



**Summary of the RSPB's position and key concerns regarding
the Boston Alternative Energy Facility DCO Application**

for the

Royal Society for the Protection of Birds

Submitted for Deadline 5

25 January 2022

Planning Act 2008 (as amended)

In the matter of:

**Application by Alternative Use Boston Projects Limited for an
Order Granting Development Consent for the
Boston Alternative Energy Facility**

Planning Inspectorate Ref: EN010095

Registration Identification Ref: 20028367

1. Introduction

- 1.1 Below we summarise our position with respect to key sections of the navigation channel from the Application site to the Port of Boston.
- 1.2 We also summarise the species of concern for each section of The Haven, with our detailed assessment for features of The Wash SPA/ Ramsar that have either been observed in the Applicant's surveys or are known to occur in significant numbers in areas not currently surveyed by the Applicant set out in Table A2 of Appendix 1 below. Our position is based on the frequency of observations of the species, the relative proportion of The Wash SPA/Ramsar population, the species conservation status on The Wash, and their known sensitivities to disturbance.
- 1.3 When considering the impact of disturbance on waterbirds using The Haven and its approaches, it must be recognised that The Haven river channel is narrow compared to other estuarine sites for which much disturbance research has been conducted. This will bring birds closer to disturbance sources with the result that visual and noise impacts could have a greater effect. This also adds to the importance of understanding waterbird behaviours during the day and night. It is therefore essential to have robust, site-specific evidence to base conclusions about bird disturbance.
- 1.4 It should also be noted that disturbance assessments are typically based on visual effects, but understanding impacts is more complex. Fliessbach *et al.* (2019)¹ provides a helpful summary, especially given species such as common scoter and eider are mentioned in the paper that are features of The Wash SPA/Ramsar that have not been fully assessed by the Applicant:

"...a species' vulnerability to disturbance cannot be assessed based on escape distance alone, given that the decision of when to take flight represents a trade-off between safety and fitness-enhancing activities [REDACTED]. A bird in good body condition and with sufficient feeding alternatives might flush earlier than a bird short of resources, as demonstrated in an experimental study with waders [REDACTED]. Visible disturbance responses alone are thus generally not considered to be a good indicator of vulnerability [REDACTED]. Vulnerability analysis should therefore consider the total costs of disturbance events including the ability to compensate for losses at the individual and population levels."

- 1.5 Fliessbach *et al.* (2019; p.11) also provides a helpful summary of why simple observations of birds flying away from a disturbance source need to be considered against additional factors:

"Escape costs do not comprise only direct energetic costs and reduced energy uptake through lost time for feeding [REDACTED]; flushed birds might also be displaced from the best feeding resources [REDACTED]. Altered distribution patterns within shipping lanes [REDACTED] and in relation to vessel traffic to and from offshore wind farms [REDACTED] have already been demonstrated in loons. We observed many common scoter flocks flying so far away after flushing that they could not be seen resettling before moving out of sight. [REDACTED] found that most common scoters did not return within 3 h after disturbance by a vessel, while common

¹ Fliessbach, K. L., Borkenhagen, K., Guse, N., Markones, N., Schwemmer, P., & Garthe, S. (2019). A ship traffic disturbance vulnerability index for Northwest European seabirds as a tool for marine spatial planning. *Frontiers in Marine Science* 6: 192. Available at [REDACTED]

eiders and long-tailed ducks returned to pre-disturbance numbers within one to 3 h after disturbance. This suggests that very shy species may abandon an area completely, while others may suffer temporary habitat loss.

If birds cannot compensate for energetic losses, disturbance will affect body condition, reproduction, and survival (). Ducks and geese have been observed feeding at night to compensate for being disturbed during the day () and shorebirds were shown to increase feeding rates to compensate for lost feeding time (). However, feeding rates and times cannot be extended limitlessly. The time needed to meet energetic requirements determines by how much feeding rates can be increased.

Seabirds might be able to habituate and even adapt to disturbance by ship traffic, if they were able to identify vessels as non-threatening objects. Habituation of birds to particular types of disturbance and within certain areas has been documented before (). For example, among waterbirds, snow geese became accustomed to gunfire () and common eiders and long-tailed ducks showed reduced flush distances within shipping lanes (). However, ships differ greatly in size, shape, speed, and engine noise, making recognizing them as non-threatening objects difficult. Furthermore, waterbirds are hunted using motorboats in some parts of Europe (). In an environment where predation risk exists, either from natural predators or human activity, birds are thus likely to regard big moving objects as potential threats, and the potential for habituation among sensitive species seems very limited under the current conditions. Notably, even after decades of intense ship traffic in European waters, most species still reacted strongly to our experimental disturbance.”

1.6 The Fleissbach *et al.* paper neatly summarises the concerns we have expressed with the Applicant’s approach to assessing impacts on waterbirds.

1.7 We summarise our concerns for specific sections of the navigation channel along The Haven and out to the Port of Boston anchorage area below. We highlight the key species that we have concerns about within each section. Our detailed assessment of each species and our concern level is set out in Table A2 of Appendix 1.

1.8 Our assessment is based on the currently available information. Our position may change in light of additional information.

2. Summary of the RSPB’s concerns between the Application site and Port of Boston anchorage area

a) *The RSPB’s concern at the Application site*

2.1 The Applicant’s evidence demonstrates that waterbirds that are features of The Wash SPA/Ramsar are regularly using the Application site and adjacent area. The latest surveys provided by the Applicant (REP3-019) add further evidence of the importance of the area around the Application site for waterbirds.

2.2 The construction of the wharf will displace a significant redshank roost and result in the loss of foraging for a number of wader species, including significant numbers of redshanks and ruffs. Whilst these two species are our highest concern in this area, based on the evidence to

date, assessments will still need to consider the following species given the concerns we have summarised below in Table A2 in Appendix 1: shelduck, oystercatcher, turnstone, lapwing, black-tailed godwit, curlew and the waterbird assemblage.

- 2.3 Consequently, the Applicant must ensure that adequate measures are proposed to either mitigate impacts on waterbirds or provide appropriate compensation measures. These are necessary to ensure that adverse effects on integrity of The Wash SPA/Ramsar can be avoided beyond reasonable scientific doubt. This is in line with Natural England's latest advice "*...that if impacts to functionally linked land can be remedied within the existing functionally linked land then the Applicant will have mitigated risks to Annex I SPA features. However, if the mitigation doesn't satisfactorily minimise the impacts to SPA features then we advise this becomes an additional compensation issue*" (AS-002). Critically, however, any measures must "avoid" impacts not simply "minimise" them. This is necessary to ensure that there is no reasonable scientific doubt as to the absence of adverse effects on site integrity.
- 2.4 Whilst the creation of an alternative redshank roost has the potential to mitigate some of the impacts predicted at the Application site, we remain unconvinced that sufficient evidence has been provided, at this time, to demonstrate the alternative roost would be effective. The alternative roost would also not address the loss of foraging habitat for waterbirds. We, therefore, consider the lost roost and foraging habitat must be included in the compensation package set out in the Applicant's derogation case.
- b) *The RSPB's concern between the Application site and the mouth of The Haven*
- 2.5 In our comments on the Applicant's Ornithology Addendum (REP4-026), we highlighted a significant gap in data on waterbird usage and the effect of disturbance between the Application site and the mouth of The Haven. This remains a significant issue to understand the scale of impact from increased vessel movements. Key species that we consider adverse effects cannot be discounted in this area due to the lack of data are dark-bellied brent geese, shelducks, wigeons, oystercatchers, avocets, ringed plovers, grey plovers, golden plovers, lapwings, turnstones, redshanks, black-tailed godwits, bar-tailed godwits, curlews, ruffs and the waterbird assemblage. Our concerns for these species are based on the observations of these species both at the Application site and the mouth of The Haven. Our level of concern for each species is summarised in Table A2.
- 2.6 As impacts are due to vessel movements and cannot be mitigated, an appropriate scale and type of compensation is likely to be required to ensure that adverse effects on integrity of The Wash SPA/Ramsar would be avoided.
- 2.7 At this time, the lack of data means it is not possible to determine the numbers of species affected or the scale of compensation measures required to address impacts from the application between the Application site and the mouth of The Haven.
- 2.8 A minimum of 12 months survey work would be required to develop the evidence-base for this section of The Haven. The data would then need to be reviewed, with the expectation that at least an additional 12-months survey work would be required to inform annual variation in waterbird use.

c) *The RSPB's concerns at the mouth of The Haven*

- 2.9 The Applicant's surveys have demonstrated that there is existing disturbance to waterbirds using the mouth of The Haven. Any additional disturbance would add to the existing pressures on waterbirds that roost, forage, bathe and loaf within this area. The species of highest concern for us at the mouth of The Haven are dark-bellied brent geese, shelducks, oystercatchers, golden plovers, lapwings, turnstones, redshanks, black-tailed godwits, and the waterbird assemblage. However, we know the following species are also present and will need to be considered in assessments: avocets, ringed plovers, curlews, ruffs. We consider that there is a lack of data to determine the effect of increased vessel movements on pintails, wigeons and eiders which are known to occur at the mouth of The Haven, as highlighted in the Applicant's surveys, Table A2 in Appendix 1 below, and from RSPB site staff observations.
- 2.10 The disturbance and displacement of birds using this area involves a significant proportion of features of The Wash SPA/Ramsar. Many of these species are highly sensitive to disturbance. Some of these species have also experienced significant population declines on The Wash which have been linked to site-specific pressures.
- 2.11 Given the inability to mitigate impacts from additional vessel movements, as the primary cause of disturbance is the presence of the vessels, additional compensation measures will be required. These will need to demonstrate that any alternative roosting, foraging, bathing and loafing areas created will accommodate features of The Wash SPA/Ramsar. This is necessary to demonstrate that adverse effects on integrity of The Wash SPA/Ramsar will be avoided beyond reasonable scientific doubt.

d) *The RSPB's concerns between the mouth of The Haven and the Port of Boston Anchorage area*

- 2.12 In our comments on the Applicant's Ornithology Addendum (REP4-026), we highlighted a significant gap in data on waterbird usage and the effect of disturbance between the mouth of The Haven and the Port of Boston anchorage area. This remains a significant issue to understand the scale of impact from increased vessel movements.
- 2.13 There has been no attempt to collate evidence from published sources. This is important as the area around the navigation channel is known to support significant numbers of waders and wildfowl. This is highlighted in Natural England's report on the England Coast Path between Sutton Bridge and Gibraltar Point.² Whilst the main source of information on species using Black Buoy Sand, Roger Sand, Toft Sand, Long Sand (see Figure 1 in Appendix 1 below for the location of these sites) and other areas is from 2009, this highlights that such information exists and that there is a need to develop an up-to-date understanding of waterbird use in this area of The Wash.
- 2.14 Based on the scientific literature, we know that vessels cause disturbance to waterbirds and the Applicant's surveys have confirmed that this occurs as vessels leave and enter The Haven. We have significant concerns that the waterbird assemblage could be adversely affected by this activity, however the impact on specific species is unknown. Based on collated reports and observations of the RSPB's site staff for this area of The Wash, the following species are our highest concern from increased vessel movements as they will utilise deeper water and

² Natural England (2018) Appraisal of possible environmental impacts of proposals for England Coast Path. The Wash: Sutton Bridge to Gibraltar Point. Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/675965/sensitive-features-report.pdf

be near the navigation channel: red-throated divers, dark-bellied brent geese, shelducks, pintails, wigeons, eiders, common scoter, and goldeneyes. Whilst these species are of highest concern in this area, there are a number of other species that will need to be considered in the assessments for this area for which no data have been presented: pintails, wigeons, oystercatchers, avocets, ringed plovers, grey plovers, golden plovers, lapwings, knots, turnstones, dunlins, redshanks, black-tailed godwits, bar-tailed godwits, curlews, ruffs. Whilst many of these additional species are likely to utilise exposed mudflats away from the main navigation channel, no evidence has been presented on their distribution and behaviour to passing vessels either during the day or night. Table A2 in Appendix 1 sets out our position on these species.

- 2.15 Whilst we acknowledge that surveys out into this part of The Wash can be challenging, there has been no attempt to put observers on vessels using the navigation channel from the Port of Boston to the anchorage area to gather any data on bird numbers and their reaction to vessels.
- 2.16 At this time, the lack of data means it is not possible to determine the numbers of species affected or the scale of compensation measures required to address impacts from the application between the Application site and the mouth of The Haven.
- 2.17 As impacts are due to vessel movements and cannot be mitigated, an appropriate scale and type of compensation is required to ensure that adverse effects on integrity of The Wash SPA/Ramsar would be avoided.
- 2.18 A minimum of 12 months survey work would be required to develop the evidence-base for this section of the navigation channel. The data would then need to be reviewed, with the expectation that at least an additional 12-months survey work would be required to inform annual variation in waterbird use.

3. The RSPB's concerns with the Development Consent Order³

- 3.1 We note the definition within Schedule 2, paragraph 1 of the "habitat mitigation area" as follows "the area shown on Figure 17.9 of the environmental statement" and the reference to this habitat mitigation area within the decommission requirements (Sch 2, requirement 23) but question why Schedule 2, requirement 6 makes no reference to it.
- 3.2 We refer you to our concerns with the current mitigation proposals (see paras 7.27 to 7.30 in our Written Representations (REP1-060), and para 2.1 to 2.13 above) and crucially what is not included or, in our view possible to mitigate. Although some of the details are set out within the Landscape and Ecological Mitigation Strategy requirements (Schedule 2, requirement 6), including our ability to be consulted on the Strategy before it is finalised, what is not before the Examination is the requisite details required for the Examining Authority to be certain ecologically, legally and financially as to the viability of mitigation and compensation.

³ [https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010095/EN010095-000910-Alternative%20Use%20Boston%20Projects%20Limited%20-%20Revised%20draft%20Development%20Consent%20Order%20\(DCO\)%201.pdf](https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010095/EN010095-000910-Alternative%20Use%20Boston%20Projects%20Limited%20-%20Revised%20draft%20Development%20Consent%20Order%20(DCO)%201.pdf)

3.3 We welcome the Examining Authority's commentary on the DCO⁴ (11th January 2022) and will review the Applicant's responses, especially (Qu 3) on how any compensation measures proposed will be secured in the DCO if the Secretary of State determines that there is an adverse effect on integrity.

3.4 We are very concerned that details are being left for later determination once the Examination process is concluded. It is important that sufficient information and certainty is provided now so that the Examining Authority can take into account measures proposed and have certainty that they will mitigate and/or compensation all potential effects on the protected sites and their species.

4. The RSPB's overall conclusion on the Boston Alternative Energy Facility DCO Application

4.1 Overall the RSPB considers that:

- Development at the Application site will result in the displacement of roosting redshank, with some disturbance and displacement of redshank, ruff and other waterbirds that are features of The Wash Special Protection Area (SPA) and Ramsar site recorded feeding adjacent to the Application site.
- Increased vessel disturbance at the mouth of The Haven will impact a range of waterbirds. Existing levels of disturbance could be significant and increased disturbance will only exacerbate situation.
- Significant gaps in survey coverage mean there is significant uncertainty about bird usage for substantial sections of The Haven river and the navigation channel out to the anchorage area in The Wash.
- It is not possible to conclude that there will not be an adverse effect on integrity of The Wash SPA/Ramsar beyond reasonable scientific doubt.
- The current derogation case proposals are inadequate to demonstrate that adverse effects on the integrity of The Wash SPA/Ramsar will be addressed.

4.2 Our concerns have not changed and are detailed in our Written Representation (Section 7; REP1-060) and our comments on the Ornithology Addendum (REP4-026).

4.3 The RSPB notes that after Deadline 5 there will be less than three months until the Examination closes. The Examining Authority have made it clear that this is a strict deadline. The RSPB's position is that with very limited time left there are many issues that it will not be possible to resolve.

⁴ <https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010095/EN010095-000974-dCOs%20Commentary%20Boston%20BAEF%2011012022.pdf>

Appendix 1: Detailed assessment of features of The Wash SPA/Ramsar observed in surveys or known to occur close to the navigation channel from the Application site to the Port of Boston anchorage area

Table A1: Definitions of the RSPB's level of concern applied to each of the species recorded in the Applicant's surveys or for species that are known to be present, particularly in areas not surveyed by the Applicant.

RSPB level of concern	Definition
High	These are species recorded in significant numbers in the Applicant's surveys and for which a conclusion of Adverse Effect on Integrity cannot be ruled out and will need to be fully assessed through the Habitats Regulations Assessment.
Moderate	These are species that have typically been recorded but in low numbers. Surveys have established The Haven is used by these species, with several having been observed to have experienced significant disturbance. Many of these species have restoration targets and increased levels of disturbance could undermine the ability to achieve these targets. A conclusion of Adverse Effect on Integrity cannot be ruled out and will need to be fully assessed through the Habitats Regulations Assessment.
Low	These are species that are present and, based on the currently available knowledge and understanding, are not of significant concern. However, they will still need to be considered as part of the Waterbird Assemblage feature.
Data deficient	These are features of The Wash SPA/Ramsar for which it is not possible to rule out a conclusion of no adverse effect on integrity given these species are known to occur in the area of the navigation channel, especially around the anchorage area, but no data is available to determine abundance, distribution and their behaviour to vessel movements in this area of The Wash.

Table A2: Species recorded during surveys for the Boston Alternative Energy Facility DCO Application. The species status within The Wash protected areas is outlined along with the relative numbers that have been recorded and the frequency of disturbance. This is used to assess the species that the RSPB has serious concerns about and will be a key focus of our submissions to the BAEF examination going forward. The sensitivity to disturbance classification considers vessel movements for cormorant, sea ducks (eider, common scoter, goldeneye), common tern, and gulls (black-headed, herring, lesser black-backed and great black-backed). Classification for waders and wildfowl based on the waterbird disturbance toolkit does not consider tolerance to vessel movements, especially in narrow channel situations such as The Haven.

Species (all species non-breeding features unless breeding stated in brackets)	Conservation status ⁵ F = feature A = Assemblage R = Ramsar feature ⁶	>1% 5-yr mean WeBS population	Number of occasions observed disturbed	Peak count	Sensitivity to disturbance ^{7,8,9}	Level of concern and reasoning:
Dark-bellied brent goose	F, A, R	Y	3	1,150	High	Present on a few occasions, but often in high numbers and frequently disturbed. The peak count equates to 6.8% of the target population for The Wash SPA. However, the peak count equates to c.10% of the latest WeBS five-year peak mean count. This species has a Red WeBS alert due to decline in population on The wash of 43% over the past 25 years. See Table 6 (pp.38-39) in our Written Representations for full details of WeBS Alerts. Site-specific pressures have been identified as causing population to decline.

⁵ Information used to determine qualifying features of The Wash SPA has been taken from the following sources:

The Wash SPA citation - [REDACTED].

The Wash Marine Conservation Advice Package - [REDACTED].

The 2001 review of The Wash SPA - <https://data.jncc.gov.uk/data/3634580a-cabc-4218-872f-8660a1760ad8/uk-spa-vol3-web.pdf>.

⁶ Information identifying qualifying features of The Wash Ramsar is taken from The Wash Ramsar citation - [REDACTED].

⁷ Vessel sensitivity information for waders and wildfowl based on Waterbird disturbance mitigation toolkit. Available at [REDACTED].

⁸ Fliessbach, k. L., Borkenhagen, K., Guse, N., Markones, N., Schwemmer, P., & Garthe, S. (2019). A ship traffic disturbance vulnerability index for Northwest European seabirds as a tool for marine spatial planning. *Frontiers in Marine Science* Available at [REDACTED].

⁹ Vessel sensitivity information for cormorant, sea ducks (eider, common scoter, goldeneye), common tern, and gulls (black-headed, herring, lesser black-backed and great black-backed) based on Table 21 (p.49) from MMO (2018). Displacement and habituation of seabirds in response to marine activities. A report produced for the Marine Management Organisation. MMO Project No: 1139:

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/715604/Displacement_and_habituation_of_seabirds_in_response_to_marine_activities.pdf

Species (all species non-breeding features unless breeding stated in brackets)	Conservation status ⁵ F = feature A = Assemblage R = Ramsar feature ⁶	>1% 5-yr mean WeBS population	Number of occasions observed disturbed	Peak count	Sensitivity to disturbance ^{7,8,9}	Level of concern and reasoning:
						Supplementary Conservation advice is to maintain the population above 17,000 individuals however, the latest Webs five-year peak mean is 11,551 individuals. This demonstrates the scale of work needed to restore this feature. A disturbance reduction target has also been set for this species.
Shelduck	F, A, R	Y	6	36	High	<p>Birds present regularly. Exact number of birds impacted not known due to lack of surveys along significant parts of The Haven. Black buoy Sand is identified as an important foraging area.¹⁰ Figure A1 below that shows the location of Black Buoy sands near the mouth of The Haven. Whilst the peak count equates to 0.26% of the target population for The Wash SPA, the population has declined by c.85%. However, the peak count equates to 1.5% of the latest WeBS five-year peak mean count.</p> <p>This species has a Red WeBS alert due to decline in population on The wash of 78% since the baseline was established. See Table 6 (pp.38-39) in our Written Representations for full details of WeBS Alerts. Site-specific pressures have been identified as causing population to decline.</p> <p>Supplementary Conservation advice is to restore the population above 16,000 individuals, however, the latest WeBS five-year peak mean is 2,374 individuals. A disturbance reduction target has also been set for this species.</p>
Wigeon	F, A	N	7	100	Moderate	Low numbers on only a few occasions compared to counts in the wider area, although peak count equates to 2.6% of the target population for The Wash SPA. However wigeon numbers have increased on The Wash and the peak count equates to 1.0% of the latest WeBS five-year peak mean count. Wigeons do use the area around the navigation channel and spend the night out on The Wash, notably black buoy sands on the eastern edge of the navigation channel at the mouth of The Haven ¹¹ . Figure A1

¹⁰ Natural England (2018) Appraisal of possible environmental impacts of proposals for England Coast Path. The Wash: Sutton Bridge to Gibraltar Point (p.19). Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/675965/sensitive-features-report.pdf

¹¹ As noted in the Supplementary Conservation Advice attribute 'Connectivity with supporting habitats' -

Species (all species non-breeding features unless breeding stated in brackets)	Conservation status ⁵ F = feature A = Assemblage R = Ramsar feature ⁶	>1% 5-yr mean WeBS population	Number of occasions observed disturbed	Peak count	Sensitivity to disturbance ^{7,8,9}	Level of concern and reasoning:
						<p>below that shows the location of Black Buoy sands near the mouth of The Haven. Natural England also note that significant numbers occur between Freiston and Butterwick. There is no data available to understand whether vessel movements could impact on birds roosting and/or feeding at night.</p> <p>Supplementary Conservation advice is to maintain the population above 3,900 individuals, with the latest WeBS five-year peak mean being 9,736 individuals. A disturbance reduction target has been set for this species.</p>
Oystercatcher	F, A, R	Y	15	825	Moderate – but acknowledged limited evidence on noise sensitivity	<p>Regularly present often in high numbers and frequently disturbed. Peak counts equate to 3.4% of The Wash SPA target population and 3.1% of the latest WeBS five-year peak mean count. The species is recovering from significant declines on The Wash. Site-specific pressures have been identified as causing population to decline.</p> <p>Natural England have reported “...large numbers also feed on Roger and Toft Sands.”¹² Figure A1 below that shows the location of Black Buoy sands near the mouth of The Haven.</p> <p>High mortality occurs when food supply becomes low. This places additional stress on birds and can make them more vulnerable to disturbance limiting their ability to feed or conserve energy when roosting. The distribution of oystercatchers on The Wash means that disturbance associated with the Facility could affect female and young oystercatcher due to their feeding preferences. This could have implications for breeding condition and recruitment of young birds into the breeding population.</p> <p>Supplementary Conservation advice is to restore the population above 24,000 individuals, with the latest WeBS five-year peak mean being 26,586 individuals. A disturbance reduction target has been set for this species.</p>

¹² Natural England (2018) Appraisal of possible environmental impacts of proposals for England Coast Path. The Wash: Sutton Bridge to Gibraltar Point (p.22). Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/675965/sensitive-features-report.pdf

Species (all species non-breeding features unless breeding stated in brackets)	Conservation status ⁵ F = feature A = Assemblage R = Ramsar feature ⁶	>1% 5-yr mean WeBS population	Number of occasions observed disturbed	Peak count	Sensitivity to disturbance ^{7,8,9}	Level of concern and reasoning:
Avocet	F, A, R	N	1	1	Moderate	Low numbers on only a few occasions. The latest WeBS five-year peak mean is 448 individuals. This represents a significant population increase since the 2001 SPA Review which cited 110 individuals.
Ringed plover	F, A, R	Y	2	40	Low, but limited evidence on noise sensitivity. Vessel impact unknown.	Present, but low numbers of occasions where birds have been observed in surveys to date. Limited areas surveyed and potential for greater number of birds to be present. Further surveys may clarify the importance of this area. The population recorded in the 2001 SPA Review was 1,185 individuals. The latest WeBS five-year peak mean is 1,315 individuals. The peak count equates to 3.0% of the latest WeBS five-year peak mean count. Ringed plover numbers have declined nationally, both breeding and over-wintering numbers and appears to be becoming restricted to fewer sites.
Grey plover	F, A	N	2	5	Moderate	Low numbers on only a few occasions. There are no data available to understand whether vessel movements could impact on birds roosting and/or feeding further out in The Wash during the day or night, especially out to the anchorage area. Natural England have reported <i>"In the western Wash they are particularly numerous on Friskney Flats and Roger or Toft Sand."</i> ¹³ Roger and Toft Sands have the potential to have some impact from passing vessels (see Figure A1 below). Supplementary Conservation advice is to maintain the population above 5,500 individuals, with the latest WeBS five-year peak mean being 8,313 individuals. A disturbance reduction target has been set for this species.
Golden plover	F, A, R	Y	3	2,500	Moderate	Significant numbers on a few occasions. Peak counts equate to 16.4% of the latest WeBS five-year peak mean count. Disturbed on all occasions present and seeks to return to roosting site rather than relocating to alternative site. This has implications for the energetic cost of disturbance. Forage at night, but no data available to understand numbers and distribution at night.

¹³ Natural England (2018) Appraisal of possible environmental impacts of proposals for England Coast Path. The Wash: Sutton Bridge to Gibraltar Point (p.23). Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/675965/sensitive-features-report.pdf

Species (all species non-breeding features unless breeding stated in brackets)	Conservation status ⁵ F = feature A = Assemblage R = Ramsar feature ⁶	>1% 5-yr mean WeBS population	Number of occasions observed disturbed	Peak count	Sensitivity to disturbance ^{7,8,9}	Level of concern and reasoning:
						The 2001 SPA Review records 11,037 individuals being present on The Wash. The latest WeBS five-year peak mean being 15,212 individuals.
Knot	F, A, R	N	1	500	Moderate – suggested highly sensitive to noise and low sensitivity to visual disturbance.	Relatively small numbers present compared to The Wash’s wider population, with peak count equating to 0.67% of The Wash SPA target population. The number of knots has increased on The Wash and the peak count equates to 0.26% of the latest WeBS five-year peak mean count. The low numbers may suggest more data are needed to understand if current activities are already affecting distribution. Supplementary Conservation advice is to maintain the population above 75,000 individuals, with the latest WeBS five-year peak mean being 188,838 individuals. A disturbance reduction target has been set for this species.
Turnstone	F, A	Y	4	22	Low but no published evidence on sensitivity to noise or visual disturbance	Significant numbers have been observed on a few occasions, with peak count equating to 2.2% of the latest WeBS five-year peak mean count. However, the peak count equates to 2.9% of the latest WeBS five-year peak mean count. There are limited roost sites available for turnstones to use on The Wash. A restore target is in place due to the species declines. Supplementary Conservation advice is to restore the population above 980 individuals, with the latest WeBS five-year peak mean being 755 individuals. A disturbance reduction target has been set for this species.
Dunlin	F, A, R	N	7	180	Low but can be displaced out to 300m	Present but in relatively low numbers, with peak count equating to 0.62% of The Wash SPA target population. The peak count equates to 0.69% of the latest WeBS five-year peak mean count. They “...forage across the extensive intertidal mudflats across the SPA and large numbers use Black Buoy Sand at low tide” ¹⁴ (See Figure A1 for the location of Black Buoy Sand). The Supplementary Conservation Advice has set a restore target to address site-specific pressures causing the population to decline. Exact number of birds impacted are not known due to lack of surveys along significant parts of The Haven. The low numbers

¹⁴ Natural England (2018) Appraisal of possible environmental impacts of proposals for England Coast Path. The Wash: Sutton Bridge to Gibraltar Point (p.21). Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/675965/sensitive-features-report.pdf

Species (all species non-breeding features unless breeding stated in brackets)	Conservation status ⁵ F = feature A = Assemblage R = Ramsar feature ⁶	>1% 5-yr mean WeBS population	Number of occasions observed disturbed	Peak count	Sensitivity to disturbance ^{7,8,9}	Level of concern and reasoning:
						<p>may suggest more data are needed to understand if current activities are already affecting distribution.</p> <p>Supplementary Conservation advice is to maintain the population above 29,000 individuals, with the latest WeBS five-year peak mean being 26,150 individuals. A disturbance reduction target has been set for this species.</p>
Redshank (non-breeding)	F, A, R	Y	16	220	Moderate: High sensitivity to noise, but low sensitivity to visual disturbance	<p>Regularly present often in high numbers, with peak count equating to 5.1% of The Wash SPA target population. However, the peak count equates to 4.3% of the latest WeBS five-year peak mean count. Birds were observed to be frequently disturbed.</p> <p>Supplementary Conservation target is to maintain numbers above 4,331 individuals, but also restore where declines have been reported. The latest WeBS five-year peak mean is 5,087 individuals. A disturbance reduction target has been set for this species.</p>
Black-tailed godwit	F, A, R	Y	3	2,000	Moderate, but paucity of evidence to assess sensitivity to disturbance	<p>Significant numbers on a few occasions, with peak count equating to 67.8% of The Wash SPA target population. The peak count equates to 23.3% of the latest WeBS five-year peak mean count, which is still highly significant. Birds were prone to disturbance, with significant numbers being disturbed and relocating to alternative sites. Baseline disturbance may therefore be significant without adding further vessel disturbance. High numbers are known to use the area based on WeBS data. Counts of up to 10,000 birds have been recorded at RSPB Freiston Shore and reflect the importance of this area of The Wash for this species.</p> <p>Supplementary Conservation target is to maintain numbers above the current WeBS mean peak count, which was 2,950 individuals when the advice was produced. The latest WeBS five-year peak mean is 8,597 individuals. A disturbance reduction target has been set for this species.</p>
Bar-tailed godwit	F, A, R	N	1	10	Moderate but avoid highly disturbed areas	<p>Present in low numbers on a few occasions. The low numbers may suggest more data are needed to understand if current activities are already affecting distribution.</p> <p>Supplementary Conservation advice is to maintain the population above 8,900 individuals, with the latest WeBS five-year peak mean is 17,509 individuals. A disturbance reduction target has been set for this species.</p>

Species (all species non-breeding features unless breeding stated in brackets)	Conservation status ⁵ F = feature A = Assemblage R = Ramsar feature ⁶	>1% 5-yr mean WeBS population	Number of occasions observed disturbed	Peak count	Sensitivity to disturbance ^{7,8,9}	Level of concern and reasoning:
Curlew	F, A, R	Y	6	55	Moderate but extremely wary and does not habituate	<p>A few birds on several occasions, with peak count equating to 1.5% of The Wash SPA target population. The peak count equates to 0.91% of the latest WeBS five-year peak mean count. There is a need to understand if more birds could be using other areas that have not been surveyed. Additional consideration should be made about areas not surveyed that could be important for this species. This will be particularly important for any possible compensation sites.</p> <p>Supplementary Conservation advice is to maintain the population above 3,700 individuals, with the latest WeBS five-year peak mean is 6,061 individuals. A disturbance reduction target has been set for this species.</p>
Common tern (b)	F, A, R	Y	1	10	Low	<p>A few birds present and disturbed, but main breeding season not surveyed, so potential numbers affected by disturbance are unknown. Higher counts are expected based on site staff observations from the Cut End Bird Hide. Disturbance would be to juvenile birds and adults seeking to restore body condition post-breeding in preparation for migration.</p> <p>Supplementary Conservation advice is to maintain the population above 220 individuals, with the latest WeBS five-year peak mean is 583 individuals. A disturbance reduction target has been set for this species.</p>
Cormorant	A, R	N	17	10	High	<p>Low numbers although regularly disturbed. The latest WeBS five-year peak mean is 550 individuals. The peak count equates to 1.8% of the latest WeBS five-year peak mean count.</p>
Mallard	A	Y	7	55	Moderate but limited evidence on noise sensitivity	<p>Low numbers on only a few occasions. The latest WeBS five-year peak mean is 958 individuals. The peak count equates to 5.7% of the latest WeBS five-year peak mean count.</p>
Teal	A	Y	3	54	Moderate but limited evidence on noise and visual sensitivity	<p>Low numbers on only a few occasions. The latest WeBS five-year peak mean is 2,791 individuals. The peak count equates to 1.9% of the latest WeBS five-year peak mean count.</p>

Species (all species non-breeding features unless breeding stated in brackets)	Conservation status ⁵ F = feature A = Assemblage R = Ramsar feature ⁶	>1% 5-yr mean WeBS population	Number of occasions observed disturbed	Peak count	Sensitivity to disturbance ^{7,8,9}	Level of concern and reasoning:
Eider	A, R	N	2	2	Moderate - High	Present in the area surveyed in low numbers. The Wash eider population is of national and international importance. There is high potential that more birds could be disturbed in deeper water between the anchorage area and the mouth of The Haven, but no data have been presented to enable conclusions to be drawn on the impact on this species. The latest WeBS five-year peak mean is 1,049 individuals.
Lapwing	A, R	Y	10	1,100	Moderate, but little evidence of impacts from wintering grounds	Regularly present often in high numbers and frequently attempting to return to roosting site. The latest WeBS five-year peak mean is 12,967 individuals. The peak count equates to 8.5% of the latest WeBS five-year peak mean count. Forage at night, but no data available to understand numbers and distribution at night.
Redshank (breeding) ¹⁵	A, R				High	Need more evidence to assess potential scale of use by breeding birds around the navigation channel and their potential risk from increased levels of disturbance.
Whimbrel	A, R	N	3	1	Moderate, on precautionary basis due to lack of evidence on response to noise and visual disturbance	Low numbers on only a few occasions. The latest WeBS five-year peak mean is 154 individuals.
Ruff	A, R		1*	32 (51 when counts from survey areas A & B are combined)	High	Present in significant numbers on several occasions, most notably in the recent autumn passage surveys in September 2021. This highlights the importance of ensuring appropriate survey effort has been undertaken to inform the baseline understanding of the ornithological importance of The Haven. This species forms part of the waterbird assemblage and will need to be considered in any assessments of this feature of The Wash SPA. The latest WeBS five-year peak mean is 80 individuals. The peak count equates to 40% (or 63.8% using the combined count) of the latest WeBS five-year peak mean count.

¹⁵ Breeding redshank are "...a key constituent of the Aggregation of non-Annex 1 breeding birds in The Wash SPA" as stated on p.15 of Natural England (2018) Appraisal of possible environmental impacts of proposals for England Coast Path. The Wash: Sutton Bridge to Gibraltar Point. Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/675965/sensitive-features-report.pdf

Species (all species non-breeding features unless breeding stated in brackets)	Conservation status ⁵ F = feature A = Assemblage R = Ramsar feature ⁶	>1% 5-yr mean WeBS population	Number of occasions observed disturbed	Peak count	Sensitivity to disturbance ^{7,8,9}	Level of concern and reasoning:
Black-headed gull	A, R	N	17*	141	Moderate	Low numbers on only a few occasions. The latest WeBS five-year peak mean is 14,541 individuals. The peak count equates to 0.97% of the latest WeBS five-year peak mean count.
Herring gull	A		10	12	Moderate	Low numbers on only a few occasions. The latest WeBS five-year peak mean is 5,420 individuals.
Lesser black-backed gull	A, R	Y	7	52	Moderate	Some birds present regularly, and experience disturbance. The latest WeBS five-year peak mean is 454 individuals. The peak count equates to 11.5% of the latest WeBS five-year peak mean count.
Lesser black-backed gull (breeding)	A, R		7	52	Moderate	Some birds present regularly, and experience disturbance.
Great black-backed gull	A		1	1	Moderate	Low numbers on only a few occasions. The latest WeBS five-year peak mean is 499 individuals.
Waterbird assemblage	F, A, R		73	6,480	High	<p>Significant numbers on a few occasions, with peak count equating to 1.8% of The Wash SPA target population. The peak count equates to 3.0% of the latest WeBS five-year peak mean count. Surveys show regular disturbance to waterbirds. The full importance of the navigation channel between the Application site and Port of Boston anchorage area and the full impact of disturbance, both the baseline understanding and the impact of additional vessel movements, however, has not been adequately assessed and the number of waterbirds affected by increased vessel movements could be significantly greater (see Section 2b and 2d above).</p> <p>Supplementary Conservation Advice target is to maintain the population above 214,000 individuals and avoid deterioration from 359,301 individuals.</p>

Table A3: Additional species that are either features of The Wash SPA or waterbird assemblage for which no information has been provided but which could be affected by increased vessel in areas not surveyed, notably between the mouth of The Haven and the Port of Boston anchorage area.

Species (all species non-breeding features unless breeding stated in brackets)	Status F = SPA feature A = SPA Assemblage R = Ramsar feature	Sensitivity to disturbance ^{16,17}	Level of concern and reasoning:
Pintail	F, A, R	Moderate - high Considered highly sensitive to human disturbance, but mainly linked to hunting. Limited evidence available with regarding vessel	No evidence collected or presented to assess numbers or distribution around the navigation channel and trend over time. Will forage at night, particularly if disturbed during the day. Supplementary Conservation advice is to restore the population above 1,700 individuals. The latest WeBS five-year peak mean is 376 individuals showing the scale of work needed to achieve the restoration target. A disturbance reduction target has been set for this species.

¹⁶ Fließbach, k. L., Borkenhagen, K., Guse, N., Markones, N., Schwemmer, P., & Garthe, S. (2019). A ship traffic disturbance vulnerability index for Northwest European seabirds as a tool for marine spatial planning. *Frontiers in Marine Science* Available at [REDACTED]

¹⁷ Vessel sensitivity information for cormorant, sea ducks (eider, common scoter, goldeneye), common tern, and gulls (black-headed, herring, lesser black-backed and great black-backed) based on Table 21 (p.49) from MMO (2018). Displacement and habituation of seabirds in response to marine activities. A report produced for the Marine Management Organisation. MMO Project No: 1139:
https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/715604/Displacement_and_habituation_of_seabirds_in_response_to_marine_activities.pdf

Species (all species non-breeding features unless breeding stated in brackets)	Status F = SPA feature A = SPA Assemblage R = Ramsar feature	Sensitivity to disturbance <small>16,17</small>	Level of concern and reasoning:
		disturbance <small>18</small>	
Common scoter	F, A, R	High	<p>Large numbers occur in The Wash and have been observed by reserve staff in the area around the anchorage area. Natural England's 2018 report on the England Coast Path between Sutton Bridge and Gibraltar Point noted that there are "...core populations found around Boston Deeps between Long Sands and Wainfleet."¹⁹ Long Sand and the Boston Deeps are shown in Figure A1 below, with Long Sand adjacent to the Port of Boston Anchorage area. No evidence has been collected or presented to assess numbers or distribution around the navigation channel and trend over time.</p> <p>Supplementary Conservation advice is to maintain the population above 830 individuals, with the latest WeBS five-year peak mean is 1,194 individuals. A disturbance reduction target has been set for this species.</p> <p>At the time of designation, The Wash Ramsar population was 1,190 individuals.</p>
Goldeneye	F, A, R	High	<p>No evidence collected or presented to assess numbers or distribution around the navigation channel and trend over time.</p> <p>Supplementary Conservation advice is to restore the population above 220 individuals. The latest WeBS five-year peak mean is 69 individuals showing the scale of work needed to achieve the restoration target. A disturbance reduction target has been set for this species.</p>
Red-throated diver	R	High	<p>At the time of designation, The Wash Ramsar population was 55 individuals. The latest WeBS five-year peak mean is 25 individuals. There is a need to review pressures on this species and identify action needed to restore numbers.</p>

¹⁸ European Commission (2007) Management plan for pintail (*Anas acuta*) 2007-2009. Available at [REDACTED]

¹⁹ Natural England (2018) Appraisal of possible environmental impacts of proposals for England Coast Path. The Wash: Sutton Bridge to Gibraltar Point. Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/675965/sensitive-features-report.pdf

Figure A1: Sandbanks within The Wash that have been identified as supporting significant numbers of SPA features. The base map does not show the full extent of sandbanks but provides an approximate relationship to the navigation channel with an 800m buffer (a maximum displacement observed for a number of species recorded in the Applicant's disturbance surveys).

