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Condition assessments for the designated features of Ardal Gwarchodaeth Arbennig Cilfach Tywyn / Burry Inlet Special Protection Area

Report No: 913

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Eurasian Oystercatcher *Haematopus ostralegus* by Peter Richman under licence CC BY-SA 2.0

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Crynodeb Gweithredol

Er mwyn rheoli ein hardaloedd morol gwarchodedig yn effeithiol ac yn gynaliadwy, mae'n hanfodol deall cyflwr eu cynefinoedd a'u rhywogaethau gwarchodedig. Mae gwybod cyflwr nodweddion dynodedig yn caniatáu i ni dargedu rheolaeth ac adnoddau lle mae eu hangen i wella ac adfer cyflwr.

Mae'r adroddiad tystiolaeth hwn, a gyflwynwyd fel rhan o brosiect gwella cyngor cadwraeth forol (IMCA) a ariannwyd gan Lywodraeth Cymru, yn cyflwyno canfyddiadau asesiadau cyflwr Cyfoeth Naturiol Cymru ar gyfer ardal gwarchodaeth arbennig (AGA) Cilfach Tywyn. Mae adran un yn rhoi trosolwg o'r broses asesu ac mae adran dau yn rhoi disgrifiad o'r AGA a'i nodweddion.

Mae'r asesiadau'n seiliedig ar y dystiolaeth orau a oedd ar gael ar y pryd (e.e. 2024). Adroddir canlyniadau asesiadau gyda hyder cysylltiedig yn y casgliad. Gellir dod o hyd i esboniadau manwl o'r rhesymeg y tu ôl i gasgliadau, ac unrhyw resymau dros fethu, yn yr asesiad cyflwr llawn yn Adran 3. Gellir dod o hyd i adroddiad ar y broses asesu a ddefnyddiwyd yn adroddiad terfynol IMCA.

Crynodeb o asesiadau cyflwr ar gyfer nodweddion dynodedig AGA Cilfach Tywyn.

Nodweddion Dynodedig	Asesiad cyflwr	Hyder yn yr asesiad
Pioden fôr *Haematopus ostralegus*	Ffafriol	Canolig
Pibydd yr aber *Calidris canutus*	Ffafriol	Canolig
Hwyaden lostfain *Anas acuta*	Ffafriol	Canolig
Pibydd coesgoch *Tringa totanus*	Anhysbys	Canolig
Gylfinir *Numenius arquata*	Anhysbys	Canolig
Pibydd y mawn *Calidris alpina*	Anhysbys	Canolig
Cwtiad llwyd *Pluvialis squatarola*	Anhysbys	Canolig
Hwyaid yr eithin *Tadorna tadorna*	Ffafriol	Canolig
Hwyaden lydanbig *Anas clypeata*	Anhysbys	Canolig
Corhwyaden *Anas crecca*	Ffafriol	Canolig
Cwtaid y traeth *Arenaria interpres*	Anhysbys	Canolig
Chwiwell *Mareca penelope*	Anhysbys	Canolig
Waterbird Assemblage	Anhysbys	Canolig

Executive summary

To manage our marine protected areas effectively and sustainably it is vital to understand the condition of their protected habitats and species. Knowing the condition of designated features allows management and resources to be targeted where it is needed to improve and restore condition.

This evidence report, which was delivered as part of the Welsh Government funded improving marine conservation advice (IMCA) project, presents the findings of NRW's condition assessments for the features of Burry Inlet SPA. Section 1 gives an overview of the assessment process and Section 2 provides a description of the features.

The assessments are based on the best evidence available at the time (e.g. 2024). Assessment outcomes are reported with an associated confidence in the conclusion. Detailed explanations of the rationale behind conclusions, and any reasons for failure, can be found in the full condition assessment in Section 3. A report on the assessment process used can be found in the IMCA final report.

Summary of condition assessments for the designated features of Burry Inlet SPA.

Designated Features	Condition assessment	Confidence in assessment
Oystercatcher *Haematopus ostralegus*	Favourable	Medium
Knot *Calidris canutus*	Favourable	Medium
Pintail *Anas acuta*	Favourable	Medium
Redshank *Tringa totanus*	Unfavourable	Medium
Curlew *Numenius arquata*	Unfavourable	Medium
Dunlin *Calidris alpina*	Unfavourable	Medium
Grey plover *Pluvialis squatarola*	Unfavourable	Medium
Shelduck *Tadorna tadorna*	Favourable	Medium
Shoveler *Anas clypeata*	Unfavourable	Medium
Teal *Anas crecca*	Favourable	Medium
Turnstone *Arenaria interpres*	Unfavourable	Medium
Wigeon *Mareca penelope*	Unfavourable	Medium
Waterbird Assemblage	Unfavourable	Medium

1. Introduction

It is important for NRW to understand the condition of designated features in marine protected areas (MPAs) to allow NRW to prioritise management actions and advise on activity in the marine environment.

Having robust, evidence-based assessments of feature condition will ultimately lead to better protection through better management. The improvements in condition brought about by implementing targeted management will ultimately improve the resilience of Wales' marine ecosystems. As MPAs in Wales cover extensive areas of sea and coast, it can be challenging and resource intensive to monitor them. This can make thorough assessments of feature condition difficult. The process used for these condition assessments builds on work undertaken to produce indicative condition assessments published in 2018.

The 2018 indicative assessments used all available data and expert judgement to assess features using a workshop approach with internal NRW specialists. The new full assessment process, which has been delivered through the Welsh Government funded improving marine conservation advice (IMCA) project, has been improved by using carefully chosen performance indicators judged to be the most appropriate to assess condition (see section 3). The best available evidence has been used to conduct the assessments. Due to the differences in assessment methods between these full assessments and the indicative condition assessments, the results are not directly comparable.

1.1. Assessment process

Marine feature condition assessments in NRW consist of selecting performance indicators for the feature, gathering the best available evidence to assess those indicators and conducting the assessment.

Performance indicators have targets which have a primary, secondary or tertiary weighting. Failure of a primary target will mean the feature is classified as unfavourable, on a 'one out all out' basis. If all primary targets pass but two secondary targets fail, the feature would also be classified as unfavourable. Likewise, if all primary and secondary targets pass but three tertiary targets fail, the feature will also be unfavourable. Condition assessment outcomes are not strictly determined by target weightings and are also subject to expert judgement.

Each indicator result has an associated confidence which is determined by the quality and age of the evidence along with the confidence in the indicator itself and what it is telling us about condition of the feature. The confidence in the overall assessment is derived from the confidence in each target pass or failure, as well as expert judgment/ assessor consensus.

Each feature condition assessment will also identify reasons for indicator failure where known and any known threats to feature condition.

Table 1 summarises the steps taken in marine feature condition assessments. Details on the full condition assessment process, including indicator selection and target weighting can be found in the IMCA final report.

Table 1: Details the main steps of the marine feature condition assessment process.

Assessment Step	Process
Step 1: Preparation and evidence gathering.	Prepare site information. Source relevant evidence and any previous assessments. Evaluate quality of evidence according to suitability for use in assessments and carry out any analysis required.
Step 2: Indicator assessment.	A range of NRW specialists use all available evidence to assess the performance indicators and targets using a pass, fail or unknown. Record findings in the condition assessment form. Provide a confidence score for each target conclusion.
Step 3: Feature level assessments.	Combining the results from the assessment of feature indicators to provide an overall assessment of condition at the feature level.
Step 3.5. Complex features.	If the feature is a complex feature (i.e., estuaries or large shallow inlets and bays) consider the results of any nested feature assessments within the overall complex feature assessment.
Step 4: Condition pressures and threats.	Use the evidence gathered and information on management and activities to determine threats and pressures on feature condition.
Step 5: Finalise the assessments.	Ensure all required fields in the assessment have been completed and all assessed targets have an associated confidence. Circulate the reports to the relevant NRW specialists for review and comment. After issues have been resolved, the assessments will be signed off by the project task and finish group.
Step 6: Publish the assessments.	After signing off, the assessments will be published on the NRW website, and stakeholders and internal staff notified. Assessments are then ready to use by internal and external parties.

2. Site description

The ardal gwarchodaeth arbennig Cilfach Tywyn / Burry Inlet special protection area (SPA) is a large estuarine complex located between the Gower peninsula and Llanelli in South Wales. It includes extensive areas of intertidal sand and mudflats, together with large sand dune systems, at the mouth of the estuary, and the largest continuous area of saltmarsh in Wales (2,200ha). The range of habitats in the site provide important feeding grounds and resting areas. The extensive mud and sandflats support substantial populations of marine invertebrates, which provide an important food source for the large numbers of overwintering waterfowl found there.

The site was designated in 1992 qualifying under Article 4.2 of the Birds Directive (79/409/EEC) by regularly supporting 1% or more of the biogeographic population of the following regularly occurring migratory species:

- Oystercatcher *Haematopus ostralegus*
- Knot *Calidris canutus*
- Pintail *Anas acuta*
- Redshank *Tringa totanus*

The site qualifies also under Article 4.2 by supporting internationally or nationally important wintering populations of the following species of migratory waterfowl.

- Curlew *Numenius arquata*
- Dunlin *Calidris alpina*
- Grey plover *Pluvialis squatarola*
- Shelduck *Tadorna tadorna*
- Shoveler *Anas clypeata*
- Teal *Anas crecca*
- Turnstone *Arenaria interpres*
- Wigeon *Mareca penelope (*formerly named *Anas penelope)*

The site also contains an important Waterbird Assemblage.

3. Feature condition assessments

Condition Assessments for the features of the Burry Inlet SPA can be found in the following sections. It should be noted that the population estimates at this site are based on numbers collected during the Wetland Bird Survey (WeBS) each year. The counts are made by volunteers on pre-determined days each month throughout the year. The height of the tide on the count date can affect the totals for some species. For example, on very high tides birds may use different roost sites and, in some cases, may roost outside the estuary. Conversely, on relatively low tides some birds may be missed as they continue to feed in gutters which are out of sight of count points. Also, in migration periods the count date may miss the peak passage for some species. Supplementary counts are included where appropriate. WeBS recorders are encouraged to submit significant counts made on dates other than those of 'official' WeBS dates (BTO, 2017). This method of counting waterbirds was that used for the establishment of the baselines for all the SPAs in the UK and therefore there is still consistency in how the data are collected. Graphs included in this report contains WeBS data from Waterbirds in the UK 2022/23 © copyright and database right 2024. WeBS is a partnership jointly funded by the BTO, RSPB and JNCC, with fieldwork conducted by volunteers and previous support from WWT.

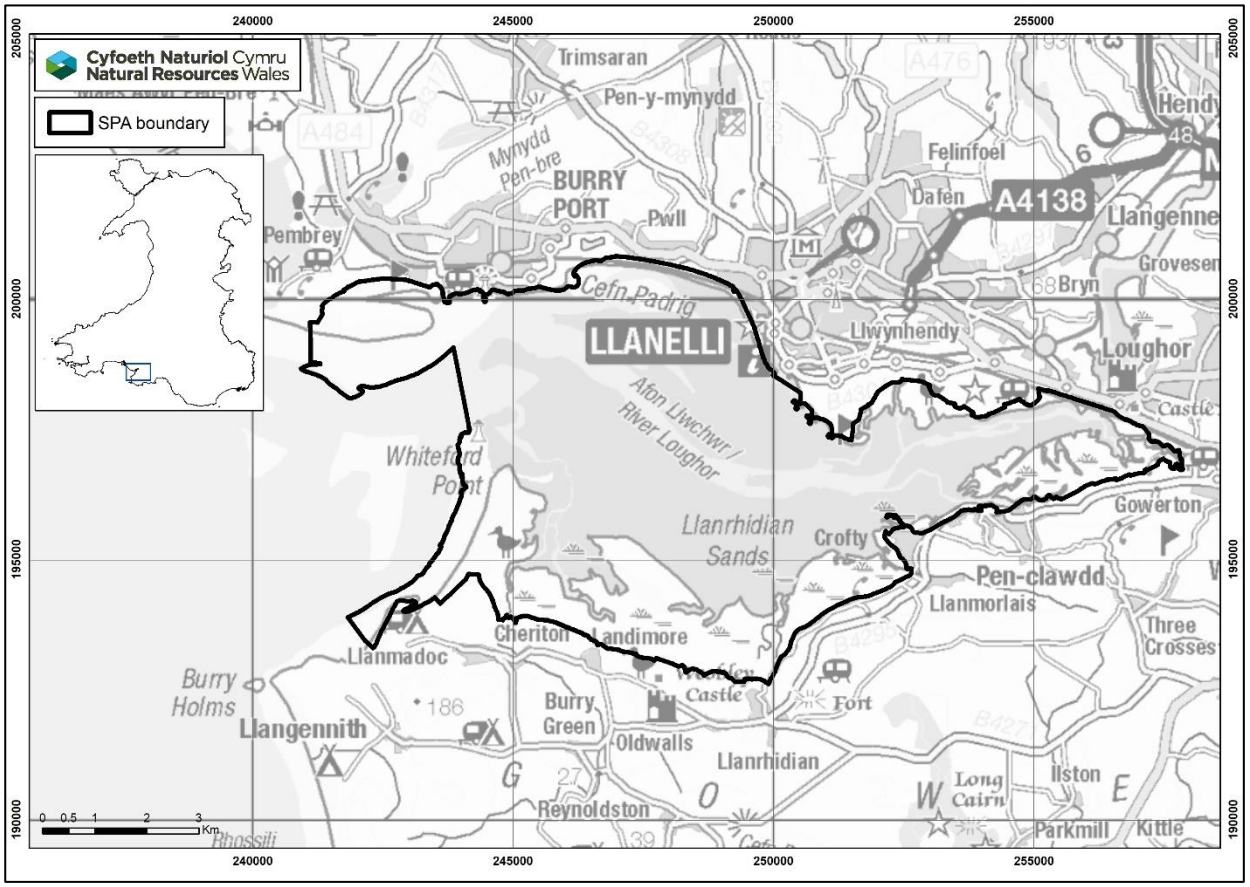
Two graphs have been produced for each feature, one details the feature at the site level and one at the Welsh level. The numbers shown in the site level and Welsh level graphs are index values not total counts. These index values have been developed to track relative changes in bird number from incomplete data. The WeBS annual report uses Generalized Additive Models (GAMs) to fit both index values and a smoothed trend to the WeBS count data. Annual index values are expressed relative to the most recent year, which takes an arbitrary value of 100. The generated smoothed trends are less influenced by years of abnormally high or low numbers and sampling ‘noise’ than are the raw index values. This makes them especially useful when assessing changes through time (WeBS methods, analysis and trends).

The condition assessment for red-throated diver was based on a survey of the site carried out between 2001 and 2004 and on the expert knowledge and judgement of NRW staff.

Figure 1 is a map of the location of Burry Inlet SPA.

More information on the SPA and its features can be found in NRW’s conservation advice for the site on our website.

Figure 1. Map of the Burry Inlet SPA.



3.1. Condition assessment for oystercatcher *Haematopus ostralegus*

Oystercatcher in the Burry Inlet SPA has been assessed in Table 2. The table has a summary of the assessment outcome against each performance indicator. This outcome and reasons for any failure are discussed in more detail in the sections below.

Table 2. Condition assessment of oystercatcher in the Burry Inlet SPA. Each indicator target has a primary (P), secondary (S) or tertiary (T) weighting (see section 1.1).

Indicator	Target	Assessment rationale	Target assessment	Target confidence
Wintering population	Maintain the wintering population of oystercatcher at a minimum of 13,685 individuals across the site. (P)	• The latest five-year peak mean of oystercatcher in the Burry Inlet SPA is 13,805 (counts from wintering seasons in the years 2018/19 to 2022/23). • This is actually based on three years as there were two partial counts within the five years. • The target has been passed but with medium confidence due to the partial counts.	**Pass**	Medium
Wintering population distribution	The distribution of the wintering oystercatcher population should not be significantly impacted by anthropogenic activity. (P)	• There are currently no known anthropogenic activities that have impeded the use of the whole site by oystercatchers or restricted their movements. • The assessment is based on expert judgement which has reduced the confidence level to medium.	**Pass**	Medium
Wintering population disturbance (by human activity)	Aggregations of roosting or feeding oystercatcher are not subject to significant disturbance. (P)	• There are currently no known anthropogenic activities that have caused significant disturbance to this feature on this site. • Confidence has been reduced to medium as there is no direct monitoring for disturbance on this site.	**Pass**	Medium

Indicator	Target	Assessment rationale	Target assessment	Target confidence
Supporting habitat	Maintain sufficient extent, distribution, function and quality of habitat to support an oystercatcher population of 13,685 individuals. (S) Maintain existing unrestricted bird sightlines in every direction around both roosting sites and feeding areas. (S)	• There are currently no known issues with the supporting habitat or bird sightlines on this site and the latest five-year peak mean of oystercatcher is above the target. This indicates that there are no issues with the supporting habitat. • Confidence has been reduced to medium as there are no targeted surveys for supporting habitat or sightlines.	**Pass**	Medium
Food availability	Maintain the distribution and abundance of oystercatcher food supply at levels sufficient to support a population of 13,685 individuals. (S)	• There are currently no known issues with the food availability on this site and the latest five-year peak mean of oystercatcher is above the target. This indicates that there are no issues with the food availability. • Confidence has been reduced to medium as there are no targeted surveys for food availability.	**Pass**	Medium

Assessment conclusions

Oystercatcher in Burry Inlet SPA have been assessed as being in favourable condition (medium confidence). No indicators failed to meet their targets (Table 3). The main threats to the oystercatcher at Burry Inlet come from disturbance and climate change. Further information on the assessment outcome and threats to condition can be seen in the detailed assessment information below.

Table 3. Summary of the condition assessment for oystercatcher in Burry Inlet SPA.

SPA Feature	Overall Condition Assessment	Indicator failures	Reason for indicator failure	Threats to condition
Oystercatcher *Haematopus ostralegus*	**Favourable (medium confidence)**	None	N/A	• Disturbance • Climate change

Detailed assessment information

Wintering population and distribution

Population figures for wading birds in Wales are derived from the Wetland Bird Survey (WeBS) online report (WeBS online portal). These figures are reported as peak means per year for all birds counted on a SPA, not just the designated features. The target for the oystercatcher at this site is based on the five-year peak mean between the years 1991/92 – 1995/96. The latest five-year peak mean for oystercatchers at Burry Inlet SPA was 13,805 (counts from wintering seasons in the years 2018/19 to 2022/23). Two of the five years were partial counts and were therefore not included. The partial years were 2019/20 and 2022/23. The wintering population indicator target was assessed as passing but with medium confidence due to the partial counts.

The site level index for oystercatcher from 1974/75 to 2022/23 can be seen in Figure 2. It shows high index levels in the 1980s and 1990s with a dip in the mid-2000s, and then increasing numbers up to 2017/18, then a recent drop over the latest years. This dip in the early to mid 2000s, which isn't replicated in the Welsh data, was probably caused by the die off of cockles in the Burry Inlet at that time The Wales level index from 1974/75 to 2022/23 shows an increase followed by a fairly stable picture but with annual fluctuations (Figure 3).

It is important that oystercatchers can continue to use and access all areas within the Burry Inlet SPA needed for feeding, moulting, roosting, loafing, shelter and any other activities necessary to support their survival. The Burry Inlet is an important winter refuge for oystercatcher. Most of the birds wintering here are from northern breeding grounds, such as the Faroes and occasionally Norway. Juveniles take three years to mature and often stay in wintering grounds year round until reaching maturity (sitters, 2002). The area is also an important resting stop for birds migrating further south.

Oystercatchers gather in large flocks to feed on the mudflats and sandflats throughout the Burry Inlet SPA. They roost above high water in groups.

The roosting sites on the shore and adjacent fields can be within and outside the boundary of the SPA. The ability of oystercatchers to move freely between feeding and roosting sites is critical to their fitness and survival. Therefore, movement of the birds inside and outside of the SPA must also not be impacted or restricted. There are currently no known anthropogenic activities that have impeded the use of the whole site by oystercatchers or restricted their movements. Therefore the wintering population distribution indicator met its target. Confidence was reduced to medium as the assessment was based on expert judgement not direct monitoring of bird movements.

Figure 2. Site level annual index for oystercatcher from 1974/75 to 2022/23.

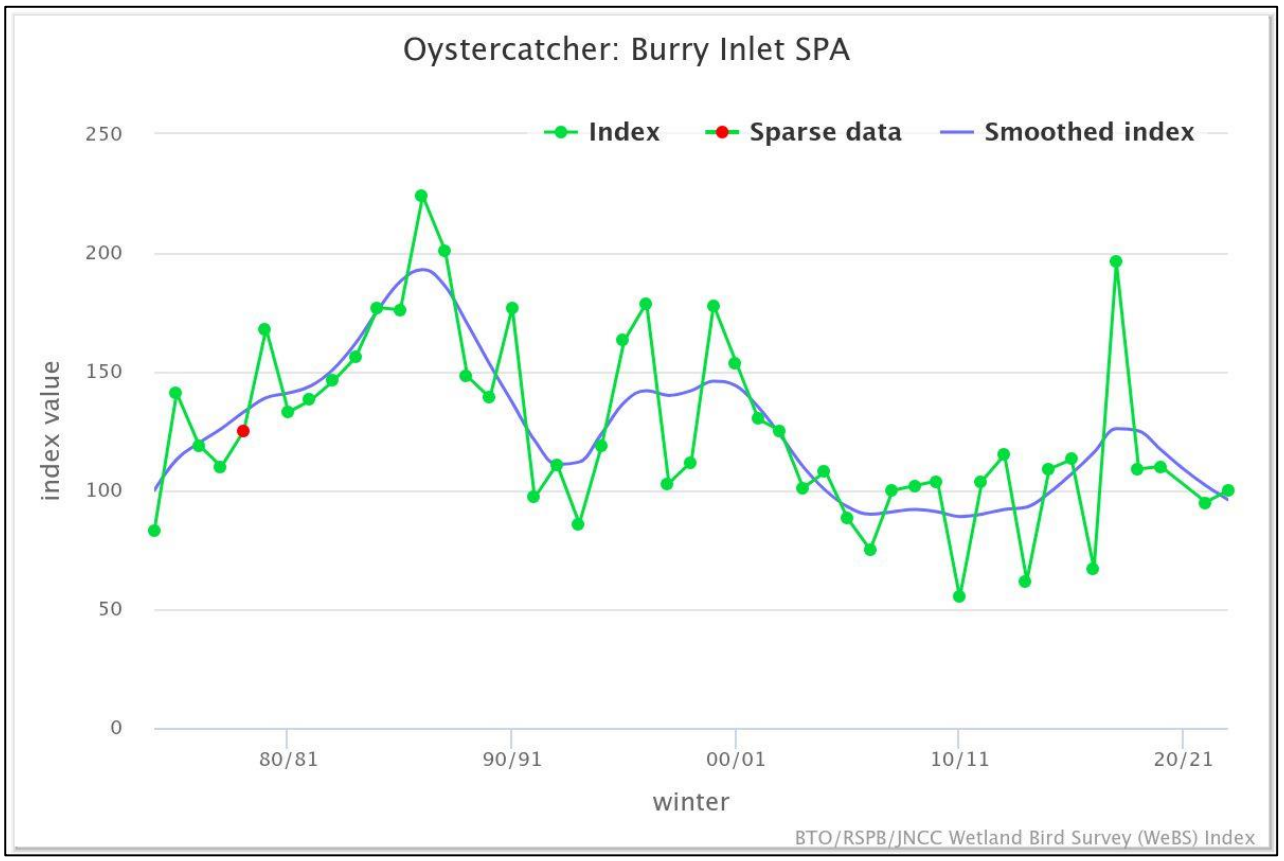
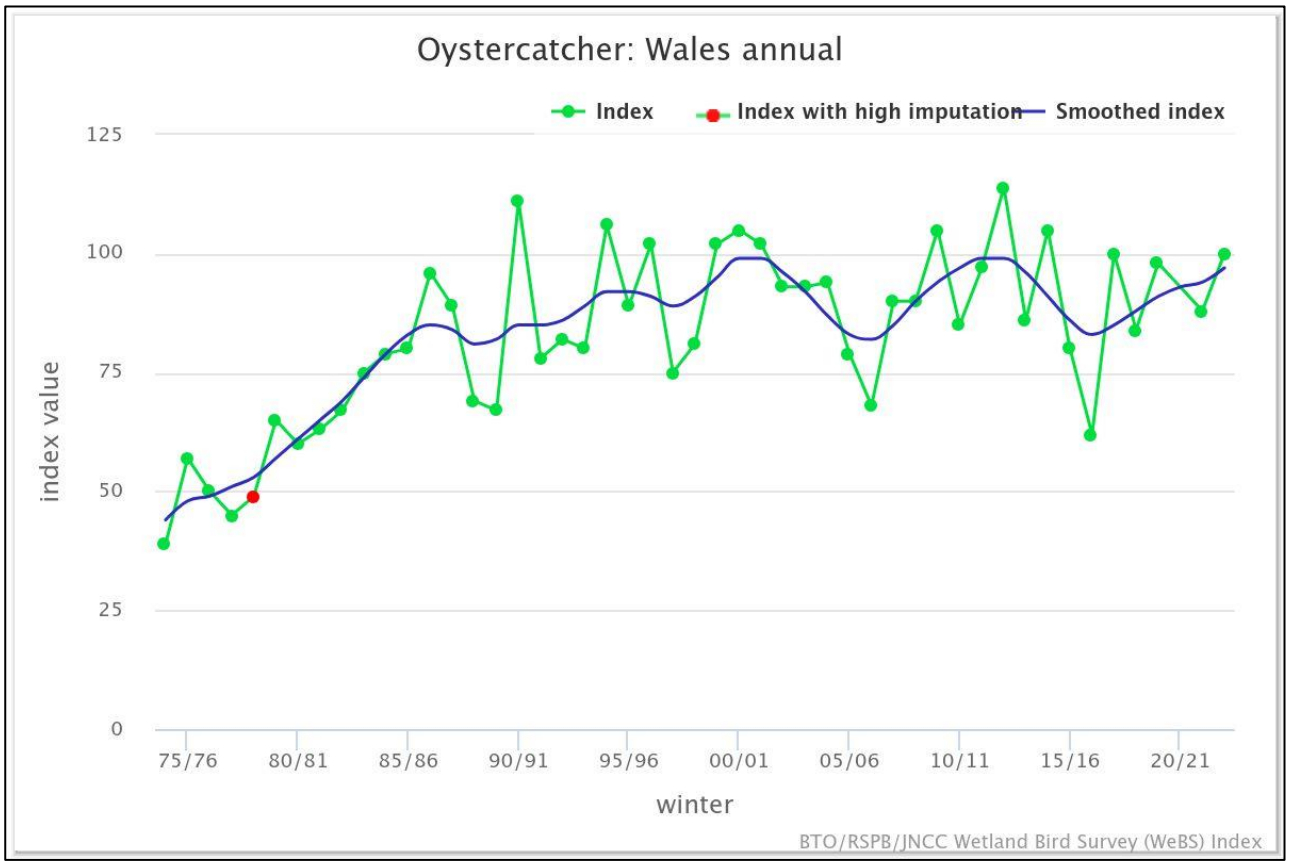


Figure 3. Wales annual index for oystercatcher from 1974/75 to 2022/23.



Wintering population disturbance (by human activity)

Disturbance occurs when an activity is sufficient to disrupt normal behaviours, for example, changes to feeding or roosting behaviour, increased energy expenditure due to time spent moving to avoid stressors, desertion of supporting habitats (both within and outside the protected area where appropriate). If the activity occurs at a level that substantially impacts behaviour for long enough, it can lead to changes in distribution, displacement through reduction of habitat available and consequently could affect the long-term viability of the population.

Disturbance associated with human activity may take a variety of forms including, light, sound, vibration, trampling, presence of people, animals and structures.

Oystercatchers are moderately sensitive to disturbance. They do tolerate some disturbance stimuli and will habituate rapidly to ongoing activity. They seem to tolerate activity better in more disturbed locations compared to undisturbed. Oystercatchers are thought to be tolerant of sound but there is little evidence to back this up. A standard approach to mitigating disturbance should be taken (Cutts et al., 2013).

There are currently no known anthropogenic activities that would have caused significant disturbance to this feature on this site. As this indicator has been assessed with expert judgement, the confidence in the pass was reduced to medium.

Supporting habitat

The extent, distribution and availability of suitable habitat (either within or outside the SPA boundary) which supports the feature for all necessary stages of the non-breeding/wintering period (moulting, roosting, loafing, feeding) should be suitable to support 13,685 oystercatchers. The numbers of wintering oystercatcher are currently meeting their population target, which indicates that the supporting habitat is suitable to support the population of the site.

High tide roosting sites are characterised by having good sightlines (i.e. open spaces where the birds can see any potential predators). Any significant changes to sightlines e.g. installation of tall structures or planting of trees, could impact on use of the roosts. If line of sight becomes obstructed, birds may abandon their roosts which could consequently have a negative impact on the population.

There are currently no known issues with the supporting habitat or sightlines on this site therefore the supporting habitat indicator met its target. The confidence in the assessment has been reduced to medium as there are no targeted surveys for supporting habitat or sightlines.

Food availability

The availability of an abundant food supply is critically important for successful fitness, survival and the overall sustainability of the population. Inappropriate management or impacts (direct or indirect) that affect the distribution, abundance and availability of food may adversely affect the population and alter the distribution of birds.

Oystercatchers predominantly feed on shellfish, although feeding on worms is common amongst juveniles. Once adult, however, few birds take worms and concentrate on blue mussels *Mytilus edulis*, and/or cockles *Cerastoderma edule*. In periods of food shortage, they may take other sources of food, particularly *Macoma sp.* and other clams (Zwarts et al. 1996). The birds may also spend the high tide period 'topping up' on invertebrates in surrounding agricultural or grassland, if such habitat is available (Goss-Custard et al.,1994).

There is a commercial cockle fishery in the SPA that could potentially cause declines in the availability of cockles if improperly managed. The Burry Inlet cockle fishery is subject to the Burry Inlet Cockle Fishery Order 1965 which was made under Section 1 Sea Fisheries (Shellfish) Act 1967. This Order will expire on 15 June 2025. From 16 June 2025, the following Order will apply to the Burry Inlet Cockle Fishery - Cockle Fishing Management and Permitting (Specified Area) (Wales) Order 2024.

Catch limits are set to ensure sufficient cockles remain to support the wintering population of oystercatchers. They do feed on other molluscs, including mussels at Whiteford sands, as well as other bivalves. The current bird numbers strongly suggest that the food availability is sufficient to support the appropriate number of oystercatchers on this site therefore the food availability indicator met its target. Confidence in the pass is reduced to medium as there is no direct monitoring of food availability.

Reasons for target failure

The oystercatcher feature in the Burry Inlet SPA has been assessed as being in **favourable** condition as none of the targets failed.

Threats to condition

Part of the condition assessment is to identify threats to the condition of the oystercatcher feature at the Burry Inlet SPA. A threat is defined as an activity that is currently not impacting condition but has the potential to do so over the next reporting cycle, if activity levels increase or are unmanaged. It is important to identify these threats to be able to put pre-emptive management in place to prevent further declines in condition. The threats to the Burry Inlet SPA for the oystercatcher feature are stated below.

Disturbance

Although current disturbance levels are not affecting the condition of the feature, oystercatchers are moderately sensitive to disturbance pressure so any increases in human derived disturbance need to be carefully assessed.

Climate change

It is not yet clear what pressures will be seen from climate change at the site level or how different pressures will counter act each other. However, threats from climate change that could impact the species may include:

- Rising sea levels (affecting high tide roosts).
- Increasing sea surface temperature.

- Increased storm events.
- Changes to prey availability and abundance.

3.2. Condition assessment for knot *Calidris canutus*

Knot in the Burry Inlet SPA has been assessed in Table 4. The table has a summary of the assessment outcome against each performance indicator. This outcome and reasons for any failure are discussed in more detail in the sections below.

Table 4. Condition assessment of knot in the Burry Inlet SPA. Each indicator target has a primary (P), secondary (S) or tertiary (T) weighting (see section 1.1).

Indicator	Target	Assessment rationale	Target assessment	Target confidence
Wintering population	Maintain the wintering population of knot at a minimum of 2,153 individuals across the site. (P)	• The latest five-year peak mean of knot in the Burry Inlet SPA is 3,147 (counts from wintering seasons in the years 2018/19 to 2022/23). • The latest five-year peak mean contained one partial count during 2019/20 which was not included. • Confidence is high as the numbers are well above the target of 2,153.	**Pass**	High
Wintering population distribution	The distribution of the wintering knot population should not be significantly impacted by anthropogenic activity. (P)	• There are currently no known anthropogenic activities that have impeded the use of the whole site by knot or restricted their movements. • The assessment is based on expert judgement which has reduced the confidence level to medium.	**Pass**	Medium
Wintering population disturbance (by human activity)	Aggregations of roosting or feeding knot are not subject to significant disturbance. (P)	• There are currently no known anthropogenic activities that have caused significant disturbance to this feature on this site. • Confidence has been reduced to medium as there is no direct monitoring for disturbance on this site.	**Pass**	Medium

Indicator	Target	Assessment rationale	Target assessment	Target confidence
Supporting habitat	Maintain sufficient extent, distribution, function and quality of habitat to support a knot population of 2,153 individuals. (S) Maintain existing unrestricted bird sightlines in every direction around both roosting sites and feeding areas. (S)	• There are currently no known issues with the supporting habitat or bird sightlines on this site and the latest five-year peak mean of knot is above the target. This indicates that there are no issues with the supporting habitat. • Confidence has been reduced to medium as there are no targeted surveys for supporting habitat or sightlines.	**Pass**	Medium
Food availability	Maintain the distribution and abundance of knot food supply at levels sufficient to support a population of 2,153 individuals. (S)	• There are currently no known issues with the food availability on this site and the latest five-year peak mean of knot is above the target. This indicates that there are no issues with the food availability. • Confidence has been reduced to medium as there are no targeted surveys for food availability.	**Pass**	Medium

Assessment conclusions

Knot in Burry Inlet SPA have been assessed as being in favourable condition (medium confidence). No indicators failed to meet their targets (Table 5). The main threats to the knot at Burry Inlet come from disturbance and climate change. Further information on the assessment outcome and threats to condition can be seen in the detailed assessment information below.

Table 5. Summary of the condition assessment for knot in Burry Inlet SPA.

SPA Feature	Overall Condition Assessment	Indicator failures	Reason for indicator failure	Threats to condition
Knot *Calidris canutus*	**Favourable (medium confidence)**	None	N/A	• Disturbance • Climate change

Detailed assessment information

Wintering population and distribution

Knot is a medium-sized grey wader which winters on larger estuaries in Wales before returning to its Arctic breeding grounds. Figures for wading birds in Wales are derived from the WeBS online report (WeBS online portal), which includes figures for all bird species. These figures are reported as peak means per year. The latest five-year peak mean for knot at the Burry Inlet SPA is 3,147 which is well above the population target of 2,153. The wintering population indicator therefore met its target with a high confidence. The five-year peak mean is based on only four years of data as the winter of 2019/20 was only a partial count and so was not used.

The numbers of knot within the Burry Inlet have fluctuated since records began (Figure 4), numbers were fairly steady up to the early 2000's and then there appears to be a decrease. There is a similar trend in numbers of knot across Wales. (Figure 5). This decrease in knot on the Burry Inlet and across Wales since the mid 2000's could be because of birds overwintering in Europe or on the east coast of the UK due to warmer winter conditions.

It is important that knots can continue to use and access all areas within the Burry Inlet SPA needed for feeding, moulting, roosting, loafing, shelter and any other activities necessary to support their survival. It is likely that most of the wintering knots at this site come from Iceland, Greenland and the Canadian Arctic.

Knots feed in large groups on the mudflats and sandflats of the Burry Inlet and roost above high tide mark. The ability of knots to move freely between feeding and roosting sites is critical to their fitness and survival. As roosting and feeding can be outside of the SPA boundary movement of the birds inside and outside of the SPA must also not be significantly impacted or restricted. There are currently no known anthropogenic activities that have impeded the use of the whole site by knot or restricted their movements. Therefore the wintering population distribution indicator passed. Confidence was reduced to medium as the assessment was based on expert judgement not direct monitoring of bird movements.

Figure 4. Site level annual index for knot from 1974/75 to 2022/23.

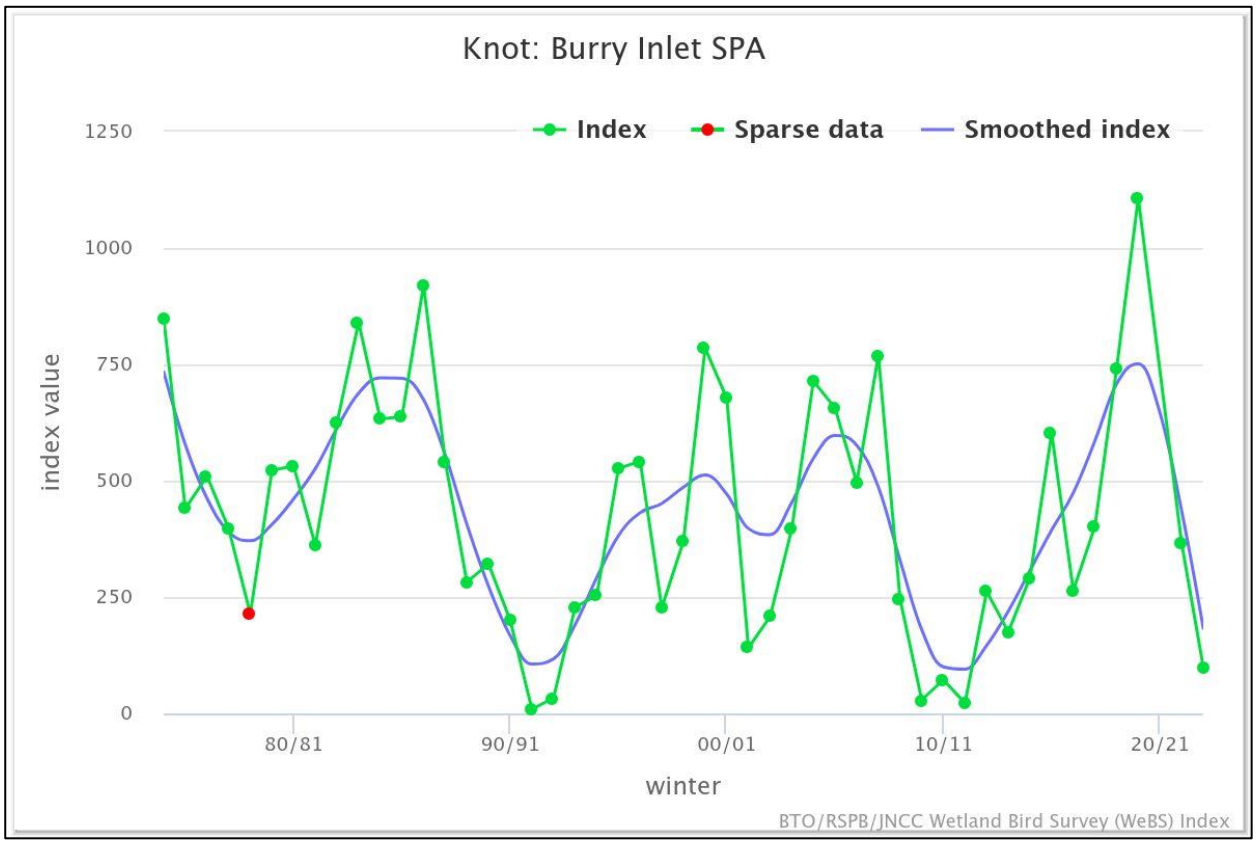
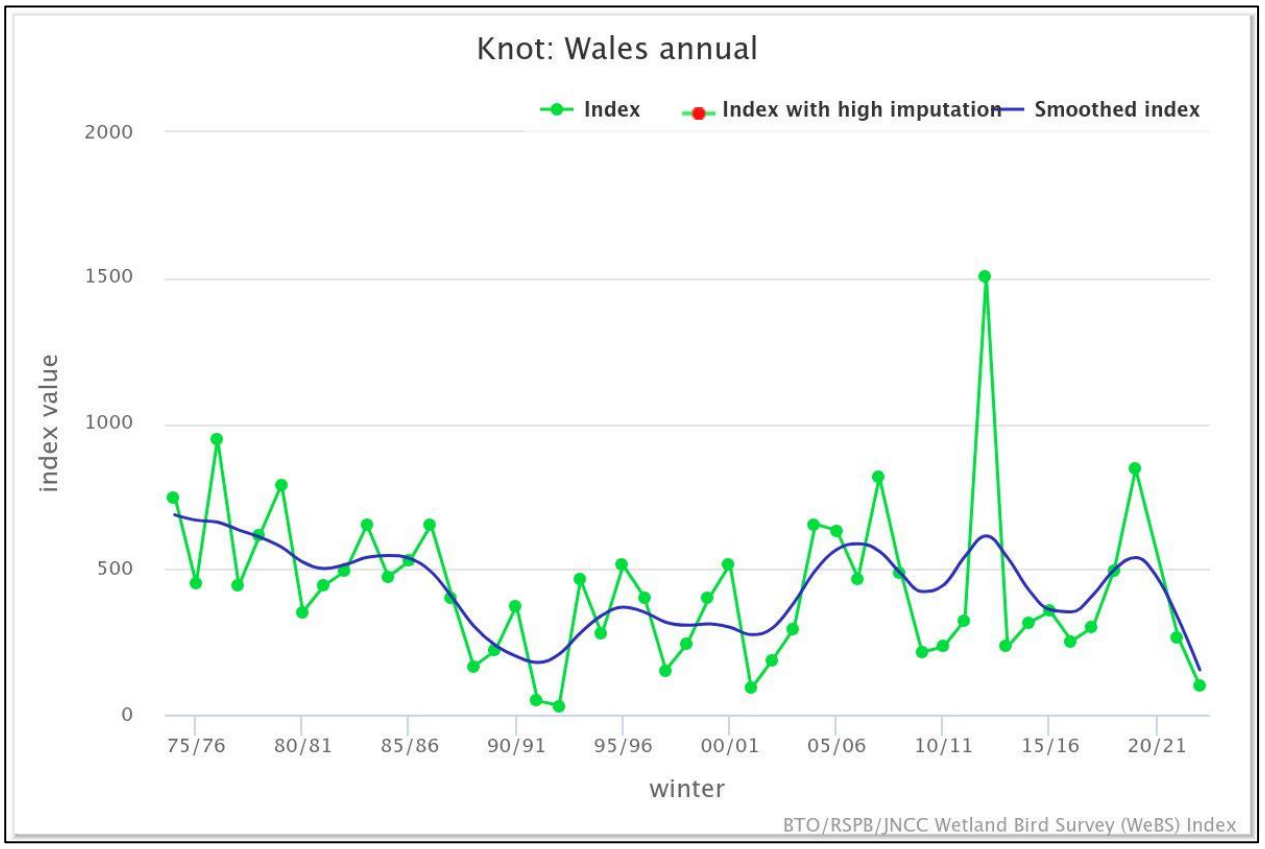


Figure 5. Wales annual index for knot from 1974/75 to 2022/23.



Wintering population disturbance (by human activity)

Disturbance occurs when an activity is sufficient to disrupt normal behaviours, for example, changes to feeding or roosting behaviour, increased energy expenditure due to time spent moving to avoid stressors, desertion of supporting habitats (both within and outside the protected area where appropriate). If the activity occurs at a level that substantially impacts behaviour for long enough it can lead to changes in distribution, displacement through reduction of habitat available and consequently could affect the long-term viability of the population.

Disturbance associated with human activity may take a variety of forms including, light, sound, vibration, presence of people, animals and structures.

Knot is thought to have medium sensitivity to disturbance, being particularly sensitive to human disturbance whilst roosting (Goodship and Furness, 2022). While they have been shown to be relatively tolerant to visual disturbance, they are quite sensitive to noise disturbance, especially when in conjunction with visual stimuli (i.e. low flying aircraft) (Cutts et al., 2013).

There are currently no known anthropogenic activities that have caused significant disturbance to this feature on this site therefore the indicator met its target. The confidence in the assessment was reduced to medium as it has been assessed using expert judgement.

Supporting habitat

The extent, distribution and availability of suitable habitat (either within or outside the site boundary) which supports the feature for all necessary stages of the non-breeding/wintering period (moulting, roosting, loafing, feeding) should be suitable to support 2,153 knot. The numbers of wintering knot are currently meeting their population target, which indicates that the supporting habitat is suitable to support the population of the site.

High tide roosting sites are characterised by having good sightlines (i.e. open spaces where the birds can see any potential predators). Any significant changes to sightlines e.g. installation of tall structures or planting of trees, could impact on use of the roosts. If line of sight becomes obstructed birds may abandon their roosts which could consequently have a negative impact on the population.

There are currently no known issues with the supporting habitat or sightlines on this site therefore the supporting habitat indicator met its target. The confidence has been reduced to medium as there are no targeted surveys for supporting habitat or sightlines.

Food availability

The availability of an abundant food supply is critically important for successful fitness, survival and the overall sustainability of the population. As a result, inappropriate management and direct or indirect impacts which may affect the distribution, abundance

and availability of food may adversely affect the population and alter the distribution of birds.

Knot feed mainly in the intertidal in winter. Main prey species include molluscs, polychaete worms and small crustaceans (Snow and Perrins, 1998). There should be enough suitable prey at this site to support 2,153 knot. The current number of knot strongly suggest that the food availability is sufficient to support the wintering population on this site therefore the indicator met its target. Confidence in the pass is reduced to medium as there is no direct monitoring of food availability.

Reasons for target failure

The knot feature in the Burry Inlet SPA has been assessed as being in **favourable** condition as none of the targets failed.

Threats to condition

Part of the condition assessment is to identify threats to the condition of the knot feature at the Burry Inlet SPA. A threat is defined as an activity that is currently not impacting condition but has the potential to do so over the next reporting cycle, if activity levels increase or are unmanaged. It is important to identify these threats to be able to put pre-emptive management in place to prevent further declines in condition. The threats to the Burry Inlet SPA for the knot feature are stated below.

Disturbance

Although current disturbance levels are not affecting the condition of the feature, knot are moderately sensitive to disturbance pressure, especially when roosting, so any increases in human derived disturbance need to be carefully assessed.

Climate change

It is not yet clear what pressures will be seen from climate change at the site level or how different pressures will counter act each other. However, threats from climate change that could impact the species may include:

- Rising sea levels (affecting high tide roosts)
- Increasing sea surface temperature.
- Increased storminess
- Changes to prey availability and abundance.

3.3. Condition assessment for pintail *Anas acuta*

Pintail in the Burry Inlet has been assessed in Table 6. The table has a summary of the assessment outcome against each performance indicator. This outcome and reasons for any failure are discussed in more detail in the sections below.

Table 6. Condition assessment of pintail in the Burry Inlet SPA. Each indicator target has a primary (P), secondary (S) or tertiary (T) weighting (see section 1.1).

Indicator	Target	Assessment rationale	Target assessment	Target confidence
Wintering population	Maintain the wintering population of pintail at a minimum of 1,791 individuals across the site. (P)	• The latest five-year peak mean for pintail at the Burry Inlet SPA is 2,029 (counts from wintering seasons in the years 2018/19 to 2022/23). The is above the target set for the site. • This is based on only two counts as three of the counts within the last five years were only partial counts. • The counts from the last two years were above the population target. • Confidence was reduced to medium due to the partial counts.	**Pass**	Medium
Wintering population distribution	The distribution of the wintering pintail population should not be significantly impacted by anthropogenic activity. (P)	• There are currently no known anthropogenic activities that have impeded the use of the whole site by pintail or restricted their movements. • The assessment is based on expert judgement which has reduced the confidence level to medium.	**Pass**	Medium

Indicator	Target	Assessment rationale	Target assessment	Target confidence
Wintering population disturbance (by human activity)	Aggregations of roosting or feeding pintail are not subject to significant disturbance. (P)	• There are currently no known anthropogenic activities that have caused significant disturbance to pintail on this site. • Confidence has been reduced to medium as there is no direct monitoring for disturbance on this site.	**Pass**	Medium
Supporting habitat	Maintain sufficient extent, distribution, function and quality of habitat to support a pintail population of 1,791 individuals. (S) Maintain existing unrestricted bird sightlines in every direction around both roosting sites and feeding areas. (S)	• There are currently no known issues with the supporting habitat or bird sightlines on this site and the latest five-year peak mean of pintail is above the target. This indicates that there are no issues with the supporting habitat. • Confidence has been reduced to medium as there are no targeted surveys for supporting habitat or sightlines.	**Pass**	Medium
Food availability	Maintain the distribution and abundance of pintail food supply at levels sufficient to support a population of 1,791 individuals. (S)	• There are currently no known issues with the food availability on this site and the latest five-year peak mean of pintail is above the target. This indicates that there are no issues with the food availability. • Confidence has been reduced to medium as there are no targeted surveys for food availability.	**Pass**	Medium

Assessment conclusions

Pintail in Burry Inlet SPA have been assessed as being in favourable condition (medium confidence). No indicators failed to meet their targets (Table 7). The main threats to the pintail at Burry Inlet come from disturbance and climate change. Further information on the assessment outcome and threats to condition can be seen in the detailed assessment information below.

Table 7. Summary of the condition assessment for pintail in Burry Inlet SPA.

SPA Feature	Overall Condition Assessment	Indicator failures	Reason for indicator failure	Threats to condition
Pintail *Anas acuta*	**Favourable (medium confidence)**	None	N/A	• Disturbance • Climate change

Detailed assessment information

Wintering population and distribution

The Pintail is an elegant duck, long-necked, long-billed and long-tailed, the last feature giving the bird its name. Pintails are predominantly winter visitors to Britain, preferring sheltered coasts, grazing marshes and estuaries.

Figures for wading birds in Wales are derived from the WeBS online report (WeBS online portal), which includes figures for all bird species. These figures are reported as peak means per year. The latest five-year peak mean for pintail at the Burry Inlet SPA is 2,029 which is well above the population target of 1,791. The wintering population indicator therefore met its target. The five-year peak mean is based on only two years of data as there have been three partial counts of this species on this site over the last five years, and partial counts are not used to calculate the five-year peak mean. This has reduced the confidence in the indicator assessment to medium, though it should be noted that both counts used were over the population target.

There were large increases in the number of pintail over-wintering in the Burry Inlet SPA in the early to mid-2000s. This increase was followed by a steep decline in the late 2000s, though there is the start of a potential small increase in the most recent years (Figure 6). The picture in Wales (Figure 7) mirrors the site level closely with a large increase in pintails in the early to mid-2000s, followed by the steep decline in the late 2000s. The main sites for pintail across the UK are the Dee and Solway estuaries with the Burry Inlet recording the fourth highest count in the UK for the last five-year peak mean (2018/19 – 2022/23).

It is important that pintails can continue to use and access all areas within the Burry Inlet SPA needed for feeding, moulting, roosting, loafing, shelter and any other activities necessary to support their survival. Pintails feed in the estuary and saltmarsh of the Burry Inlet. Unlike most ducks, pintails have more nocturnal habits and tend to forage in the evenings or at night and they spend much of the day resting or roosting (Goodship and Furness, 2022).

Wildfowling does occur on the site but it is managed, it is therefore not considered that wildfowling on the site is having a significant impact on the condition of the feature, as the levels have not increased since before the site was designated. There is currently no shooting of pintail allowed. This is part of the wildfowling management plan for the site. The ability of pintail to move freely between feeding and roosting sites is critical to their fitness and survival. As roosting and feeding can be outside of the SPA boundary movement of the birds inside and outside of the SPA must also not be significantly impacted or restricted. There are currently no known anthropogenic activities that have impeded the use of the whole site by pintail or restricted their movements. Therefore the wintering population distribution indicator met its target. Confidence was reduced to medium as the assessment was based on expert judgement not direct monitoring of bird movements.

Figure 6. Site level annual index for pintail from 1974/75 to 2022/23.

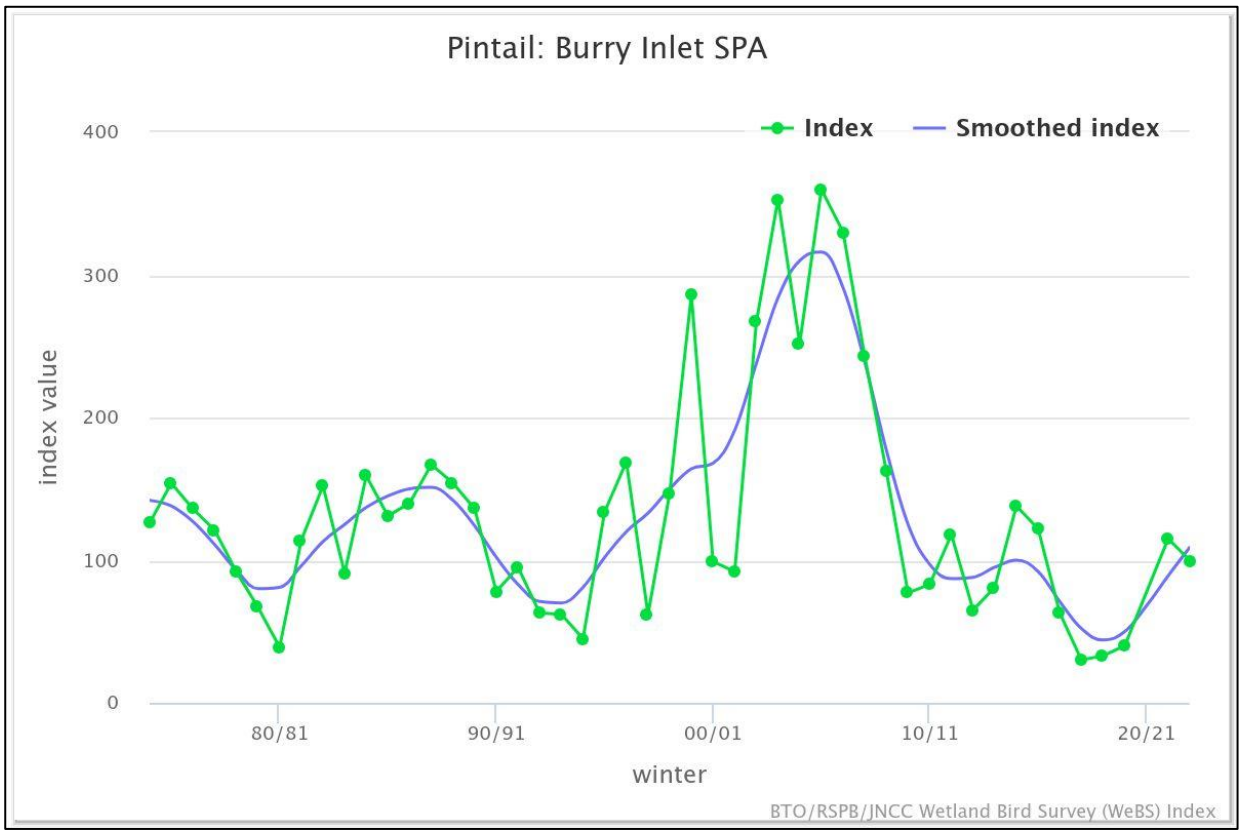
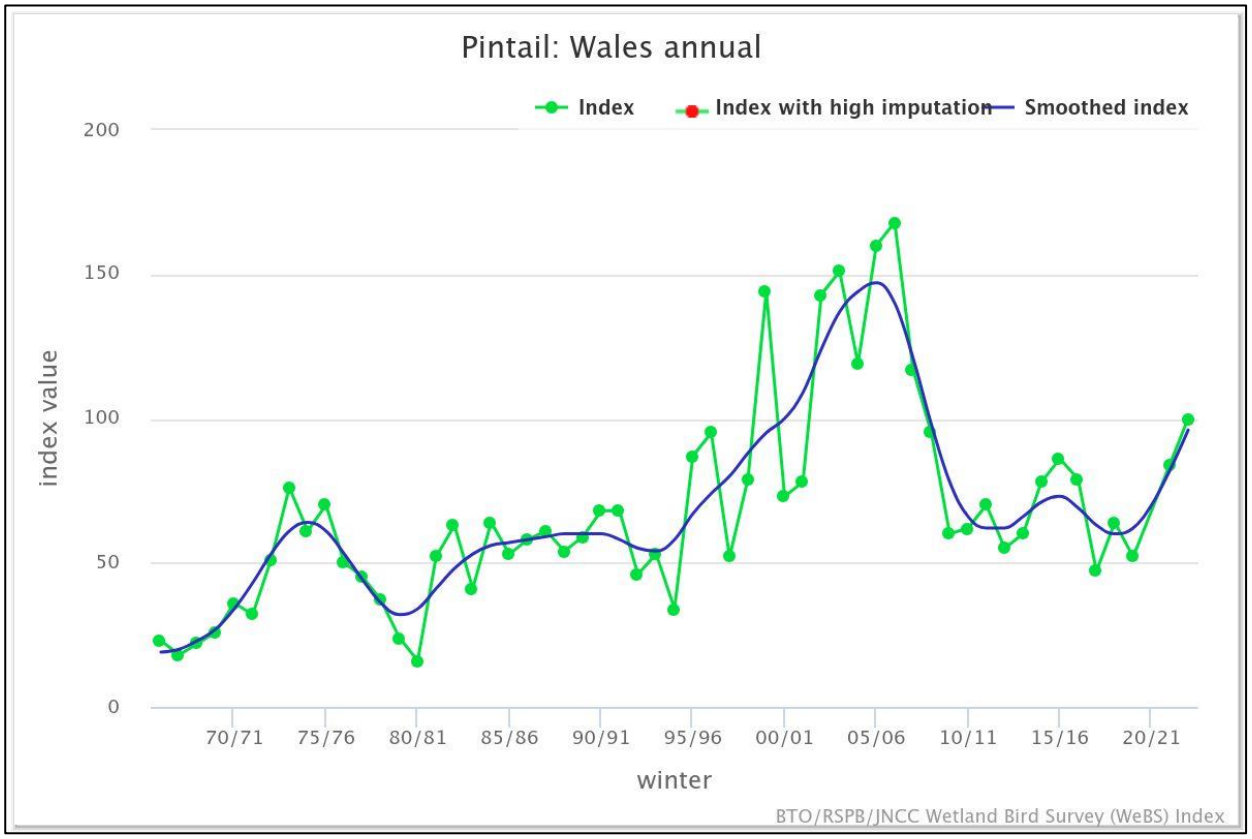


Figure 7. Wales annual index for pintail from 1966/67 to 2022/23.



Wintering population disturbance (by human activity)

Disturbance occurs when an activity is sufficient to disrupt normal behaviours, for example, changes to feeding or roosting behaviour, increased energy expenditure due to time spent moving to avoid stressors, desertion of supporting habitats (both within and outside the protected area where appropriate). If the activity occurs at a level that substantially impacts behaviour for long enough it can lead to changes in distribution, displacement through reduction of habitat available and consequently could affect the long-term viability of the population.

Disturbance associated with human activity may take a variety of forms including, light, sound, vibration, presence of people, animals and structures.

Pintails are thought to have medium sensitivity to disturbance and studies have shown tolerance to some human disturbance (Goodship and Furness, 2022 and references therein). However, evidence is limited.

There are currently no known anthropogenic activities that have caused significant disturbance to this feature on this site therefore the indicator met its target. The confidence was reduced to medium as it was assessed using expert judgement.

Supporting habitat

The extent, distribution and availability of suitable habitat (either within or outside the site boundary) which supports the feature for all necessary stages of the non-breeding/wintering period (moulting, roosting, loafing, feeding) should be suitable to support 1,791 pintail. The numbers of wintering pintail are currently meeting their population target, which indicates that the supporting habitat is suitable to support the population of the site.

High tide roosting sites are characterised by having good sightlines (i.e. open spaces where the birds can see any potential predators). Any significant changes to sightlines e.g. installation of tall structures or planting of trees, could impact on use of the roosts. If line of sight becomes obstructed birds may abandon their roosts which could consequently have a negative impact on the population.

There are currently no known issues with the supporting habitat or sightlines on this site therefore the supporting habitat indicator met its target. The confidence has been reduced to medium as there are no targeted surveys for supporting habitat or sightlines.

Food availability

The availability of an abundant food supply is critically important for successful fitness, survival and the overall sustainability of the population. As a result, inappropriate management and direct or indirect impacts which may affect the distribution, abundance and availability of food may adversely affect the population and alter the distribution of birds.

Pintails feed predominantly on aquatic vegetation, dabbling and upending to feed just below the water’s surface. Food is mainly obtained in depths 10–30cm. Pintails also feed

on land, picking up grain and digging out rhizomes and tubers with their beak (Snow et al., 1998).

There should be enough suitable prey at this site to support 1,791 pintails. The current numbers of pintail strongly suggest that the food availability is sufficient to support the wintering population on this site. Confidence in the pass is reduced to medium as there is no direct monitoring of food availability.

Reasons for target failure

The pintail feature in the Burry Inlet SPA has been assessed as being in **favourable** condition as none of the targets failed.

Threats to condition

Part of the condition assessment is to identify threats to the condition of the pintail feature at the Burry Inlet SPA. A threat is defined as an activity that is currently not impacting condition but has the potential to do so over the next reporting cycle, if activity levels increase or are unmanaged. It is important to identify these threats to be able to put pre-emptive management in place to prevent further declines in condition. The threats to the Burry Inlet SPA for the pintail feature are stated below.

Disturbance

Although current disturbance levels are not affecting the condition of the feature, pintail are moderately sensitive to disturbance pressure, so any increases in human derived disturbance need to be carefully assessed.

Climate change

It is not yet clear what pressures will be seen from climate change at the site level or how different pressures will counter act each other. However, threats from climate change that could impact the species may include:

- Rising sea levels (affecting high tide roosts)
- Increasing sea surface temperature.
- Increased storminess
- Changes to prey availability and abundance.

3.4. Condition assessment for redshank *Tringa totanus*

Redshank in the Burry Inlet SPA has been assessed in Table 8. The table has a summary of the assessment outcome against each performance indicator. This outcome and reasons for any failure are discussed in more detail in the sections below.

Table 8. Condition assessment of redshank in the Burry Inlet SPA. Each indicator target has a primary (P), secondary (S) or tertiary (T) weighting (see section 1.1).

Indicator	Target	Assessment rationale	Target assessment	Target confidence
Wintering population	Maintain the wintering population of redshank at a minimum of 877 individuals across the site. (P)	• The latest five-year peak mean for redshank in the Burry Inlet SPA is 753 (2018/19 – 2022/23). • Over the last five years there have been two partial counts. None of the three years used to produce the peak mean were over the target. • The confidence was reduced to medium due to two years of partial counts.	**Fail**	Medium
Wintering population distribution	The distribution of the wintering redshank population should not be significantly impacted by anthropogenic activity. (P)	• There are currently no known anthropogenic activities that have impeded the use of the whole site by redshank or restricted their movements. • The assessment is based on expert judgement which has reduced the confidence level to medium.	**Pass**	Medium
Wintering population disturbance (by human activity)	Aggregations of roosting or feeding redshank are not subject to significant disturbance. (P)	• There are currently no known anthropogenic activities that have caused significant disturbance to this feature on this site. • Confidence was reduced to medium as there is no direct monitoring for disturbance on this site.	**Pass**	Medium

Indicator	Target	Assessment rationale	Target assessment	Target confidence
Supporting habitat	Maintain sufficient extent, distribution, function and quality of habitat to support a redshank population of 877 individuals. (S) Maintain existing unrestricted bird sightlines in every direction around both roosting sites and feeding areas. (S)	• There are currently no known issues with the supporting habitat or bird sightlines on this site. • However, since the wintering population target has not been met, and the site level decline differs from the Welsh trend, this indicator has been assessed as unknown. • There are no targeted surveys for supporting habitat or sightlines.	**Unknown**	N/A
Food availability	Maintain the distribution and abundance of redshank food supply at levels sufficient to support a population of 877 individuals. (S)	• There are currently no known issues with the food availability on this site. • However, since the wintering population target has not been met, and the site level decline differs from the Welsh trend, this indicator has been assessed as unknown. • There is no direct monitoring of food availability.	**Unknown**	N/A

Assessment conclusions

Redshank in Burry Inlet SPA have been assessed as being in unfavourable condition (medium confidence). One primary indicator, wintering population, failed to meet its target (Table 9). A population of 753 has been recorded against the target of 877. The main threats to the redshank in the Burry Inlet SPA come from disturbance and climate change. Further information on the assessment outcome and threats to condition can be seen in the detailed assessment information below.

Table 9. Summary of the condition assessment for redshank in Burry Inlet SPA. Each indicator target has a primary (P), secondary (S) or tertiary (T) weighting.

SPA Feature	Overall Condition Assessment	Indicator failures	Reason for indicator failure	Threats to condition
Redshank *Tringa totanus*	**Unfavourable (medium confidence)**	Wintering population (P)	Unknown	• Disturbance • Climate change

Detailed assessment information

Wintering population and distribution

The redshank is a large sandpiper with long, bright red legs. It is a typical wader, feeding in shallow water around lakes, marshes, mudflats and coastal wetlands. During the winter redshank are largely coastal, occupying rocky, muddy and sandy beaches and estuaries as well as coastal wetlands (The Wildlife Trusts).

Figures for wading birds in Wales are derived from the WeBS online report (WeBS online portal), which includes figures for all bird species. These figures are reported as peak means per year. The latest five-year peak mean for redshank at the Burry Inlet SPA was 753 (counts from wintering seasons in the years 2018/19 to 2022/23). This is well below the target of 877 individuals, therefore this indicator failed to meet its target. Confidence is reduced to medium as there have been two partial counts in the last five years. The last time the redshank population in the Burry Inlet reached its population target was in the winter of 2015/16 when the count was 914. The last time the five-year peak mean was above the target was for the period 1998/99 to 2002/03, when the average peak was 895. The general downward trend can be seen in the site level index (Figure 8).

The numbers of redshank on the Burry Inlet shows a decrease since the early 1990s (Figure 8) but levelling off over the last 20 years. This differs from the upwards trend in redshank seen in Wales since the 1970s (Figure 9). The trend in Wales is probably driven by the much larger redshank populations on the Dee and the Severn which are 10,200 and 4,500 respectively. The reason for the decline in numbers of redshank seen in the Burry Inlet is unknown and should be subject to further investigation.

It is important that redshank can continue to use and access all areas within the Burry Inlet SPA needed for feeding, moulting, roosting, loafing, shelter and any other activities necessary to support their survival.

Redshank feed on the mudflats and sandflats throughout the Burry Inlet SPA. They roost above high water. There is evidence that redshank are site-faithful and do not move between similar sites situated closely (Donald and Clark, 1991; Toomer and Clark, 1994 and thus require secure roost sites near to their feeding grounds (Toomer and Clark, 1994. There is currently no evidence to suggest that redshank cannot access all needed areas of the site. Therefore the wintering population distribution indicator passed. Confidence was reduced to medium as the assessment was based on expert judgement not direct monitoring of bird movements.

Figure 8. Site level annual index for redshank from 1974/75 to 2022/23.

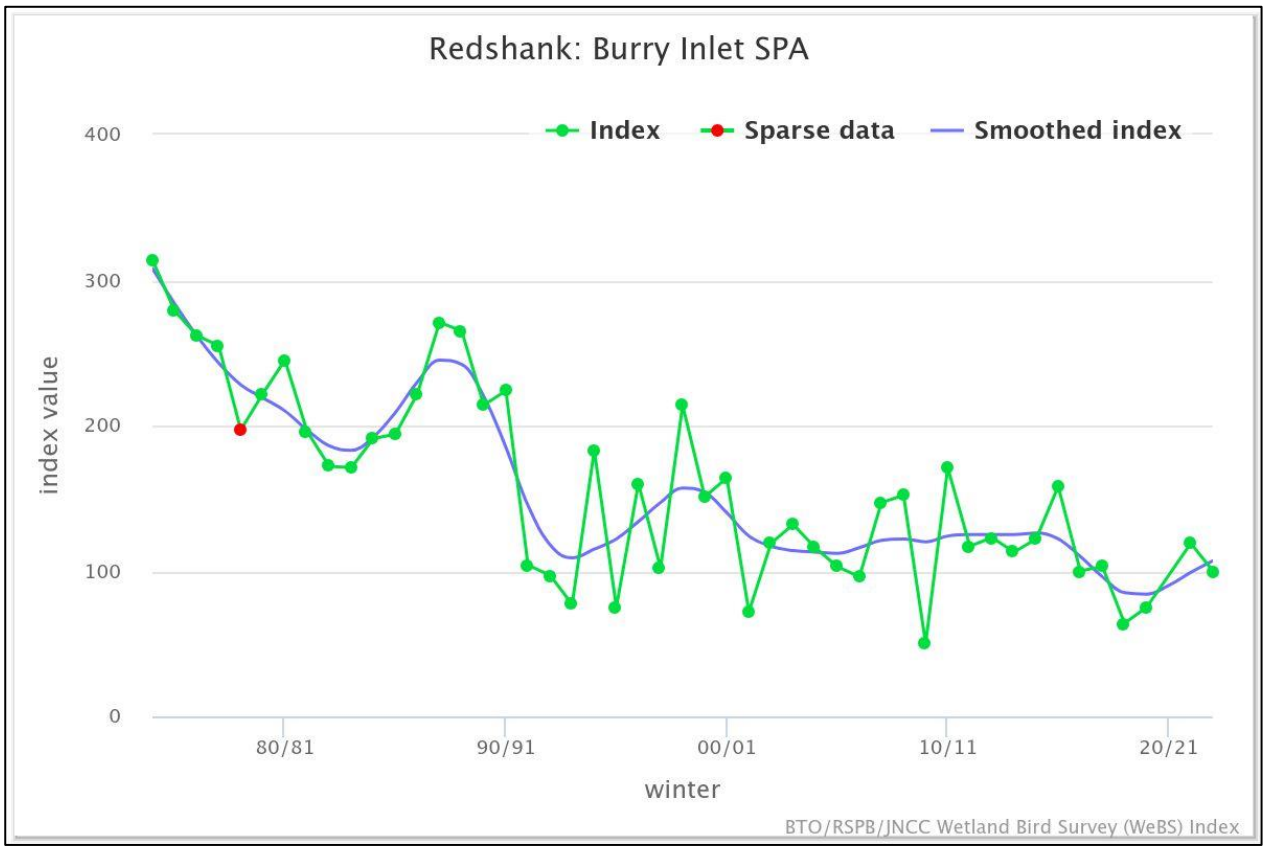
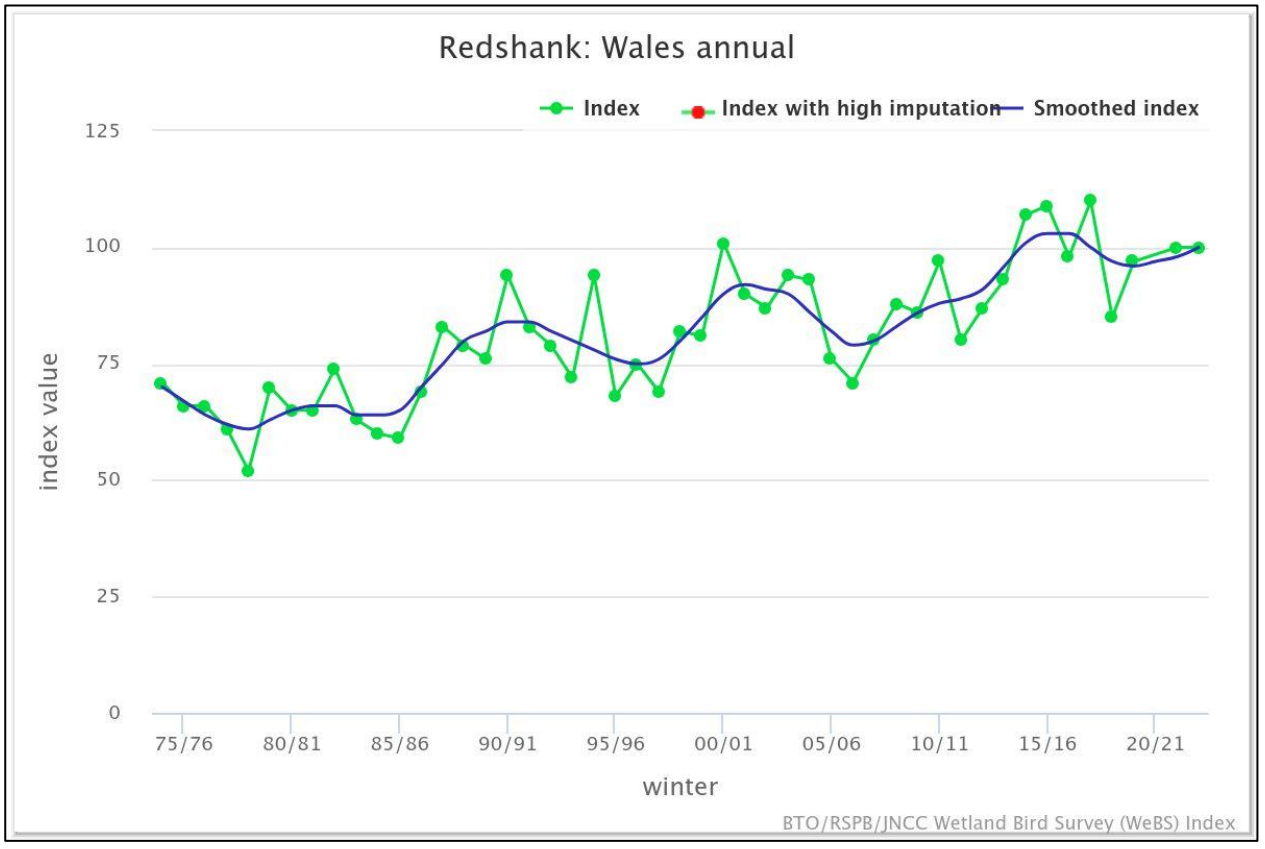


Figure 9. Wales annual index for redshank from 1974/75 to 2022/23.



Wintering population disturbance (by human activity)

Human activity is classed as disturbance when the activity is sufficient to disrupt normal behaviours and / or the distribution of the bird species. Disturbance occurs when an activity is of sufficient level or duration to disrupt normal behaviours. For example, changes to feeding or roosting behaviour, increased energy expenditure due to time spent moving to avoid stressors, desertion of supporting habitats (both within and outside the protected area where appropriate). If the activity occurs at a level that substantially impacts behaviour for long enough it can lead to changes in distribution, displacement through reduction of habitat available and consequently could affect the long-term viability of the population.

Disturbance associated with human activity may take a variety of forms including, but not limited to, light, sound, vibration, trampling, presence of people, animals and structures.

Redshanks appear to be quite tolerant of visual disturbance and habituate to works rapidly. However, they are highly sensitive to noise disturbance, especially when in conjunction with visual stimuli (i.e. low flying aircraft) (Cutts et al., 2013). There is currently no evidence that redshank are significantly disturbed at the Burry Inlet SPA over the winter period, therefore the indicator target was met. The confidence was reduced to medium as the indicator has been assessed using expert judgement.

Supporting habitat

It is very important that the extent, distribution and availability of suitable habitat (either within or outside the site boundary) which supports redshank for all necessary stages of the non-breeding/wintering period (roosting, loafing, feeding) should be maintained.

Redshank favour large areas of open terrain, largely free of obstructions, in and around its roosting and feeding areas. Often there is a need to maintain an unobstructed line of sight within feeding or roosting habitat to detect approaching predators, or to ensure visibility of displaying behaviour.

High tide roosting sites are characterised by having good sightlines (i.e. open spaces where the birds can see any potential predators). Any significant changes to sightlines e.g. installation of tall structures or planting of trees, could impact on use of the roosts. If line of sight becomes obstructed birds may abandon their roosts which could consequently have a negative impact on the population.

There are currently no known issues with supporting habitat or sightlines at this site. However, due to the fact that the site level decline is not reflected in the Welsh level trend, this indicator has been assessed as unknown. There are no targeted surveys for supporting habitat or sightlines.

Food availability

The availability of an abundant food supply is critically important for successful fitness, survival and the overall sustainability of the redshank population in the Burry Inlet SPA. As a result, inappropriate management and direct or indirect impacts which may affect the distribution, abundance and availability of food may adversely affect the population and

alter the distribution of birds. Redshank feed mainly on small bivalve molluscs and crustaceans.

There is currently no evidence to suggest that the food availability is not sufficient to support the population of redshank in the Burry Inlet. However, due to the fact that the site level decline is not reflected in the Welsh level trend, this indicator has been assessed as unknown. There is no direct monitoring of food availability.

Reasons for target failure

The assessment of the redshank feature in the Burry Inlet SPA failed one primary target. This resulted in the feature to be assessed as being in **unfavourable** condition. The failing indicators and reasons for failure, if known, are stated below.

Wintering population

The wintering population of redshank was lower than the target level. It is not known what is currently causing the redshank numbers to decline on this site. However, the fact that numbers at other sites in Wales have not seen similar declines could mean there are issues at the site level. Further investigation is needed.

Threats to condition

Part of the condition assessment is to identify threats to the condition of the redshank feature at the Burry Inlet SPA. A threat is defined as an activity that is currently not impacting condition but has the potential to do so over the next reporting cycle, if activity levels increase or are unmanaged. It is important to identify these threats to be able to put pre-emptive management in place to prevent further declines in condition. The threats to the Burry Inlet SPA for the redshank feature are stated below.

Disturbance

Current disturbance levels are not affecting the condition of the redshank presently, and redshank are quite tolerant to visual disturbance and habituate to works rapidly. However, redshank are highly sensitive to noise disturbance, especially so when in conjunction with visual stimuli (i.e. low flying aircraft) and any new developments or increases in human derived disturbance need to be carefully assessed for redshank.

Climate change

It is not yet clear what pressures will be seen from climate change at the site level or how different pressures will counter act each other. However, threats from climate change that could impact the species may include:

- Rising sea levels (affecting high tide roosts)
- Increasing sea surface temperature.
- Increased storminess
- Changes to prey availability and abundance.

3.5. Condition assessment for curlew *Numenius arquata*

Curlew in the Burry Inlet SPA has been assessed in Table 10. The table has a summary of the assessment outcome against each performance indicator. This outcome and reasons for any failure are discussed in more detail in the sections below.

Table 10. Condition assessment of curlew in the Burry Inlet SPA. Each indicator target has a primary (P), secondary (S) or tertiary (T) weighting (see section 1.1).

Indicator	Target	Assessment rationale	Target assessment	Target confidence
Wintering population	Maintain the wintering population of curlew at a minimum of 2,199 individuals across the site. (P)	• The latest five-year peak mean is 973 (counts from wintering seasons in the years 2018/19 to 2022/23). • For the last three winters the counts have been below the target. • Confidence is high as the numbers are well below the target of 2,199.	**Fail**	High
Wintering population distribution	The distribution of the wintering curlew population should not be significantly impacted by anthropogenic activity. (P)	• There are currently no known anthropogenic activities that have impeded the use of the whole site by curlew or restricted their movements. • The assessment is based on expert judgement which has reduced the confidence level to medium.	**Pass**	Medium
Wintering population disturbance (by human activity)	Aggregations of roosting or feeding curlew are not subject to significant disturbance. (P)	• There are currently no known anthropogenic activities that would have caused significant disturbance to curlew on this site. • Confidence was reduced to medium as there is no direct monitoring for disturbance on this site.	**Pass**	Medium

Indicator	Target	Assessment rationale	Target assessment	Target confidence
Supporting habitat	Maintain sufficient extent, distribution, function and quality of habitat to support a curlew population of 2,199 individuals. (S) Maintain existing unrestricted bird sightlines in every direction around both roosting sites and feeding areas (S)	• There are currently no known issues with the supporting habitat or bird sightlines on this site. • The site level population trend mirrors the Welsh trend. However, since the wintering population target has not been met, the confidence in the pass is low. • There are no targeted surveys for supporting habitat or sightlines.	**Pass**	Low
Food availability	Maintain the distribution and abundance of curlew food supply at levels sufficient a population of 2,199 individuals. (S)	• There are currently no known issues with food availability on this site. • The site level population trend mirrors the Welsh trend. However, since the wintering population target has not been met, the confidence in the pass is low. • There is no direct monitoring of food availability.	**Pass**	Low

Assessment conclusions

Curlew in Burry Inlet SPA have been assessed as being in unfavourable condition (medium confidence). One primary indicator, wintering population, failed to meet its target (Table 11). A population of 973 has been recorded against the target of 2,199. The main threats to the curlew at Burry Inlet come from disturbance and climate change. Further information on the assessment outcome and threats to condition can be seen in the detailed assessment information below.

Table 11. Summary of the condition assessment for curlew in Burry Inlet SPA. Each indicator target has a primary (P), secondary (S) or tertiary (T) weighting.

SPA Feature	Overall Condition Assessment	Indicator failures	Reason for indicator failure	Threats to condition
Curlew *Numenius arquata*	**Unfavourable (medium confidence)**	Wintering population (P)	Unknown	• Disturbance • Climate change

Detailed assessment information

Wintering population and distribution

Curlews are Europe's largest wading birds. In winter, they migrate from their breeding grounds to gather in groups on tidal mudflats, saltmarshes and nearby farmland.

Figures for wading birds in Wales are derived from the WeBS online report (WeBS online portal), which includes figures for all bird species. These figures are reported as peak means per year. The latest five-year peak mean for curlew at the Burry Inlet SPA was 973 (counts from wintering seasons in the years 2018/19 to 2022/23). This is well below the site level target of 2,199 individuals, therefore the wintering population indicator failed to meet its target with a high confidence. The latest count (2022/23) was only 830, the counts in the last three years have all been well below the target. The last time the curlew population in the Burry Inlet reached its population target was in the winter of 2005/06 when the count was 2,587. The last time the five-year peak mean was above the target was for the period 2001/02 to 2005/06 when the five-year average peak was 2,240.

The general downward trend that can be seen in the site level index (Figure 10) can also be seen across Wales, which saw an increase in curlew in the late 1980s and early 1990s. However, the numbers have been decreasing since then, and are now at similar levels to those seen in the mid-1970s (Figure 11). The increase in numbers in the 1980s and 1990s is thought to be a response to the cessation of hunting, while issues during the breeding season are likely to be the main drivers of the current population decline (Woodward et al., 2021).

It is important that curlew can continue to use and access all areas within the Burry Inlet SPA and nearby that are needed for feeding, moulting, roosting, loafing, shelter and any other activities necessary to support their survival. The ability of curlew to move freely between feeding and roosting sites is critical to their fitness and survival. As roosting and feeding can be outside of the SPA boundary, movement of the birds inside and outside of the SPA must also not be impacted or restricted.

Most roosting curlew forage on the flats of the Burry Inlet SPA where they actively feed at low water, but will also feed in fields nearby. There are currently no known anthropogenic activities that have impeded the use of the whole site by curlew or restricted their movements into or out of the site. Therefore the wintering population distribution indicator passed. Confidence was reduced to medium as the assessment was based on expert judgement not direct monitoring of bird movements.

Figure 10. Site level annual index for curlew from 1974/75 to 2022/23.

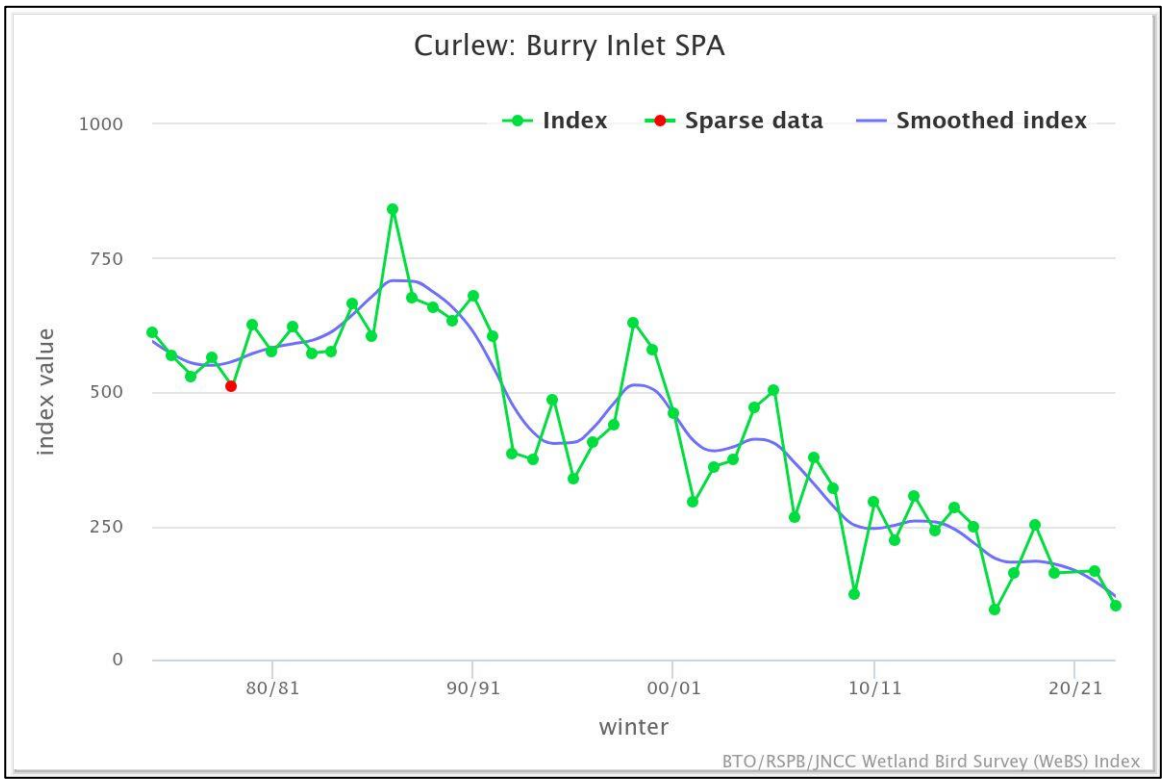
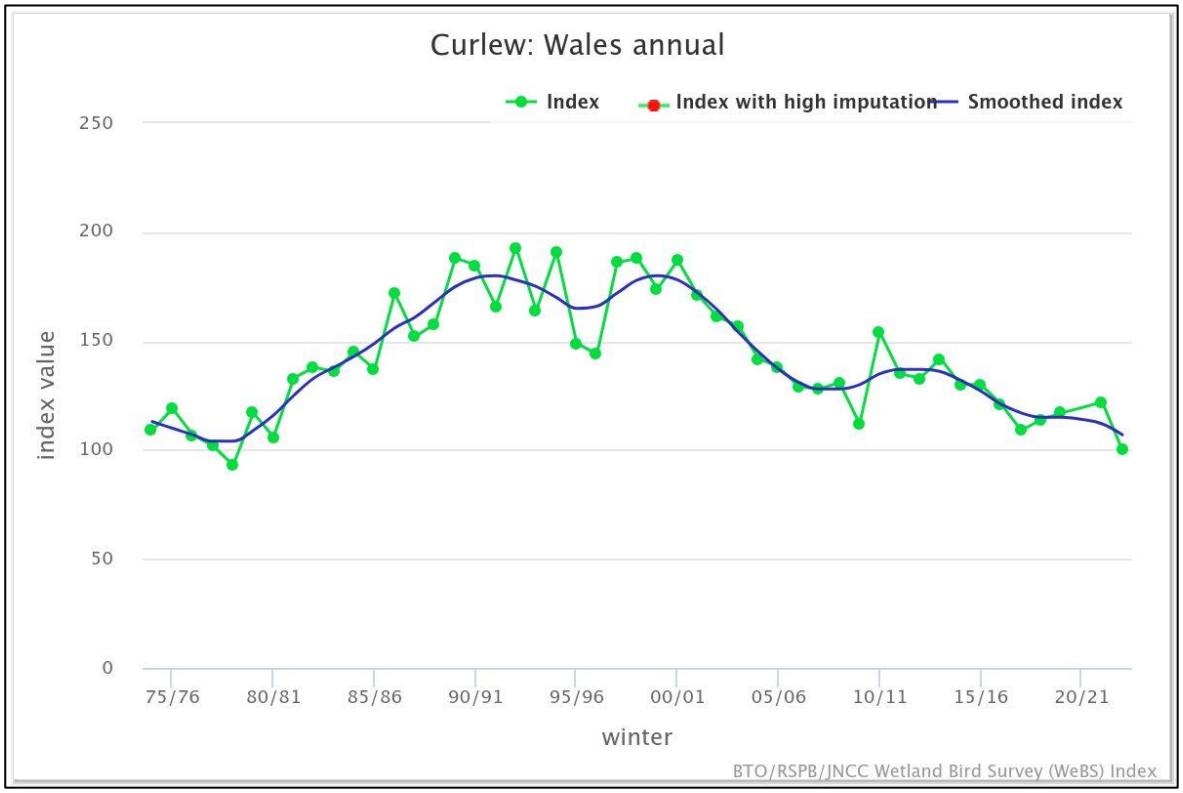


Figure 11. Wales annual index for curlew from 1974/75 to 2022/23.



Wintering population disturbance (by human activity)

Disturbance occurs when an activity is sufficient to disrupt normal behaviours, for example, changes to feeding or roosting behaviour, increased energy expenditure due to time spent moving to avoid stressors, desertion of supporting habitats (both within and outside the protected area where appropriate). If the activity occurs at a level that substantially impacts behaviour for long enough it can lead to changes in distribution, displacement through reduction of habitat available and consequently could affect the long-term viability of the population.

Disturbance associated with human activity may take a variety of forms including, light, sound, vibration, trampling, presence of people, animals and structures.

Curlew are moderately sensitive to disturbance. Evidence indicates curlew is an extremely wary species that does not habituate to works rapidly. They are highly sensitive to people and aircraft (Cutts et al., 2013).

There are currently no known anthropogenic activities that would have caused significant disturbance to curlew on this site, therefore the indicator met its target. The confidence was reduced to medium as the indicator has been assessed using expert judgement.

Supporting habitat

The extent, distribution and availability of suitable habitat (either within or outside the site boundary) which supports the feature for all necessary stages of the non-breeding/wintering period (moulting, roosting, loafing, feeding) should be maintained.

Curlews favour large areas of open terrain, largely free of obstructions, in and around roosting and feeding areas. Often there is a need to maintain an unobstructed line of sight within feeding or roosting habitat to detect approaching predators, or to ensure visibility of displaying behaviour. Often these areas can be far from the SPA boundary.

High tide roosting sites are characterised by having good sightlines (i.e. open spaces where the birds can see any potential predators). Any significant changes to sightlines e.g. installation of tall structures or planting of trees, could impact on use of the roosts. If line of sight becomes obstructed birds may abandon their roosts which could consequently have a negative impact on the population.

The supporting habitat indicator met its target as there are currently no known issues with the supporting habitat or sightlines on this site. The site level population trend mirrors the Welsh trend. However, given that the wintering population target has not been met, a low confidence was attributed to the pass. There are no targeted surveys for supporting habitat or sightlines.

Food availability

The availability of an abundant food supply is critically important for successful fitness, survival and the overall sustainability of the population. As a result, inappropriate management and direct or indirect impacts which may affect the distribution, abundance and availability of food may adversely affect the population and alter the distribution of birds.

Curlew feed on a wide variety of invertebrate species including worms, shrimps, crabs, shellfish and insects. There is a long-standing commercial cockle fishery operating in the SPA. There is potential for this activity to damage the habitat of curlew prey species. However, the fishery is manged through a permitted fishery under the Cockle Fishing Management and Permitting (Specified Area) (Wales) Order 2024. The number of fishers is deemed to not be having a detrimental impact on the curlew prey habitat.

There are currently no specific issues known with the food availability, and the site was able to maintain passing numbers of this feature as recently as the five-year peak mean from 2019/19 to 2022/23 of 1,323 individuals. Also the site trend roughly follows that for Wales, suggesting that the decline may be wider than any site specific problem. There are no known anthropogenic issues on the site that would have changed the food availability for this species in such a short period of time. However, as the current bird numbers are below the population target, the confidence in the pass was reduced to low.

Reasons for target failure

The assessment of the curlew feature in the Burry Inlet SPA failed one primary target. This resulted in the feature to be assessed as being in **unfavourable** condition. The failing indicators and reasons for failure, if known, are stated below.

Wintering population

The wintering population of curlew failed on this site due to low over wintering numbers, with the five-year peak mean failing to meet the target. It is not known what is currently causing the curlew numbers to decline on this site. There have been declines in curlew at the UK level, particularly in the breeding population, which suggests factors off site are impacting the numbers returning to overwinter at the Burry. Further investigation is needed.

Threats to condition

Part of the condition assessment is to identify threats to the condition of the curlew feature at the Burry Inlet SPA. A threat is defined as an activity that is currently not impacting condition but has the potential to do so over the next reporting cycle, if activity levels increase or are unmanaged. It is important to identify these threats to be able to put pre-emptive management in place to prevent further declines in condition. The threats to the Burry Inlet SPA for the curlew feature are stated below.

Disturbance

Although current disturbance levels are not thought to be affecting the condition of the feature, curlew are moderately sensitivity to disturbance pressure and any new developments or increases in human derived disturbance need to be carefully assessed.

Climate change

It is not yet clear what pressures will be seen from climate change at the site level or how different pressures will counter act each other. However, threats from climate change that could impact the species may include:

- Rising sea levels (affecting high tide roosts)
- Increased storminess
- Increasing sea surface temperature.
- Changes to prey availability and abundance.

3.6. Condition assessment for dunlin *Calidris alpina*

Dunlin in the Burry Inlet SPA has been assessed in Table 12. The table has a summary of the assessment outcome against each performance indicator. This outcome and reasons for any failure are discussed in more detail in the sections below.

Table 12. Condition assessment of dunlin in Burry Inlet SPA. Each indicator target has a primary (P), secondary (S) or tertiary (T) weighting (see section 1.1).

Indicator	Target	Assessment rationale	Target assessment	Target confidence
Wintering population	Maintain the wintering population of dunlin at a minimum of 6,311 individuals across the site. (P)	• The latest five-year peak mean for dunlin is 3,141 (counts from wintering seasons in the years 2018/19 to 2022/23). • The confidence has been reduced to medium as the count is based on only three years.	**Fail**	Medium
Wintering population distribution	The distribution of the wintering dunlin population should not be significantly impacted by anthropogenic activity. (P)	• There are currently no known anthropogenic activities that have impeded the use of the whole site by dunlin or restricted their movements. • The assessment is based on expert judgement which has reduced the confidence level to medium.	**Pass**	Medium
Wintering population disturbance (by human activity)	Aggregations of roosting or feeding dunlin are not subject to significant disturbance. (P)	• There are currently no known anthropogenic activities that would have caused significant disturbance to dunlin on this site. • The confidence has been reduced to medium as there is no direct monitoring for disturbance on this site.	**Pass**	Medium

Indicator	Target	Assessment rationale	Target assessment	Target confidence
Supporting habitat	Maintain sufficient extent, distribution, function and quality of habitat to support a dunlin population of 6,311 individuals. (S) Maintain existing unrestricted bird sightlines in every direction around both roosting sites and feeding areas. (S)	• There are currently no known issues with the supporting habitat or bird sightlines on this site. • The site level population trend mirrors the Welsh trend. However, since the wintering population target has not been met, the confidence in the pass is low. • There are no targeted surveys for supporting habitat or sightlines.	**Pass**	Low
Food availability	Maintain the distribution and abundance of dunlin food supply at levels sufficient a population of 6,311 individuals. (S)	• There are currently no known issues with food availability on this site. • The site level population trend mirrors the Welsh trend. However, since the wintering population target has not been met, the confidence in the pass is low. • There is no direct monitoring of food availability.	**Pass**	Low

Assessment conclusions

Dunlin in Burry Inlet SPA have been assessed as being in unfavourable condition (medium confidence). One primary indicator, wintering population, failed to meet its target (Table 13). A population of 3,141 has been recorded against the target of 6,311. The main threats to dunlin at the Burry Inlet come from disturbance and climate change. Further information on the assessment outcome and threats to condition can be seen in the detailed assessment information below.

Table 13. Summary of the condition assessment for dunlin in Burry Inlet SPA. Each indicator target has a primary (P), secondary (S) or tertiary (T) weighting.

SPA Feature	Overall Condition Assessment	Indicator failures	Reason for indicator failure	Threats to condition
Dunlin *Calidris alpina*	**Unfavourable (medium confidence)**	Wintering population (P)	Unknown	• Disturbance • Climate change

Detailed assessment information

Wintering population and distribution

Dunlin are a small wading bird that migrate to the coast in winter to feed in large flocks on estuaries and roost in nearby fields and saltmarshes (The Wildlife Trusts).

Figures for wading birds in Wales are derived from the WeBS online report (WeBS online portal), which includes figures for all bird species. These figures are reported as peak means per year. The latest five-year peak mean for dunlin at the Burry Inlet SPA was 3,141 (counts from wintering seasons in the years 2018/19 to 2022/23), which is well below the site level target of 6,311. The last time the dunlin population in the Burry Inlet reached its population target was in the winter of 2015/16 when the count was 6,766. The last time the five-year peak mean was above the target was for the period 2012/13 to 2016/17 when the average peak was 7,613. This was heavily influenced by a very high count of over 15,000 birds in 2012/13, most likely because of the extreme cold weather that winter, causing birds to migrate west in search of milder temperatures. As the current numbers are well below the target, the wintering population indicator failed to meet its target. The confidence has been reduced to medium as the count is based on only three years as there have been partial counts within the last five years.

The site mainly follows the same trend as that for Wales (Figure 12 and Figure **13**). There was a large increases in dunlin in the early to mid-2000s and a fairly sharp decline in the late 2000s. However, there has been a small increase over the last few years in Wales and this is not mirrored at the Burry Inlet. (BTO bird facts online database). This decrease across the Burry Inlet and Wales is believed to be due to short stopping, where birds don't migrate this far south due to milder winters in Europe and the east of England. Data from the 2024 edition of waterbirds in the UK provides evidence that wintering ducks, geese, swans and waders, including dunlin, are adapting to climate change by altering their migration.

It is important that dunlin can continue to use and access all areas within the Burry Inlet SPA needed for feeding, moulting, roosting, loafing, shelter and any other activities necessary to support their survival. Most dunlin feed in groups on the mudflats of the Burry Inlet SPA and roost above high tide mark. The ability of dunlin to move freely between feeding and roosting sites is critical to their fitness and survival. As roosting and feeding can be outside of the SPA boundary movement of the birds inside and outside of the SPA must also not be impacted or restricted. There are currently no known anthropogenic activities that have impeded the use of the whole site by dunlin or restricted their movements into or out of the site. Therefore the wintering population distribution indicator passed. Confidence was reduced to medium as the assessment was based on expert judgement not direct monitoring of bird movements.

Figure 12. Site level annual index for dunlin from 1974/75 to 2022/23.

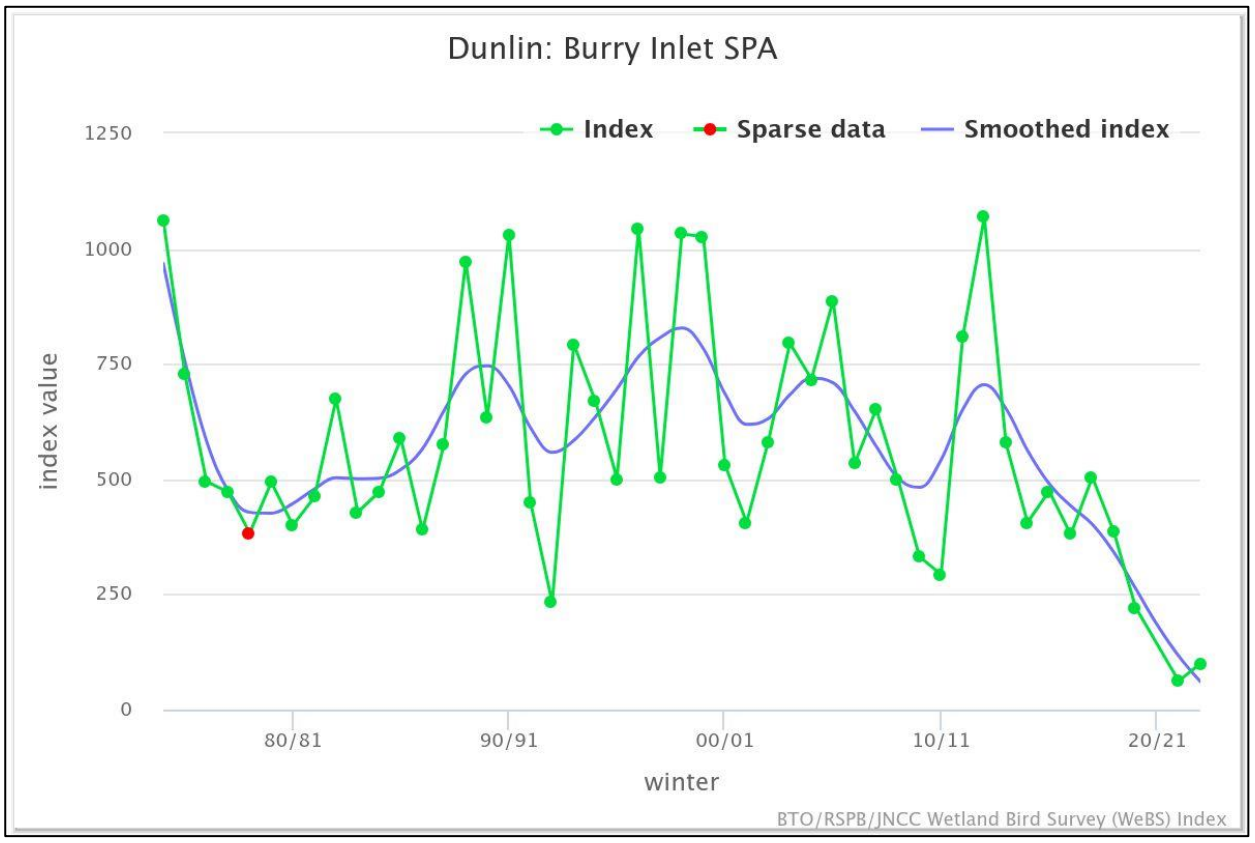
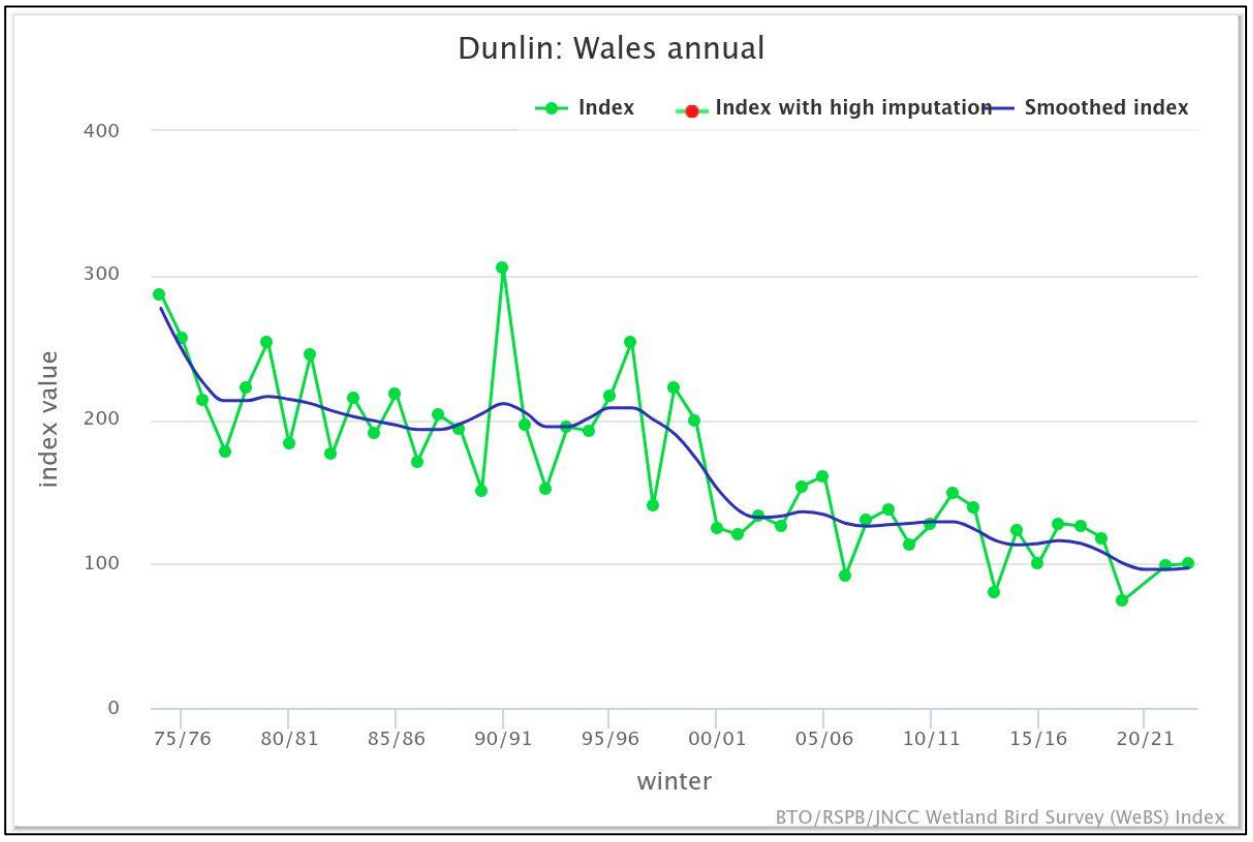


Figure 13. Wales annual index for dunlin from 1966/67 to 2022/23.



Wintering population disturbance (by human activity)

Disturbance occurs when an activity is sufficient to disrupt normal behaviours, for example, changes to feeding or roosting behaviour, increased energy expenditure due to time spent moving to avoid stressors, desertion of supporting habitats (both within and outside the protected area where appropriate). If the activity occurs at a level that substantially impacts behaviour for long enough it can lead to changes in distribution, displacement through reduction of habitat available and consequently could affect the long-term viability of the population.

Disturbance associated with human activity may take a variety of forms including, light, sound, vibration, presence of people, animals and structures. Dunlin is assessed to have a medium sensitivity to human disturbance (Goodship and Furness 2022).

There are currently no known anthropogenic activities that would have caused significant disturbance to dunlin on this site therefore the indicator met its target. The confidence was reduced to medium as the indicator has been assessed using expert judgement.

Supporting habitat

The extent, distribution and availability of suitable habitat (either within or outside the site boundary) which supports the feature for all necessary stages of the non-breeding/wintering period (moulting, roosting, loafing, feeding) should be maintained.

In winter, dunlin favour estuaries and tidal mudflats. They need to maintain an unobstructed line of sight (sightlines) within feeding and roosting habitat. High tide roosting sites are characterised by having good sightlines (i.e. open spaces where the birds can see any potential predators). Any significant changes to sightlines e.g. installation of tall structures or planting of trees, could impact on use of the roosts. If line of sight becomes obstructed birds may abandon their roosts which could consequently have a negative impact on the population.

The supporting habitat indicator met its target as there are currently no known issues with the supporting habitat or sightlines on this site. The site level population trend mirrors the Welsh trend. However, given that the wintering population target has not been met, a low confidence was attributed to the pass. There are no targeted surveys for supporting habitat or sightlines.

Food availability

The availability of an abundant food supply is critically important for successful fitness, survival and the overall sustainability of the population. As a result, inappropriate management and direct or indirect impacts which may affect the distribution, abundance and availability of food may adversely affect the population and alter the distribution of birds.

Dunlin feed mainly in the intertidal on marine worms, shrimps, crabs, shellfish and gastropods. There is a long-standing commercial cockle fishery operating in the SPA. There is potential for this activity to damage the habitat of dunlin prey species. However, the fishery is manged through a permitted fishery under the Cockle Fishing Management

and Permitting (Specified Area) (Wales) Order 2024. The number of fishers is deemed to not be having a detrimental impact on the dunlin prey habitat.

There are currently no specific issues known with the food availability, and the site was able to maintain passing numbers of this feature in the recent past. Also the site trend follows that for Wales, suggesting that the decline may be wider than any site specific problem. There are no known anthropogenic issues on the site that would have changed the food availability for this species on this site. However, as the current bird numbers are below the population target, the confidence in the pass was reduced to low.

Reasons for target failure

The assessment of the dunlin feature in the Burry Inlet SPA failed one primary target. This resulted in the feature to be assessed as being in **unfavourable** condition. The failing indicators and reasons for failure, if known, are stated below.

Wintering population

The wintering population of dunlin failed on this site due to low over wintering numbers, with the five-year peak mean failing to meet the target. It is not known what is currently causing the dunlin numbers to decline on this site. There have been declines in dunlin at the UK level which suggests factors off site are impacting the numbers returning to overwinter at the Burry. Further investigation is needed.

Threats to condition

Part of the condition assessment is to identify threats to the condition of the dunlin feature at the Burry Inlet SPA. A threat is defined as an activity that is currently not impacting condition but has the potential to do so over the next reporting cycle, if activity levels increase or are unmanaged. It is important to identify these threats to be able to put pre-emptive management in place to prevent further declines in condition. The threats to the Burry Inlet SPA for the dunlin feature are stated below.

Disturbance

Although current disturbance levels are not thought to be affecting the condition of the feature, dunlin have medium sensitivity to disturbance pressure and any new developments or increases in human derived disturbance need to be carefully assessed.

Climate change

It is not yet clear what pressures will be seen from climate change at the site level or how different pressures will counter act each other. However, threats from climate change that could impact the species may include:

- Rising sea levels (affecting high tide roosts)
- Increased storminess
- Increasing sea surface temperature.
- Changes to prey availability and abundance.

3.7. Condition assessment for grey plover *Pluvialis squatarola*

Grey plover in the Burry Inlet SPA has been assessed in Table 14. The table has a summary of the assessment outcome against each performance indicator. This outcome and reasons for any failure are discussed in more detail in the sections below.

Table 14. Condition assessment of grey plover in the Burry Inlet SPA. Each indicator target has a primary (P), secondary (S) or tertiary (T) weighting (see section 1.1).

Indicator	Target	Assessment rationale	Target assessment	Target confidence
Wintering population	Maintain the wintering population of grey plover at a minimum of 344 individuals across the site. (P)	• The latest five-year peak mean for grey plover is 88 birds (counts from wintering seasons in the years 2018/19 to 2022/23). Counts have been very low over the last two seasons (49 and 32). • The five-year peak mean is only based on three years (as two partial counts have not been included). • The confidence has been reduced to medium as the count is based on only three years.	**Fail**	Medium
Wintering population distribution	The distribution of the wintering grey plover population should not be significantly impacted by anthropogenic activity. (P)	• There are currently no known anthropogenic activities that have impeded the use of the whole site by grey plover or restricted their movements. • The assessment is based on expert judgement which has reduced the confidence level to medium.	**Pass**	Medium
Wintering population disturbance (by human activity)	Aggregations of roosting or feeding grey plover are not subject to significant disturbance. (P)	• There are currently no known anthropogenic activities that would have caused significant disturbance to grey plover on this site. • The confidence has been reduced to medium as there is no direct monitoring for disturbance on this site.	**Pass**	Medium

Indicator	Target	Assessment rationale	Target assessment	Target confidence
Supporting habitat	Maintain sufficient extent, distribution, function and quality of habitat to support a grey plover population of 344 individuals. (S) Maintain existing unrestricted bird sightlines in every direction around both roosting sites and feeding areas (S)	• There are currently no known issues with the supporting habitat or bird sightlines on this site. • The site level population trend mirrors the Welsh trend. However, since the wintering population target has not been met, the confidence in the pass is low. • There are no targeted surveys for supporting habitat or sightlines.	**Pass**	Low
Food availability	Maintain the distribution and abundance of grey plover food supply at levels sufficient a population of 344 individuals. (S)	• There are currently no known issues with food availability on this site. • The site level population trend mirrors the Welsh trend. However, since the wintering population target has not been met, the confidence in the pass is low. • There is no direct monitoring of food availability.	**Pass**	Low

Assessment conclusions

Grey plover in Burry Inlet SPA have been assessed as being in unfavourable condition (medium confidence). One primary indicator, wintering population, failed to meet its target (Table 15). A population of 88 has been recorded against the target of 344. The main threats to grey plover at the Burry Inlet come from disturbance and climate change. Further information on the assessment outcome and threats to condition can be seen in the detailed assessment information below.

Table 15. Summary of the condition assessment for grey plover in Burry Inlet SPA. Each indicator target has a primary (P), secondary (S) or tertiary (T) weighting.

SPA Feature	Overall Condition Assessment	Indicator failures	Reason for indicator failure	Threats to condition
Grey plover *Pluvialis squatarola*	**Unfavourable (medium confidence)**	Wintering population (P)	Unknown	• Disturbance • Climate change

Detailed assessment information

Wintering population and distribution

Grey plovers are small wading birds that are winter visitors and passage migrants to the UK. They are widely distributed around the coast, with a particular preference for areas with intertidal mud and sandflats.

Figures for wading birds in Wales are derived from the WeBS online report (WeBS online portal), which includes figures for all bird species. These figures are reported as peak means per year. The latest five-year peak mean for grey plover at the Burry Inlet SPA was 88 birds (counts from wintering seasons in the years 2018/19 to 2022/23), which is well below the site target of 344 individuals. The last time the grey plover population in the Burry Inlet reached its population target was in the winter of 2012/13 when the count was 470. The last time the five-year peak mean was above the target was for the period 2011/12 to 2015/16 when the average peak was 503. This was heavily influenced by a very high count of over 1,410 birds in 2011/12 (a number which has never been equalled since on the site). As the current numbers are well below the target, the wintering population indicator failed to meet its target. The confidence has been reduced to medium as the count is based on only three years as there have been partial counts within the last five years.

The general downward trend can be seen in the site level index (Figure 14) which is mirrored in the trend for Wales (Figure 15) (BTO WeBS report Online).

It is important that grey plover can continue to use and access all areas within the Burry Inlet SPA needed for feeding, moulting, roosting, loafing, shelter and any other activities necessary to support their survival. Most grey plover feed in groups on the mudflats of the Burry Inlet SPA, mainly during the day but occasionally at night, and roost above high tide mark. The ability of grey plover to move freely between feeding and roosting sites is critical to their fitness and survival. As roosting and feeding can be outside of the SPA boundary movement of the birds inside and outside of the SPA must also not be impacted or restricted. There are currently no known anthropogenic activities that have impeded the use of the whole site by grey plover or restricted their movements into or out of the site. Therefore the wintering population distribution indicator passed. Confidence was reduced to medium as the assessment was based on expert judgement not direct monitoring of bird movements.

Figure 14. Site level annual index for grey plover from 1974/75 to 2022/23.

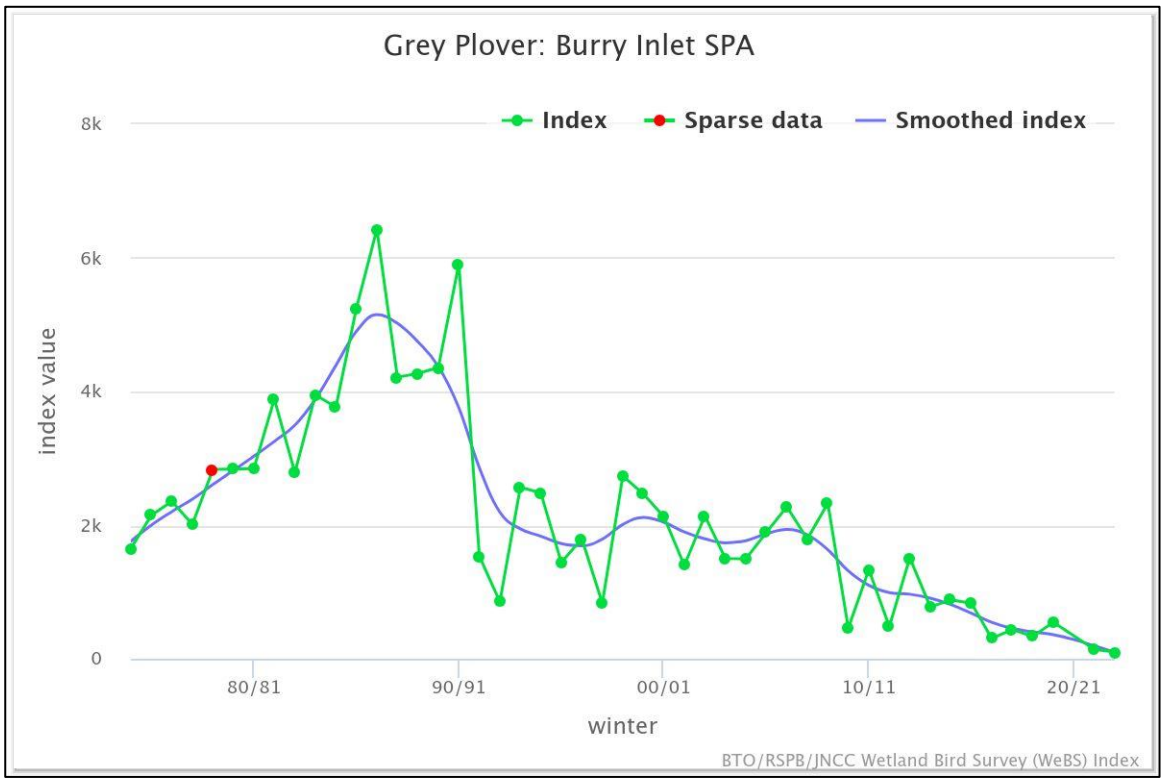
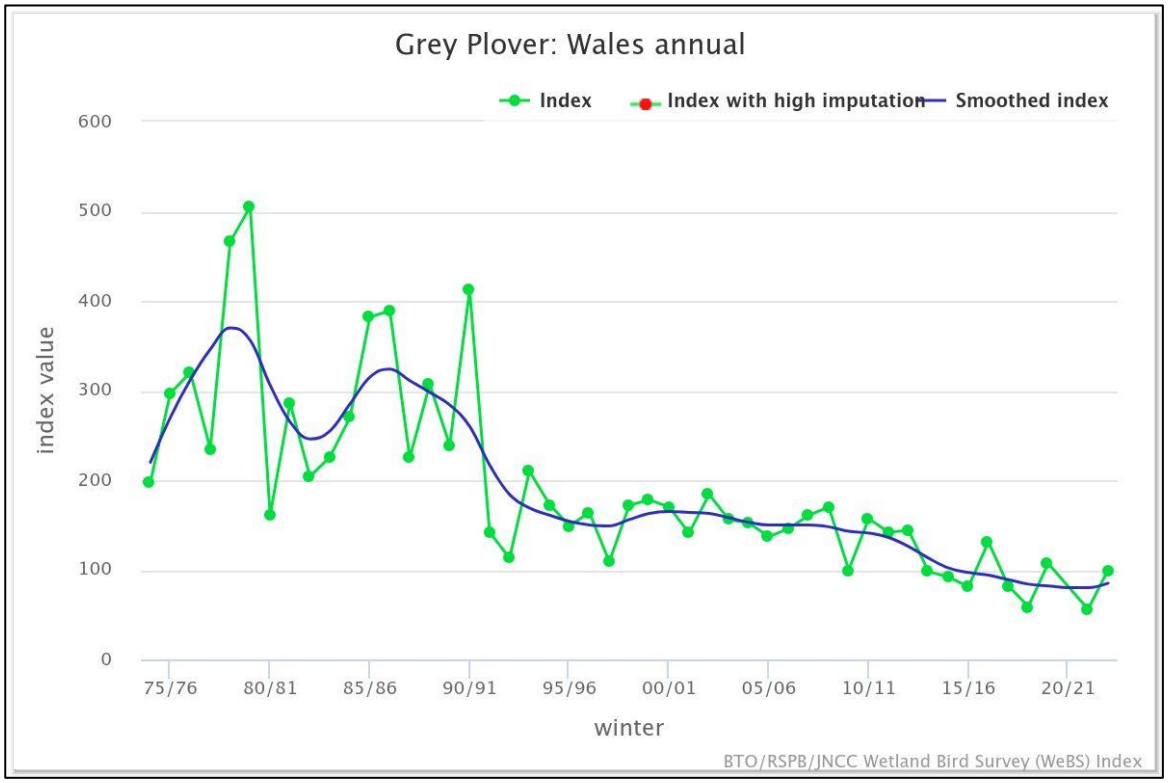


Figure 15. Wales annual index for grey plover from 1966/67 to 2022/23.



Wintering population disturbance (by human activity)

Disturbance occurs when an activity is sufficient to disrupt normal behaviours, for example, changes to feeding or roosting behaviour, increased energy expenditure due to time spent moving to avoid stressors, desertion of supporting habitats (both within and outside the protected area where appropriate). If the activity occurs at a level that substantially impacts behaviour for long enough it can lead to changes in distribution, displacement through reduction of habitat available and consequently could affect the long-term viability of the population.

Disturbance associated with human activity may take a variety of forms including, light, sound, vibration, presence of people, animals and structures. Grey plover is assessed to have a medium sensitivity to human disturbance, particularly recreational (Goodship and Furness 2022). Though appearing to have some tolerance, grey plover may abandon highly disturbed areas in favour of quieter areas to forage and roost (Cutts et al., 2013).

There are currently no known anthropogenic activities that would have caused significant disturbance to grey plover on this site, therefore the indicator met its target. The confidence was reduced to medium as the indicator has been assessed using expert judgement.

Supporting habitat

The extent, distribution and availability of suitable habitat (either within or outside the site boundary) which supports the feature for all necessary stages of the non-breeding/wintering period (moulting, roosting, loafing, feeding) should be maintained.

In winter, grey plover favour estuaries and tidal mudflats. They need to maintain an unobstructed line of sight (sightlines) within feeding and roosting habitats. High tide roosting sites are characterised by having good sightlines (i.e. open spaces where the birds can see any potential predators). Any significant changes to sightlines e.g. installation of tall structures or planting of trees, could impact on use of the roosts. If line of sight becomes obstructed birds may abandon their roosts which could consequently have a negative impact on the population.

The supporting habitat indicator met its target as there are currently no known issues with the supporting habitat or sightlines on this site. The site level population trend mirrors the Welsh trend. However, given that the wintering population target has not been met, a low confidence was attributed to the pass. There are no targeted surveys for supporting habitat or sightlines.

Food availability

The availability of an abundant food supply is critically important for successful fitness, survival and the overall sustainability of the population. As a result, inappropriate management and direct or indirect impacts which may affect the distribution, abundance

and availability of food may adversely affect the population and alter the distribution of birds.

Grey plovers feed mainly in the intertidal in winter. Main prey species include polychaete worms, small crustaceans, and gastropods (Snow and Perrins, 1998). There is a long-standing commercial cockle fishery operating in the SPA. There is potential for this activity to damage the habitat of grey plover prey species. However, the fishery is manged through a permitted fishery under the Cockle Fishing Management and Permitting (Specified Area) (Wales) Order 2024. The number of fishers is deemed to not be having a detrimental impact on the grey plover prey habitat.

There are currently no specific issues known with the food availability, and the site was able to maintain passing numbers of this feature in the past. Also the site trend follows that for Wales, suggesting that the decline may be wider than any site specific problem. There are no known anthropogenic issues on the site that would have changed the food availability for this species on this site. However, as the current bird numbers are below the population target, the confidence in the pass was reduced to low.

Reasons for target failure

The assessment of the grey plover feature in the Burry Inlet SPA failed one primary target. This resulted in the feature to be assessed as being in **unfavourable** condition. The failing indicators and reasons for failure, if known, are stated below.

Wintering population

The wintering population of grey plover failed on this site due to low over wintering numbers, with the five-year peak mean failing to meet the target. It is not known what is currently causing the grey plover numbers to decline on this site, particularly over the last ten years. There have been declines in grey plover at the Wales and UK level which suggests factors off site are impacting the numbers returning to overwinter at the Burry. Further investigation is needed.

Threats to condition

Part of the condition assessment is to identify threats to the condition of the grey plover feature at the Burry Inlet SPA. A threat is defined as an activity that is currently not impacting condition but has the potential to do so over the next reporting cycle, if activity levels increase or are unmanaged. It is important to identify these threats to be able to put pre-emptive management in place to prevent further declines in condition. The threats to the Burry Inlet SPA for the grey plover feature are stated below.

Disturbance

Although current disturbance levels are not thought to be affecting the condition of the feature, grey plover have medium sensitivity to disturbance pressure and any new developments or increases in human derived disturbance need to be carefully assessed.

Climate change

It is not yet clear what pressures will be seen from climate change at the site level or how different pressures will counter act each other. However, threats from climate change that could impact the species may include:

- Rising sea levels (affecting high tide roosts)
- Increased storminess
- Increasing sea surface temperature.
- Changes to prey availability and abundance.

3.8. Condition assessment for shelduck *Tadorna tadorna*

Shelduck in the Burry Inlet SPA has been assessed in Table 16. The table has a summary of the assessment outcome against each performance indicator. This outcome and reasons for any failure are discussed in more detail in the sections below.

Table 16. Condition assessment of shelduck in the Burry Inlet SPA. Each indicator target has a primary (P), secondary (S) or tertiary (T) weighting (see section 1.1).

Indicator	Target	Assessment rationale	Target assessment	Target confidence
Wintering population	Maintain the wintering population of shelduck at a minimum of 972 individuals across the site. (P)	• The latest five-year peak mean for shelduck at the Burry Inlet SPA is 975 (counts from wintering seasons in the years 2018/19 to 2022/23). This is just above the target set for the site. • The counts from two of the five years were above the site target. • The five-year peak mean is based on only four counts which has reduced the confidence to medium.	**Pass**	Medium
Wintering population distribution	The distribution of the wintering shelduck population should not be significantly impacted by anthropogenic activity. (P)	• There are currently no known anthropogenic activities that have impeded the use of the whole site by shelduck or restricted their movements. • The assessment is based on expert judgement which has reduced the confidence level to medium.	**Pass**	Medium
Wintering population disturbance (by human activity)	Aggregations of roosting or feeding shelduck are not subject to significant disturbance. (P)	• There are currently no known anthropogenic activities that would have caused significant disturbance to shelduck on this site. • The confidence has been reduced to medium as there is no direct monitoring for disturbance on this site.	**Pass**	Medium

Indicator	Target	Assessment rationale	Target assessment	Target confidence
Supporting habitat	Maintain sufficient extent, distribution, function and quality of habitat to support a shelduck population of 972 individuals. (S) Maintain existing unrestricted bird sightlines in every direction around both roosting sites and feeding areas. (S)	• There are currently no known issues with the supporting habitat or bird sightlines on this site and the latest five-year peak mean of shelduck is above the target. This indicates that there are no issues with the supporting habitat. • Confidence has been reduced to medium as there are no targeted surveys for supporting habitat or sightlines.	**Pass**	Medium
Food availability	Maintain the distribution and abundance of shelduck food supply at levels sufficient to support a population of 972 individuals. (S)	• There are currently no known issues with the food availability on this site and the latest five-year peak mean of shelduck is above the target. This indicates that there are no issues with the food availability. • Confidence has been reduced to medium as there are no targeted surveys for food availability.	**Pass**	Medium

Assessment conclusions

Shelduck in Burry Inlet SPA have been assessed as being in favourable condition (medium confidence). No indicators failed to meet their targets (Table 17). The main threats to shelduck at the Burry Inlet come from disturbance and climate change. Further information on the assessment outcome and threats to condition can be seen in the detailed assessment information below.

Table 17. Summary of the condition assessment for shelduck in Burry Inlet SPA.

SPA Feature	Overall Condition Assessment	Indicator failures	Reason for indicator failure	Threats to condition
Shelduck *Tadorna tadorna*	**Favourable (medium confidence)**	None	N/A	• Disturbance • Climate change

Detailed assessment information

Wintering population and distribution

In the winter, shelduck move from inland breeding grounds to gather on muddy estuaries and inland coastal marshes (BTO). The shelduck is quite a striking large duck with its white, black and chestnut plumage and bright red bill. In winter, shelduck favour muddy estuaries and coastal marshes.

Figures for wetland birds in Wales are derived from the WeBS online report (WeBS online portal), these figures are reported as peak means per year for all birds counted on a site not just the designated features. The latest five-year peak mean for shelduck at the Burry Inlet SPA is 975, which is just above the population target of 972. The target for the wintering population indicator was therefore met. The five-year peak mean is based on four years of data as there have been one partial count of this species on this site over the last five years, and partial counts are not used to calculate the five-year peak mean. This has lowered the confidence in the indicator to medium. It should be noted that only two of the used counts exceeded the population target.

The site level index (Figure 16) shows an early increase in numbers at the start of the monitoring period followed by relative stability, although with some variation and a small upturn in the most recent years. This is in contrast to the Welsh levels (Figure 17) which show a very steady decline since the early 1990s to the present day (BTO WeBS report Online).

It is important that shelduck can continue to use and access all areas within the Burry Inlet SPA needed for feeding, moulting, roosting, loafing, shelter and any other activities necessary to support their survival. Shelducks feed in groups predominately on intertidal mudflats. They have shown a preference for roosting on open water at some sites though will roost above the high tide mark (Toomer and Clark, 1994). They favour areas largely free of obstructions, in and around roosting and feeding areas. The ability of shelduck to move freely between feeding and roosting sites is critical to their fitness and survival. As roosting and feeding can be outside of the SPA boundary movement of the birds inside and outside of the SPA must also not be significantly impacted or restricted. There are currently no known anthropogenic activities that have impeded the use of the whole site by shelduck or restricted their movements. Therefore the wintering population distribution indicator passed. Confidence was reduced to medium as the assessment was based on expert judgement not direct monitoring of bird movements.

Figure 16. Site level annual index for shelduck from 1974/75 to 2022/23.

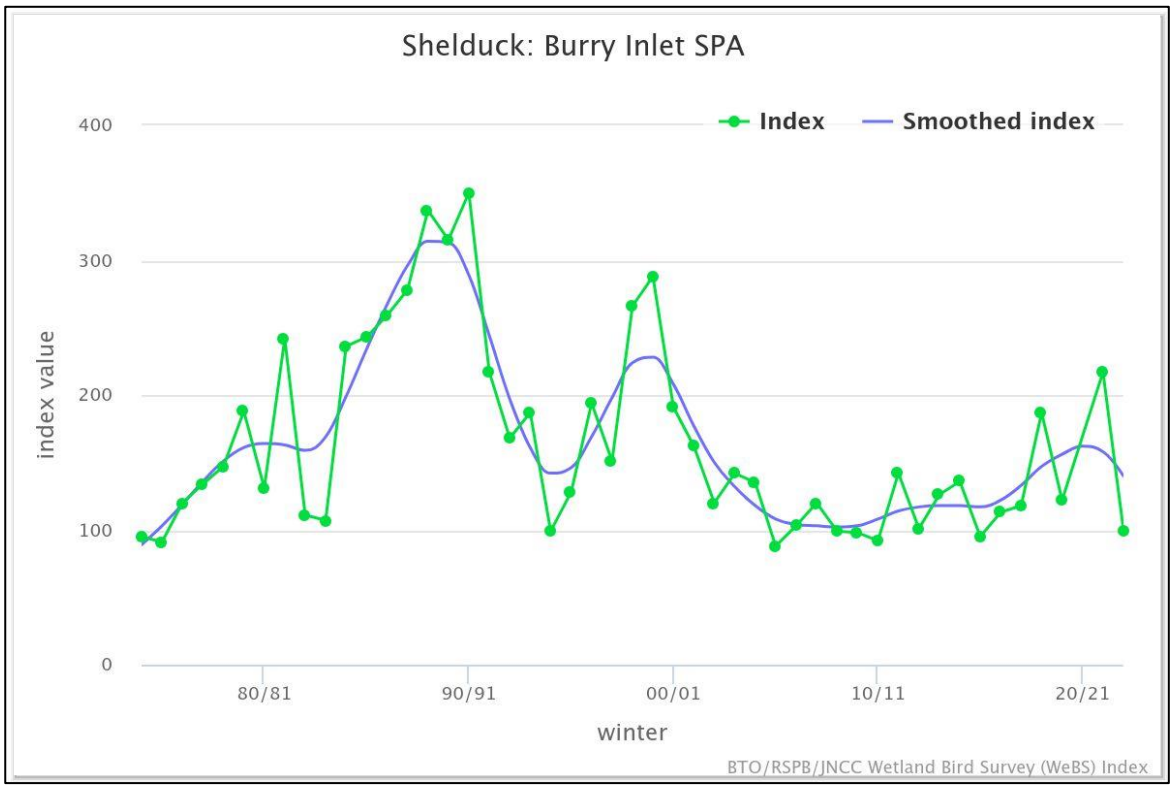
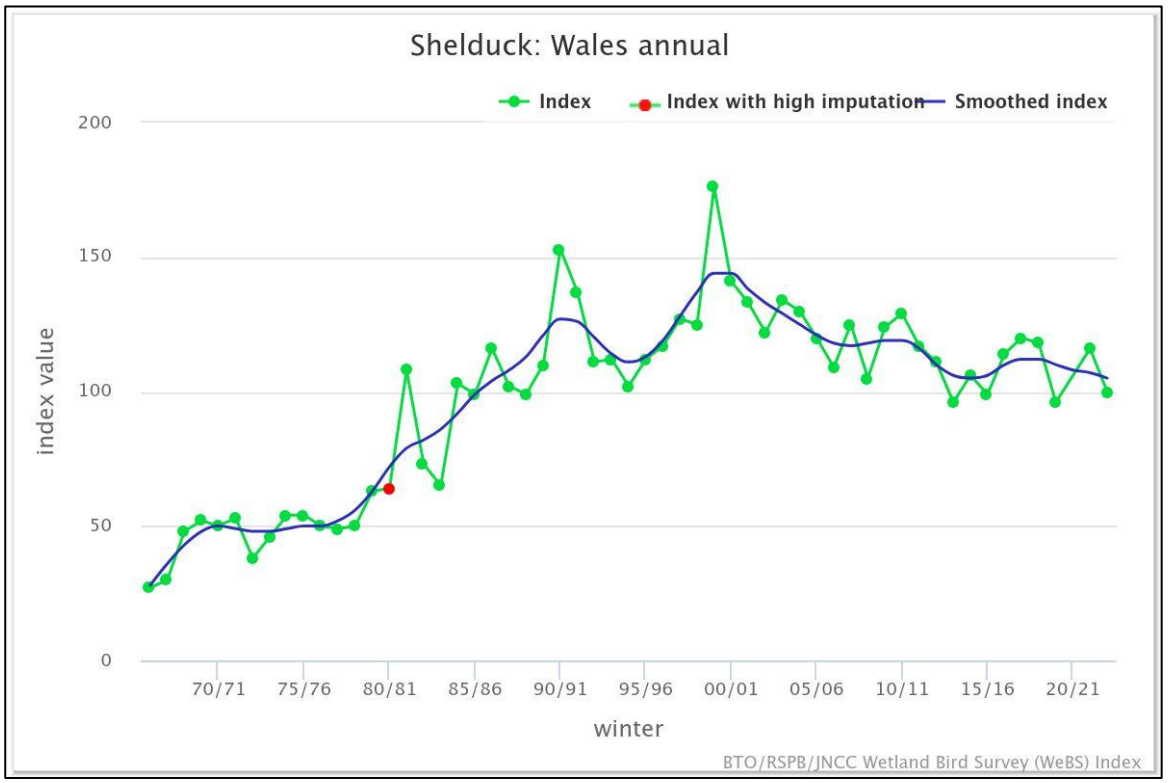


Figure 17. Wales annual index for shelduck from 1966/67 to 2022/23.



Wintering population disturbance (by human activity)

Disturbance occurs when an activity is sufficient to disrupt normal behaviours, for example, changes to feeding or roosting behaviour, increased energy expenditure due to time spent moving to avoid stressors, desertion of supporting habitats (both within and outside the protected area where appropriate). If the activity occurs at a level that substantially impacts behaviour for long enough it can lead to changes in distribution, displacement through reduction of habitat available and consequently could affect the long-term viability of the population.

Disturbance associated with human activity may take a variety of forms including, light, sound, vibration, presence of people, animals and structures. Shelducks are thought to be highly sensitive to disturbance (Cutts et al., 2013; Goodship and Furness, 2022). They have been shown to be extremely sensitive to moderate and high-level visual disturbance, as well as being sensitive to noise stimulus (Cutts et al., 2013). On English estuaries count sectors close to footpaths had lower numbers of shelduck than those further away, as did those closer to railways (Burton et al., 2002).

There are currently no known current (post designation) anthropogenic activities that could have caused significant disturbance to shelducks on this site, therefore the indicator target was met. The confidence was reduced to medium as the indicator has been assessed using expert judgement.

Supporting habitat

The extent, distribution and availability of suitable habitat (either within or outside the site boundary) which supports the feature for all necessary stages of the non-breeding/wintering period (moulting, roosting, loafing, feeding) should be suitable to support 972 shelduck. The numbers of wintering shelduck are currently meeting their population target, which indicates that the supporting habitat is suitable to support the population of the site.

Shelduck favour estuaries and mudflats with unobstructed line of sight (sightlines), in and around its roosting and feeding areas. High tide roosting sites are characterised by having good sightlines (i.e. open spaces where the birds can see any potential predators). Any significant changes to sightlines e.g. installation of tall structures or planting of trees, could impact on use of the roosts. If line of sight becomes obstructed birds may abandon their roosts which could consequently have a negative impact on the population.

There are currently no known issues with the supporting habitat or sightlines on this site therefore the supporting habitat indicator met its target. The confidence has been reduced to medium as there are no targeted surveys for supporting habitat or sightlines.

Food availability

The availability of an abundant food supply is critically important for successful fitness, survival and the overall sustainability of the population. As a result, inappropriate management and direct or indirect impacts which may affect the distribution, abundance and availability of food may adversely affect the population and alter the distribution of birds.

Shelducks mainly eat molluscs when by the coast, but this species will also feed on aquatic invertebrates and plant material (Snow and Perrins, 1998). They forage in shallow water by upending and head-dipping, and by digging and dabbling on mud flats.

There should be enough suitable prey at this site to support 972 shelduck. The current numbers of shelduck suggest that the food availability is sufficient to support the population on this site. Confidence in the pass is reduced to medium as there is no direct monitoring of food availability.

Reasons for target failure

The shelduck feature in the Burry Inlet SPA has been assessed as being in **favourable** condition as none of the targets failed.

Threats to condition

Part of the condition assessment is to identify threats to the condition of the shelduck feature at the Burry Inlet SPA. A threat is defined as an activity that is currently not impacting condition but has the potential to do so over the next reporting cycle, if activity levels increase or are unmanaged. It is important to identify these threats to be able to put pre-emptive management in place to prevent further declines in condition. The threats to the Burry Inlet SPA for the shelduck feature are stated below.

Disturbance

Although current disturbance levels are not thought to be affecting the condition of the feature, shelduck have a high sensitivity to disturbance pressure and any new developments or increases in human derived disturbance need to be carefully assessed.

Climate change

It is not yet clear what pressures will be seen from climate change at the site level or how different pressures will counter act each other. However, threats from climate change that could impact the species may include:

- Rising sea levels (affecting high tide roosts)
- Increased storminess
- Increasing sea surface temperature.
- Changes to prey availability and abundance.

3.9. Condition assessment for shoveler *Anas clypeata*

Shoveler in the Burry Inlet SPA has been assessed in Table 18. The table has a summary of the assessment outcome against each performance indicator. This outcome and reasons for any failure are discussed in more detail in the sections below.

Table 18. Condition assessment of shoveler in the Burry Inlet SPA. Each indicator target has a primary (P), secondary (S) or tertiary (T) weighting (see section 1.1).

Indicator	Target	Assessment rationale	Target assessment	Target confidence
Wintering population	Maintain the wintering population of shoveler at a minimum of 356 individuals across the site. (P)	• The latest five-year peak mean for shoveler is 131 (counts from wintering seasons in the years 2018/19 to 2022/23). • The peak mean is based on three years as two were partial counts. All counts were below the target. • The confidence has been reduced to medium as the count is based on only three years.	**Fail**	Medium
Wintering population distribution	The distribution of the wintering shoveler population should not be significantly impacted by anthropogenic activity. (P)	• There are currently no known anthropogenic activities that have impeded the use of the whole site by shoveler or restricted their movements. • The assessment is based on expert judgement which has reduced the confidence level to medium.	**Pass**	Medium
Wintering population disturbance (by human activity)	Aggregations of roosting or feeding shoveler are not subject to significant disturbance. (P)	• There are currently no known anthropogenic activities that would have caused significant disturbance to shoveler on this site. • The confidence has been reduced to medium as there is no direct monitoring for disturbance on this site.	**Pass**	Medium

Indicator	Target	Assessment rationale	Target assessment	Target confidence
Supporting habitat	Maintain sufficient extent, distribution, function and quality of habitat to support a shoveler population of 356 individuals. (S) Maintain existing unrestricted bird sightlines in every direction around both roosting sites and feeding areas. (S)	• There are currently no known issues with the supporting habitat or bird sightlines on this site. • However, since the wintering population target has not been met, and the site level decline differs from the Welsh trend, this indicator has been assessed as unknown. • There are no targeted surveys for supporting habitat or sightlines.	**Unknown**	N/A
Food availability	Maintain the distribution and abundance of shoveler food supply at levels sufficient to support a population of 356 individuals. (S)	• There are currently no known issues with the food availability on this site. • However, since the wintering population target has not been met, and the site level decline differs from the Welsh trend, this indicator has been assessed as unknown. • There is no direct monitoring of food availability.	**Unknown**	N/A

Assessment conclusions

Shoveler in Burry Inlet SPA have been assessed as being in unfavourable condition (medium confidence). One primary indicator, wintering population, failed to meet its target (Table 19). A population of 131 has been recorded against the target of 356. The main threats to shoveler at the Burry Inlet come from disturbance and climate change. Further information on the assessment outcome and threats to condition can be seen in the detailed assessment information below.

Table 19. Summary of the condition assessment for shoveler in Burry Inlet SPA. Each indicator target has a primary (P), secondary (S) or tertiary (T) weighting.

SPA Feature	Overall Condition Assessment	Indicator failures	Reason for indicator failure	Threats to condition
Shoveler *Anas clypeata*	**Unfavourable (medium confidence)**	Wintering population (P)	Unknown	• Disturbance • Climate change

Detailed assessment information

Wintering population and distribution

Shoveler are surface feeding ducks who are predominantly a winter visitor to the UK. Wintering individuals include birds from the breeding populations that extend from eastern Fennoscandia and the Baltic to western Russia, though many of these move further south into France and Spain.

Figures for wading birds in Wales are derived from the WeBS online report (WeBS online portal), which includes figures for all bird species. These figures are reported as peak means per year. The latest five-year peak mean for shoveler at the Burry Inlet SPA is 131, which is well below the population target of 356. Within the current five-year peak mean, the count was based on three years as there were two partial counts that were not used. Of the full counts none exceed the target with the highest being 178 birds. The last year in which the target was reached was 2005/06, when the yearly count was 437. The last time the five-year peak mean exceeded the target was in the period 1999/00 to 2003/04, over 20 years ago, where the five-year mean peak was 366. As the current numbers are well below the target, the wintering population indicator failed to meet its target. The confidence has been reduced to medium as the count is based on only three years as there have been partial counts within the last five years.

The site level index (Figure 18) shows a big peak in numbers in late 1990's followed by a gradual decline with inter-year variation and an increase over the last five years. This has continued to the present day. The Welsh level data (Figure 19) show a roughly increasing but more variable trend from the late 1960's until the last few years, when there has been a slight dip in numbers. Therefore there appears to be a difference in trends at the site level to that in Wales, which could indicate that there are site specific issues for this species.

Shoveler feed mainly in the water, on *Hydrobia spp* by sifting it off the top of mud. The ability of shoveler to move freely between feeding and roosting sites is critical to their fitness and survival. As roosting and feeding can be outside of the SPA boundary movement of the birds inside and outside of the SPA must also not be significantly impacted or restricted. There are currently no known anthropogenic activities that have impeded the use of the whole site by shoveler or restricted their movements. Therefore the wintering population distribution indicator passed. Confidence was reduced to medium as the assessment was based on expert judgement not direct monitoring of bird movements.

It is not felt that wildfowling on the site is having a significant impact on the feature as this has been occurring at a similar or reduced level since before the site was designated. There is currently no shooting of shoveler allowed, this is part of an agreed wildfowling management plan for the site.

Figure 18. Site level annual index for shoveler from 1974/75 to 2022/23.

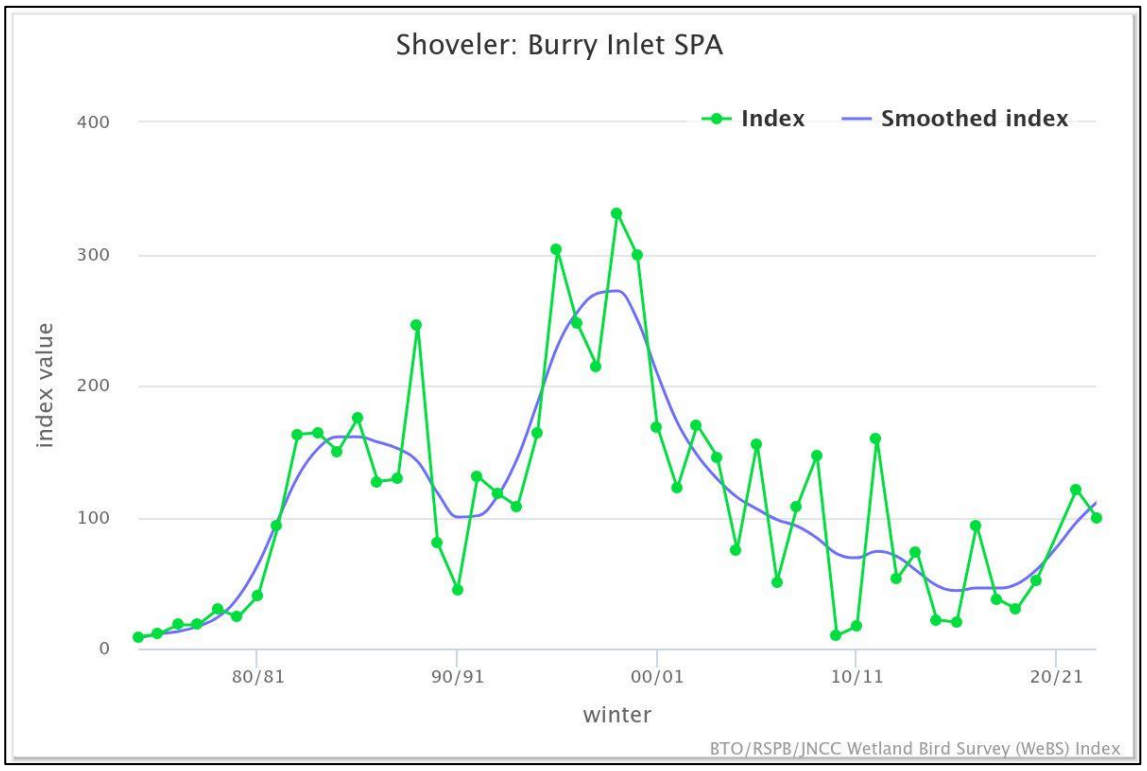
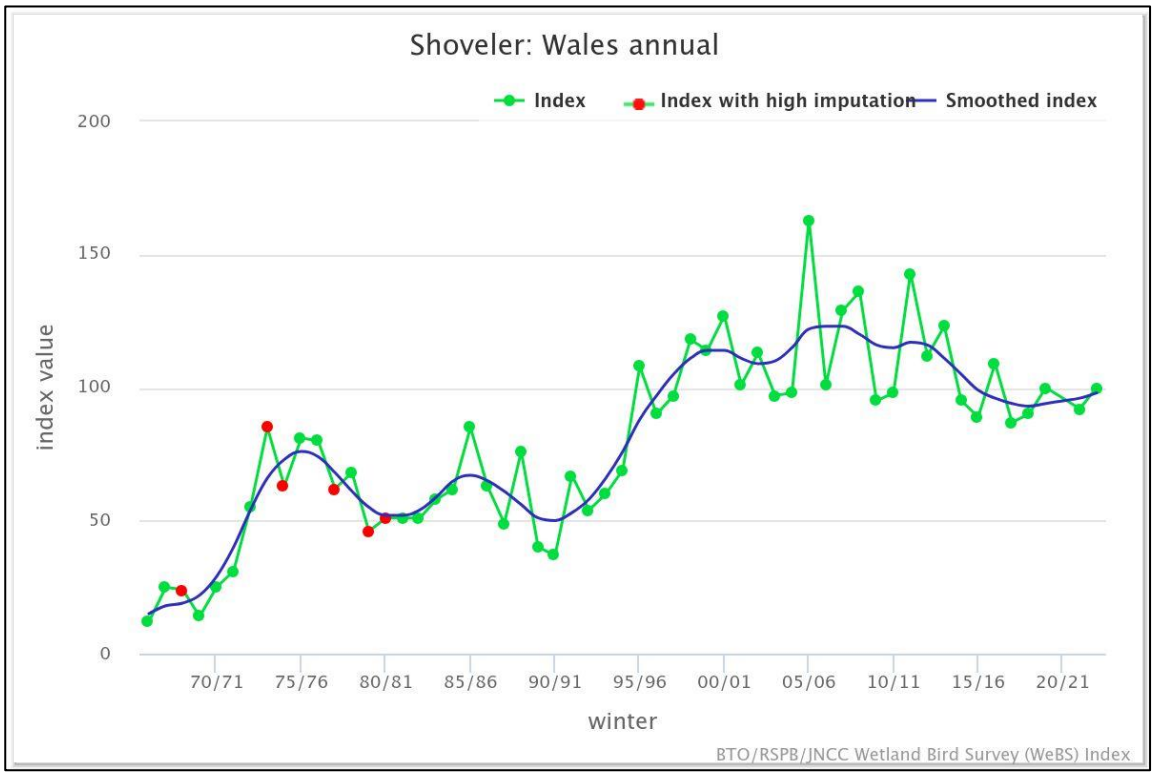


Figure 19. Wales annual index for shoveler from 1966/67 to 2022/23.



Wintering population disturbance (by human activity)

Disturbance occurs when an activity is sufficient to disrupt normal behaviours, for example, changes to feeding or roosting behaviour, increased energy expenditure due to time spent moving to avoid stressors, desertion of supporting habitats (both within and outside the protected area where appropriate). If the activity occurs at a level that substantially impacts behaviour for long enough it can lead to changes in distribution, displacement through reduction of habitat available and consequently could affect the long-term viability of the population.

Disturbance associated with human activity may take a variety of forms including, light, sound, vibration, trampling, presence of people, animals and structures. Shoveler are thought to have medium sensitivity to disturbance, with evidence that they favour undisturbed areas and are sensitive to recreational disturbance (Goodship and Furness, 2022 and references therein).

There are currently no known anthropogenic activities that would have caused significant disturbance to shoveler on this site, therefore the indicator met its target. The confidence was reduced to medium as the indicator has been assessed using expert judgement.

Supporting habitat

The extent, distribution and availability of suitable habitat (either within or outside the site boundary) which supports the feature for all necessary stages of the non-breeding/wintering period (moulting, roosting, loafing, feeding) should be maintained.

Shoveler need to maintain an unobstructed line of sight (sightlines) within feeding and roosting habitat. High tide roosting sites are characterised by having good sightlines (i.e. open spaces where the birds can see any potential predators). Any significant changes to sightlines e.g. installation of tall structures or planting of trees, could impact on use of the roosts. If line of sight becomes obstructed birds may abandon their roosts which could consequently have a negative impact on the population.

There are currently no known issues with supporting habitat or sightlines at this site. However, due to the fact that the site level decline is not reflected in the Welsh level trend, this indicator has been assessed as unknown. There are no targeted surveys for supporting habitat or sightlines.

Food availability

The availability of an abundant food supply is critically important for successful fitness, survival and the overall sustainability of the population. As a result, inappropriate management and direct or indirect impacts which may affect the distribution, abundance and availability of food may adversely affect the population and alter the distribution of birds.

Shovelers are dabbling ducks that use their large, flat bills to filter feed near the water's surface. The comb-like projections along the edge of their bill, called lamellae, help them sift through the water for food, they feed by sweeping their bills back and forth through the water filtering out, zooplankton, small invertebrates, plant seeds and other plant matter.

There are currently no specific issues known with the food availability and the site was able to maintain passing numbers of this feature in the past. However, due to the fact that the site level decline is not reflected in the Welsh level trend, this indicator has been assessed as unknown. There is no direct monitoring of food availability.

Reasons for target failure

The assessment of the shoveler feature in the Burry Inlet SPA failed one primary target. This resulted in the feature to be assessed as being in **unfavourable** condition. The failing indicators and reasons for failure, if known, are stated below.

Wintering population

The wintering population of shoveler failed on this site due to low over wintering numbers, with the five-year peak mean failing to meet the target. It is not known what is currently causing the shoveler numbers have been so low over the last 20 years. The decline may be site specific as the Welsh and UK trends show an increase. Further investigation is needed.

Threats to condition

Part of the condition assessment is to identify threats to the condition of the shoveler feature at the Burry Inlet SPA. A threat is defined as an activity that is currently not impacting condition but has the potential to do so over the next reporting cycle, if activity levels increase or are unmanaged. It is important to identify these threats to be able to put pre-emptive management in place to prevent further declines in condition. The threats to the Burry Inlet SPA for the shoveler feature are stated below.

Disturbance

Although current disturbance levels are not thought to be affecting the condition of the feature, shoveler have medium sensitivity to disturbance pressure and any new developments or increases in human derived disturbance need to be carefully assessed.

Climate change

It is not yet clear what pressures will be seen from climate change at the site level or how different pressures will counter act each other. However, threats from climate change that could impact the species may include:

- Rising sea levels (affecting high tide roosts)

- Increased storminess
- Increasing sea surface temperature.
- Changes to prey availability and abundance.

3.10. Condition assessment for teal *Anas crecca*

Teal in the Burry Inlet SPA in Table 20. The table has a summary of the assessment outcome against each performance indicator. This outcome and any reasons for failure are discussed in more detail in the sections below.

Table 20. Condition assessment of teal in the Burry Inlet SPA. Each indicator target has a primary (P), secondary (S) or tertiary (T) weighting (see section 1.1).

Indicator	Target	Assessment rationale	Target assessment	Target confidence
Wintering population	Maintain the wintering population of teal at a minimum of 477 individuals across the site. (P)	• The latest five-year peak mean for teal at the Burry Inlet SPA is 553 (counts from wintering seasons in the years 2018/19 to 2022/23). This is above the target set for the site. • The peak mean is based on two years as three were partial counts. The counts from the two years were both above the site target. • The confidence has been reduced to medium as the count is based on only two years.	**Pass**	Medium
Wintering population distribution	The distribution of the wintering teal population should not be significantly impacted by anthropogenic activity. (P)	• There are currently no known anthropogenic activities that have impeded the use of the whole site by teal or restricted their movements. • The assessment is based on expert judgement which has reduced the confidence level to medium.	**Pass**	Medium
Wintering population disturbance (by human activity)	Aggregations of roosting or feeding teal are not subject to significant disturbance. (P)	• There are currently no known anthropogenic activities that would have caused significant disturbance to teal on this site. • The confidence has been reduced to medium as there is no direct monitoring for disturbance on this site.	**Pass**	Medium

Indicator	Target	Assessment rationale	Target assessment	Target confidence
Supporting habitat	Maintain sufficient extent, distribution, function and quality of habitat to support a teal population of 477 individuals. (S) Maintain existing unrestricted bird sightlines in every direction around both roosting sites and feeding areas. (S)	• There are currently no known issues with the supporting habitat or bird sightlines on this site and the latest five-year peak mean of teal is above the target. This indicates that there are no issues with the supporting habitat. • Confidence has been reduced to medium as there are no targeted surveys for supporting habitat or sightlines.	**Pass**	Medium
Food availability	Maintain the distribution and abundance of teal food supply at levels sufficient to support a population of 477 individuals. (S)	• There are currently no known issues with the food availability on this site and the latest five-year peak mean of teal is above the target. This indicates that there are no issues with the food availability. • Confidence has been reduced to medium as there are no targeted surveys for food availability.	**Pass**	Medium

Assessment conclusions

Teal in Burry Inlet SPA have been assessed as being in favourable condition (medium confidence). No indicators failed to meet their targets (Table 21). The main threats to teal at the Burry Inlet come from disturbance and climate change. Further information on the assessment outcome and threats to condition can be seen in the detailed assessment information below.

Table 21. Summary of the condition assessment for teal in Burry Inlet SPA.

SPA Feature	Overall Condition Assessment	Indicator failures	Reason for indicator failure	Threats to condition
Teal *Anas crecca*	**Favourable (medium confidence)**	None	N/A	• Disturbance • Climate change

Detailed assessment information

Wintering population and distribution

The teal is the smallest duck in Wales, it is an uncommon breeding bird in the UK, with an estimated population of approximately 4,000 breeding pairs. However, this population is dwarfed by the winter arrival of nearly half a million birds from the Continent. They are usually found in marshlands and estuaries around the UK. The teal is quite a striking small duck, in winter the males have a gilt-edged, chestnut and green head, a butter-yellow triangle beneath the tail and a bright green wing flash.

Figures for wading birds in Wales are derived from the WeBS online report (WeBS online portal), which includes figures for all bird species. These figures are reported as peak means per year. The latest five-year peak mean for teal at the Burry Inlet SPA is 553, which is above the population target of 477. The target for the wintering population indicator was therefore met. The five-year peak mean is based on just two years of data as there have been three partial counts of this species on this site over the last five years, and partial counts are not used to calculate the five-year peak mean. This has reduced the confidence in the population assessment to medium. It should be noted that both of the used counts were over the population target.

The site level index (Figure 20) shows a big decrease in the mid-1990s, a period of recovery, a decline until 2017/18, and then a slight upturn in the last five years. The Welsh numbers (Figure 21) show a steady increase from the 1970s to the early 2000s then more variable numbers over the last 20 years, but no large increases or decreases in the annual numbers.

It is important that teal can continue to use and access all areas within the Burry Inlet SPA needed for feeding, moulting, roosting, loafing, shelter and any other activities necessary to support their survival. The ability of teal to move freely between feeding and roosting sites is critical to their fitness and survival. As roosting and feeding can be outside of the SPA boundary movement of the birds inside and outside of the SPA must also not be significantly impacted or restricted. There are currently no known anthropogenic activities that have impeded the use of the whole site by teal or restricted their movements. Therefore the wintering population distribution indicator passed. Confidence was reduced to medium as the assessment was based on expert judgement not direct monitoring of bird movements.

Figure 20. Site level annual index for teal from 1974/75 to 2022/23.

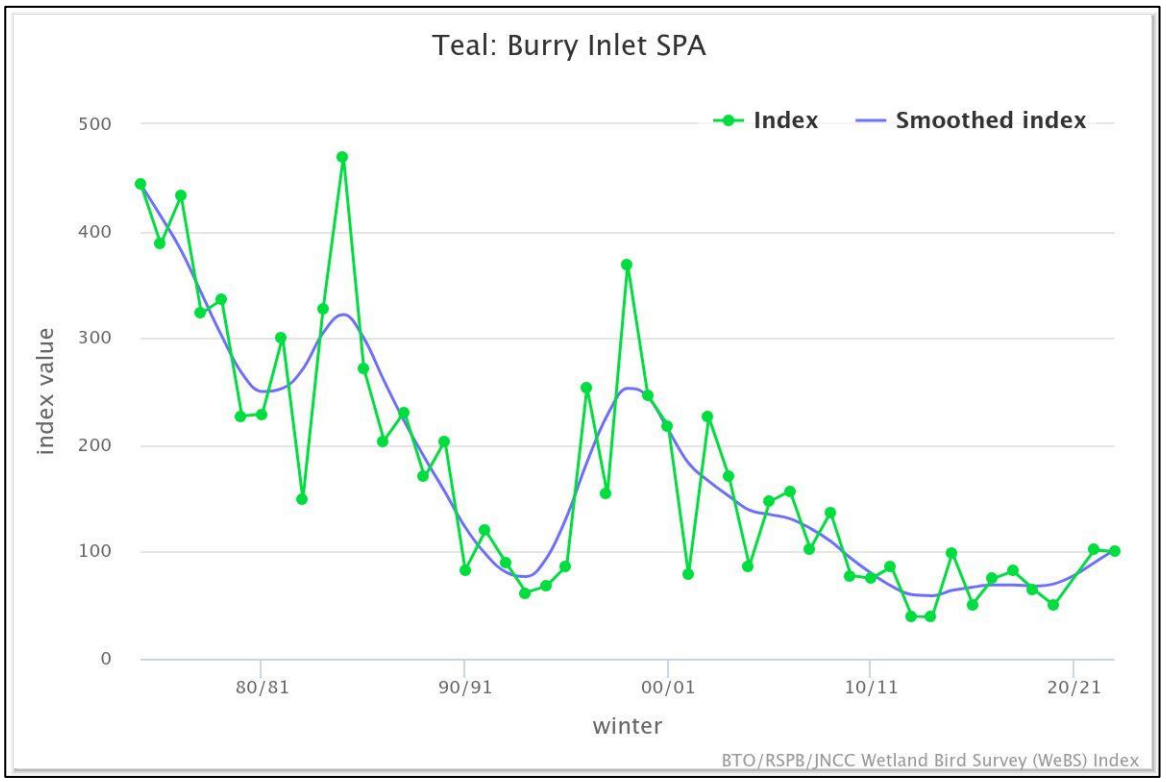
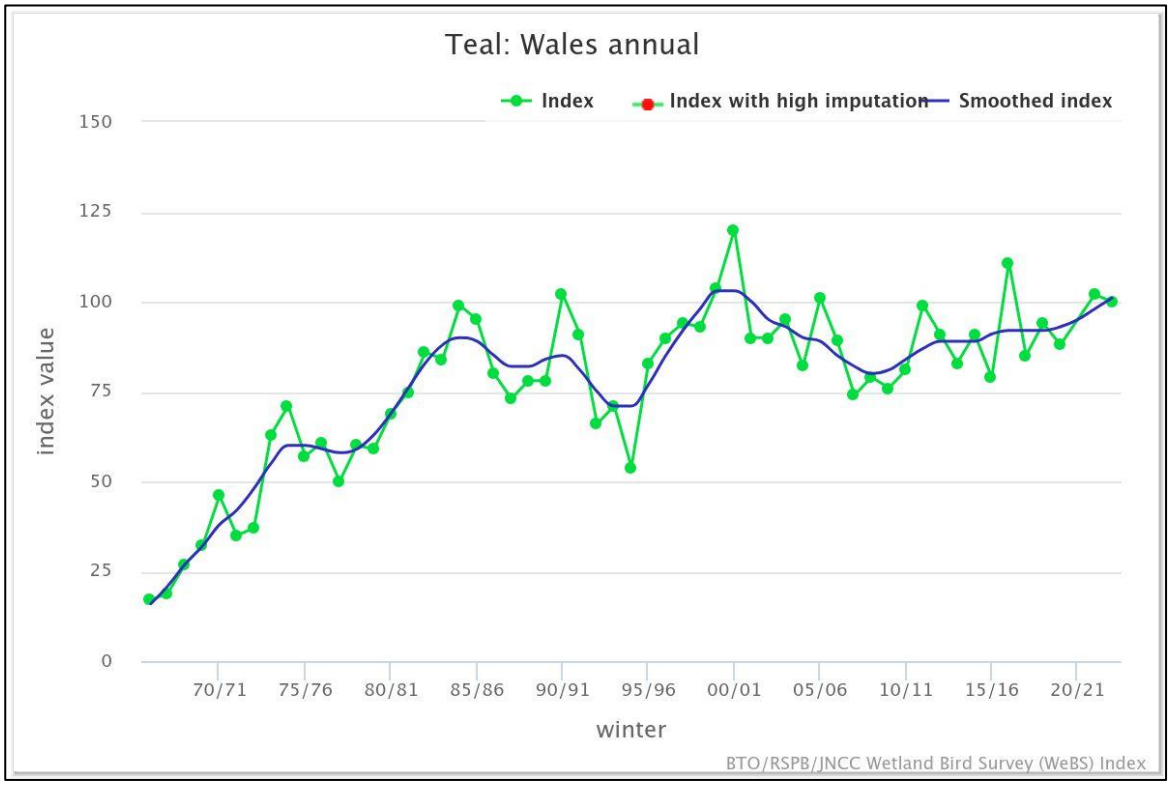


Figure 21. Wales annual index for teal from 1966/67 to 2022/23.



Wintering population disturbance (by human activity)

Disturbance occurs when an activity is sufficient to disrupt normal behaviours, for example, changes to feeding or roosting behaviour, increased energy expenditure due to time spent moving to avoid stressors, desertion of supporting habitats (both within and outside the protected area where appropriate). If the activity occurs at a level that substantially impacts behaviour for long enough it can lead to changes in distribution, displacement through reduction of habitat available and consequently could affect the long-term viability of the population.

Disturbance associated with human activity may take a variety of forms including, light, sound, vibration, presence of people, animals and structures. Teal have been shown to be somewhat sensitive to human disturbance (Pease et al., 2005), and one study showed teal were displaced significantly further by human disturbance compared to natural disturbance (Bregnballe et al., 2017). However, information is lacking.

There are currently no known anthropogenic activities that would have caused significant disturbance to teal on this site, therefore the indicator met its target. The confidence was reduced to medium as the indicator has been assessed using expert judgement.

Supporting habitat

The extent, distribution and availability of suitable habitat (either within or outside the site boundary) which supports the feature for all necessary stages of the non-breeding/wintering period (moulting, roosting, loafing, feeding) should be suitable to support 477 teal. The numbers of wintering teal are currently meeting their population target, which indicates that the supporting habitat is suitable to support the population of the site.

Teal dabble in shallow water and often need to maintain an unobstructed line of sight (sightlines) within feeding or roosting habitat. High tide roosting sites are characterised by having good sightlines (i.e. open spaces where the birds can see any potential predators). Any significant changes to sightlines e.g. installation of tall structures or planting of trees, could impact on use of the roosts. If line of sight becomes obstructed birds may abandon their roosts which could consequently have a negative impact on the population.

There are currently no known issues with the supporting habitat or sightlines on this site therefore the supporting habitat indicator met its target. The confidence has been reduced to medium as there are no targeted surveys for supporting habitat or sightlines.

Food availability

The availability of an abundant food supply is critically important for successful fitness, survival and the overall sustainability of the population. As a result, inappropriate management and direct or indirect impacts which may affect the distribution, abundance

and availability of food may adversely affect the population and alter the distribution of birds.

In winter, teal feed mainly on seeds of aquatic plants and grasses, including sedges and grains They mainly forage in shallow waters. The current numbers of teal suggest that the food availability is sufficient to support the population on this site therefore the indicator met its target. Confidence in the pass is reduced to medium as there is no direct monitoring of food availability.

Reasons for target failure

The teal feature in the Burry Inlet SPA has been assessed as being in **favourable** condition as none of the targets failed.

Threats to condition

Part of the condition assessment is to identify threats to the condition of the teal feature at the Burry Inlet SPA. A threat is defined as an activity that is currently not impacting condition but has the potential to do so over the next reporting cycle, if activity levels increase or are unmanaged. It is important to identify these threats to be able to put pre-emptive management in place to prevent further declines in condition. The threats to the Burry Inlet SPA for the teal feature are stated below.

Disturbance

Although current disturbance levels are not thought to be affecting the condition of the feature, teal have been shown to be somewhat sensitive to human disturbance and any new developments or increases in human derived disturbance need to be carefully assessed.

Climate change

It is not yet clear what pressures will be seen from climate change at the site level or how different pressures will counter act each other. However, threats from climate change that could impact the species may include:

- Rising sea levels (affecting high tide roosts)
- Increased storminess
- Increasing sea surface temperature.
- Changes to food availability and abundance.

3.11. Condition assessment for turnstone *Arenaria interpres*

Turnstone in the Burry Inlet SPA has been assessed in Table 22. The table has a summary of the assessment outcome against each performance indicator. This outcome and any reasons for failure are discussed in more detail in the sections below.

Table 22. Condition assessment of turnstone in the Burry Inlet SPA. Each indicator target has a primary (P), secondary (S) or tertiary (T) weighting (see section 1.1).

Indicator	Target	Assessment rationale	Target assessment	Target confidence
Wintering population	Maintain the wintering population of turnstone at a minimum of 343 individuals across the site. (P)	• The latest five-year peak mean for turnstone is 46 (counts from wintering seasons in the years 2018/19 to 2022/23). • The peak mean is based on only one year as the other four counts were partial counts. • The confidence has been reduced to medium as the count is based on only one year.	**Fail**	Medium
Wintering population distribution	The distribution of the wintering turnstone population should not be significantly impacted by anthropogenic activity. (P)	• There are currently no known anthropogenic activities that have impeded the use of the whole site by turnstone or restricted their movements. • This is based on expert judgement which has reduced the confidence level to medium.	**Pass**	Medium
Wintering population disturbance (by human activity)	Aggregations of roosting or feeding turnstone are not subject to significant disturbance. (P)	• There are currently no known anthropogenic activities that would have caused significant disturbance to turnstone on this site. • The confidence has been reduced to medium as there is no direct monitoring for disturbance on this site.	**Pass**	Medium

Indicator	Target	Assessment rationale	Target assessment	Target confidence
Supporting habitat	Maintain sufficient extent, distribution, function and quality of habitat to support a turnstone population of 343 individuals. (S) Maintain existing unrestricted bird sightlines in every direction around both roosting sites and feeding areas (S)	• There are currently no known issues with the supporting habitat or bird sightlines on this site. • The site level population trend mirrors the Welsh trend. However, since the wintering population target has not been met, the confidence in the pass is low. • There are no targeted surveys for supporting habitat or sightlines.	**Pass**	Low
Food availability	Maintain the distribution and abundance of turnstone food supply at levels sufficient to support a population of 343 individuals. (S)	• There are currently no known issues with food availability on this site. • The site level population trend mirrors the Welsh trend. However, since the wintering population target has not been met, the confidence in the pass is low. • There is no direct monitoring of food availability.	**Pass**	Low

Assessment conclusions

Turnstone in Burry Inlet SPA have been assessed as being in unfavourable condition (medium confidence). One primary indicator, wintering population, failed to meet its target (Table 23). A population of 46 has been recorded against the target of 343. The main threats to the turnstone at Burry Inlet come from disturbance and climate change. Further information on the assessment outcome and threats to condition can be seen in the detailed assessment information below.

Table 23. Summary of the condition assessment for turnstone in Burry Inlet SPA. Each indicator target has a primary (P), secondary (S) or tertiary (T) weighting.

SPA Feature	Overall Condition Assessment	Indicator failures	Reason for indicator failure	Threats to condition
Turnstone *Arenaria interpres*	**Unfavourable (medium confidence)**	Wintering population (P)	Unknown	• Disturbance • Climate change

Detailed assessment information

Wintering population and distribution

Turnstone is a small, colourful wader that breeds in the Arctic, meaning they are primarily a winter visitor to the UK. They are widespread on sandy beaches, estuaries and rocky shores.

Figures for wading birds in Wales are derived from the WeBS online report (WeBS online portal), which includes figures for all bird species. These figures are reported as peak means per year. The latest five-year peak mean for turnstone at the Burry Inlet SPA is 46, which is well below the population target of 343. Within the current five-year peak mean, the count was based on only one year's count as there were four partial counts that were not used. The last year in which the target was reached was 2005/06. The last time the five-year peak mean exceeded the target of 343 was in the period 2004/05 to 2008/09. As the current number is well below the target, the wintering population indicator failed to meet its target. The confidence has been reduced to medium as the count is based on only one year as there have been partial counts within the last five years.

The site level index (Figure 22) shows marked decline since the late 1980s with the numbers stabilising at a very low level from 2010 onwards. It should be noted that for most years since 2007/08 only partial counts were recorded at this site for turnstone. The Welsh data (Figure 23) show a similar pattern to the site level graph but with a stabilising of the numbers, at a reduced level over the last 20 – 30 years.

Turnstone forage on the tideline. The ability of turnstone to move freely between feeding and roosting sites is critical to their fitness and survival. As roosting and feeding can be outside of the SPA boundary movement of the birds inside and outside of the SPA must also not be significantly impacted or restricted. There are currently no known anthropogenic activities that have impeded the use of the whole site by turnstone or restricted their movements. Therefore the wintering population distribution indicator passed. Confidence was reduced to medium as the assessment was based on expert judgement not direct monitoring of bird movements.

Figure 22. Site level annual index for turnstone from 1974/75 to 2022/23.

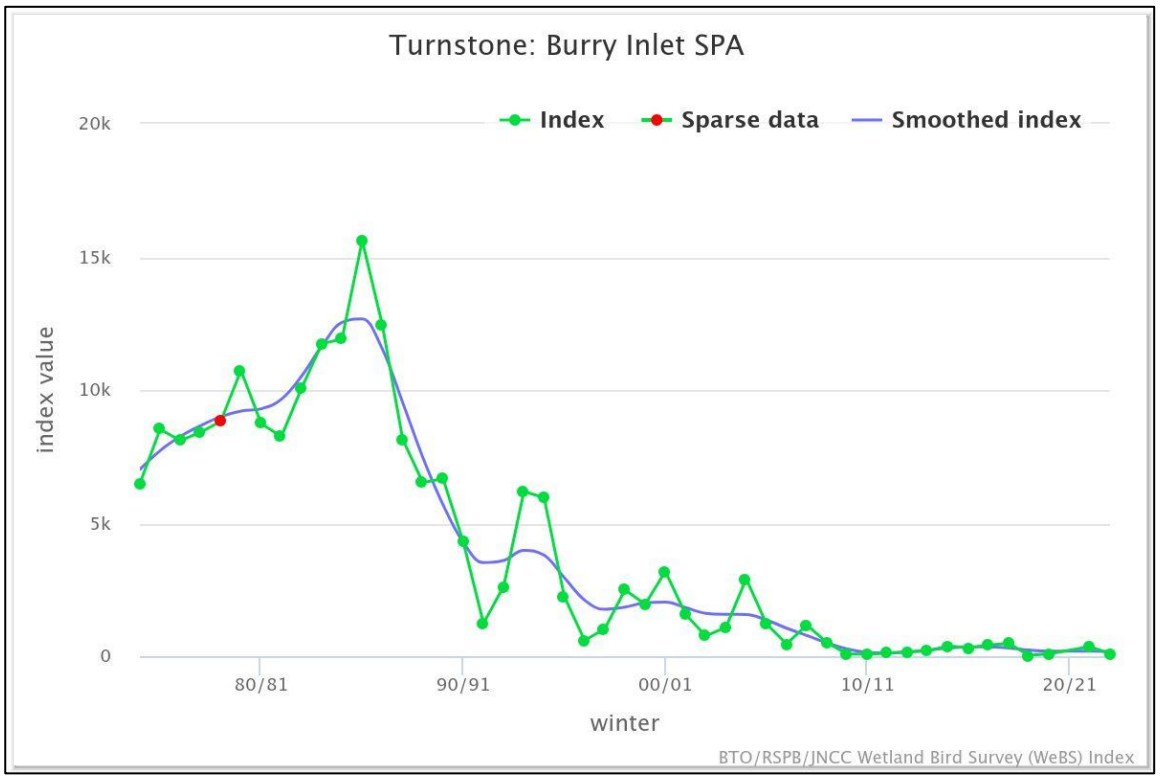
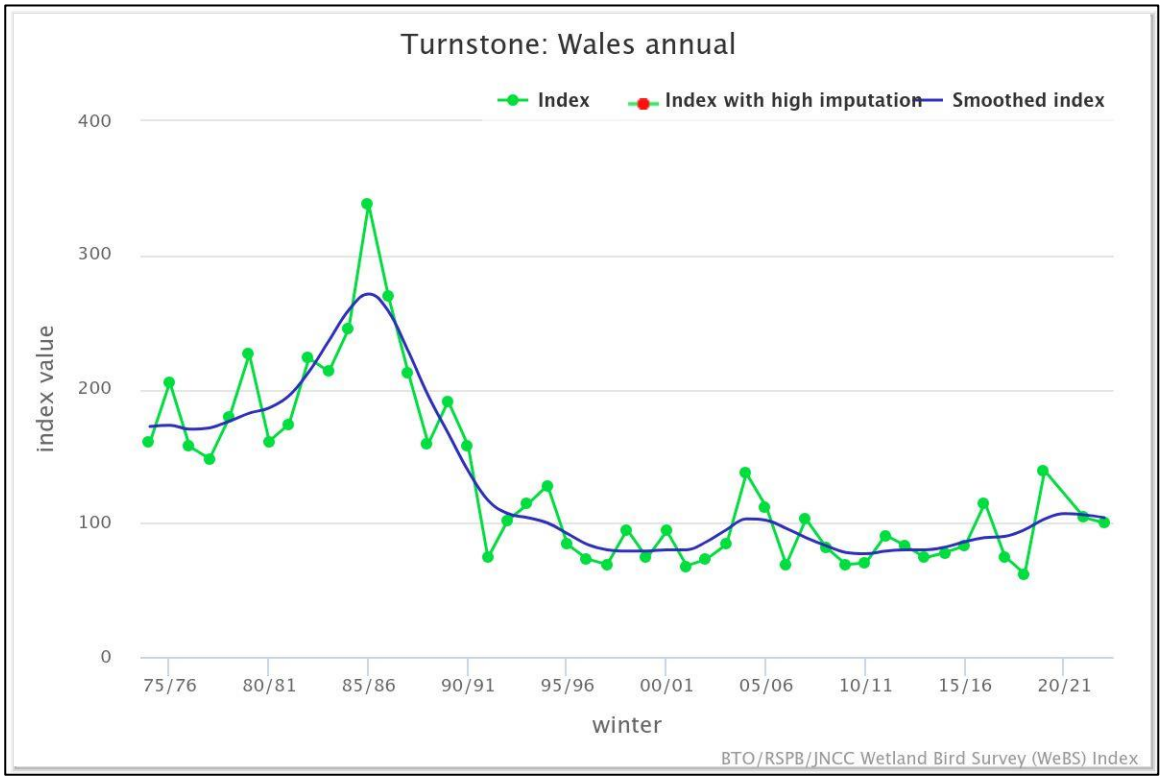


Figure 23. Wales annual index for turnstone from 1974/75 to 2022/23.



Wintering population disturbance (by human activity)

Disturbance occurs when an activity is sufficient to disrupt normal behaviours, for example, changes to feeding or roosting behaviour, increased energy expenditure due to time spent moving to avoid stressors, desertion of supporting habitats (both within and outside the protected area where appropriate). If the activity occurs at a level that substantially impacts behaviour for long enough it can lead to changes in distribution, displacement through reduction of habitat available and consequently could affect the long-term viability of the population.

Disturbance associated with human activity may take a variety of forms including, light, sound, vibration, presence of people, animals and structures. Turnstone are thought to be an extremely tolerant species that habituates rapidly. There is no published evidence with regard to their reaction to noise or works, but direct observation of disturbance effects from works found turnstone responses to be consistent with the expected high tolerance (Cutts et al., 2013).

There are currently no known anthropogenic activities that would have caused significant disturbance to turnstone on this site, therefore the indicator met its target. The confidence was reduced to medium as the indicator has been assessed using expert judgement.

Supporting habitat

The extent, distribution and availability of suitable habitat (either within or outside the site boundary) which supports the feature for all necessary stages of the non-breeding/wintering period (moulting, roosting, loafing, feeding) should be maintained.

Turnstone are found in a variety of coastal habitats in winter. Often there is a need to maintain an unobstructed line of sight (sightlines) within feeding or roosting habitat. High tide roosting sites are characterised by having good sightlines (i.e. open spaces where the birds can see any potential predators). Any significant changes to sightlines e.g. installation of tall structures or planting of trees, could impact on use of the roosts. If line of sight becomes obstructed birds may abandon their roosts which could consequently have a negative impact on the population.

The supporting habitat indicator met its target as there are currently no known issues with the supporting habitat or sightlines on this site. The site level population trend mirrors the Welsh trend. However, given that the wintering population target has not been met, a low confidence was attributed to the pass. There are no targeted surveys for supporting habitat or sightlines.

Food availability

The availability of an abundant food supply is critically important for successful fitness, survival and the overall sustainability of the population. As a result, inappropriate management and direct or indirect impacts which may affect the distribution, abundance

and availability of food may adversely affect the population and alter the distribution of birds.

Turnstones forage on the tideline, flipping over small stones in the search for small crustaceans and insects. But turnstone are famously indiscriminate in their diet (BTO Bird Facts) and will also frequently scavenge and eat carrion and birds' eggs.

There are currently no specific issues known with the food availability, and the site was able to maintain passing numbers of this feature in the past. Also the site trend follows that for Wales, suggesting that the decline may be wider than any site specific problem. There are no known anthropogenic issues on the site that would have changed the food availability for this species on this site. However, as the current bird numbers are below the population target, confidence in the pass was reduced to low.

Reasons for target failure

The assessment of the turnstone feature in the Burry Inlet SPA failed one primary target. This resulted in the feature to be assessed as being in **unfavourable** condition. The failing indicators and reasons for failure, if known, are stated below.

Wintering population

The wintering population of turnstone failed on this site due to low over wintering numbers, with the five-year peak mean failing to meet the target. It is not known what is currently causing the turnstone numbers to fail but the numbers have been low over the last 20 years both a the site level and the Welsh level.

Threats to condition

Part of the condition assessment is to identify threats to the condition of the turnstone feature at the Burry Inlet SPA. A threat is defined as an activity that is currently not impacting condition but has the potential to do so over the next reporting cycle, if activity levels increase or are unmanaged. It is important to identify these threats to be able to put pre-emptive management in place to prevent further declines in condition. The threats to the Burry Inlet SPA for the turnstone feature are stated below.

Disturbance

Although current disturbance levels are not thought to be affecting the condition of the feature, and turnstone are thought to be tolerant of human disturbance, any new developments or increases in human derived disturbance should still be considered for this feature.

Climate change

It is not yet clear what pressures will be seen from climate change at the site level or how different pressures will counter act each other. However, threats from climate change that could impact the species may include:

- Rising sea levels (affecting high tide roosts)
- Increased storminess
- Increasing sea surface temperature.
- Changes to prey availability and abundance.

3.12. Condition assessment for wigeon *Mareca penelope*

Wigeon in the Burry Inlet SPA has been assessed in Table 24. The table has a summary of the assessment outcome against each performance indicator. This outcome and any reasons for failure are discussed in more detail in the sections below.

Table 24. Condition assessment of wigeon in the Burry Inlet SPA Each indicator target has a primary (P), secondary (S) or tertiary (T) weighting (see section 1.1).

Indicator	Target	Assessment rationale	Target assessment	Target confidence
Wintering population	Maintain the wintering population of wigeon at a minimum of 1,837 individuals across the site. (P)	• The latest five-year peak mean for wigeon is 908 (counts from wintering seasons in the years 2018/19 to 2022/23). • The peak mean is based on only two years as the other three counts were partial. • The confidence has been reduced to medium as the count is based on only two years.	**Fail**	Medium
Wintering population distribution	The distribution of the wintering wigeon population should not be significantly impacted by anthropogenic activity. (P)	• There are currently no known anthropogenic activities that have impeded the use of the whole site by wigeon or restricted their movements. • This is based on expert judgement which has reduced the confidence level to medium.	**Pass**	Medium
Wintering population disturbance (by human activity)	Aggregations of roosting or feeding wigeon are not subject to significant disturbance. (P)	• There are currently no known anthropogenic activities that would have caused significant disturbance to wigeon on this site. • The confidence has been reduced to medium as there is no direct monitoring for disturbance on this site.	**Pass**	Medium

Indicator	Target	Assessment rationale	Target assessment	Target confidence
Supporting habitat	Maintain sufficient extent, distribution, function and quality of habitat to support a wigeon population of 1,837 individuals. (S) Maintain existing unrestricted bird sightlines in every direction around both roosting sites and feeding areas. (S)	• There are currently no known issues with the supporting habitat or bird sightlines on this site. • However, since the wintering population target has not been met, and the site level decline differs from the Welsh trend, this indicator has been assessed as unknown. • There are no targeted surveys for supporting habitat or sightlines.	**Unknown**	N/A
Food availability	Maintain the distribution and abundance of wigeon food supply at levels sufficient to support a population of 1,837 individuals. (S)	• There are currently no known issues with the food availability on this site. • However, since the wintering population target has not been met, and the site level decline differs from the Welsh trend, this indicator has been assessed as unknown. • There is no direct monitoring of food availability.	**Unknown**	N/A

Assessment conclusions

Wigeon in Burry Inlet SPA have been assessed as being in unfavourable condition (medium confidence). One primary indicator, wintering population, failed to meet its target (Table 25). A population of 908 has been recorded against the target of 1,837. The main threats to wigeon at the Burry Inlet come from disturbance and climate change. Further information on the assessment outcome and threats to condition can be seen in the detailed assessment information below.

Table 25. Summary of the condition assessment for wigeon in Burry Inlet SPA. Each indicator target has a primary (P), secondary (S) or tertiary (T) weighting.

SPA Feature	Overall Condition Assessment	Indicator failures	Reason for indicator failure	Threats to condition
Wigeon *Mareca penelope*	**Unfavourable (medium confidence)**	Wintering population (P)	Unknown	• Disturbance • Climate change

Detailed assessment information

Wintering population and distribution

Wigeon are a dabbling duck, with only a small population breeding in the UK. However, in autumn the UK receive vast numbers of wigeon from the breeding grounds located further north and this wintering population has increased significantly since 1983/84.

Figures for wading birds in Wales are derived from the WeBS online report (WeBS online portal), which includes figures for all bird species. These figures are reported as peak means per year. The latest five-year peak mean for wigeon at the Burry Inlet SPA is 908, which is well below the population target of 1,837. Within the current five-year peak mean, the count was based on only two years of counts as there were three partial counts that were not used. The last year in which the target was reached was 2016/17. The last time the five-year peak mean exceeded the target of 1,837 was in the period 2005/06 to 2009/10. As the current numbers are well below the target, the wintering population indicator failed to meet its target. The confidence has been reduced to medium as the count is based on only two years as there have been partial counts within the last five years.

The site level index for wigeon (Figure 24) shows a marked increase in the mid-1980s from low numbers in the mid-1970s. This large increase however was followed by a sharp decrease to numbers similar to those in the 1970s and a continued decrease up to 2023. The Welsh data have a different trend, showing an increase over time but with fluctuations (Figure 25). One potential reason for the site level decline could be movement of the birds to another area. The Cleddau estuary has seen an increase in wigeon which mirrors the decrease in the Burry Inlet which could mean that the over wintering population has moved to that area. This requires investigation.

It is not felt that wildfowling on the site is having a significant impact on the feature as this has been occurring at a similar or reduced level since before the site was designated. There is a bag limit on the amount taken of wigeon on the site, this is part of the wildfowling management plan for the site.

Wigeon are dabbling ducks that surface feed in shallow waters. The ability of wigeon to move freely between feeding and roosting sites is critical to their fitness and survival. As roosting and feeding can be outside of the SPA boundary movement of the birds inside and outside of the SPA must also not be significantly impacted or restricted. There are currently no known anthropogenic activities that have impeded the use of the whole site by wigeon or restricted their movements. Therefore the wintering population distribution indicator passed. Confidence was reduced to medium as the assessment was based on expert judgement not direct monitoring of bird movements.

Figure 24. Site level annual index for wigeon from 1974/75 to 2022/23.

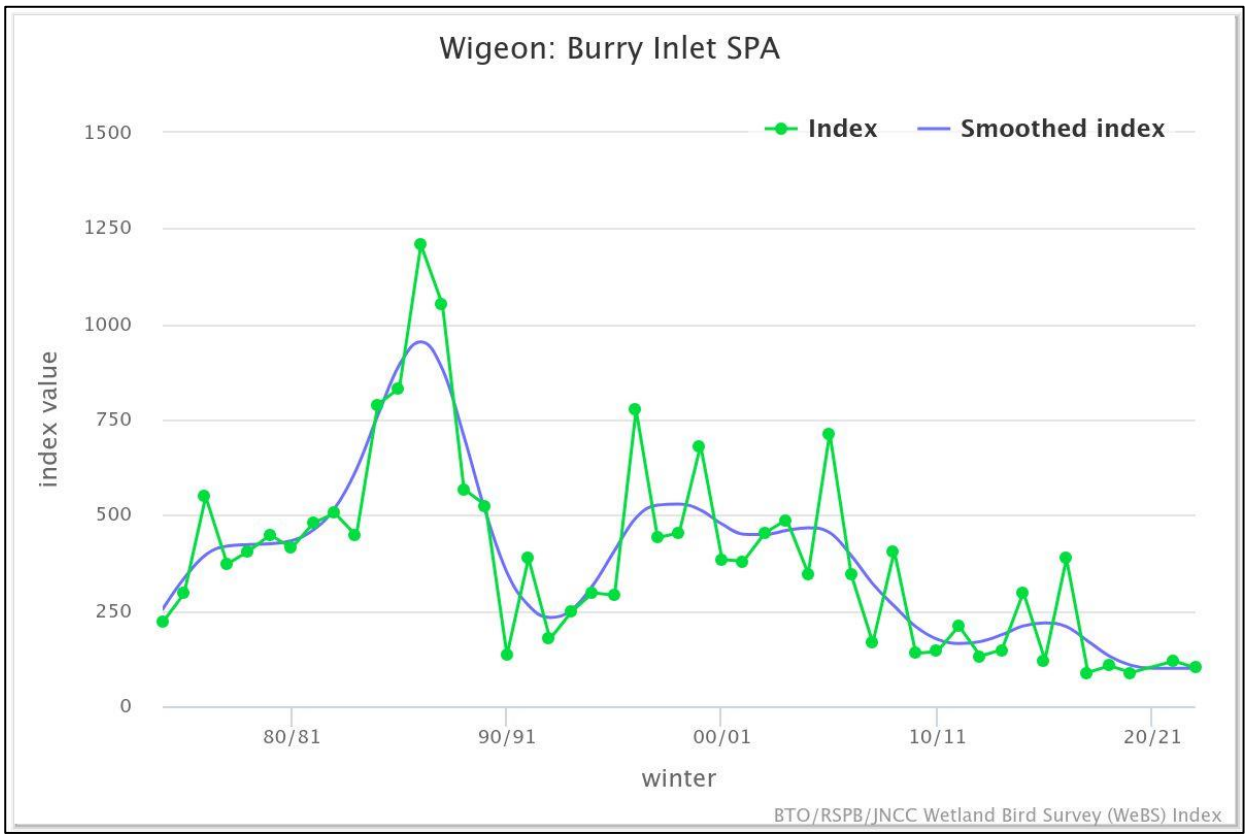
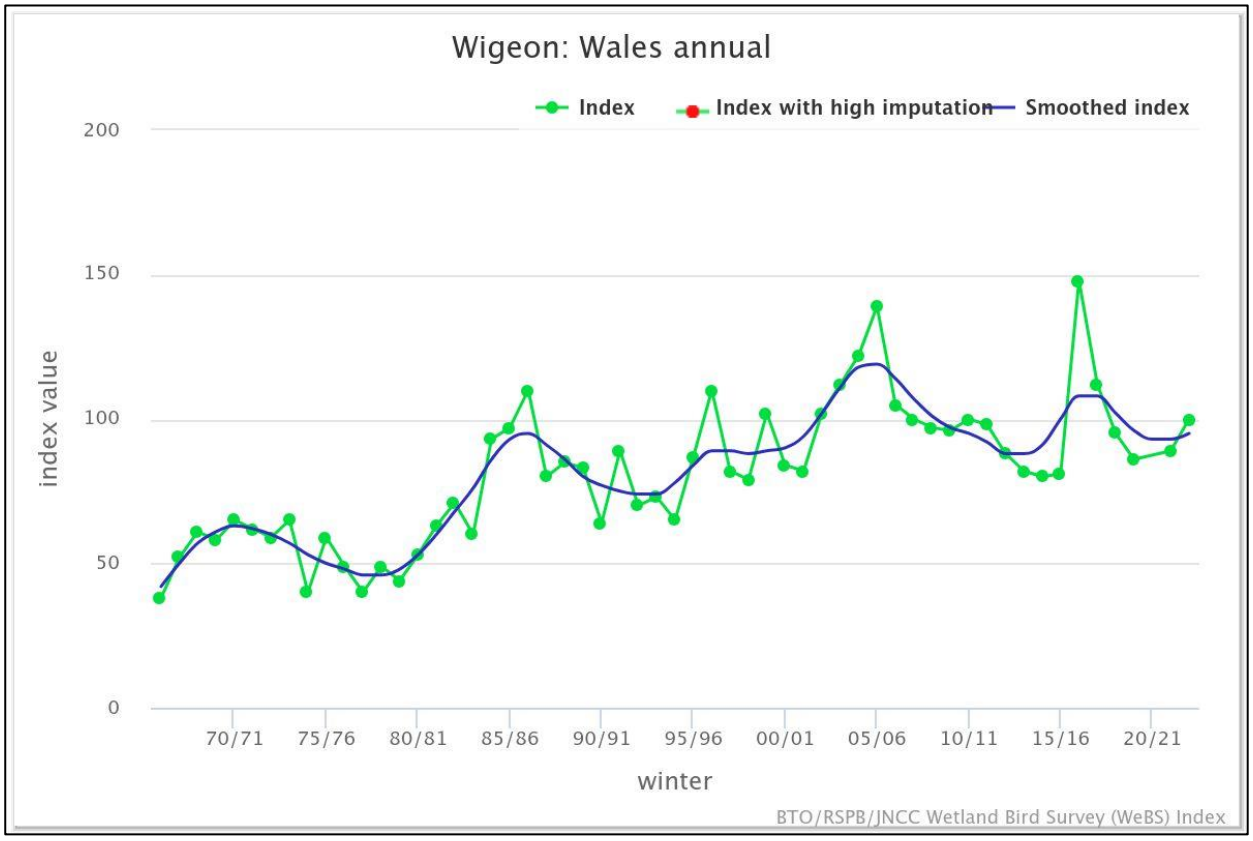


Figure 25. Wales annual index for wigeon from 1966/67 to 2022/23.



Wintering population disturbance (by human activity)

Disturbance occurs when an activity is sufficient to disrupt normal behaviours, for example, changes to feeding or roosting behaviour, increased energy expenditure due to time spent moving to avoid stressors, desertion of supporting habitats (both within and outside the protected area where appropriate). If the activity occurs at a level that substantially impacts behaviour for long enough it can lead to changes in distribution, displacement through reduction of habitat available and consequently could affect the long-term viability of the population.

Disturbance associated with human activity may take a variety of forms including, light, sound, vibration, presence of people, animals and structures. It is thought that wigeon are likely to be highly sensitive to disturbance (Goodship and Furness, 2022). A study found a single disturbance event could result in wigeon not feeding again until the next tidal cycle. Another study in Scotland attributed human disturbance as playing a part in the large-scale decline in wigeon at the site (Goodship and Furness, 2022).

There are currently no known anthropogenic activities that would have caused significant disturbance to wigeon on this site, therefore the indicator met its target. The confidence was reduced to medium as the indicator has been assessed using expert judgement.

Supporting habitat

The extent, distribution and availability of suitable habitat (either within or outside the site boundary) which supports the feature for all necessary stages of the non-breeding/wintering period (moulting, roosting, loafing, feeding) should be maintained.

Wigeon favour estuaries and saltmarsh habitats in winter. Often there is a need to maintain an unobstructed line of sight (sightlines) within feeding or roosting habitat. High tide roosting sites are characterised by having good sightlines (i.e. open spaces where the birds can see any potential predators). Any significant changes to sightlines e.g. installation of tall structures or planting of trees, could impact on use of the roosts. If line of sight becomes obstructed birds may abandon their roosts which could consequently have a negative impact on the population.

There are currently no known issues with supporting habitat or sightlines at this site. However, due to the fact that the site level decline is not reflected in the Welsh level trend, this indicator has been assessed as unknown. There are no targeted surveys for supporting habitat or sightlines.

Food availability

The availability of an abundant food supply is critically important for successful fitness, survival and the overall sustainability of the population. As a result, inappropriate management and direct or indirect impacts which may affect the distribution, abundance and availability of food may adversely affect the population and alter the distribution of birds.

Wigeon are vegetarian feeding on a diet of leaves, stems and roots (Snow and Perrins, 1998), predominately feeding at the water’s edge and on the saltmarsh. Though they do dabble and feed on aquatic plants in shallow water.

There are currently no specific issues known with the food availability and the site was able to maintain passing numbers of this feature in the past. However, due to the fact that the site level decline is not reflected in the Welsh level trend, this indicator has been assessed as unknown. There is no direct monitoring of food availability.

Reasons for target failure

The assessment of the wigeon feature in the Burry Inlet SPA failed one primary target. This resulted in the feature to be assessed as being in **unfavourable** condition. The failing indicators and reasons for failure, if known, are stated below.

Wintering population

The wintering population of wigeon failed on this site due to low over wintering numbers, with the five-year peak mean failing to meet the target. It is not known what is currently causing the decline in wigeon numbers as the numbers have been so low for such a long time. The decline may be site specific as the Welsh and UK trends do not show the same decreases. Further investigation is needed. One potential reason for the decline could be movement of the birds to another area. The Cleddau estuary has seen an increase in wigeon which mirrors the decrease in the Burry Inlet which could mean that the over wintering population has moved to that area. This would need investigation.

Threats to condition

Part of the condition assessment is to identify threats to the condition of the wigeon feature at the Burry Inlet SPA. A threat is defined as an activity that is currently not impacting condition but has the potential to do so over the next reporting cycle, if activity levels increase or are unmanaged. It is important to identify these threats to be able to put pre-emptive management in place to prevent further declines in condition. The threats to the Burry Inlet SPA for the wigeon feature are stated below.

Disturbance

Although current disturbance levels are not thought to be affecting the condition of the feature, wigeon are thought to be highly sensitive of human disturbance so any new developments or increases in human derived disturbance should still be considered for this feature.

Climate change

It is not yet clear what pressures will be seen from climate change at the site level or how different pressures will counteract each other. However, threats from climate change that could impact the species may include:

- Rising sea levels (affecting high tide roosts)
- Increased storminess
- Increasing sea surface temperature.
- Changes to prey availability and abundance.

3.13. Condition assessment for the waterbird assemblage

The waterbird assemblage in the Burry Inlet SPA has been assessed in Table 26. The table has a summary of the assessment outcome against each performance indicator. This outcome and any reasons for failure are discussed in more detail in the sections below.

Table 26. Condition assessment of the waterbird assemblage in the Burry Inlet SPA Each indicator target has a primary (P), secondary (S) or tertiary (T) weighting (see section 1.1).

Indicator	Target	Assessment rationale	Target assessment	Target confidence
Wintering population	Maintain the wintering waterbird assemblage population at a minimum of 34,962 individuals across the site. (P)	• The latest five-year peak mean for the waterbird assemblage is 27,814 individuals (counts from wintering seasons in the years 2018/19 to 2022/23), which is below the target. • The five-year peak mean is derived from the five-year peak means for the other features on the site as well as other birds using the site. • Confidence has been reduced to medium as the count is made up of variable, partial and whole counts across the different features.	**Fail**	Medium
Wintering population distribution	The distribution of the wintering assemblage population should not be significantly impacted by anthropogenic activity. (P)	• There are currently no known anthropogenic activities that have impeded the use of the whole site for the waterbird assemblage or restricted their movements. • This is based on expert judgement which has reduced the confidence level to medium.	**Pass**	Medium
Wintering population disturbance (by human activity)	Aggregations of the waterbird assemblage roosting or feeding are not subject to significant disturbance. (P)	• There are currently no known anthropogenic activities that would have caused significant disturbance to the waterbird assemblage on this site. • The confidence has been reduced to medium as there is no direct monitoring for disturbance on this site.	**Pass**	Medium

Indicator	Target	Assessment rationale	Target assessment	Target confidence
Supporting habitat	Maintain sufficient extent, distribution, function and quality of habitat to support the waterbird assemblage population of 34,942 individuals. (S) Maintain existing unrestricted bird sightlines in every direction around both roosting sites and feeding areas. (S)	• There are currently no known issues with the supporting habitat or bird sightlines on this site. • However, since the wintering population target has not been met, the confidence in the pass is low. • There are no targeted surveys for supporting habitat or sightlines.	**Pass**	Low
Food availability	Maintain the distribution and abundance of the waterbird assemblage food supply at levels sufficient to support a population of 34,942 individuals. (S)	• There are currently no known issues with food availability on this site. • However, since the wintering population target has not been met, the confidence in the pass is low. • There is no direct monitoring of food availability.	**Pass**	Low

Assessment conclusions

The waterbird assemblage in Burry Inlet SPA have been assessed as being in unfavourable condition (medium confidence). One primary indicator, wintering population, failed to meet its target (Table 27). A population of 27,814 has been recorded against the target of 34,962. The main threats to the waterbird assemblage at the Burry Inlet come from disturbance and climate change. Further information on the assessment outcome and threats to condition can be seen in the detailed assessment information below.

Table 27. Summary of the condition assessment for waterbird assemblage in Burry Inlet SPA. Each indicator target has a primary (P), secondary (S) or tertiary (T) weighting.

SPA Feature	Overall Condition Assessment	Indicator failures	Reason for indicator failure	Threats to condition
Waterbird assemblage	**Unfavourable (medium confidence)**	Wintering population (P)	Unknown	• Disturbance • Climate change

Detailed assessment information

Wintering population and distribution

Figures for wading birds in Wales are derived from the WeBS online report (WeBS online portal), which includes figures for all bird species. These figures are reported as peak means per year. The waterbird assemblage on this site is made up of the other birds recorded on the site looking at the site total as recorded by WeBS.

Figures for wading birds in Wales are derived from the WeBS online report (WeBS online portal), which includes figures for all bird species. These figures are reported as peak means per year. The latest five-year peak mean for the waterbird assemblage at the Burry Inlet SPA is 27,814 which is well below the population target of 34,962. No partial counts were recorded on the system, however many of the individual bird numbers that make up the waterbird assemblage have been based on partial counts. The last year in which the target was reached was 2018/19. The last time the five-year peak mean exceeded the target of 34,962 was in the period 2015/16 to 2019/20. As the current numbers are well below the target, the wintering population indicator failed to meet its target. The confidence has been reduced to medium as the population count is made up of variable, partial and whole counts across the different features

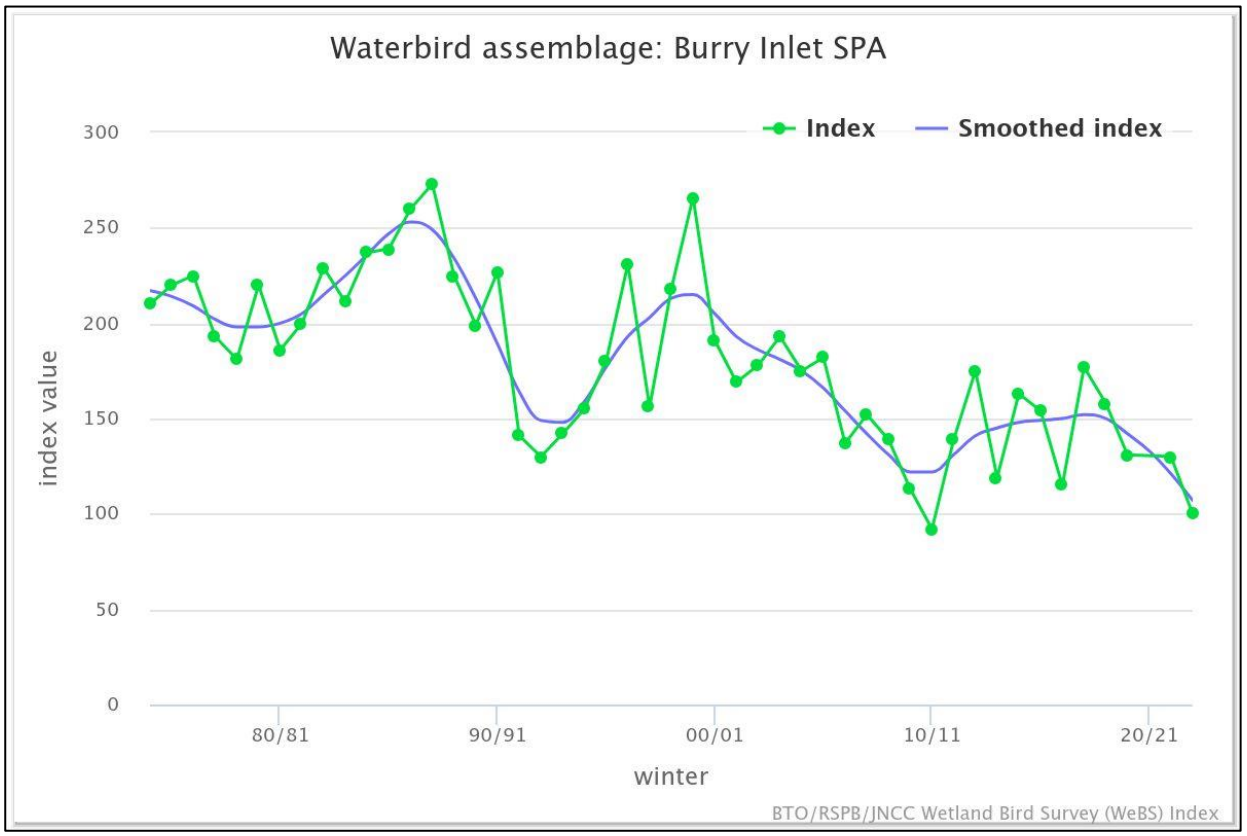
The site level index for the waterbird assemblage (Figure 26) shows a marked increase in the 1970s, a largely stable period, and then a dip around 2010/11, with only a slight increase after this period. There was a marked decrease in numbers in 2019/2020, potentially due to covid, which led to a reduction in surveys. There has been a number of undercounts for many species over the last few years, potentially suggesting that coverage is not as good as previous years. Further investigations are needed to understand this change. It has not been possible to compare the site level information with Welsh and UK level information, as the waterbird assemblages on different sites are made up of different designated and non-designated birds.

Short stopping of waders in Europe and the east of England has potentially reduced the amount of wintering birds at this site. Short stopping occurs due to milder winters in the east of Britain and continental Europe allowing birds to winter closer to their breeding grounds. Data from the 2024 edition of waterbirds in the UK provides evidence that wintering ducks, geese, swans and waders are adapting to climate change by altering their migration.

The birds that make up the waterbird assemblage use all parts of the site, therefore the ability of these birds to move freely between feeding and roosting sites is critical to their fitness and survival. As roosting and feeding can be outside of the SPA boundary, movement of the birds inside and outside of the SPA must also not be significantly impacted or restricted. There are currently no known anthropogenic activities that have impeded the use of the whole site by the waterbird assemblage or restricted their

movements. Therefore the wintering population distribution indicator passed. Confidence was reduced to medium as the assessment was based on expert judgement not direct monitoring of bird movements.

Figure 26. Site level annual index for the waterbird assemblage from 1971/72 to 2022/23.



Wintering population disturbance (by human activity)

Disturbance occurs when an activity is sufficient to disrupt normal behaviours, for example, changes to feeding or roosting behaviour, increased energy expenditure due to time spent moving to avoid stressors, desertion of supporting habitats (both within and outside the protected area where appropriate). If the activity occurs at a level that substantially impacts behaviour for long enough it can lead to changes in distribution, displacement through reduction of habitat available and consequently could affect the long-term viability of the population.

Disturbance associated with human activity may take a variety of forms including, light, sound, vibration, presence of people, animals and structures.

The species that make up the waterbird assemblage have a range of sensitives to disturbance. However, there are currently no known anthropogenic activities that would have caused significant disturbance to this feature on this site. The confidence was reduced to medium as the indicator has been assessed using expert judgement.

Supporting habitat

The extent, distribution and availability of suitable habitat (either within or outside the site boundary) which supports the feature for all necessary stages of the non-breeding/wintering period (moulting, roosting, loafing, feeding) should be maintained.

The species that make up the waterbird assemblage use all areas of the site. Many of the birds that make up the assemblage will have a need to maintain an unobstructed line of sight (sightlines) within feeding or roosting habitats. High tide roosting sites are characterised by having good sightlines (i.e. open spaces where the birds can see any potential predators). Any significant changes to sightlines e.g. installation of tall structures or planting of trees, could impact on use of the roosts. If line of sight becomes obstructed birds may abandon their roosts which could consequently have a negative impact on the population.

The supporting habitat indicator met its target as there are currently no known issues with the supporting habitat or sightlines on this site. However, given that the wintering population target has not been met, a low confidence was attributed to the pass. There are no targeted surveys for supporting habitat or sightlines.

Food availability

The availability of an abundant food supply is critically important for successful fitness, survival and the overall sustainability of the assemblage. As a result, inappropriate management and direct or indirect impacts which may affect the distribution, abundance and availability of food may adversely affect the population and alter the distribution of birds.

The species that make up the waterbird assemblage have a range of different food requirements. There are currently no specific issues known with the food availability, and the site was able to maintain higher numbers of this feature in the recent past. There are no known anthropogenic issues on the site that would have changed the food availability for the waterbird assemblage on this site. However, as the current bird numbers are below the population target, the confidence in the pass was reduced to low.

Reasons for target failure

The assessment of the waterbird assemblage feature in the Burry Inlet SPA failed one primary target. This resulted in the feature to be assessed as being in **unfavourable** condition. The failing indicators and reasons for failure, if known, are stated below.

Wintering population

The wintering waterbird assemblage population failed on this site due to low over wintering numbers, with the five-year peak mean failing to meet the target. It is not known why the bird numbers have reduced, but there may be factors related to the different bird species

that make up the assemblage. Short stopping of waders in Europe and the east of England has potentially reduced the amount of wintering birds at this site. This change has occurred due to milder winters in the east of Britain and continental Europe allowing birds to winter closer to their breeding grounds. Data from the 2024 edition of waterbirds in the UK provides evidence that wintering ducks, geese, swans and waders, including dunlin, are adapting to climate change by altering their migration.

There has also been a number of undercounts over the last few years which might well give a smaller number of birds. However, further investigations are needed to understand this change

Threats to condition

Part of the condition assessment is to identify threats to the condition of the waterbird assemblage at the Burry Inlet SPA. A threat is defined as an activity that is currently not impacting condition but has the potential to do so over the next reporting cycle, if activity levels increase or are unmanaged. It is important to identify these threats to be able to put pre-emptive management in place to prevent further declines in condition. The threats to the Burry Inlet SPA for the waterbird assemblage are stated below.

Disturbance

Although current disturbance levels are not thought to be affecting the condition of the waterbird assemblage currently, some of the species that make up the assemblage are thought to be highly sensitive of human disturbance so any new developments or increases in human derived disturbance should still be considered for this feature.

Climate change

It is not yet clear what pressures will be seen from climate change at the site level or how different pressures will counteract each other. However, threats from climate change that could impact the species may include:

- Rising sea levels (affecting high tide roosts)
- Increased storminess
- Increasing sea surface temperature.
- Changes to prey availability and abundance.

4. Evidence gaps

Evidence gaps that are needed to complete a high confidence condition assessment for this site are highlighted here. Although some of the performance indicators were assessed using proxy data and expert judgement reducing confidence in the individual target assessments, there were no major evidence gaps linked to the assessment process identified. However, additional information on supporting habitat and food availability would increase the confidence in the assessment.

Even though it is not critical for the condition assessment, as it is based on what is happening at this SPA more information on issues occurring offsite e.g. at breeding sites or movements within the network due to short-stopping that may be having an influence on over wintering numbers would be useful.

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