

HEALTHY AND BIOLOGICALLY DIVERSE : SPECIES

Abundance of wintering waterbirds

Key message

Scotland's coasts are of international importance for wintering waterbirds. The wintering waterbird indicator has increased 15% since 2011 and is 31% higher than it was in 1976.

Background

Waterbird is a broad term used to refer to birds that live on or around water such as, geese, swans, divers, grebes, ducks, waders, rails, coots and herons. Scotland's coasts and inland waters provide overwintering habitat for internationally important populations of migratory waterbirds. Many of these species are long distance migrants, breeding in the high Arctic and attracted by the relatively mild winters and the extensive wetland and intertidal habitats that Scotland has to offer. In an international context Scotland's extensive non-estuarine coast is important for specialist species (species adapted to and typically found in a narrow range of habitats) such as purple sandpiper and ruddy turnstone; its sea lochs, firths and bays hold

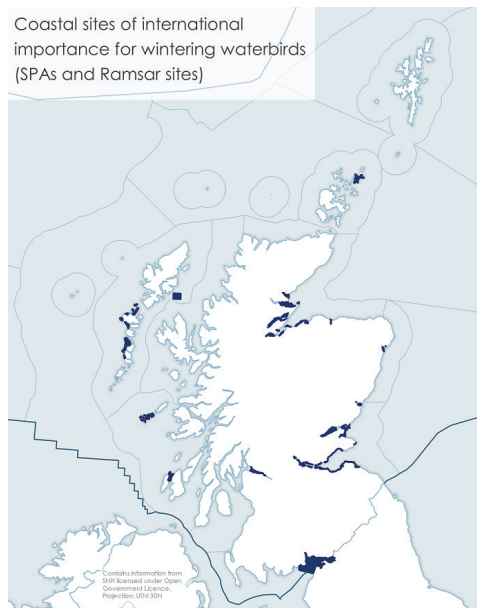


Figure 1:
Sites of international importance for wildfowl and wader species together with Scottish Marine Regions.



Scottish Government
Riaghaltas na h-Alba
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Eurasian oystercatchers at North Berwick © John Baxter

large numbers of sea duck, divers and grebes. Furthermore estuaries hold substantial numbers of waders and waterfowl.

In Scotland, there are 53 protected areas (Special Protection Areas (SPA) and/or Ramsar sites, classified in accordance with the [EC Birds Directive](#) or under the international treaty signed at the Ramsar Convention for wetlands, respectively) for internationally important populations of wintering waterbirds (Figure 1). This analysis includes only species closely associated with the marine environment. The index includes estuarine and coastal shore wintering waders (e.g. common redshank and purple sandpiper), estuarine waterfowl (e.g. common shelduck), seaduck (e.g. long-tailed duck and common eider) and coastal water feeding

birds (e.g. great northern diver and Slavonian grebe) (Figure 2). Some of these species breed in Scotland but are joined in winter by birds from elsewhere.

The '[Wintering Waterbirds in Scotland \(S04\)](#)' indicator published by NatureScot includes both marine and freshwater waterbirds. There is no single indicator for marine waterbirds.

The assessment is therefore based on a subset (just marine species) of species from the wintering waterbird indicator used to create a marine wintering waterbird index. Wintering waterbird populations are monitored primarily through the [Wetland Bird Survey \(WeBS\)](#); using synchronised monthly counts (September to March) provided mostly by volunteers.



Long-tailed duck



Common redshank



Common eider



Common shelduck



Purple sandpiper



Great northern diver



Slavonian grebe

Figure 2:

Examples of wintering waterbirds species found along Scottish coasts. Common redshank and common eider © Lorne Gill/NatureScot; purple sandpiper © John Baxter; common shelduck © David Whitaker, Highland Wildlife Photography; long-tailed duck, great northern diver and Slavonian grebe © John Dickenson.

Results

Since the 1975/6 winter the marine wintering waterbird index has increased, peaking in the winter 2002/03. Between 2010/11 and 2017/18 the index shows a small increase and recent years have been above the 1975/76 level (taken as baseline value of 100). Note

that the smoothed index is unreliable at the very start and end of periods, but the index overall since 2011 has been above 100 (Figure 3), and has not been below 100 since 1986.

Since 2011 the index has increased, and is now around 130% of its baseline value in 1975/76, and

115% of its value from 2010/11. The average value of the smoothed index for that period is 121% (Figure 4).

The species within the index can be reduced to two functional groups waterfowl and diving species (Figure 5) and wading birds (Figure 6).

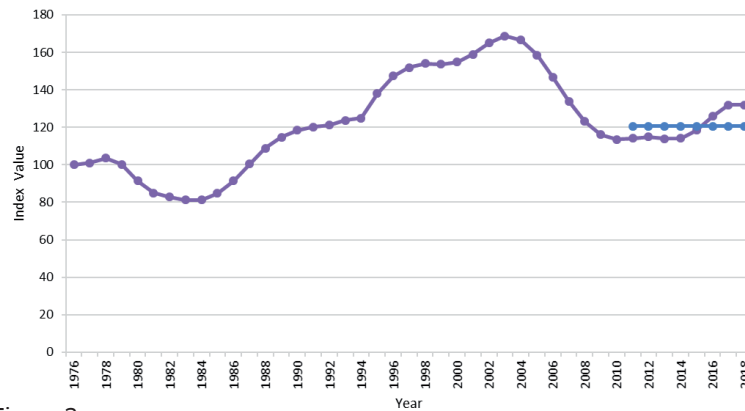


Figure 3:
Marine wintering waterbird index 1975/76 - 2017/18. This chart shows the Generalised Additive Model (GAM) smoothed index values for numbers of marine wintering waterbirds. Blue line shows the average 2011 - 2018 value of the index.

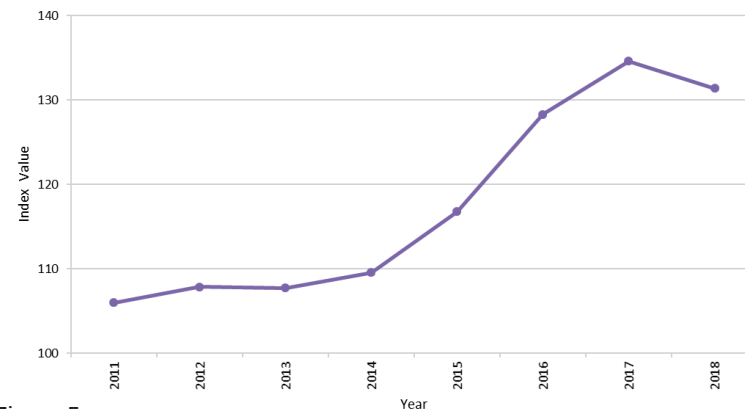


Figure 5:
Index for marine wintering wildfowl and diving species, 2011 - 2018. Index values relative to 1975/76 value.

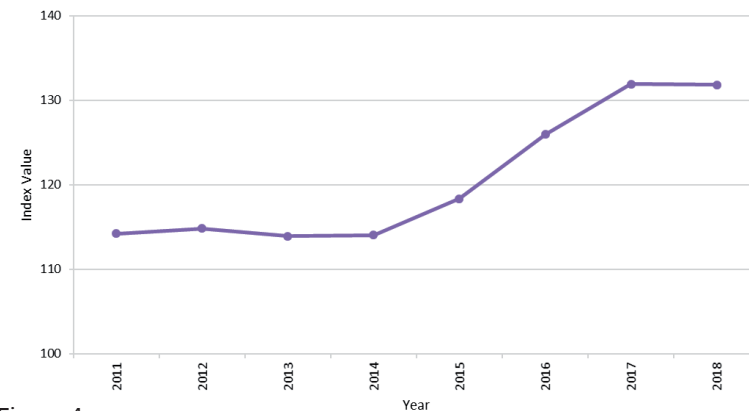


Figure 4:
Marine wintering waterbird index 2010/11 - 2017/18.

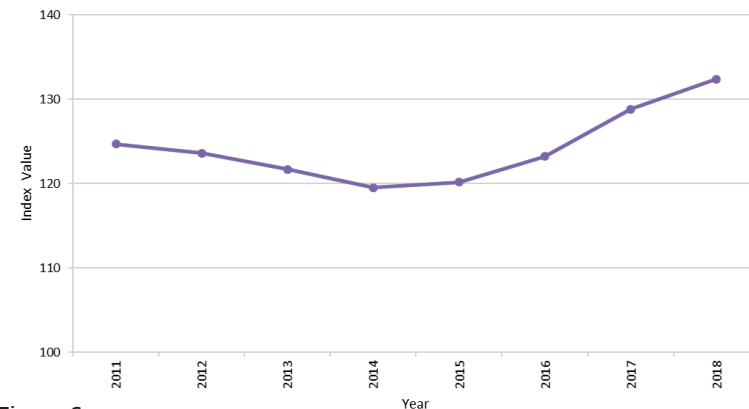


Figure 6:
Index for marine wintering waders from 2010/11 to 2017/18.

The short-term trends for these two groups are a little different, with the waterfowl index increasing rapidly from 2014 to 2017 and the wading bird index more slowly following a dip to a low point in 2013/14. Note that this recent low point is still 120% of the 1975/76 baseline value (Figure 6).

Table 1 shows the summarised trend (overall pattern of the index shown by that species in the 32 year period of the index values) for 24 species that contribute to the marine wintering waterbird index. The short term trend assessment is based on a comparison of the 5 year averaged index value which is a standard approach for assessing wintering waterbird populations.

In Table 1 an increasing or decreasing trend is assumed if there is a greater than 10% change between two time periods for calculation of mean value (although actual figures for change are also presented).

Of 24 species that are usually associated with marine habitats six have increased since 2011, seven have declined and 11 have remained stable.

Table 1:
Trends of wintering marine waterbirds in Scotland from 1975/76 to 2017/18 and the trend from 2011/12 to 2017/18.

Taxon	Overall trend from 1975/76 baseline to 2017/18	Change from 2011 (based on 5 year means - 2007/08 - 2011/12 and 2012/13 - 2017/18)	Group
Common shelduck ⁽⁴⁾	Increase +55%	Stable 0%	Waterfowl
Greater scaup ⁽⁴⁾	Decrease -74%	Decrease -12%	Waterfowl
Long-tailed duck ⁽⁴⁾	Decrease -49%	Decrease -68%	Waterfowl
Common scoter ⁽⁴⁾	Increase +80%	Increase +85%	Waterfowl
Velvet scoter ⁽⁴⁾	Increase +138%	Increase +40%	Waterfowl
Red-breasted merganser ⁽⁴⁾	Increase +41%	Stable -4%	Waterfowl
Common eider (not Shetland) ⁽⁴⁾	Increase +23%	Decrease -15%	Waterfowl
Red-throated diver ⁽¹⁾	Increase +53% (since 1994)	Decrease -14%	Diving birds
Black-throated diver ⁽¹⁾	Increase +37% (since 1994)	Increase +70%	Diving birds
Great northern diver ⁽¹⁾	Increase +462% (since 1994)	Increase +67%	Diving birds
Slavonian grebe ⁽¹⁾	Increase +143% (since 1994)	Increase +16%	Diving birds
Great cormorant ⁽²⁾	Stable +6%	Stable -5%	Diving birds
European shag ⁽³⁾	Decrease -24%	Stable -9.5%	Diving birds
Eurasian oystercatcher ⁽⁴⁾	Stable 0%	Stable +1%	Waders
Ringed plover ⁽⁴⁾	Stable +8%	Stable -4%	Waders
Grey plover ⁽⁴⁾	Increase +49%	Decrease -30%	Waders
Red knot ⁽⁴⁾	Decrease -20%	Stable +8%	Waders
Purple sandpiper ⁽⁴⁾	Increase +17%	Decrease -19%	Waders
Dunlin ⁽⁴⁾	Decrease -41%	Stable +4%	Waders
Black-tailed godwit ⁽⁴⁾	Increase +1386%	Increase +87%	Waders
Bar-tailed godwit ⁽⁴⁾	Stable -7%	Stable -3%	Waders
Eurasian curlew ⁽⁴⁾	Increase +59%	Stable -2%	Waders
Common redshank ⁽⁴⁾	Decrease -33%	Stable -4%	Waders
Ruddy turnstone ⁽⁴⁾	Increase +15%	Decrease -17%	Waders

(1) Index values from winter 1994/95 onwards.

(2) Index values from 1988/89 onwards.

(3) Index values from winter 2003/04 onwards.

(4) Index values from winter 1975/76 onwards.

Conclusion

The marine wintering waterbird index, referenced to 1975, has fluctuated over time. It reached peak values in early 2000s and has since declined, but levelled off and even shown a slight increase in recent years so remains above baseline. The wintering waterbird indicator has increased 15% since 2011 and is 31% higher than it was in 1976.

Since 2011 the trend has been for an increase in the index, strongest for marine waterfowl and diver species. Black-tailed godwit, however, produced the highest increase in the index with an +87% change since 2011.

Although the trend line for the indicator incorporates counts of diver species and Slavonian grebe, caution should be applied as it is clear that there are significant populations not covered by regular WeBS counts. However, as the most important populations are now included in proposed SPAs, future monitoring of those SPAs will help provide a more robust marine wintering waterbird index.

Waders using the non-estuarine coast have shown decreasing trends at least since around 2000 for purple sandpiper and mid 1990s for ruddy turnstone. There is currently only occasional monitoring of these through national surveys ([BTO Non Estuarine Wader Survey – NEWS](#)). Coupled with relatively few researchers working on these species means declines may be going un-noticed, and drivers of population change are not understood.

Knowledge gaps







There is a lack of knowledge on the key drivers for the declining waterbirds. Most notably waders using non-estuarine (rocky shore) sites.

The reason for the decline in both marine wintering waterfowl and waders since the end of the 1990s is unclear, as are the reasons for the increase in the decades prior to that.



















Status and trend assessment

Data confidence is High. Indicator Confidence is medium.

It is not possible at this time to provide regional trends for Scottish Marine Regions.

Species group	Status	Assessment (2011 to 2017)
Marine waterbird	 ☆☆☆	 ☆☆
Marine wader	 ☆☆☆	 ☆☆
Marine wildfowl	 ☆☆☆	 ☆☆

Status and trend assessment legend

Status assessment (for Clean and safe, Healthy and biologically diverse assessments)		Trend assessment (for Clean and safe, Healthy and biologically diverse and Productive assessments)	
	Many concerns		No / little change
	Some concerns		Increasing
	Few or no concerns		Decreasing
	Few or no concerns, but some local concerns		No trend discernible
	Few or no concerns, but many local concerns		All trends
	Some concerns, but many local concerns	Confidence assessment	
	Lack of evidence / robust assessment criteria		
	Lack of regional evidence / robust assessment criteria, but no or few concerns for some local areas		
	Lack of regional evidence / robust assessment criteria, but some concerns for some local areas		
	Lack of regional evidence / robust assessment criteria, but many concerns for some local areas		
		Symbol	Confidence rating
			Low
			Medium
			High