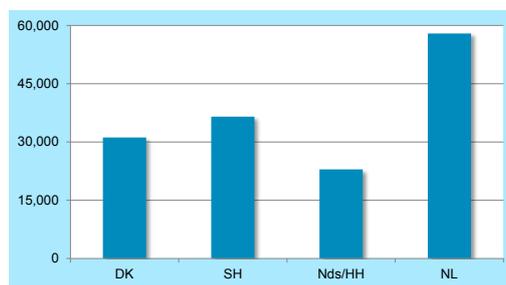
### Trends for European Golden Plover in the Wadden Sea

Figures represent the trend 1987/1988 to 2010/2011, taking into account data from all months to express an overall trend for the entire year. Numbers on the y-axis represent monthly mean occurrences. Dots are the individual yearly estimates, solid lines the trend calculated by TrendSpotter, dotted lines the 95% confidence limits of the trend lines.

Figure 120 Absolute numbers of European Golden Plover in the four regions calculated by average of the 3 maximum numbers in the period 2001/2002-2010/2011.

Area	Period	1987/88 - 2010/11	1998/99 - 2010/11
(A)/(B) International Wadden Sea		↓	↓
(C) Denmark		↓	↓
(D) Schleswig-Holstein		↓	→
(E) Niedersachsen/Hamburg		↓	↓
(F) The Netherlands		→	↓

↑ strong increase    ↓ strong decrease    ↑ moderate increase  
↓ moderate decrease    → stable    ■ uncertain

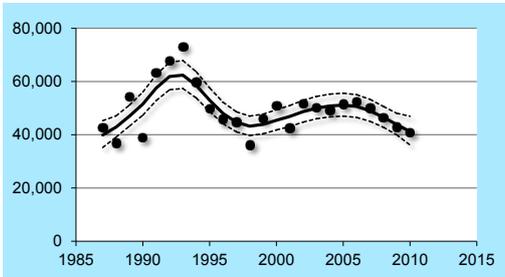


Grey Plover

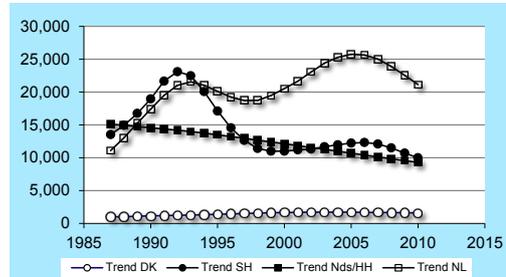
*Pluvialis squatarola*

04860

DK: Strandhjejle D: Kiebitzregenpfeifer NL: Zilverplevier



(A) Overall trend in the International Wadden Sea

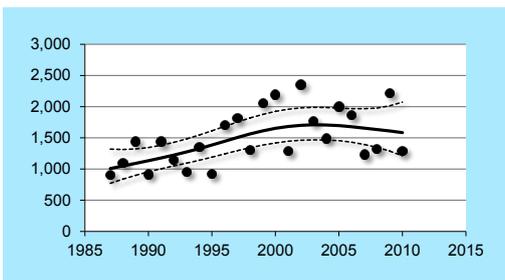


(B) Trends in the different countries compared

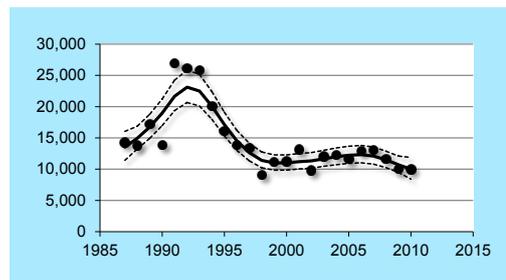
Figure 121-126 Trends of Grey Plover in the International Wadden Sea (WS) and the four regions 1987/1988-2010/2011; dots represent annual averages; trendline calculated by Trendspotter (solid line) together with the  $\pm 95\%$  confidence limits (dotted line).

**Explanatory Note**

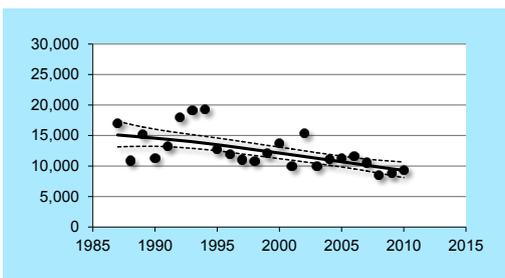
More than 50% of the total flyway population of Grey Plover uses the Wadden Sea outside the breeding season, thus this region is of high importance for the species. The total flyway population is decreasing, but in the Wadden Sea the overall trend is stable both during the long and short term. Long-term trend increases are still registered in the Netherlands, while decreases occur in Niedersachsen/Hamburg. The situation in Schleswig-Holstein and Denmark appears to be stable.



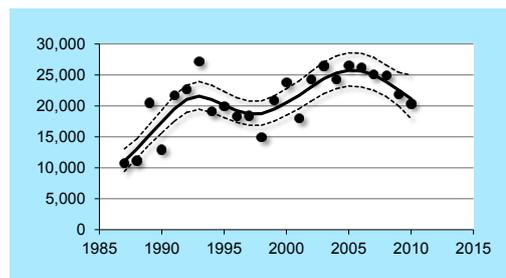
(C) Denmark



(D) Schleswig-Holstein



(E) Niedersachsen/Hamburg



(F) The Netherlands

**Trends for Grey Plover in the Wadden Sea**

Figures represent the trend 1987/1988 to 2010/2011, taking into account data from all months to express an overall trend for the entire year. Numbers on the y-axis represent monthly mean occurrences. Dots are the individual yearly estimates, solid lines the trend calculated by TrendSpotter, dotted lines the 95% confidence limits of the trend lines.

Area	Period	1987/88 - 2010/11	1998/99 - 2010/11
(A)/(B) International Wadden Sea		→	→
(C) Denmark		↑	→
(D) Schleswig-Holstein		↓	→
(E) Niedersachsen/Hamburg		↓	↓
(F) The Netherlands		↑	→

↑ strong increase    ↓ strong decrease    ↑ moderate increase  
↓ moderate decrease    → stable    — uncertain

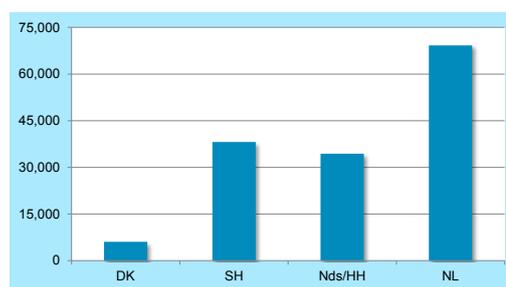


Figure 127 Absolute numbers of Grey Plover in the four regions calculated by average of the 3 maximum numbers in the period 2001/2002-2010/2011.



# Northern Lapwing

04930

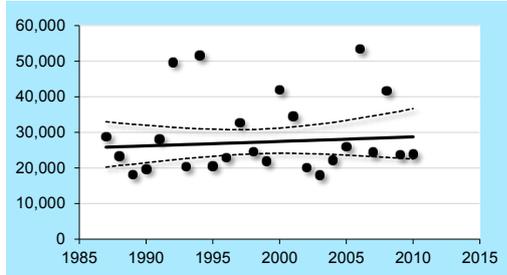
*Vanellus vanellus*

DK: Vibe

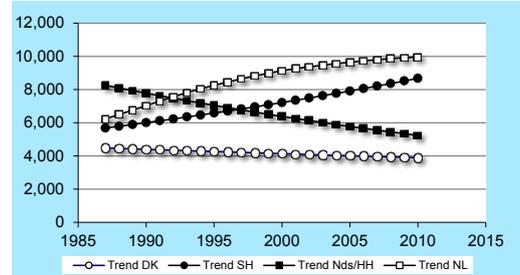
D: Kiebitz

NL: Kievit

Figure 128-133 Trends of Northern Lapwing in the International Wadden Sea (WS) and the four regions 1987/1988-2010/2011; dots represent annual averages; trendline calculated by Trendspotter (solid line) together with the ± 95 % confidence limits (dotted line).



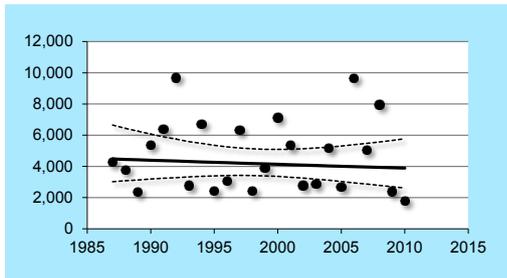
(A) Overall trend in the International Wadden Sea



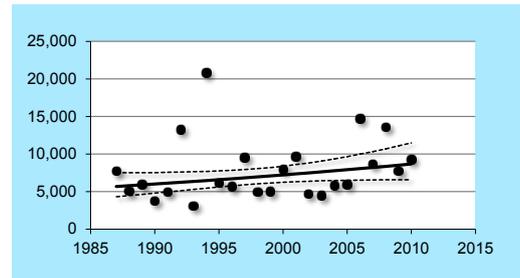
(B) Trends in the different countries compared

**Explanatory Note**

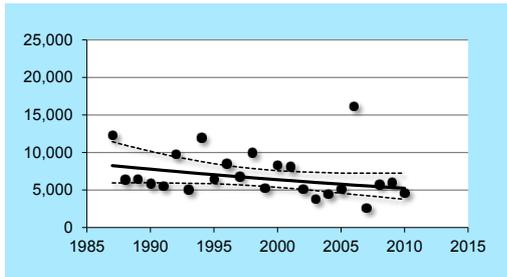
Only a small fraction of the decreasing Northern Lapwing flyway population uses the Wadden Sea. Registered numbers show considerable fluctuations, but the overall Wadden Sea trends are stable.



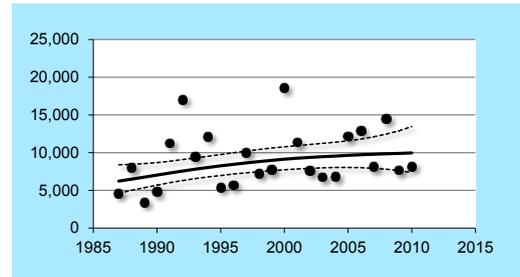
(C) Denmark



(D) Schleswig-Holstein



(E) Niedersachsen/Hamburg



(F) The Netherlands

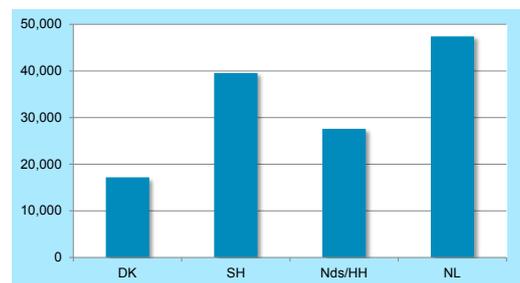
**Trends for Northern Lapwing in the Wadden Sea**

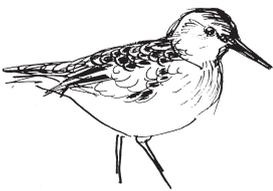
Figures represent the trend 1987/1988 to 2010/2011, taking into account data from all months to express an overall trend for the entire year. Numbers on the y-axis represent monthly mean occurrences. Dots are the individual yearly estimates, solid lines the trend calculated by TrendSpotter, dotted lines the 95% confidence limits of the trend lines.

Figure 134 Absolute numbers of Northern Lapwing in the four regions calculated by average of the 3 maximum numbers in the period 2001/2002-2010/2011.

Area	Period	1987/88 - 2010/11	1998/99 - 2010/11
(A)/(B) International Wadden Sea		→	→
(C) Denmark		→	→
(D) Schleswig-Holstein		→	→
(E) Niedersachsen/Hamburg		→	→
(F) The Netherlands		↑	→

↑ strong increase    ↓ strong decrease    ↑ moderate increase  
↓ moderate decrease    → stable    ■ uncertain





Red Knot

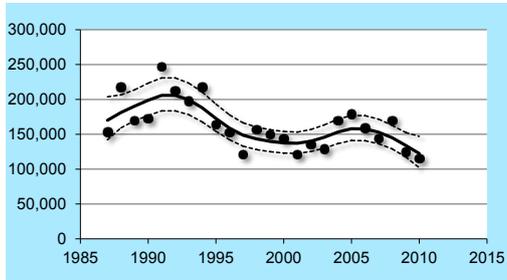
*Calidris canutus*

04960

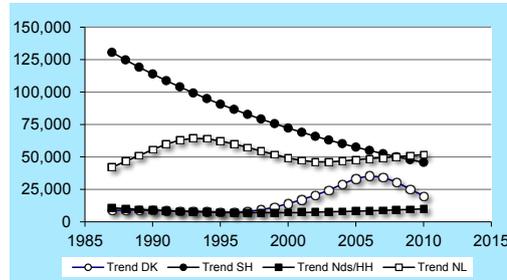
DK: Islandsk Ryle

D: Knutt

NL: Kanoetstrandloper



(A) Overall trend in the International Wadden Sea

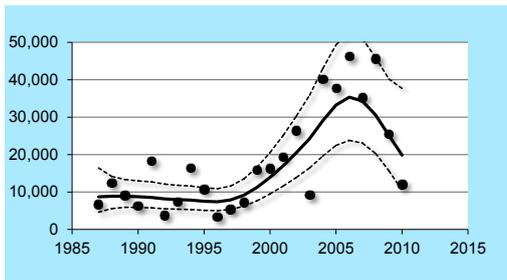


(B) Trends in the different countries compared

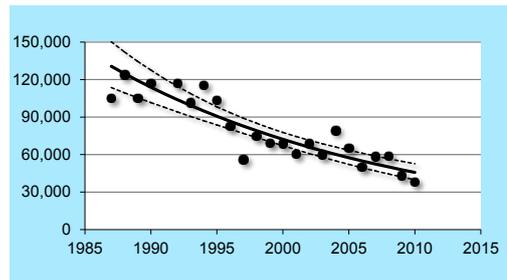
Figure 135-140 Trends of Red Knot in the International Wadden Sea (WS) and the four regions 1987/1988-2010/2011; dots represent annual averages; trendline calculated by Trendspotter (solid line) together with the  $\pm$  95 % confidence limits (dotted line).

Explanatory Note

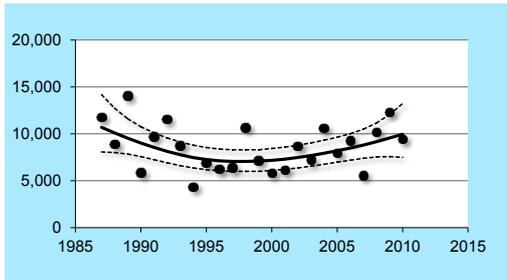
Large parts of both flyway populations of the Red Knot, the *C. c. canutus* migrating from Africa to Siberia and the *C. c. islandica* wintering in the European regions and breeding in Greenland and Canada, use the Wadden Sea. Both the overall long- and short-term trends in the Wadden Sea are stable, while the data indicate a potential decrease. Continuous decreases occur in Schleswig-Holstein, while numbers in Denmark are increasing and in the Netherlands are stable. In Niedersachsen/Hamburg numbers are on a low level.



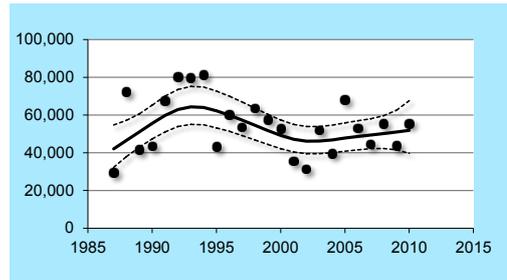
(C) Denmark



(D) Schleswig-Holstein



(E) Niedersachsen/Hamburg



(F) The Netherlands

Trends for Red Knot in the Wadden Sea

Figures represent the trend 1987/1988 to 2010/2011, taking into account data from all months to express an overall trend for the entire year. Numbers on the y-axis represent monthly mean occurrences. Dots are the individual yearly estimates, solid lines the trend calculated by TrendSpotter, dotted lines the 95% confidence limits of the trend lines.

Area	Period	1987/88 - 2010/11	1998/99 - 2010/11
(A)/(B) International Wadden Sea		↓	→
(C) Denmark		—	—
(D) Schleswig-Holstein		↓	↓
(E) Niedersachsen/Hamburg		→	—
(F) The Netherlands		→	→

↑ strong increase    ↓ strong decrease    ↗ moderate increase  
 ↓ moderate decrease    → stable    — uncertain

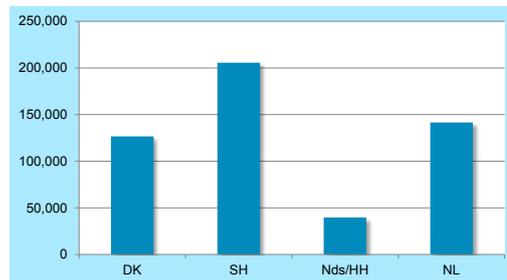


Figure 141 Absolute numbers of Red Knot in the four regions calculated by average of the 3 maximum numbers in the period 2001/2002-2010/2011.

# Sanderling

04970

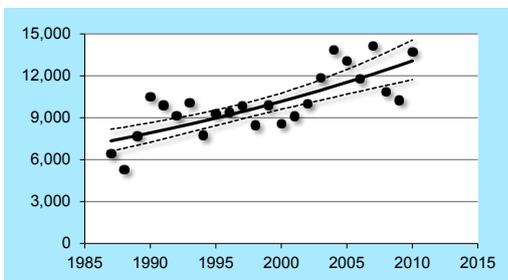
*Calidris alba*

DK: Sandløber

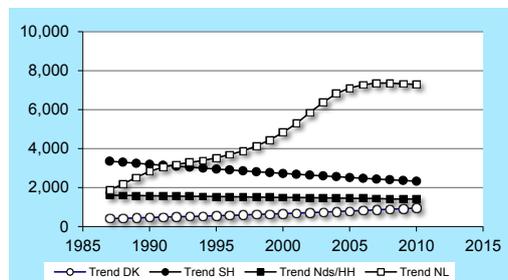
D: Sanderling

NL: Drietenstrandloper

Figure 142-147 Trends of Sanderling in the International Wadden Sea (WS) and the four regions 1987/1988-2010/2011; dots represent annual averages; trendline calculated by Trendspotter (solid line) together with the ± 95 % confidence limits (dotted line).



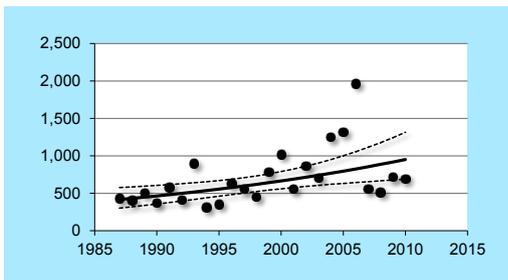
(A) Overall trend in the International Wadden Sea



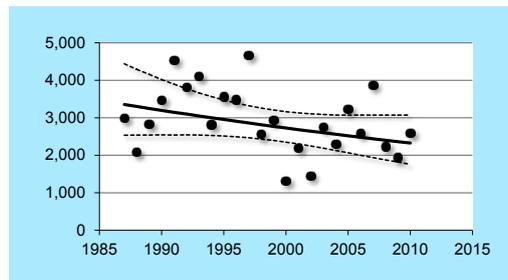
(B) Trends in the different countries compared

### Explanatory Note

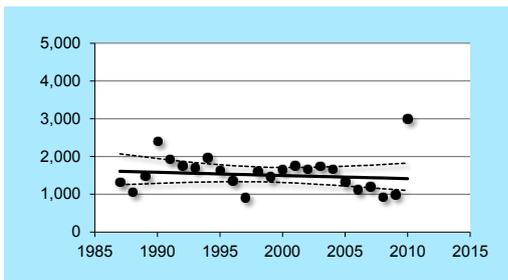
Sanderling numbers are difficult to survey due to high peak numbers during a short time period in spring; if the counts do not occur within this time window the numbers can vary greatly from year to year. The overall trends in the Wadden Sea are increasing, mostly on account of results in the Netherlands and Denmark. While trends are stable with fluctuations in Schleswig-Holstein, in Niedersachsen/Hamburg the addition of a low numbers in the last two seasons result in a long- and short-term decrease for this species.



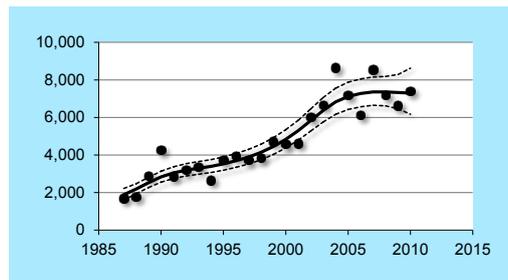
(C) Denmark



(D) Schleswig-Holstein



(E) Niedersachsen/Hamburg



(F) The Netherlands

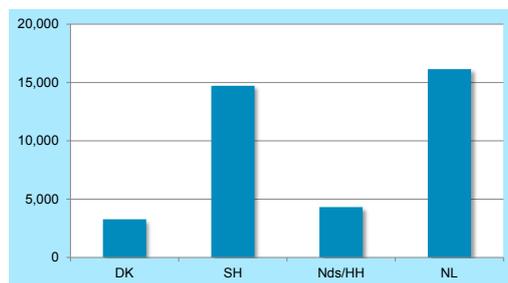
### Trends for Sanderling in the Wadden Sea

Figures represent the trend 1987/1988 to 2010/2011, taking into account data from all months to express an overall trend for the entire year. Numbers on the y-axis represent monthly mean occurrences. Dots are the individual yearly estimates, solid lines the trend calculated by TrendSpotter, dotted lines the 95% confidence limits of the trend lines.

Figure 148 Absolute numbers of Sanderling in the four regions calculated by average of the 3 maximum numbers in the period 2001/2002-2010/2011.

Area	Period	1987/88 - 2010/11	1998/99 - 2010/11
(A)/(B) International Wadden Sea		↑	↑
(C) Denmark		↑	↑
(D) Schleswig-Holstein		→	→
(E) Niedersachsen/Hamburg		→	→
(F) The Netherlands		↑	↑

↑ strong increase   
 ↓ strong decrease   
 ↑ moderate increase  
↓ moderate decrease   
 → stable   
 ■ uncertain

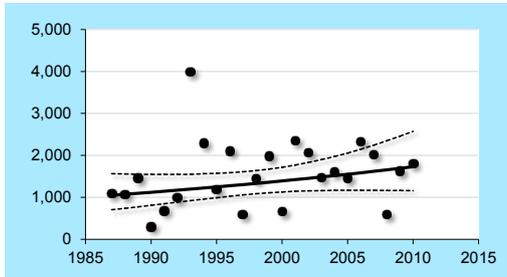


**Curlew Sandpiper**

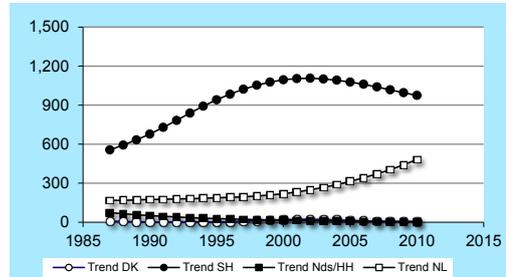
*Calidris ferruginea*

05090

DK: Krumnæbbet Ryle D: Sichelstrandläufer NL: Krombekstrandloper



(A) Overall trend in the International Wadden Sea

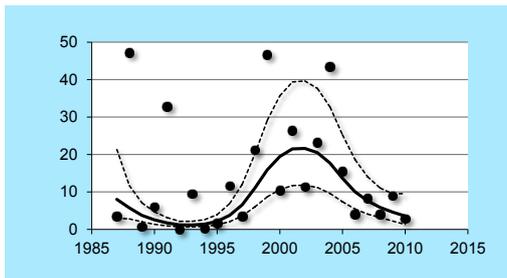


(B) Trends in the different countries compared

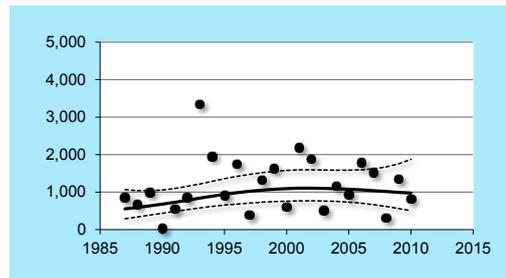
Figure 149-153 Trends of Curlew Sandpiper in the International Wadden Sea (WS) and the four regions 1987/1988-2010/2011; dots represent annual averages; trendline calculated by Trendspotter (solid line) together with the  $\pm$  95 % confidence limits (dotted line).

**Explanatory Note**

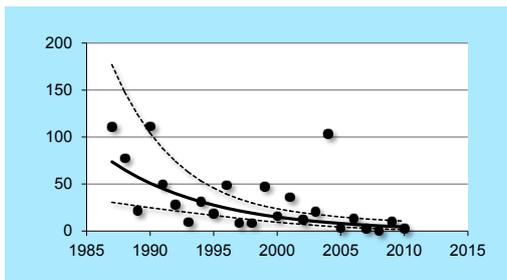
The Curlew Sandpiper has a large flyway population of which only 1-2% visit the Wadden Sea in a very short period during July/August in a small number of sites, with the majority covered in Schleswig-Holstein, but low numbers in Denmark. The flyway population is increasing. Due to large fluctuations in counting results, trend estimates in the Wadden Sea and its regions are fluctuating throughout, however, Niedersachsen/Hamburg comes out with decreasing trends.



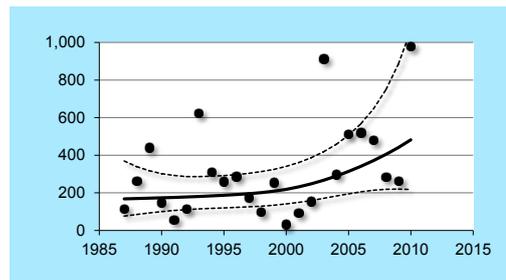
(C) Denmark



(D) Schleswig-Holstein



(E) Niedersachsen/Hamburg



(F) The Netherlands

**Trends for Curlew Sandpiper in the Wadden Sea**

Figures represent the trend 1987/1988 to 2010/2011, taking into account data from all months to express an overall trend for the entire year. Numbers on the y-axis represent monthly mean occurrences. Dots are the individual yearly estimates, solid lines the trend calculated by TrendSpotter, dotted lines the 95% confidence limits of the trend lines.

Area	Period	1987/88 - 2010/11	1998/99 - 2010/11
(A)/(B) International Wadden Sea		—	—
(C) Denmark		—	↓↓↓
(D) Schleswig-Holstein		—	—
(E) Niedersachsen/Hamburg		↓↓↓	↓↓↓
(F) The Netherlands		—	—

↑↑ strong increase  
 ↓↓↓ strong decrease  
 ↑ moderate increase  
↓ moderate decrease  
 → stable  
 — uncertain

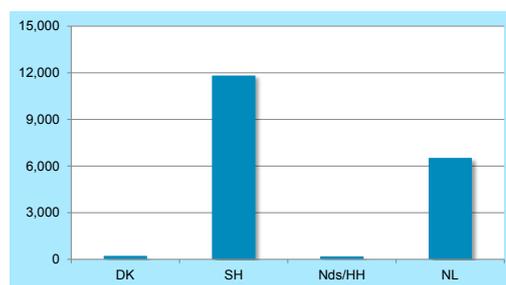


Figure 154 Absolute numbers of Curlew Sandpiper in the four regions calculated by average of the 3 maximum numbers in the period 2001/2002-2010/2011.



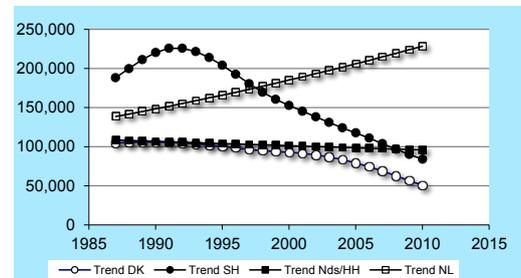
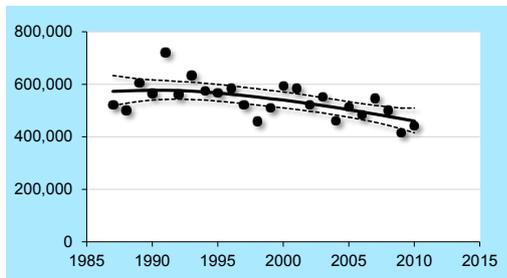
Dunlin

05120

*Calidris alpina*

DK: Almindelig Ryle D: Alpenstrandläufer NL: Bonte Strandloper

Figure 155-160 Trends of Dunlin in the International Wadden Sea (WS) and the four regions 1987/1988-2010/2011; dots represent annual averages; trendline calculated by Trendspotter (solid line) together with the ± 95 % confidence limits (dotted line).

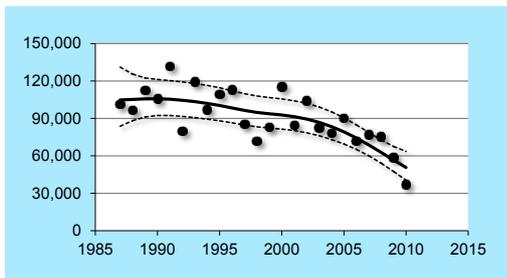


(A) Overall trend in the International Wadden Sea

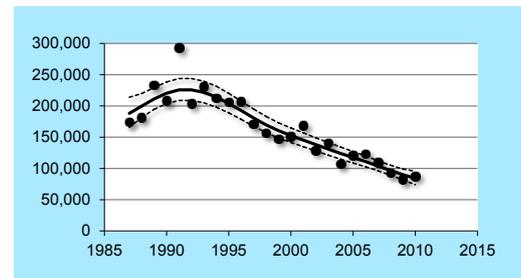
(B) Trends in the different countries compared

**Explanatory Note**

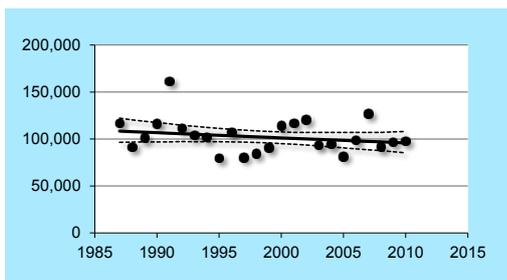
While the trends for the flyway populations of the two sub-species of Dunlin (*C.c. alpina* and *C.c. schinzii*) are stable, the overall long- and short-term trends in the Wadden Sea, where large numbers and most likely large proportions of these flyway populations are present during the yearly cycle, show moderate decreases. Most notable are decreases in the Northern region (Denmark, Schleswig-Holstein), and opposite to these increases in the Netherlands; stable but fluctuating numbers seem to apply for Niedersachsen/Hamburg.



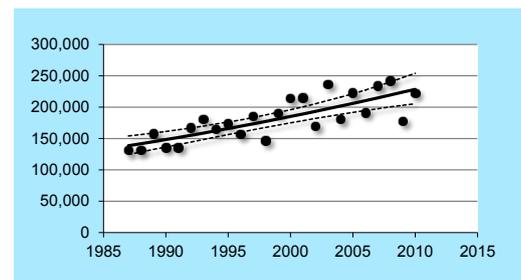
(C) Denmark



(D) Schleswig-Holstein



(E) Niedersachsen/Hamburg



(F) The Netherlands

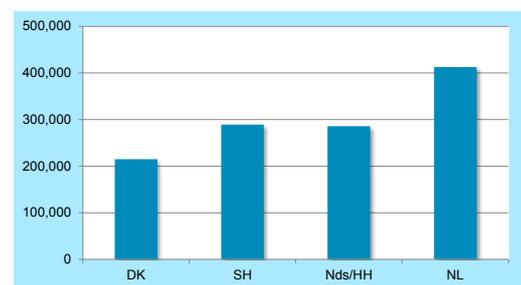
**Trends for Dunlin in the Wadden Sea**

Figures represent the trend 1987/1988 to 2010/2011, taking into account data from all months to express an overall trend for the entire year. Numbers on the y-axis represent monthly mean occurrences. Dots are the individual yearly estimates, solid lines the trend calculated by TrendSpotter, dotted lines the 95% confidence limits of the trend lines.

Figure 161 Absolute numbers of Dunlin in the four regions calculated by average of the 3 maximum numbers in the period 2001/2002-2010/2011.

Area	Period	1987/88 - 2010/11	1998/99 - 2010/11
(A)/(B) International Wadden Sea		↓	↓
(C) Denmark		↓	↓
(D) Schleswig-Holstein		↓	↓
(E) Niedersachsen/Hamburg		→	→
(F) The Netherlands		↑	↑

↑ strong increase    ↓ strong decrease    ↑ moderate increase  
↓ moderate decrease    → stable    ■ uncertain





Ruff

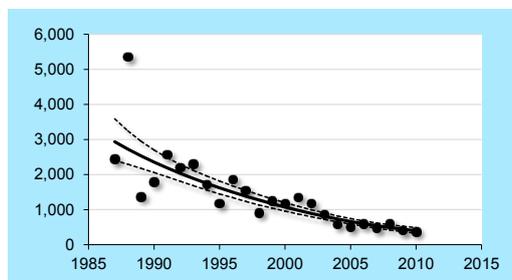
*Philomachus pugnax*

05170

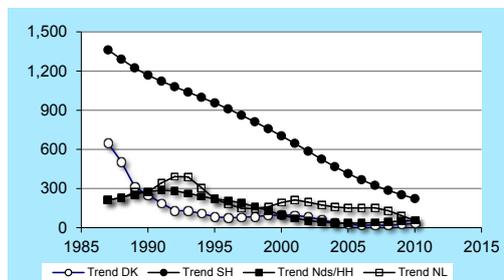
DK: Brushane

D: Kampfläufer

NL: Kemphaan



(A) Overall trend in the International Wadden Sea

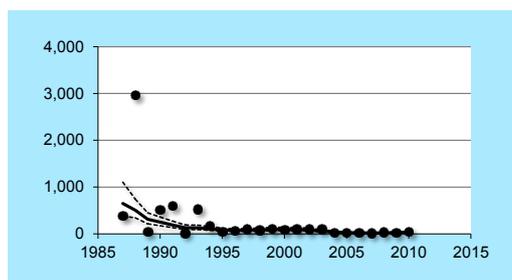


(B) Trends in the different countries compared

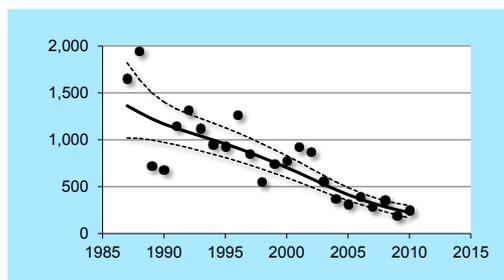
Figure 162-167 Trends of Ruff in the International Wadden Sea (WS) and the four regions 1987/1988-2010/2011; dots represent annual averages; trendline calculated by Trendspotter (solid line) together with the  $\pm$  95 % confidence limits (dotted line).

Explanatory Note

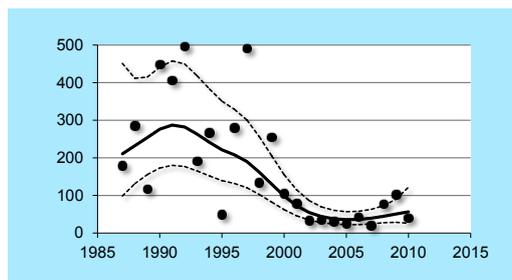
Less than 1% of the Ruff flyway population migrates through the Wadden Sea, where both the long- and short-term trends are strongly decreasing in most regions, fluctuating or moderate decreasing in Niedersachsen/Hamburg and the Netherlands. The species presence depends on feeding possibilities and weather, thus numbers are highly variable from year to year.



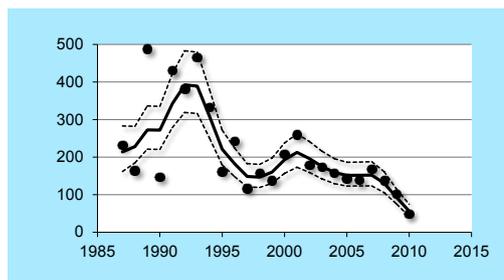
(C) Denmark



(D) Schleswig-Holstein



(E) Niedersachsen/Hamburg



(F) The Netherlands

Trends for Ruff in the Wadden Sea

Figures represent the trend 1987/1988 to 2010/2011, taking into account data from all months to express an overall trend for the entire year. Numbers on the y-axis represent monthly mean occurrences. Dots are the individual yearly estimates, solid lines the trend calculated by TrendSpotter, dotted lines the 95% confidence limits of the trend lines.

Area	Period	1987/88 - 2010/11	1998/99 - 2010/11
(A)/(B) International Wadden Sea		↓↓↓	↓↓↓
(C) Denmark		↓↓↓	↓
(D) Schleswig-Holstein		↓↓↓	↓↓↓
(E) Niedersachsen/Hamburg		↓	↓
(F) The Netherlands		↓	↓↓↓

↑ ↑ strong increase    ↓ ↓ strong decrease    ↑ moderate increase  
↓ moderate decrease    → stable    — uncertain

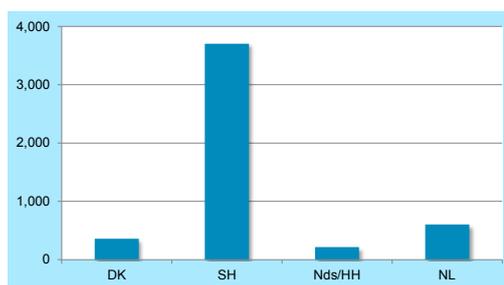
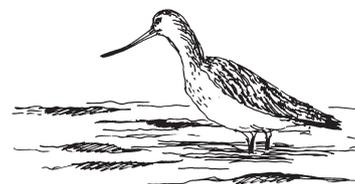


Figure 168 Absolute numbers of Ruff in the four regions calculated by average of the 3 maximum numbers in the period 2001/2002-2010/2011.



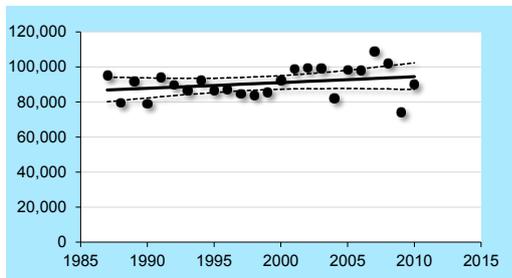
# Bar-tailed Godwit

05340

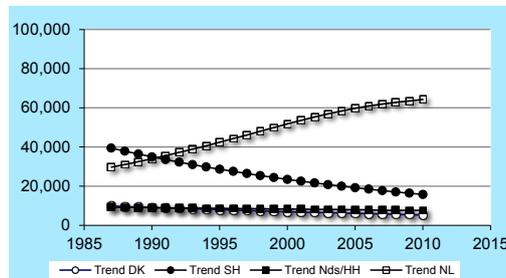
*Limosa lapponica*

DK: Lille Kobbersneppe D: Pfuhschnepfe NL: Rosse Grutto

Figure 169-174 Trends of Bar-tailed Godwit in the International Wadden Sea (WS) and the four regions 1987/1988-2010/2011; dots represent annual averages; trendline calculated by Trendspotter (solid line) together with the  $\pm$  95 % confidence limits (dotted line).



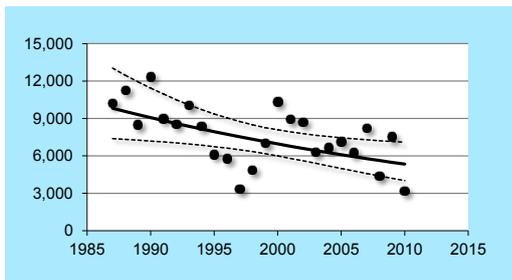
(A) Overall trend in the International Wadden Sea



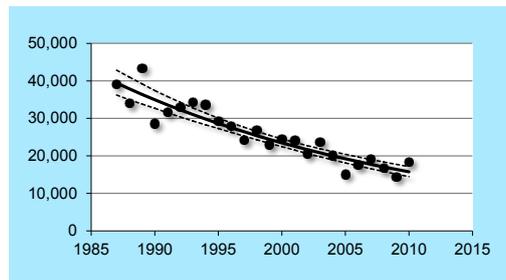
(B) Trends in the different countries compared

### Explanatory Note

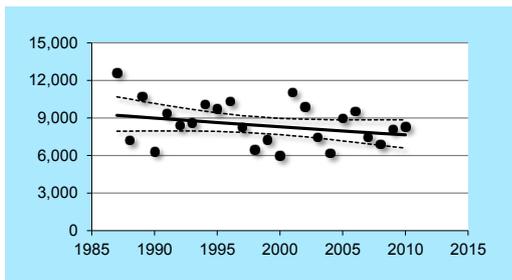
Two populations of the Bar-tailed Godwit migrate through the Wadden Sea; the nominate sub-species *L. l. lapponica* breeds in high arctic Scandinavia and Northern Russia, and winters in coastal Western Europe and North-West Africa, and thus is present in the Wadden Sea most of the year from September to April. The *L. l. taymyrensis* breeds in Western and Central Siberia and winters in coastal West and South-West Africa; individuals of this population will migrate through the Wadden Sea in May and returning during July and August. Overall numbers in the Wadden Sea are stable. Yet, most remarkably is the contrast of a continuous increase in the Netherlands to a continuous decrease in Schleswig-Holstein and Denmark; numbers in Niedersachsen/Hamburg are stable.



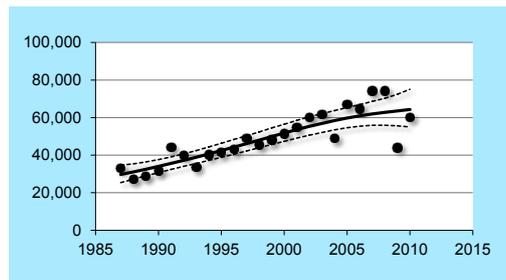
(C) Denmark



(D) Schleswig-Holstein



(E) Niedersachsen/Hamburg



(F) The Netherlands

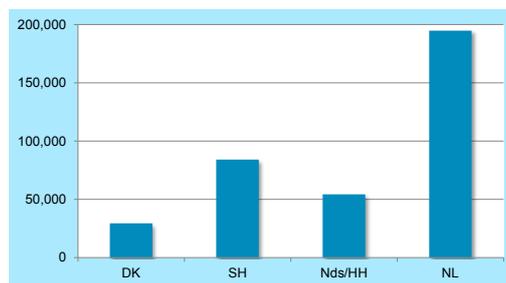
### Trends for Bar-tailed Godwit in the Wadden Sea

Figures represent the trend 1987/1988 to 2010/2011, taking into account data from all months to express an overall trend for the entire year. Numbers on the y-axis represent monthly mean occurrences. Dots are the individual yearly estimates, solid lines the trend calculated by TrendSpotter, dotted lines the 95% confidence limits of the trend lines.

Figure 175 Absolute numbers of Bar-tailed Godwit in the four regions calculated by average of the 3 maximum numbers in the period 2001/2002-2010/2011.

Area	Period	1987/88 - 2010/11	1998/99 - 2010/11
(A)/(B) International Wadden Sea		→	→
(C) Denmark		↓	↓
(D) Schleswig-Holstein		↓	↓
(E) Niedersachsen/Hamburg		→	→
(F) The Netherlands		↑	↑

↑ strong increase    ↓ strong decrease    ↑ moderate increase  
↓ moderate decrease    → stable    ■ uncertain

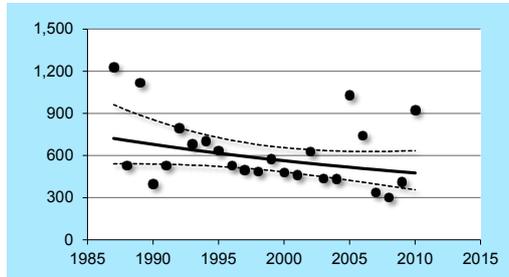


Whimbrel

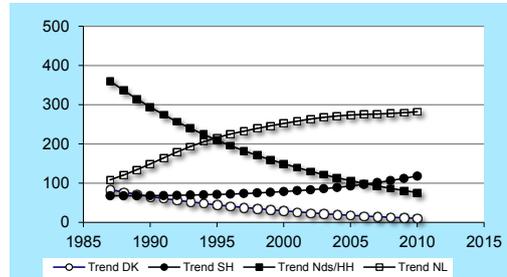
*Numenius phaeopus*

05380

DK: Lille Regnspove D: Regenbrachvogel NL: Regenwulp



(A) Overall trend in the International Wadden Sea

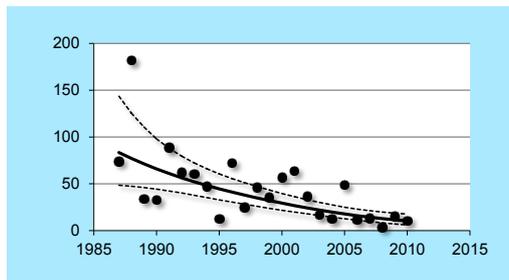


(B) Trends in the different countries compared

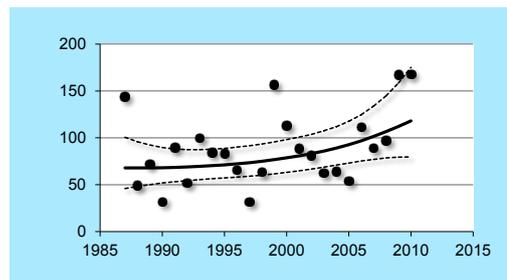
Figure 176-181 Trends of Whimbrel in the International Wadden Sea (WS) and the four regions 1987/1988-2010/2011; dots represent annual averages; trendline calculated by Trendspotter (solid line) together with the  $\pm$  95 % confidence limits (dotted line).

Explanatory Note

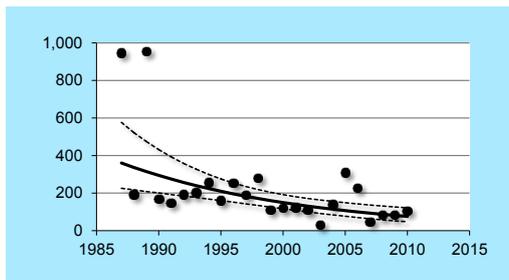
Only 1-2% of the Whimbrel flyway population is counted in the Wadden Sea region. Long- and short-term trends are decreasing in the Wadden Sea, and also in Denmark and Niedersachsen/Hamburg. We see a stable situation in Schleswig-Holstein and fluctuations in the Netherlands. It must be noted, that overall very low numbers, large fluctuations and single exceptional counts do not allow a clear assessment.



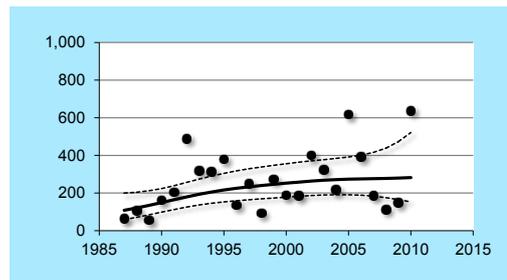
(C) Denmark



(D) Schleswig-Holstein



(E) Niedersachsen/Hamburg



(F) The Netherlands

Trends for Whimbrel in the Wadden Sea

Figures represent the trend 1987/1988 to 2010/2011, taking into account data from all months to express an overall trend for the entire year. Numbers on the y-axis represent monthly mean occurrences. Dots are the individual yearly estimates, solid lines the trend calculated by TrendSpotter, dotted lines the 95% confidence limits of the trend lines.

Area	Period	1987/88 - 2010/11	1998/99 - 2010/11
(A)/(B) International Wadden Sea		→	→
(C) Denmark		↓ ↓	↓
(D) Schleswig-Holstein		—	—
(E) Niedersachsen/Hamburg		↓	↓
(F) The Netherlands		↑	—

↑ strong increase  
 ↓ ↓ strong decrease  
 ↑ moderate increase  
↓ moderate decrease  
 → stable  
 — uncertain

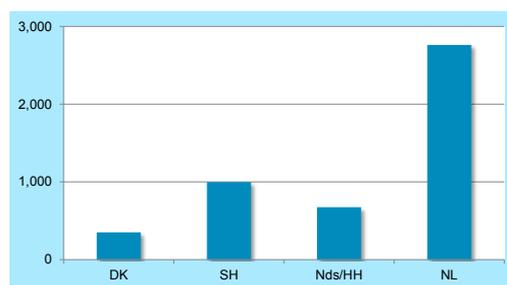


Figure 182 Absolute numbers of Whimbrel in the four regions calculated by average of the 3 maximum numbers in the period 2001/2002-2010/2011.



# Eurasian Curlew

05410

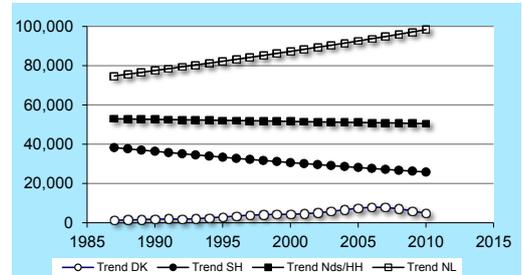
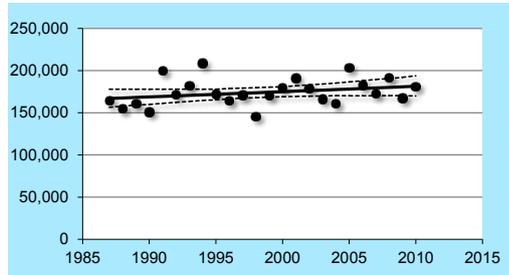
*Numenius arquata*

DK: Stor Regnspove

D: GroÙer Brachvogel

NL: Wulp

Figure 183-188 Trends of Eurasian Curlew in the International Wadden Sea (WS) and the four regions 1987/1988-2010/2011; dots represent annual averages; trendline calculated by Trendspotter (solid line) together with the ± 95% confidence limits (dotted line).

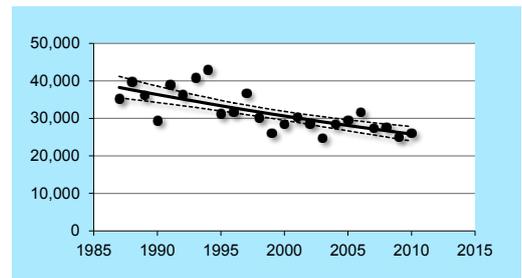
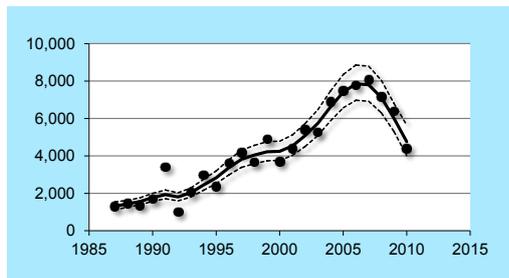


(A) Overall trend in the International Wadden Sea

(B) Trends in the different countries compared

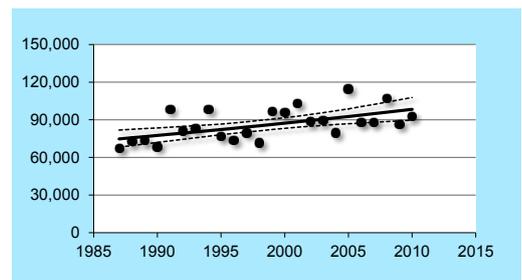
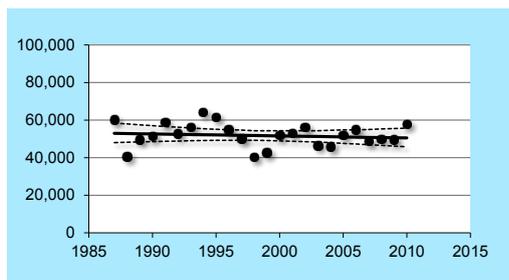
### Explanatory Note

The Eurasian Curlew flyway population is decreasing. However, the Wadden Sea population, representing some 35-40% of the flyway population, is stable both in the long- and short-term trends. This includes increases in Denmark and moderate increases in the Netherlands, while Schleswig-Holstein shows long- and short-term decreases. In Niedersachsen/Hamburg the trend is fluctuating, but stable. The increase in Denmark, however of low numbers, seems to level off in recent seasons.



(C) Denmark

(D) Schleswig-Holstein



(E) Niedersachsen/Hamburg

(F) The Netherlands

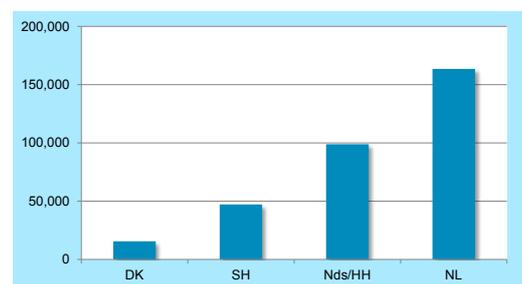
### Trends for Eurasian Curlew in the Wadden Sea

Figures represent the trend 1987/1988 to 2010/2011, taking into account data from all months to express an overall trend for the entire year. Numbers on the y-axis represent monthly mean occurrences. Dots are the individual yearly estimates, solid lines the trend calculated by TrendSpotter, dotted lines the 95% confidence limits of the trend lines.

Figure 189 Absolute numbers of Eurasian Curlew in the four regions calculated by average of the 3 maximum numbers in the period 2001/2002-2010/2011.

Area	Period	1987/88 - 2010/11	1998/99 - 2010/11
(A)/(B) International Wadden Sea		→	→
(C) Denmark		↑	→
(D) Schleswig-Holstein		↓	↓
(E) Niedersachsen/Hamburg		→	→
(F) The Netherlands		↑	↑

↑ strong increase    ↓ strong decrease    ↑ moderate increase  
↓ moderate decrease    → stable    — uncertain

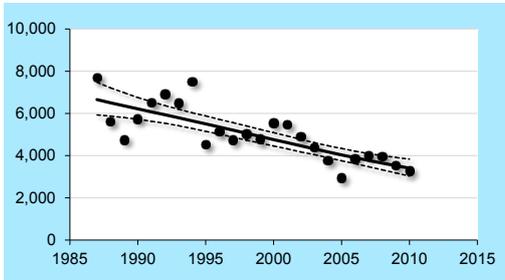


Spotted Redshank

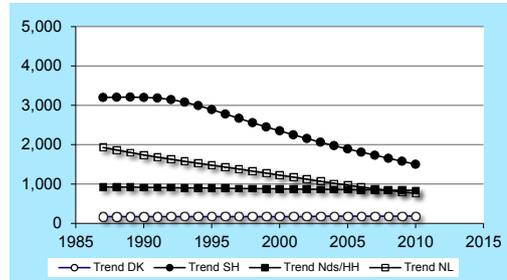
*Tringa erythropus*

05450

DK: Sortklire D: Dunkler Wasserläufer NL: Zwarte Ruiter



(A) Overall trend in the International Wadden Sea

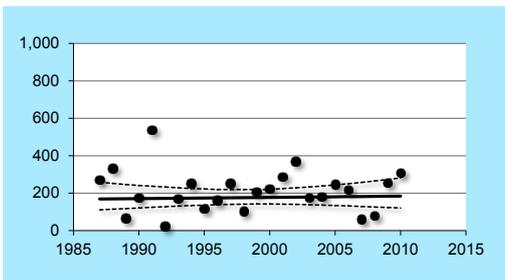


(B) Trends in the different countries compared

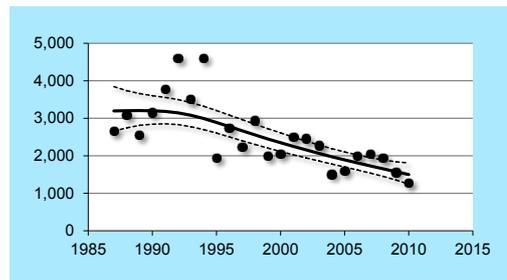
Figure 190-195 Trends of Spotted Redshank in the International Wadden Sea (WS) and the four regions 1987/1988-2010/2011; dots represent annual averages; trendline calculated by Trendspotter (solid line) together with the  $\pm$  95 % confidence limits (dotted line).

Explanatory Note

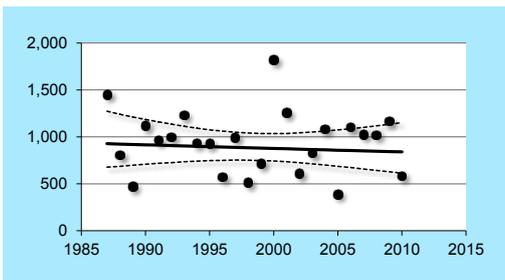
The Spotted Redshank is difficult to monitor due to its short passage time period, with large numbers at only a few sites; only some 20% of its flyway population occur in the Wadden Sea. The overall Wadden Sea trend is a moderate decrease in both the long and the short-term, reflected in the Netherlands and Schleswig-Holstein. Trends in Denmark are fluctuating in low numbers and in Niedersachsen/Hamburg are also fluctuating, but resulting in a stable trend.



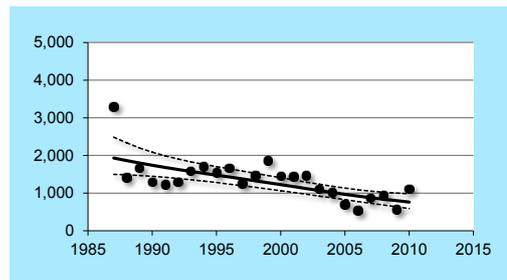
(C) Denmark



(D) Schleswig-Holstein



(E) Niedersachsen/Hamburg



(F) The Netherlands

Trends for Spotted Redshank in the Wadden Sea

Figures represent the trend 1987/1988 to 2010/2011, taking into account data from all months to express an overall trend for the entire year. Numbers on the y-axis represent monthly mean occurrences. Dots are the individual yearly estimates, solid lines the trend calculated by TrendSpotter, dotted lines the 95% confidence limits of the trend lines.

Area	Period	1987/88 - 2010/11	1998/99 - 2010/11
(A)/(B) International Wadden Sea		↓	↓
(C) Denmark		→	→
(D) Schleswig-Holstein		↓	↓
(E) Niedersachsen/Hamburg		→	→
(F) The Netherlands		↓	↓

↑ strong increase    ↓ strong decrease    ↑ moderate increase  
↓ moderate decrease    → stable    — uncertain

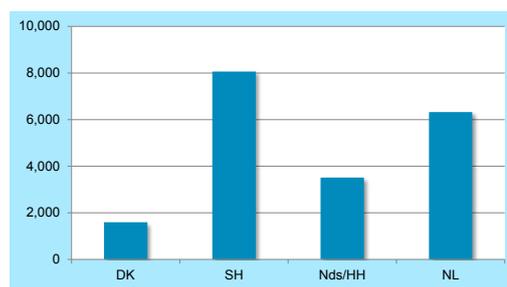


Figure 196 Absolute numbers of Spotted Redshank in the four regions calculated by average of the 3 maximum numbers in the period 2001/2002-2010/2011.

# Common Redshank

05460

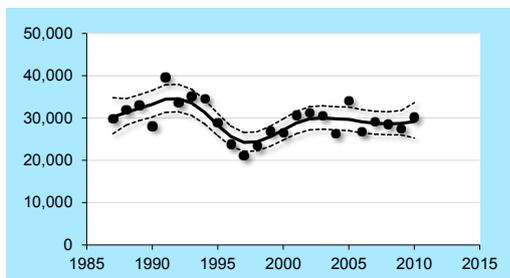
*Tringa totanus*

DK: Rødben

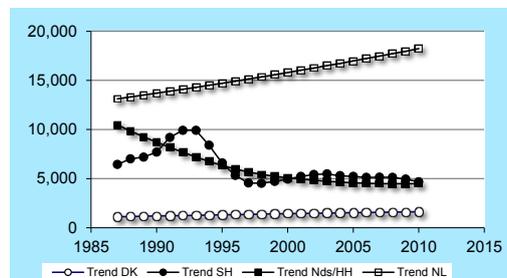
D: Rotschenkel

NL: Tureluur

Figure 197-202  
Trends of Common Redshank in the International Wadden Sea (WS) and the four regions 1987/1988-2010/2011; dots represent annual averages; trendline calculated by Trendspotter (solid line) together with the ± 95 % confidence limits (dotted line).



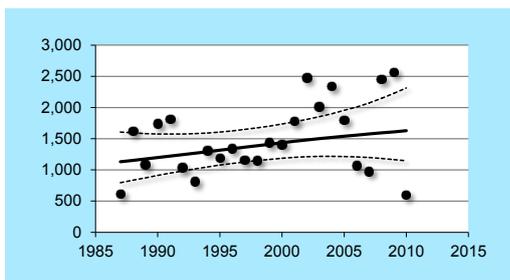
(A) Overall trend in the International Wadden Sea



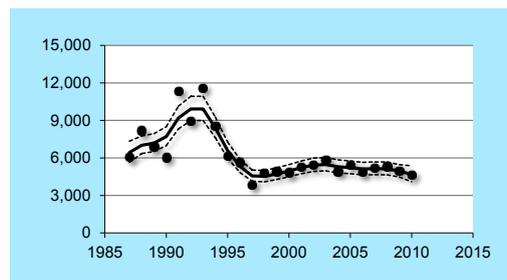
(B) Trends in the different countries compared

### Explanatory Note

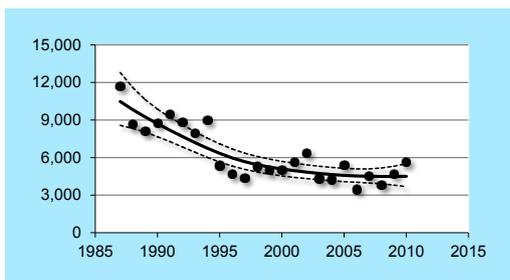
The **Common Redshank** occurs in the Wadden Sea most likely with four populations, thus numbers and trends are not easy to assess in relation to the flyway populations. While the overall Wadden Sea long, as well as short term trends are stable, increasing trends exist for Demark and the Netherlands and decreasing trend results for Niedersachsen/Hamburg. Schleswig-Holstein now shows a long-term decrease after the peak during the early 1990s, but stable short-term trends.



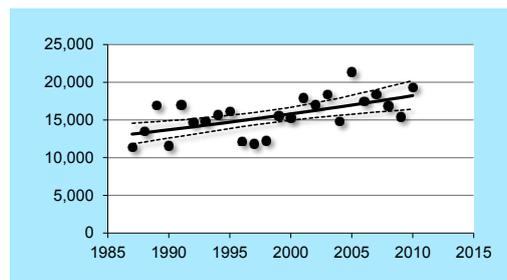
(C) Denmark



(D) Schleswig-Holstein



(E) Niedersachsen/Hamburg



(F) The Netherlands

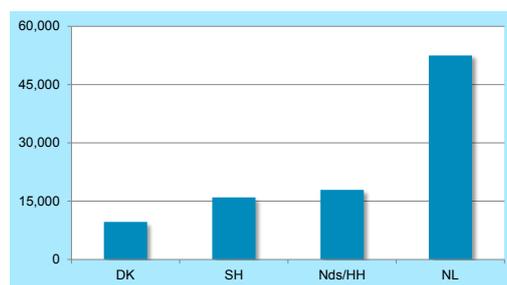
### Trends for Common Redshank in the Wadden Sea

Figures represent the trend 1987/1988 to 2010/2011, taking into account data from all months to express an overall trend for the entire year. Numbers on the y-axis represent monthly mean occurrences. Dots are the individual yearly estimates, solid lines the trend calculated by TrendSpotter, dotted lines the 95% confidence limits of the trend lines.

Figure 203  
Absolute numbers of Common Redshank in the four regions calculated by average of the 3 maximum numbers in the period 2001/2002-2010/2011.

Area	Period	1987/88 - 2010/11	1998/99 - 2010/11
(A)/(B) International Wadden Sea		→	→
(C) Denmark		→	→
(D) Schleswig-Holstein		↓	→
(E) Niedersachsen/Hamburg		↓	→
(F) The Netherlands		↑	↑

↑ strong increase    ↓ strong decrease    ↑ moderate increase  
↓ moderate decrease    → stable    — uncertain



Common Greenshank

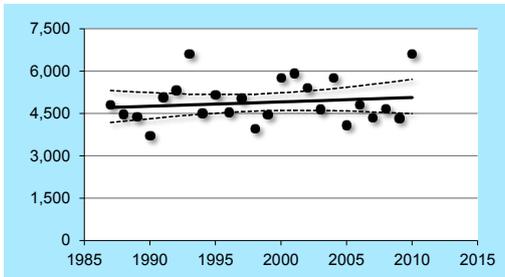
*Tringa nebularia*

05480

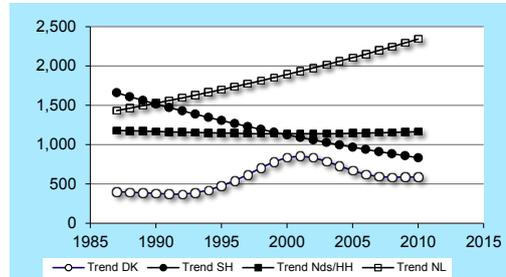
DK: Hvidklire

D: Grünschenkel

NL: Groenpootrutter



(A) Overall trend in the International Wadden Sea

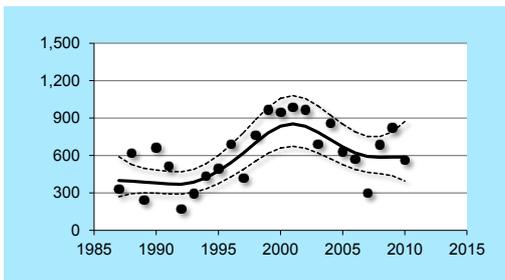


(B) Trends in the different countries compared

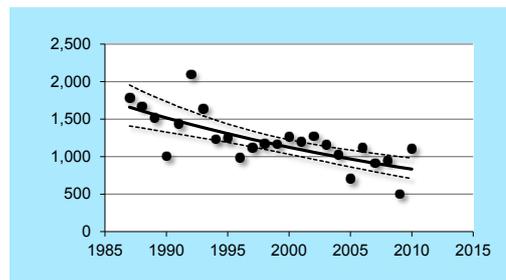
Figure 204-209 Trends of Common Greenshank in the International Wadden Sea (WS) and the four regions 1987/1988-2010/2011; dots represent annual averages; trendline calculated by Trendspotter (solid line) together with the  $\pm$  95 % confidence limits (dotted line).

Explanatory Note

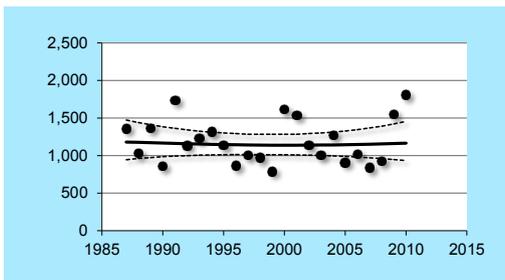
The Wadden Sea plays a minor role for the Common Greenshanks with only some 10% of the stable flyway population staging during autumn, and fewer during spring. The overall trends in the Wadden Sea are stable, yet fluctuating largely in low numbers. This can be stated also for most regions in the Wadden Sea, only in Schleswig-Holstein both long- and short-term trends show moderate but regular decreases.



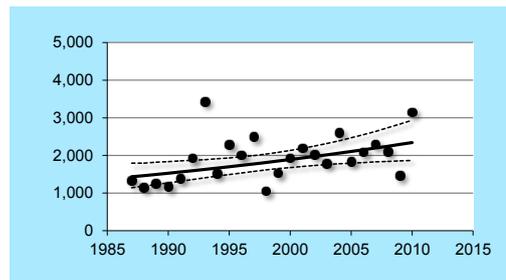
(C) Denmark



(D) Schleswig-Holstein



(E) Niedersachsen/Hamburg



(F) The Netherlands

Trends for Common Greenshank in the Wadden Sea

Figures represent the trend 1987/1988 to 2010/2011, taking into account data from all months to express an overall trend for the entire year. Numbers on the y-axis represent monthly mean occurrences. Dots are the individual yearly estimates, solid lines the trend calculated by TrendSpotter, dotted lines the 95% confidence limits of the trend lines.

Area	Period	1987/88 - 2010/11	1998/99 - 2010/11
(A)/(B) International Wadden Sea		→	→
(C) Denmark		→	—
(D) Schleswig-Holstein		↓	↓
(E) Niedersachsen/Hamburg		→	→
(F) The Netherlands		↑	↑

↑ strong increase    ↓ strong decrease    ↑ moderate increase  
↓ moderate decrease    → stable    — uncertain

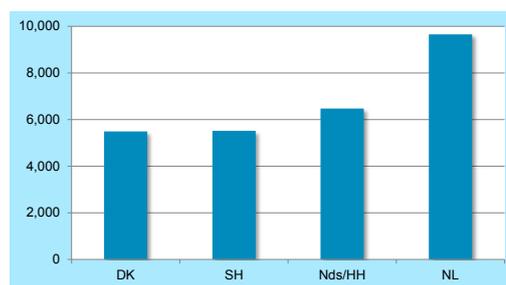
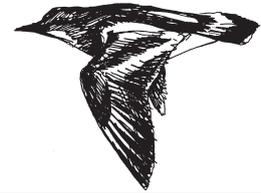


Figure 210 Absolute numbers of Common Greenshank in the four regions calculated by average of the 3 maximum numbers in the period 2001/2002-2010/2011.



# Ruddy Turnstone

05610

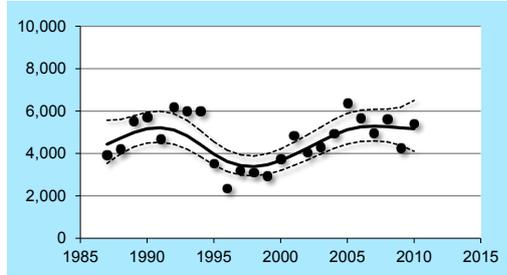
*Arenaria interpres*

DK: Stenvender

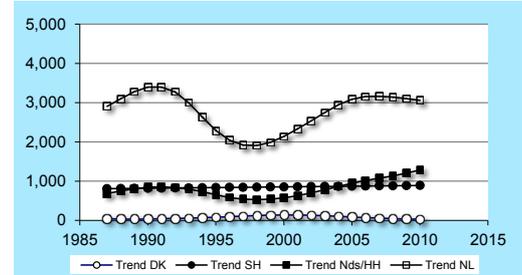
D: Steinwalzer

NL: Steenloper

Figure 211-216  
Trends of Ruddy Turnstone in the International Wadden Sea (WS) and the four regions 1987/1988-2010/2011; dots represent annual averages; trendline calculated by Trendspotter (solid line) together with the  $\pm$  95 % confidence limits (dotted line).



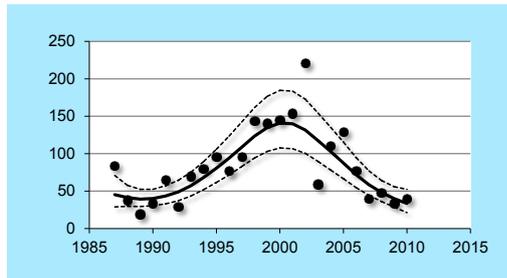
(A) Overall trend in the International Wadden Sea



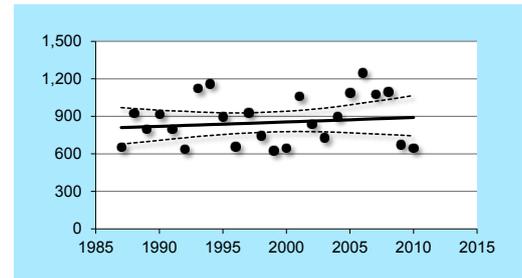
(B) Trends in the different countries compared

### Explanatory Note

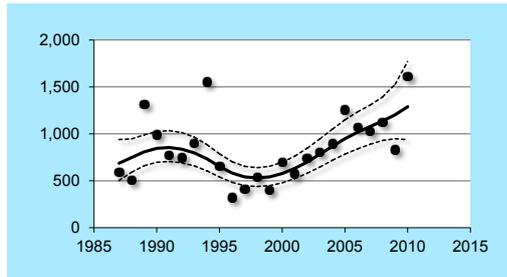
Two populations of Ruddy Turnstone pass the Wadden Sea on migration. One population, breeds in Canada and Greenland and winters in Western Europe and North-West Africa and is present in the Wadden Sea most of the year from August to April. The other population breeds in Fennoscandia and North-West Russia and winters in Africa, and passes the Wadden Sea mainly during July and May. The overall Wadden Sea trend for this species is stable during the long-term and increasing during the last 10 years. Increases, in particular during the recent years, are found mainly in the Netherlands and Niedersachsen/Hamburg. Coverage of this species by the Trilateral Monitoring Program is generally poor and low numbers, in particular in Denmark, are registered.



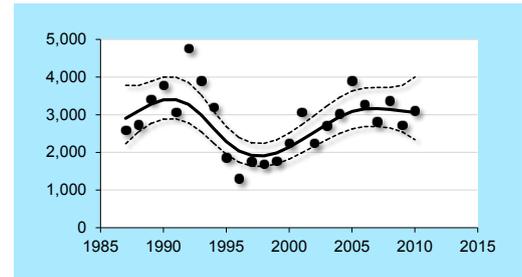
(C) Denmark



(D) Schleswig-Holstein



(E) Niedersachsen/Hamburg



(F) The Netherlands

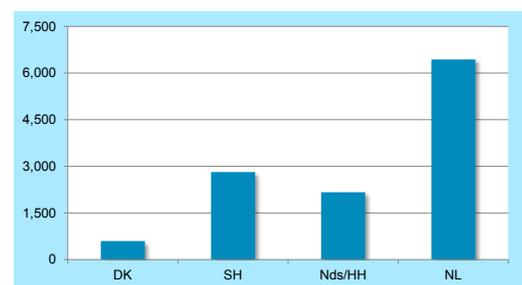
### Trends for Ruddy Turnstone in the Wadden Sea

Figures represent the trend 1987/1988 to 2010/2011, taking into account data from all months to express an overall trend for the entire year. Numbers on the y-axis represent monthly mean occurrences. Dots are the individual yearly estimates, solid lines the trend calculated by TrendSpotter, dotted lines the 95% confidence limits of the trend lines.

Figure 217  
Absolute numbers of Ruddy Turnstone in the four regions calculated by average of the 3 maximum numbers in the period 2001/2002-2010/2011.

Area	Period	1987/88 - 2010/11	1998/99 - 2010/11
(A)/(B) International Wadden Sea		→	—
(C) Denmark		→	↓↓↓
(D) Schleswig-Holstein		→	→
(E) Niedersachsen/Hamburg		↑	↑
(F) The Netherlands		→	—

↑ strong increase    ↓ strong decrease    ↑ moderate increase  
↓ moderate decrease    → stable    — uncertain





# Common Black-headed Gull

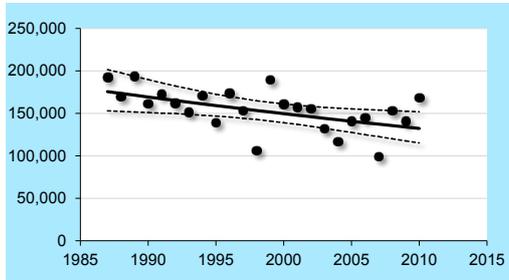
*Larus ridibundus*

05820

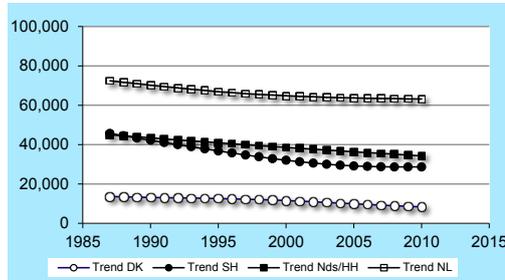
DK: Hættemåge

D: Lachmöwe

NL: Kokmeeuw



(A) Overall trend in the International Wadden Sea

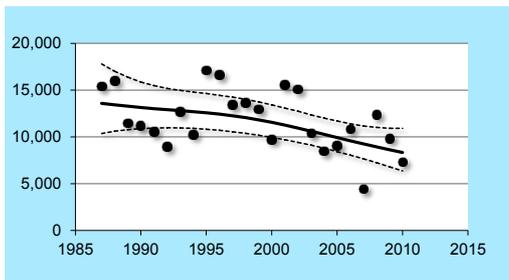


(B) Trends in the different countries compared

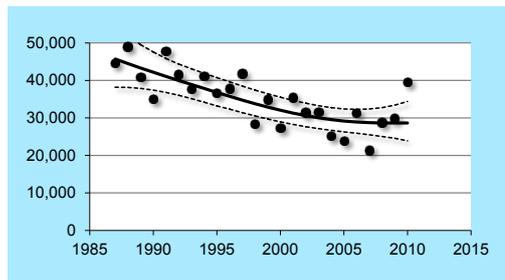
Figure 218-223 Trends of Common Black-headed Gull in the International Wadden Sea (WS) and the four regions 1987/1988-2010/2011; dots represent annual averages; trendline calculated by Trendspotter (solid line) together with the  $\pm$  95 % confidence limits (dotted line).

**Explanatory Note**

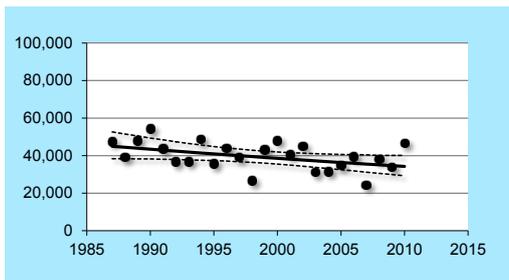
The Trilateral counts only cover a part of the Black-headed Gull numbers actually using the Wadden Sea, because many birds occur offshore, inland, at harbours or rubbish dumps. However, for the 20-25 % of the flyway population present in the Wadden Sea the trend is decreasing in both the short and the long term. This decrease occurs in all regions but in the Netherlands, where highest numbers occur, show strong fluctuations and result in stable trends.



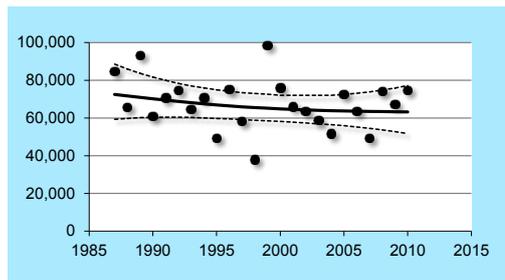
(C) Denmark



(D) Schleswig-Holstein



(E) Niedersachsen/Hamburg



(F) The Netherlands

**Trends for Common Black-headed Gull in the Wadden Sea**

Figures represent the trend 1987/1988 to 2010/2011, taking into account data from all months to express an overall trend for the entire year. Numbers on the y-axis represent monthly mean occurrences. Dots are the individual yearly estimates, solid lines the trend calculated by TrendSpotter, dotted lines the 95% confidence limits of the trend lines.

Area	Period	1987/88 - 2010/11	1998/99 - 2010/11
(A)/(B) International Wadden Sea		↓	↓
(C) Denmark		↓	↓
(D) Schleswig-Holstein		↓	↔
(E) Niedersachsen/Hamburg		↓	↓
(F) The Netherlands		↔	↔

↑ ↑ strong increase   
 ↓ ↓ strong decrease   
 ↑ moderate increase  
↓ moderate decrease   
 ↔ stable   
 — uncertain

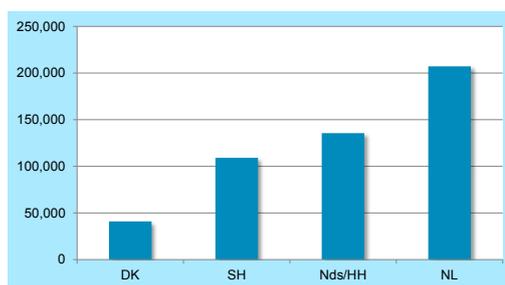
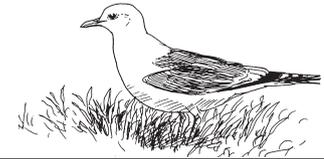


Figure 224 Absolute numbers of Common Black-headed Gull in the four regions calculated by average of the 3 maximum numbers in the period 2001/2002-2010/2011.



Common Gull

05900

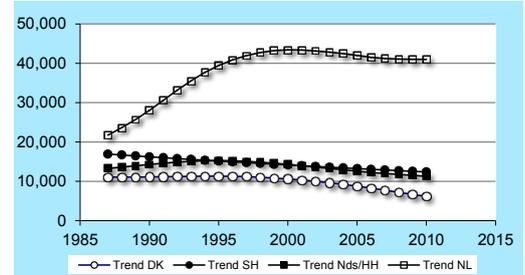
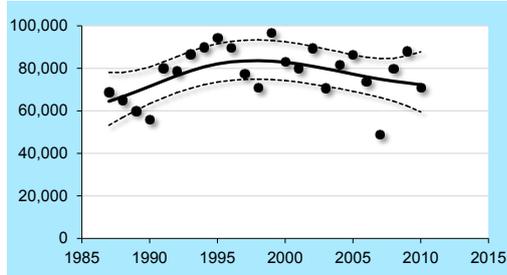
*Larus canus*

DK: Stormmåge

D: Sturmmöwe

NL: Stormmeeuw

Figure 225-230 Trends of Common Gull in the International Wadden Sea (WS) and the four regions 1987/1988-2010/2011; dots represent annual averages; trendline calculated by Trendspotter (solid line) together with the ± 95% confidence limits (dotted line).

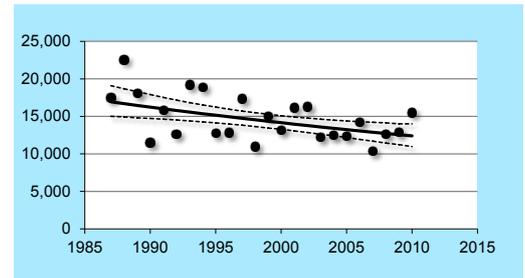
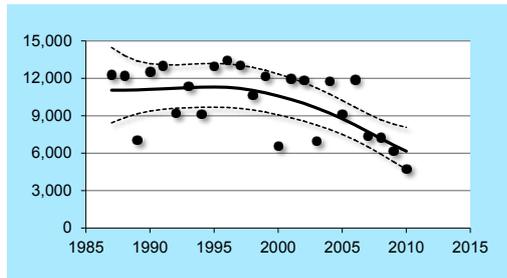


(A) Overall trend in the International Wadden Sea

(B) Trends in the different countries compared

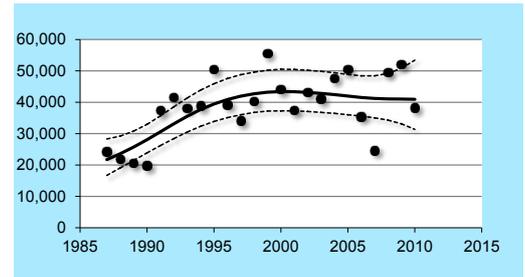
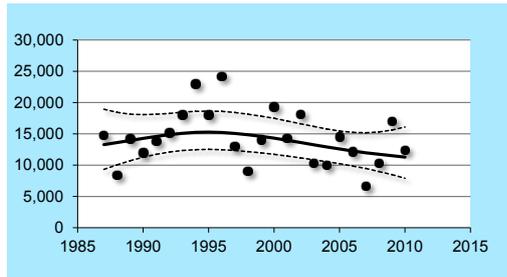
Explanatory Note

Some 10-15% of the Common Gull flyway population use the Wadden Sea, however, many of them feed inland and only rest in the Wadden Sea during night. The overall long- and short-term trends are stable for the Wadden Sea; while numbers fluctuate in all regions, the northern regions (DK, SH) show slight decreases, fluctuations in Niedersachsen/Hamburg and an indication of a positive development in the Netherlands.



(C) Denmark

(D) Schleswig-Holstein



(E) Niedersachsen/Hamburg

(F) The Netherlands

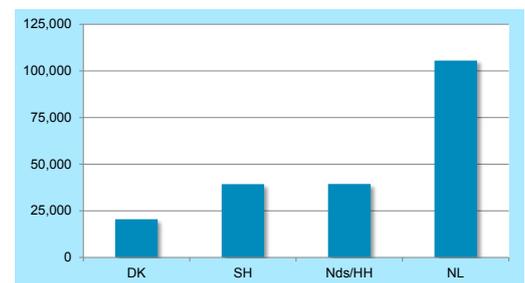
Trends for Common Gull in the Wadden Sea

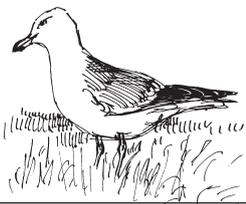
Figures represent the trend 1987/1988 to 2010/2011, taking into account data from all months to express an overall trend for the entire year. Numbers on the y-axis represent monthly mean occurrences. Dots are the individual yearly estimates, solid lines the trend calculated by TrendSpotter, dotted lines the 95% confidence limits of the trend lines.

Figure 231 Absolute numbers of Common Gull in the four regions calculated by average of the 3 maximum numbers in the period 2001/2002-2010/2011.

Area	Period	1987/88 - 2010/11	1998/99 - 2010/11
(A)/(B) International Wadden Sea		→	→
(C) Denmark		↓	↓
(D) Schleswig-Holstein		↓	↓
(E) Niedersachsen/Hamburg		→	—
(F) The Netherlands		↑	→

↑ strong increase    ↓ strong decrease    ↑ moderate increase  
↓ moderate decrease    → stable    — uncertain





Herring Gull

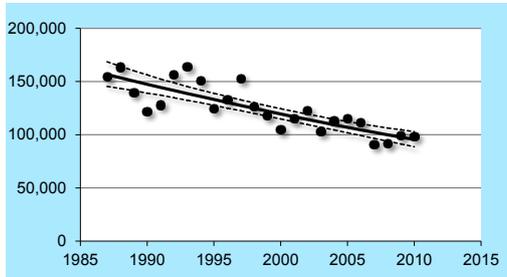
*Larus argentatus*

05920

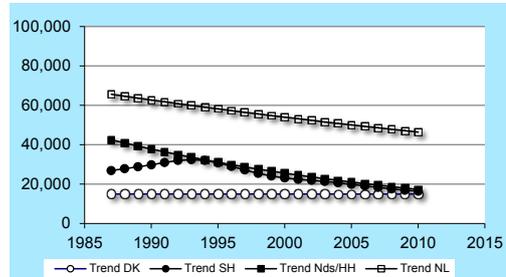
DK: Sølvmåge

D: Silbermöwe

NL: Zilvermeeuw



(A) Overall trend in the International Wadden Sea

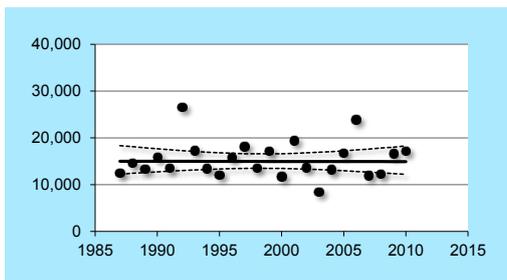


(B) Trends in the different countries compared

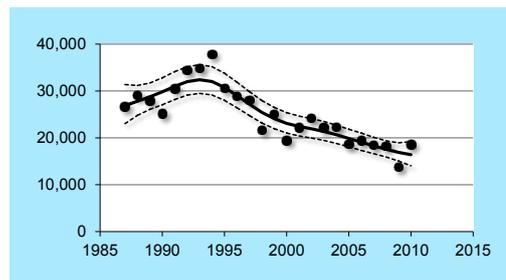
Figure 232-237 Trends of Herring Gull in the International Wadden Sea (WS) and the four regions 1987/1988-2010/2011; dots represent annual averages; trendline calculated by Trendspotter (solid line) together with the  $\pm$  95 % confidence limits (dotted line).

Explanatory Note

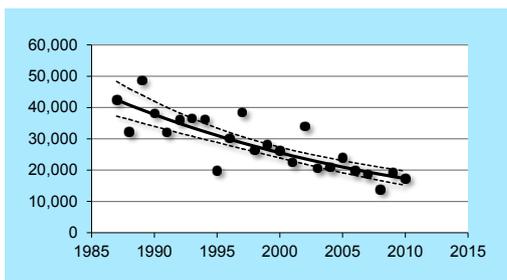
Only a small part of the Herring Gull flyway population are registered in the Wadden Sea, however many birds are not covered because birds either feed offshore or inland. The overall trend in the Wadden Sea and all its regions is a clear decrease, with the exception of Denmark, where the population appears to be overall stable.



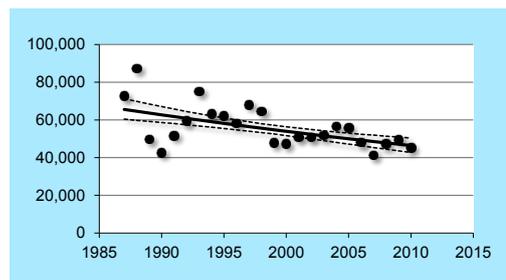
(C) Denmark



(D) Schleswig-Holstein



(E) Niedersachsen/Hamburg



(F) The Netherlands

Trends for Herring Gull in the Wadden Sea

Figures represent the trend 1987/1988 to 2010/2011, taking into account data from all months to express an overall trend for the entire year. Numbers on the y-axis represent monthly mean occurrences. Dots are the individual yearly estimates, solid lines the trend calculated by TrendSpotter, dotted lines the 95% confidence limits of the trend lines.

Area	Period	1987/88 - 2010/11	1998/99 - 2010/11
(A)/(B) International Wadden Sea		↓	↓
(C) Denmark		→	→
(D) Schleswig-Holstein		↓	↓
(E) Niedersachsen/Hamburg		↓	↓
(F) The Netherlands		↓	↓

↑ strong increase    ↓ strong decrease    ↕ moderate increase  
↘ moderate decrease    → stable    — uncertain

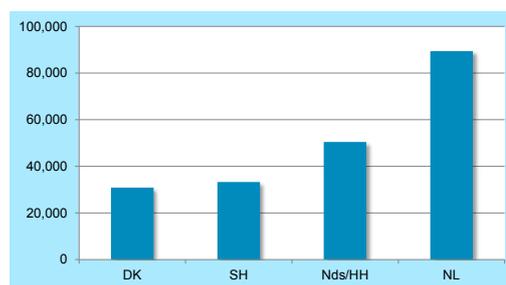
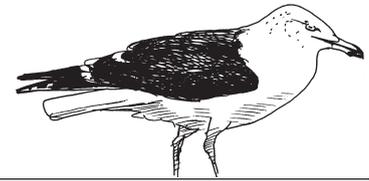


Figure 238 Absolute numbers of Herring Gull in the four regions calculated by average of the 3 maximum numbers in the period 2001/2002-2010/2011.



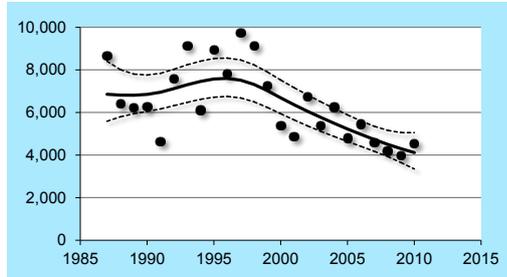
# Great Black-backed Gull

06000

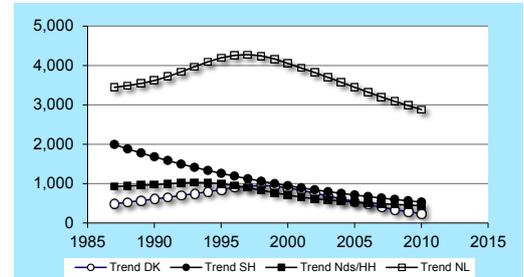
*Larus marinus*

DK: Svartbag D: Mantelmöwe NL: Grote Mantelmeeuw

Figure 239-244 Trends of Great Black-backed Gull in the International Wadden Sea (WS) and the four regions 1987/1988-2010/2011; dots represent annual averages; trendline calculated by Trendspotter (solid line) together with the  $\pm$  95 % confidence limits (dotted line).



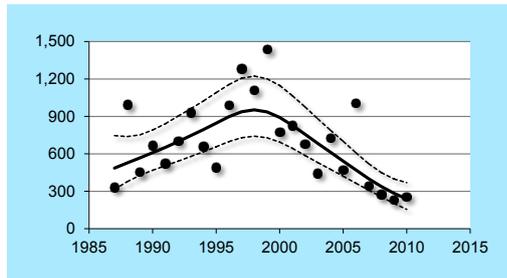
(A) Overall trend in the International Wadden Sea



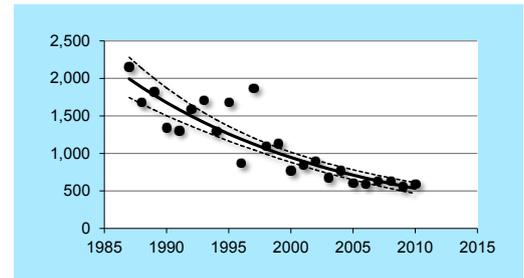
(B) Trends in the different countries compared

### Explanatory Note

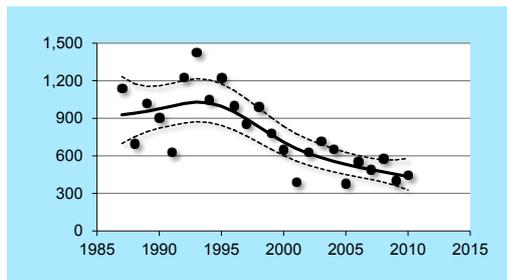
Only a small fraction of the **Great Black-backed Gull** flyway population is counted in the Wadden Sea, since many birds use harbours and offshore areas. Apart from some peak numbers in the mid 1990s, the long- and short-term trends in the Wadden Sea and its regions are decreasing.



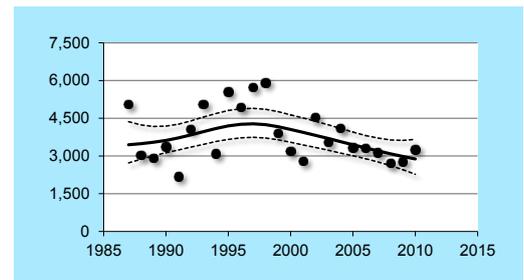
(C) Denmark



(D) Schleswig-Holstein



(E) Niedersachsen/Hamburg



(F) The Netherlands

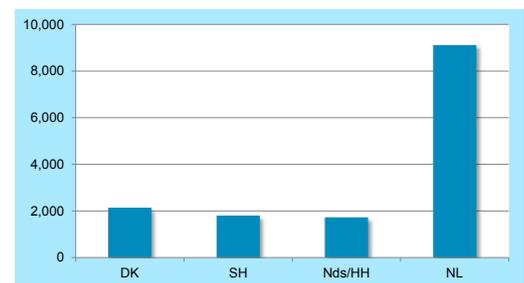
### Trends for Great Black-backed Gull in the Wadden Sea

Figures represent the trend 1987/1988 to 2010/2011, taking into account data from all months to express an overall trend for the entire year. Numbers on the y-axis represent monthly mean occurrences. Dots are the individual yearly estimates, solid lines the trend calculated by TrendSpotter, dotted lines the 95% confidence limits of the trend lines.

Figure 245 Absolute numbers of Great Black-backed Gull in the four regions calculated by average of the 3 maximum numbers in the period 2001/2002-2010/2011.

Area	Period	1987/88 - 2010/11	1998/99 - 2010/11
(A)/(B) International Wadden Sea		↓	↓
(C) Denmark		↓	↓↓
(D) Schleswig-Holstein		↓	↓
(E) Niedersachsen/Hamburg		↓	↓
(F) The Netherlands		↗	↓

↑ strong increase    ↓ strong decrease    ↗ moderate increase  
↘ moderate decrease    ↔ stable    — uncertain



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## Counting Units in the Wadden Sea

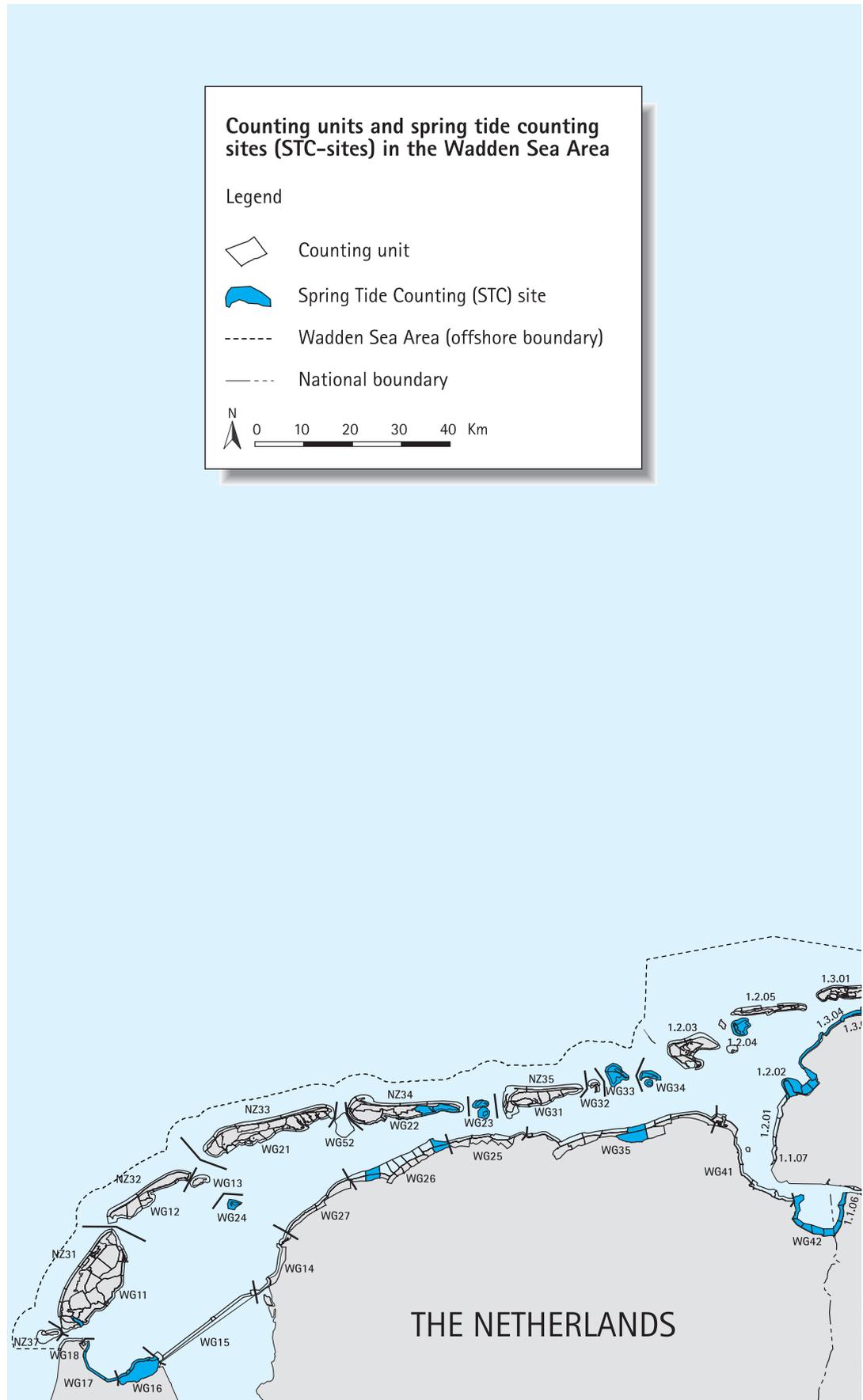




Figure 246  
The Wadden Sea Area  
(Cooperation Area), including  
delimitations of all  
counting units and spring  
tide counting sites

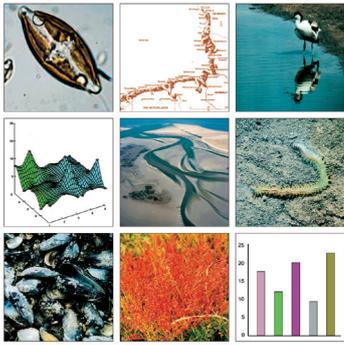
## Species List

### List of the species monitored in the Trilateral Monitoring and Assessment Program (TMAP)

Euring	English name	Scientific name	Dansk navn	Deutscher Name	Nederlandse naam
720	Great Cormorant	<i>Phalacrocorax carbo</i>	Skarv	Kormoran	Aalscholver
1440	Eurasian Spoonbill	<i>Platalea leucorodia</i>	Skestork	Löffler	Lepelaar
1670	Barnacle Goose	<i>Branta leucopsis</i>	Bramgås	Nonnengans	Brandgans
1680	Dark-bellied Brent Goose	<i>Branta bernicla</i>	Knortegås	Ringelgans	Rotgans
1730	Common shelduck	<i>Tadorna tadorna</i>	Gravand	Brandgans	Bergeend
1790	Eurasian Wigeon	<i>Anas penelope</i>	Pibeand	Pfeifente	Smient
1840	Common Teal	<i>Anas crecca</i>	Krikand	Krickente	Wintertaling
1860	Mallard	<i>Anas platyrhynchos</i>	Gråand	Stockente	Wilde Eend
1890	Northern Pintail	<i>Anas acuta</i>	Spidsand	Spießente	Pijlstaart
1940	Northern Shoveler	<i>Anas clypeata</i>	Skeand	Löffelente	Slobeend
2060	Common Eider	<i>Somateria mollissima</i>	Ederfugl	Eiderente	Eidereend
4500	Eurasian Oystercatcher	<i>Haematopus ostralegus</i>	Strandskade	Austernfischer	Scholekster
4560	Pied Avocet	<i>Recurvirostra avosetta</i>	Klyde	Säbelschnäbler	Kluut
4700	Great Ringed Plover	<i>Charadrius hiaticula</i>	Stor Præstekrave	Sandregenpfeifer	Bontbekplevier
4770	Kentish Plover	<i>Charadrius alexandrinus</i>	Hvidbrystet Præstekrave	Seeregenpfeifer	Strandplevier
4850	Golden Plover	<i>Pluvialis apricaria</i>	Hjejle; Hedehjejle	Goldregenpfeifer	Goudplevier
4860	Grey Plover	<i>Pluvialis squatarola</i>	Strandhjejle	Kiebitzregenpfeifer	Zilverplevier
4930	Northern Lapwing	<i>Vanellus vanellus</i>	Vibe	Kiebitz	Kievit
4960	Red Knot	<i>Calidris canutus</i>	Islandsk Ryle	Knutt	Kanoetstrandloper
4970	Sanderling	<i>Calidris alba</i>	Sandløber	Sanderling	Drieteenstrandloper
5090	Curlew Sandpiper	<i>Calidris ferruginea</i>	Krumnæbbet Ryle	Sichelstrandläufer	Krombekstrandloper
5120	Dunlin	<i>Calidris alpina</i>	Almindelig Ryle	Alpenstrandläufer	Bonte Strandloper
5170	Ruff	<i>Philomachus pugnax</i>	Brushane	Kampfläufer	Kemphaan
5340	Bar-Tailed Godwit	<i>Limosa lapponica</i>	Lille Kobbersneppe	Pfuhschnepfe	Rosse Grutto
5380	Whimbrel	<i>Numenius phaeopus</i>	Lille Regnsbove	Regenbrachvogel	Regenwulp
5410	Eurasian Curlew	<i>Numenius arquata</i>	Stor Regnsbove	Großer Brachvogel	Wulp
5450	Spotted Redshank	<i>Tringa erythropus</i>	Sortklire	Dunkelwasserläufer	Zwarte Ruiter
5460	Common Redshank	<i>Tringa totanus</i>	Rødben	Rotschenkel	Tureluur
5480	Common Greenshank	<i>Tringa nebularia</i>	Hvidklire	Grünschenkel	Groenpootruiter
5610	Ruddy Turnstone	<i>Arenaria interpres</i>	Stenvender	Steinwälzer	Steenloper
5820	Common Black-headed Gull	<i>Larus ridibundus</i>	Hættemåge	Lachmöwe	Kokmeeuw
5900	Common Gull	<i>Larus canus</i>	Stormmåge	Sturmmöwe	Stormmeeuw
5920	Herring Gull	<i>Larus argentatus</i>	Sølvmåge	Silbermöwe	Zilvermeeuw
6000	Great Black-backed Gull	<i>Larus marinus</i>	Svartbag	Mantelmöwe	Grote Mantelmeeuw
1610	Greylag Goose	<i>Anser anser</i>	Grågås	Gaugans	Grauwe Gans
2430	White-Tailed Eagle	<i>Haliaeetus albicilla</i>	Havørn	Seeadler	Zeearend
2900	Rough-Legged Buzzard	<i>Buteo lagopus</i>	Fjeldvåge	Rauhfußbussard	Ruigpootbuiserd
3090	Merlin	<i>Falco columbarius</i>	Dværgfalk	Merlin	Smelleken
3200	Peregrine Falcon	<i>Falco peregrinus</i>	Vandrefalk	Wanderfalke	Slechtvalk
5320	Black-tailed Godwit	<i>Limosa limosa</i>	Stor Kobbersneppe	Uferschnepfe	Grutto
5910	Lesser Black-backed Gull	<i>Larus fuscus</i>	Sildemåge	Heringsmöwe	Kleine Mantelmeeuw
9780	Shore (Horned) Lark	<i>Eremophila alpestris</i>	Bjerglærke	Ohrenlerche	Strandleeuwerik
16620	Twite	<i>Carduelis flavirostris</i>	Bjergirisk	Berghänfling	Frater
18500	Snow Bunting	<i>Plectrophenax nivalis</i>	Snespurv	Schneeammer	Sneeuwgorst

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