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Addendum to the Habitats Regulations Assessment of the South Tyneside Publication Draft Local Plan (Regulation 19) -

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Summary

This addendum expands upon the information provided in the Habitats Regulations Assessment (HRA) report that accompanied the South Tyneside Publication Draft Plan (Regulation 19). The addendum has been produced following the initial stages of the examination hearings and discussion around water quality, which was taken to appropriate assessment in the original HRA. In light of the hearing discussions, this addendum provides some additional background including references to additional scientific papers and literature not cited in the original HRA. It should be read in conjunction with the previous HRA report.

This addendum does not alter the previous conclusions and the additional information and context support and strengthen the findings of the original HRA report. The addendum therefore serves to provide further clarity and reassurance around the conclusions made in the HRA, all of which remain valid.

Contents

1. Introduction

Context

1.1 This document comprises an addendum to the Habitats Regulations Assessment of the South Tyneside Publication Draft Local Plan (Regulation 19) (Liley and Rush, 2024; ref SUB4)[1]. It provides extended detail and context, expanding the information previously provided in SUB4, in the water quality section of the appropriate assessment (paragraphs 4.13 to 4.23, inclusive), which should be read alongside this addendum. Please note that the addendum does not amend or negate any of the assessment outputs previously provided by Liley & Rush (2024).

Scope

1.2 The information provided within this addendum exclusively comprises supplementary information and evidence around potential impacts of changes in water quality, associated with allocations in the South Tyneside Local Plan, to the qualifying features of the following European sites:

- Durham Coast Special Area of Conservatin (SAC);
- Northumbria Coast Special Protection Area (SPA); and,
- Northumbria Coast Ramsar.

1.3 The extent of these sites and background to the underpinning legislation, links to conservation objectives and other context are provided in the original HRA.

1.4 The three sites are designated for the following qualifying features:

- H1230 Vegetated sea cliffs of the Atlantic and Baltic coasts (Durham Coast SAC);
- Breeding Arctic Tern *Sterna paradisaea* (Northumbria Coast SPA);
- Breeding Little Tern *Sternula albifrons* (Northumbria Coast SPA/Ramsar); and,
- Wintering Turnstone *Arenaria interpres* and Purple Sandpiper *Calidris maritima* (Northumbria Coast SPA/Ramsar).

[1] https://www.southtyneside.gov.uk/article/21212/Habitats-Regulations-Assessment-2023

1.5 Both Arctic and Little Tern were scoped out of the HRA, due to the distant location of nesting colonies and the absence of potential breeding habitat close to South Tyneside (see paragraph 2.25 in Liley & Rush (2024)). This addendum therefore solely focusses on further discussion and content for the appropriate assessment section addressing impacts of changes in water quality upon vegetated sea cliffs and wintering Turnstone and Purple Sandpiper.

2. Water quality impacts

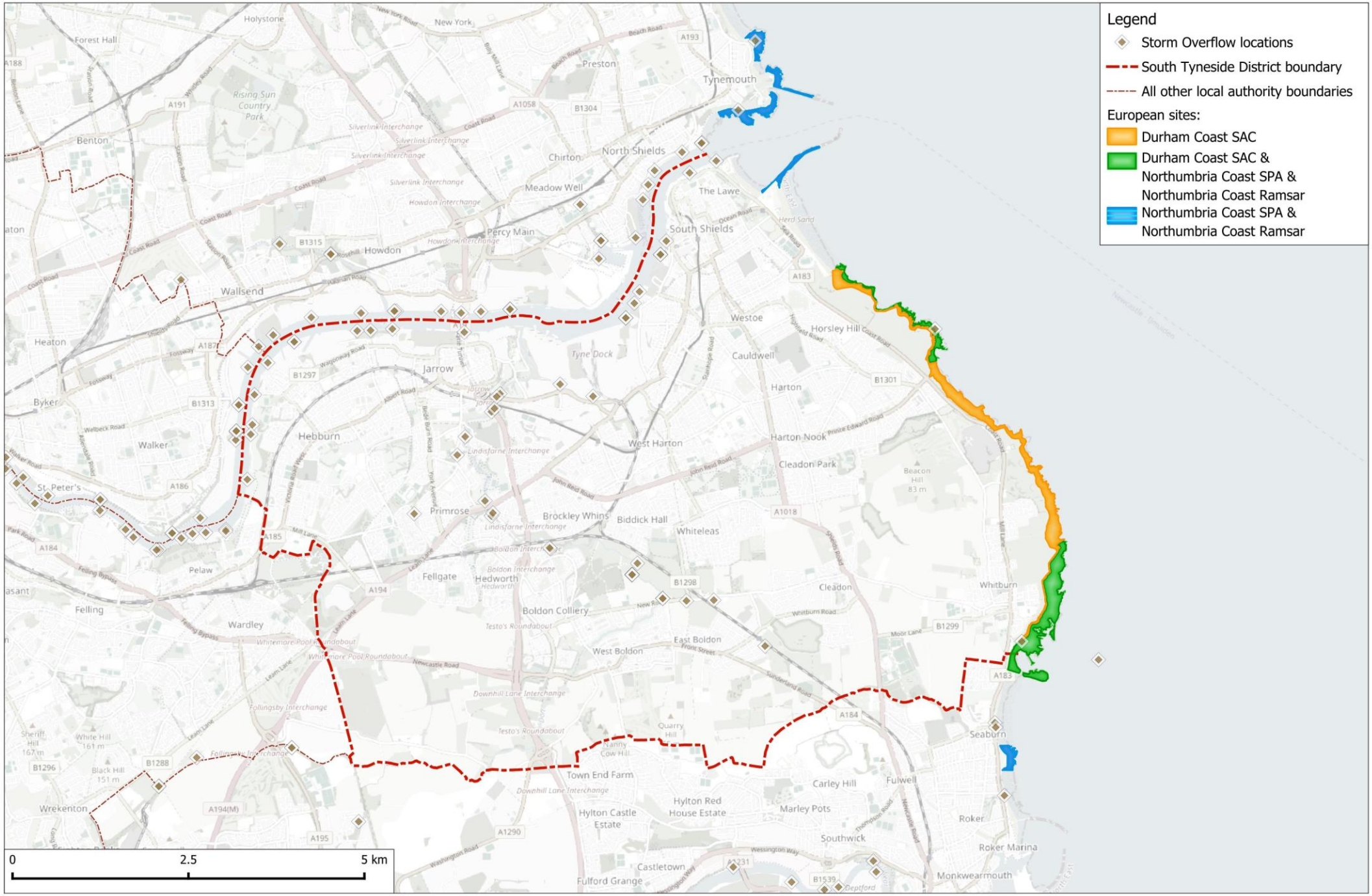
Existing sewage infrastructure

2.1 There are concerns among residents and community groups in relation to the operations of Northumbrian Water and their regulation by the Environment Agency and these concerns particularly relate to discharges at the Whitburn Steel Pumping Station.

2.2 The Whitburn Steel Pumping Station is one of multiple sewer storm overflows[2] that serve South Tyneside- see Map 1. The majority flow into the Rivers Tyne and Don, whilst a small number are situated on the coast at the mouth of the River Tyne, Marsden, and Whitburn. The overflow at the latter comprises a long pipe running offshore (hence the dot on Map 1 being away from the shoreline).

[2] Data collated by The Rivers Trust, with 'Event Duration Monitoring of Storm Overflows' data layers produced on an annual basis. Map 1 refers to 2024 data, accessed via the website: https://data.catchmentbasedapproach.org/datasets/95a32388235e4c888381cddaa392b572_0/explore?location=54.948893%2C-1.496597%2C12.31

Map 1: Location of Storm Overflows within South Tyneside in the context of the relevant European sites.



Impacts

2.3 It should be noted that the coastal overflows are located either within or adjacent to the boundaries of the relevant designated sites. It should be noted that neither the Durham Coast SAC nor Northumbria Coast SPA have been identified by Natural England as being in unfavourable condition due to excessive nutrients (see paragraphs 4.15 to 4.16 in Liley & Rush (2024)). We consider the SAC features and SPA features separately.

Impacts upon vegetated sea cliffs (SAC feature)

2.4 The areas of qualifying vegetated sea cliff comprise a complex mosaic of maritime-influenced, calcareous and neutral grasslands, tall-herb fen, seepage flushes, and wind-pruned scrub growing on the cliff top and adjacent slopes, including within erosion features. The vegetation is well elevated above high-tide level and is not therefore subject to either marine inundation or tidal action (see Figure 1).

Figure 1: Photograph depicting the vegetated sea cliff near Souter Lighthouse, within the Durham Coast SAC, showing the location of relevant vegetation communities above sea level.

2.5 Supplementary advice from Natural England, concerning the conservation and restoration of site features within the Durham Coast SAC[3], identifies a variety of issues facing the qualifying vegetated sea cliff vegetation community within the designated site (see paragraphs 4.17 to 4.20 in Liley & Rush (2024)). These include current threats posed by fertiliser use and run-off from agricultural land, with no other issues relating to water quality identified. As stated in the HRA (see paragraph 4.20), all allocations are set well back from the coast and will be connected to the mains sewer system (with small/windfall sites assessed at a project level), therefore negating any risk to the sea cliff vegetation community from either surface or groundwater. The sole means by which the wastewater from new development might affect the cliff vegetation is therefore from sea spray, by which point the wastewater is diluted within the sea.

2.6 The cliff top vegetation does receive salt spray from the sea, comprising one of the key natural processes directly active upon it, alongside erosion, slippage, and localised flushing. The incidence of spray on the vegetation will result from the interplay of sea state, weather, and the height/shape of the cliffs. Large spray events are likely to occur infrequently during winter storms. The extremely energetic nature of such events ensures that, should any sewage still be present within the water column away from its point of origin, it will be both extremely diluted and fragmentary in composition, thus negating any potential impact upon the qualifying clifftop vegetation community.

2.7 The sea-cliff vegetation is a terrestrial habitat and there is no credible way whereby ocean-borne sewage, resulting from either storm overflows directly into the sea (including the long overflow at Whitburn) or washed out from the Tyne and its tributaries, can have a meaningful impact and undermine the conservation objectives for the Durham Coast SAC.

2.8 This conclusion is supported by Natural England. There are no water quality risks arising from salt/sea spray that are identified in either the European Site Conservation Objectives or Site Improvement Plan (SIP) for the Durham Coast SAC. Natural England, in their statement of common ground agree with the findings of the HRA in relation to water quality.

[3] https://designatedsites.naturalengland.org.uk/TerrestrialAdvicePDFs/UK0030140.pdf

Impacts upon wintering Turnstone and Purple Sandpiper

2.9 Impacts upon Turnstone and Purple Sandpiper are discussed in paragraph 4.23 of Liley & Rush (2024). The two comprise small species of wader which winter around the UK coastline, with a tiny number of Purple Sandpiper also occasionally breeding in northern Scotland. Both species are largely associated with exposed and/or rocky coasts during the winter months, although both will also feed on beaches during stormy weather (e.g. Dierschke, 1993), and both often form loose flocks with other species of wader whilst foraging and roosting.

2.10 During high tide, both species commonly roost on offshore island refugia (Burton, Evans and Robinson, 1996; Whittingham *et al.*, 2019) or upon raised/vertical rock or concrete structures, such as groynes, docks, piers, and coastal sea defences (see cover image for an example of roosting Purple Sandpipers). Such roost sites are either located well offshore (beyond the reach of onshore sewage deposition) or comprise raised/vertical structures that are removed from regular inundation. While roosting the birds are sleeping and resting and therefore there can be no impact from sewage or nutrient enrichment of the water.

2.11 Feeding largely takes place during low tide, when rocky shore areas are exposed. Purple Sandpipers primarily feed on mussels and periwinkles, as well as other molluscs, crustaceans, polychaete worms, and algae (Dierschke, 1993). The species will also occasionally take insects (such as Kelp Flies (Coelopidae) among rotting seaweed) and spiders. They mainly forage by probing amongst the substrate with their long bills, but will also occasionally flip seaweed or other detritus in search of prey.

2.12 Turnstone predominantly feed on small crustaceans and insects, but the species is well known for having an incredibly indiscriminate diet (Gill Jr, 1986), including scavenging on dead material, such as damaged mussels or the strandline corpses of large animals. They also regularly take vegetable matter and human food scraps. Although, as their common name would suggest, the species is frequently observed turning stones, Turnstones exhibit an adaptable range of foraging techniques, including probing amongst sand and foraging in seaweed.

2.13 Both Turnstone and Purple Sandpiper will therefore utilise foraging habitats within which sewage deposition, and resulting algal growth, is likely to occur and will readily feed on a variety of invertebrate prey associated with such

depositional habitats. As such it is the diet and feeding opportunities afforded to the birds that might be considered at risk.

2.14 A significant volume of research has been carried out concerning the impact of changes in water quality (focussing upon either improvements or an end to local sewage discharge) upon both waders in general (Pringle and Burton, 2017), and specifically upon Turnstones and Purple Sandpipers along the Northumberland and Scottish coastlines (Burton & Goddard, 2007; Eaton, 2001; Summers et al., 2012).

2.15 Burton *et al*. (2003) suggested that the two species were amongst those most at risk from improvements to wastewater management (i.e. the species are potentially at risk from a reduction in effluent). More recently, Pringle & Burton (2017) identified Turnstone and Purple Sandpipers as two of the wader species that are more likely to benefit from wastewater effluent and the associated creation of coastal algal mats, due to their prey preference and foraging behaviour.

2.16 Burton & Goddard (2007) showed that the populations of both Turnstone and Purple Sandpiper declined across their Northumbrian coast study area, the declines reflecting spatial and temporal improvements in sewage discharge (i.e. the birds declined when water quality improved). Purple Sandpiper also declined on the Moray Firth, following improvements to sewage treatment, as a result of reduced recruitment (i.e. fewer individuals joining the population each year) (Summers *et al.*, 2012), although it was also noted that climatic factors could be impacting upon that population.

2.17 The declines observed in the Northumberland Turnstone and Purple Sandpiper populations were attributed, at least partly, to decreased survival rates, as birds had to complete more fiercely over depleted food resources following the reduction in wastewater discharge (Burton & Goddard, 2007). There was also a suggestion that lower food resources could cause birds to switch wintering sites, vacating previously used stretches of coastline. This was potentially evidenced by observations of colour-marked Turnstones in Northumberland that had previously wintered in Hartlepool, following changes to wastewater discharge (Burton et al., 2005).

2.18 Ultimately, these studies show a positive effect of sewage discharge upon Turnstone and Purple Sandpiper populations as a result of increased foraging habitat, prey availability, and reduced competition, whilst their roost sites remain removed from the effects of sewage deposition. Neither species is therefore likely to be negatively affected by coastal sewage discharge and

is, in fact, more likely to benefit from it. The literature cited above provides further background and information to support the text in the original HRA (para 4.23).

2.19 Furthermore, Natural England have supported the conclusions of the HRA, with supplementary advice provided by them for the Northumbria Coast SPA stating that the risk of eutrophication across the site has been assessed as low[4]. Natural England in their statement of common ground support the findings of the HRA with respect to water quality.

[4] https://designatedsites.naturalengland.org.uk/ConservationAdvice/SupplementaryAdvice.aspx?SiteCode=UK9006131&SiteName=northumbria&SiteNameDisplay=Northumbria+Coast+SPA&countyCode=&responsiblePerson=&SeaArea=&IFCAArea=&NumMarineSeasonality=4

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