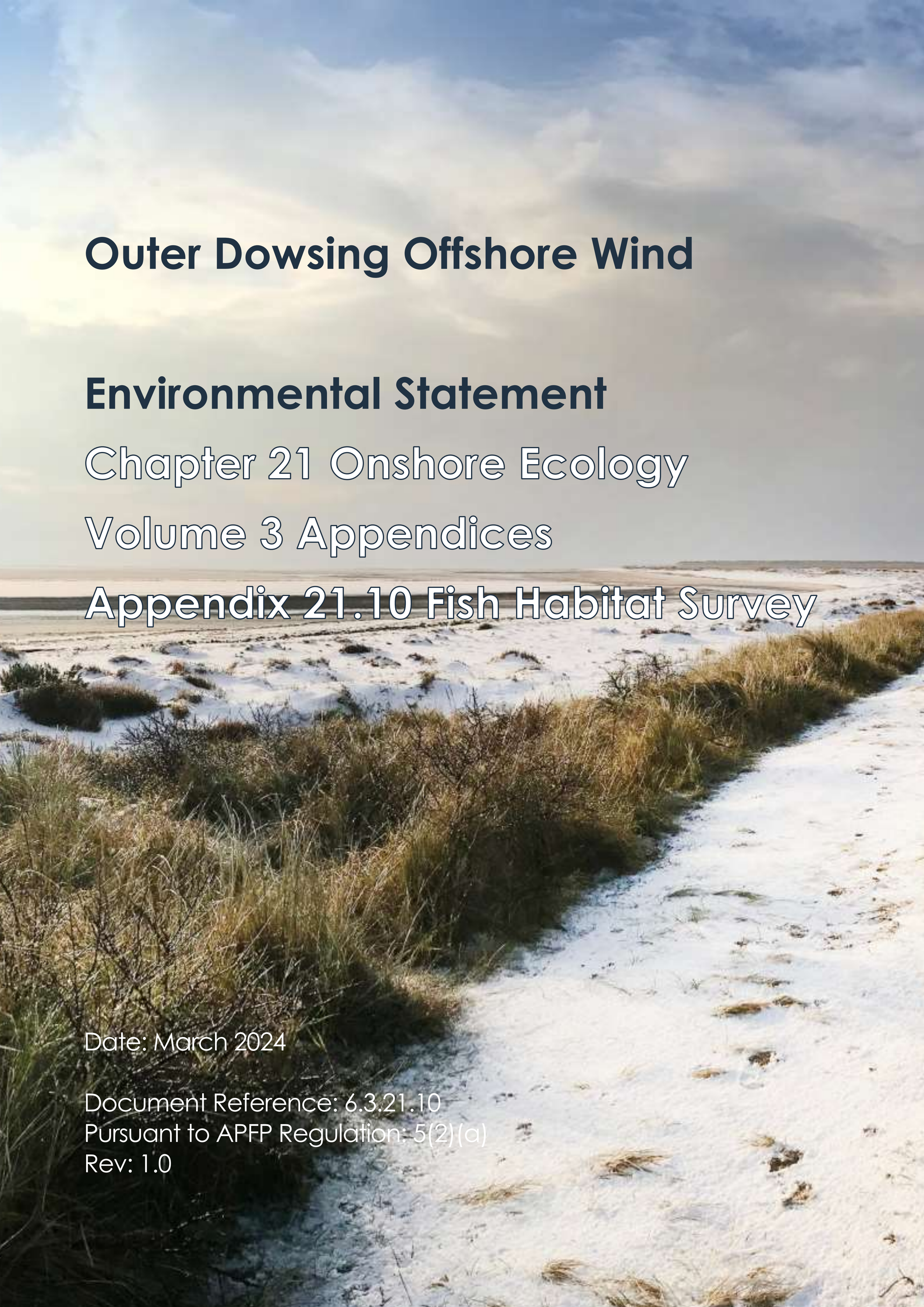

# Outer Dowsing Offshore Wind

## Environmental Statement

## Chapter 21 Onshore Ecology

## Volume 3 Appendices

## Appendix 21.10 Fish Habitat Survey

Date: March 2024

Document Reference: 6.3.21.10
Pursuant to APFP Regulation: 5(2)(a)
Rev: 1.0

# Volume 3, Appendix 21.10: Fish Habitat Study

## Outer Dowsing Offshore Wind Environmental Statement

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SLR Project No.: 410.V05356.00013

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Revision: V1.0

Making Sustainability Happen

## Revision Record

| Revision | Date | Prepared By | Checked By | Authorised By |
|---|---|---|---|---|
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# Basis of Report

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# Tables in Text



# Annexes

# Acronyms and Abbreviations

| Acronyms and Abbreviations | Description |
|---|---|
| BE | Bedrock |
| BO | Boulder |
| CO | Cobble |
| DCO | Development Consent Order |
| DG | Deep Glide |
| DP | Deep Pool |
| EA | Environment Agency |
| ECC | Export Cable Corridor |
| EIA | Environmental Impact Assessment |
| ES | Environmental Statement |
| FHQ | Fish Habitat Quality |
| GLNP | Greater Lincolnshire Nature Partnership |
| GR | Gravel |
| GULF | Gulf Energy Development |
| IUCN | International Union for Conservation of Nature |
| LCC | Lincolnshire County Council |
| LWT | Lincolnshire Wildlife Trust |
| MAGIC | Multi-Agency Geographical Information System |
| NGSS | National Grid Onshore Substation |
| NNR | National Nature Reserve |
| NSIP | Nationally Significant Infrastructure Project |
| OB | Obstruction |
| ODOW | Outer Dowsing Offshore Wind |
| OnSS | Onshore Substation |
| ORCP | Offshore Reactive Compensation Platform |
| OSS | Offshore Substation |
| PBDE | polybrominated biphenyls |
| PE | Pebble |
| PEIR | Preliminary Environmental Information Report |
| RBMP | River Basin Management Plan |
| RI | Riffle |
| RU | Run |
| SA | Sand |
| SAC | Special Area of Conservation |
| SAFFA | Salmon and Freshwater Fisheries Act 1975 |

| | |
|---|---|
| SFCC | Scottish Fisheries Co-ordination Centre |
| SG | Shallow Glide |
| SI | Silt |
| SM | Still Marginal |
| SNCI | Site of Nature Conservation Interest |
| SP | Shallow Pool |
| SPA | Special Protection Area |
| SSP | Salmonid Spawning Potential |
| SSSI | Sites of Special Scientific Interest |
| TO | Torrent |
| UK | United Kingdom |

# Terminology

| **Term** | **Definition** |
|---|---|
| 400kV cables | High voltage cables linking the OnSS to the NGSS. |
| 400kV cable corridor | The 400kV cable corridor is the area within which the 400kV cables connecting the onshore substation to the NGSS will be situated. |
| The Applicant | GT R4 Ltd. The Applicant making the application for a DCO.<br>The Applicant is GT R4 Limited (a joint venture between Corio Generation, Tota Energies and Gulf Energy Development (GULF)), trading as Outer Dowsing Offshore Wind. The Project is being developed by Corio Generation (a wholly owned Green Investment Group portfolio company), TotalEnergies and GULF. |
| Baseline | The status of the environment at the time of assessment without the development in place. |
| Connection Area | An indicative search area for the NGSS. |
| Environmental Impact Assessment (EIA) | A statutory process by which certain planned projects must be assessed before a formal decision to proceed can be made. It involves the collection and consideration of environmental information, which fulfils the assessment requirements of the EIA Regulations, including the publication of an Environmental Statement (ES). |
| Environmental Statement (ES) | The suite of documents that detail the processes and results of the EIA. |
| Export cables | High voltage cables which transmit power from the Offshore Substations (OSS) to the Onshore Substation (OnSS) via an Offshore Reactive Compensation Platform (ORCP) if required, which may include one or more auxiliary cables (normally fibre optic cables). |
| Impact | An impact to the receiving environment is defined as any change to its baseline condition, either adverse or beneficial. |
| Landfall | The location at the land-sea interface where the offshore export cables and fibre optic cables will come ashore. |
| Mitigation | Mitigation measures are commitments made by the Project to reduce and/or eliminate the potential for significant effects to arise as a result of the Project. Mitigation measures can be embedded (part of the project design) |

| | |
|---|---|
| | or secondarily added to reduce impacts in the case of potentially significant effects. |
| Onshore Export Cable Corridor (ECC) | The Onshore Export Cable Corridor (Onshore ECC) is the area within which, the export cables running from the landfall to the onshore substation will be situated. |
| Onshore Infrastructure | The combined name for all onshore infrastructure associated with the Project from landfall to grid connection. |
| Onshore substation (OnSS) | The Project's onshore HVAC substation, containing electrical equipment, control buildings, lightning protection masts, communications masts, access, fencing and other associated equipment, structures or buildings; to enable connection to the National Grid. |
| Outer Dowsing Offshore Wind (ODOW) | The Project. |
| Order Limits | The area subject to the application for development consent, the limits shown on the works plans within which the Project may be carried out. |
| The Project | Outer Dowsing Offshore Wind, an offshore wind generating station together with associated onshore and offshore infrastructure. |
| Preliminary Environmental Information Report (PEIR) | The PEIR was written in the style of a draft Environmental Statement (ES) and provided information to support and inform the statutory consultation process during the pre-application phase. |
| Receptor | A distinct part of the environment on which effects could occur and can be the subject of specific assessments. Examples of receptors include species (or groups) of animals or plants, people (often categorised further such as 'residential' or those using areas for amenity or recreation), watercourses etc. |
| Study Area | Area(s) within which environmental impact may occur – to be defined on a receptor-by-receptor basis by the relevant technical specialist. |

# 21.0 Fish Habitat Study

## 21.1 Introduction

1. Outer Dowsing Offshore Wind (ODOW) is a Nationally Significant Infrastructure Project (NSIP). An Environmental Impact Assessment (EIA) has been undertaken, the findings of which are presented within an Environmental Statement (ES), which accompanies a Development Consent Order (DCO) application under the Planning Act 2008.

2. SLR Consulting were commissioned by GoBe Consultants LTD, who have been instructed by GT R4 Limited (trading as Outer Dowsing Offshore Wind), to undertake a suite of ecological surveys of the relevant parts of the Project site that may be affected by the construction and operation of the onshore aspects of the Project.

### 21.1.1 Purpose of the Report

3. This appendix has been produced to support Volume 1, Chapter 21: Onshore Ecology (document reference 6.1.21) of the Project's ES. This appendix presents the findings of the fish habitat assessment (including salmonid spawning suitability) undertaken in October 2023.

### 21.1.2 Project Description

4. The Project will be located approximately 54km from the Lincolnshire coastline in the southern North Sea. The Project will include both offshore and onshore infrastructure including an offshore generating station (windfarm) located approximately 54km from the Lincolnshire coastline, export cables to landfall, onshore cables, an onshore substation, connection to the electricity transmission network, and ancillary and associated development (see Volume 1, Chapter 3: Project Description 6.1.3 for full details).

5. The Project's 'Order Limits' reflect an approximate 80m wide corridor around a centre line totalling approximately 70km in length comprising of the footprint of the Onshore Export Cable Corridor (ECC), the Onshore substation (OnSS) and a 400kV line to the National Grid connection area.

6. Due to the linear footprint of the Project, the Survey Area for some receptors is relatively large-scale, therefore to assist with the interpretation and explanation of associated data, the onshore ECC has been split into segments. The extent of these segments has been aligned with key geographical features such as roads or rivers which cross the route.

7. The segments for the ECC are shown in Table 21.1 below.

**Table 21.1: Onshore ECC Segment Names**

| Segment Name |
|---|
| ECC 1: Landfall to A52 – Hogsthorpe |
| ECC 2: A52 – Hogsthorpe to Marsh Lane |
| ECC 3: Marsh Lane to A158 - Skegness Road |
| ECC 4: A158 – Skegness Road to Low Road |
| ECC 5: Low Road to Steeping River |
| ECC 6: Steeping River to Fodder Dike Bank/Fen Bank |
| ECC 7: Fodder Dike Bank/Fen Bank to Broadgate |
| ECC 8: Broadgate to Ings Drove |
| ECC 9: Ings Drove to Church End Lane |
| ECC 10: Church End Lane to The Haven |
| ECC 11: The Haven to Marsh Road |
| ECC 12: Marsh Road to Fosdyke Bridge |
| ECC 13: Fosdyke to Surfleet Marsh OnSS/Marsh Drove |
| ECC 14: Surfleet Marsh OnSS/Marsh Drove to the Connection Area |

## 21.2 Legislation

8. The river lamprey (*Lampetra fluviatilis*) is protected under of the Salmon and Freshwater Fisheries Act 1975 (SAFFA). This Act provides for the protection of roe, spawning and unclean lamprey.

9. The European eel (*Anguilla Anguilla*), is of principal importance for the purpose of conserving of biodiversity under the Natural Environment and Rural Communities Act 2006 and protected under the Eels (England and Wales) Regulations 2009. River lamprey is listed as Least Concern and European eel is listed as Critically Endangered on the International Union for Conservation of Nature (IUCN) Red List of Threatened Species and both are Priority Species under the UK Post-2010 Biodiversity Framework.

### 21.2.1 River Basin Management Plan

10. The Water Environment (Water Framework Directive) (England and Wales) Regulations 2017 implements European Commissions' Water Framework Directive (2000/60/EC) adopted the river basin approach across all river basin districts in England. This required the development of River Basin Management Plans (RBMPs) to achieve the objectives of these regulations. The RBMPs outline the current condition of the water environment within the district, the objectives for improving it and the proposed measures to deliver on the target of good status for all inland and coastal waters. With input from responsible authorities and other stakeholders, Environment Agency (covering England), Natural Resources Wales, Scottish Environment Protection Agency and the Northern Ireland Environment Agency have coordinated the production of the River Basin Management Plan (RBMP), to ensure the protection, improvement and sustainable use of the water environment for future generations.

11. The overall aim is for all waterbodies to reach 'Good' target status by 2027, to be progressively implemented through three RBMP cycles (2009-2015; 2015-2021 and 2021-2027).

12. The RBMP have identified the following key pressures on the water environment in the UK:

Morphological alterations (e.g., modifications to beds, banks and shores as the result of historical engineering and urban development);

Diffuse source pollution (e.g., agriculture, urban development);

Point source pollution (e.g., the discharge of sewage, manufacturing and quarrying);

Abstraction and flow regulation (e.g., alterations to water flows and levels as the result of electricity generation and public water supplies); and,

Invasive non-native species RBMPs set out how organisations, stakeholders and communities will work together to improve the water environment.

13. The undertaking of fish habitat surveys in line with responsible stakeholder methodologies aid in informing the requirements stated for the RBMP within a given district.

# 21.3 Methodology

## 21.3.1 Desk Study

14. In August 2023, the desk study, undertaken for the Preliminary Environmental Information Report (PEIR) boundary buffer, was updated for the Order Limits and land within a 2km surrounding radius (the study area). The desk study involved a review of the following sources of information for both freshwater and marine fish:

Information on statutory designated sites for nature conservation and geological interest, for the Order Limits and 2km radius from the Multi-Agency Geographical Information System (MAGIC) website managed by Natural England; and

Greater Lincolnshire Nature Partnership (GLNP) for information regarding protected and notable species, and locally designated sites with fish interest.

15. A desk-based search covering the study area of Environment Agency online records was undertaken using the Environment Agency Ecology & Fish Data Explorer (Environment Agency Website).

## 21.3.2 Fish Habitat Assessment Survey

16. Prior to surveys being undertaken, using satellite imagery, survey locations were refined to those within the Order Limits which are representative of the relevant watercourses (The Haven, River Welland, River Steeping and main drains) where watercourse crossings are proposed. Main tributaries/drains of the relevant watercourses within the Order Limits also were assessed. Due to the poor quality of the watercourses assessed, surveys focused on habitats within the Order Limits, extending to 250m both upstream and downstream of a central point.

17. Fieldwork for the 2023 survey locations was conducted over two days on 3rd and 4th October 2023 by two experienced aquatic surveyors. Weather conditions on the days of sampling were clear with high winds and an ambient temperature of 16-18°C. Survey locations are detailed in Table 21.4. Figure 21.9.1 illustrates the locations of these survey points.

18. The habitat assessment was undertaken in line with the method outlined in the Environment Agency Fisheries Technical Manual 4 - Restoration of riverine salmon

habitats (Hendry and Cragg-Hine, 1996). This focuses on the assessment of salmonid fish habitat and lamprey habitat, and the suitability of these respective areas to act as spawning areas for these species and for numerous others, employing the habitat classification criteria in Table 21.2. The river habitat assessment was carried out on each watercourse crossing point within the Order Limits, and 250m of the watercourse either side of the centre point within the Order Limits was surveyed (500m total stretch covered).

19. Fish habitat types are defined by the interaction of the following variables: water depth; water velocity; substrate composition; and cover. The habitats outlined form definable sections of a wider spectrum of habitats commonly found in watercourses. Where spawning gravels were present and accessible, an assessment of their quality in terms of stability, compaction and siltation was made. The bankside structure and surrounding land use was also described where appropriate. Additionally, juvenile lamprey habitat classifications are based on descriptions in Conserving Natura 2000 Rivers: Monitoring the River, Brook and Sea Lamprey (Harvey and Cowx, 2003).

**Table 21.2: Fish Habitat Classifications**

| Habitat Type | Classification |
|---|---|
| Salmon spawning gravel | Stable gravel* up to 30 cm deep that is not compacted or contains excessive silt. Substrate size predominantly pebbles and smaller cobbles depending on fish size. |
| Trout spawning gravel | Stable gravel up to 30 cm deep that is not compacted or contains excessive silt.<br>Substrate size varies from gravels, pebbles* and smaller cobbles* depending on fish size. |
| Salmon fry habitat | Shallow (<0.2 m) and fast flowing water indicative of riffles and runs with a substrate dominated by pebbles and smaller cobbles. |
| Salmon parr habitat | Riffle/run habitat that is generally faster and deeper than fry habitat (0.2 - 0.4 m). Substrate size* from large pebbles/smaller cobbles to boulder*. |
| Trout fry habitat | Slow to medium flowing shallow water with a substrate dominated by pebbles and smaller cobbles, often concentrated at stream margins. |
| Trout parr habitat | Variety of substrate sizes; undercut banks, tree roots, big rocks; deeper, slower water. |
| Lamprey spawning habitat | Stable gravel up to 30 cm deep that is not compacted or contains excessive silt (but may contain some sand). Substrate size varies from gravels to pebbles. |
| Juvenile lamprey habitat | Optimal: Stable fine sediment or sand ≥15cm deep with low water velocity and the presence of organic detritus/plant material.<br>Sub-optimal: Shallow sediment (<15cm deep), often patchy and interspersed among coarser substrates. |

| Habitat Type | Classification |
|---|---|
| Eel habitat | Frequently burrow into mud and utilise cover from larger instream substrate and bankside crevices (e.g., gaps in bank modifications such as walls and log revetments). |
| Glides | Smooth laminar flow with little surface turbulence. Shallow glide ≤ 0.3m, deep glide > 0.3m. |
| Pools | No perceptible flow. Shallow pool ≤ 0.3m, deep pool > 0.3m. |
| Flow constriction | Where flows are accelerated between narrow banksides (usually combined with deep fast flows and bedrock substrates). |
| *Gravel (2-16mm), pebble (16-64mm), cobble (64-256mm), boulder (>256mm) ** If significant amounts of different habitat types were found to co-exist in the same section, these habitat classifications were adequately described. For example, in the case of salmonids, fry and parr habitat is classified as juvenile habitat. Where parr habitat is mentioned, this refers to habitat that has principally been identified as habitat more suited to parr than fry, however, habitually contains a lower quantity of fry habitat than habitat which is suited to both fry and parr. | |

20. Predominant substrate and flow types were categorised according to Hendry and Cragg-Hine (1997). Definitions are outlined in Table 21.3.

**Table 21.3: Substrate and Flow Type Categorisation**

| Substrate | Definition | Flow Types | Definitions |
|---|---|---|---|
| SA | Sand: Fine, inorganic particles, <2mm diameter, individual particles visible | DP | Deep Pool: > =30 cm deep, water flow slow, eddying, no waves form behind a 2-3 cm wide rule placed in the current, smooth surface appearance, water flow is silent. |
| GR | Gravel: Inorganic particles 2-16 mm diameter | SP | Shallow Pool: < 30cm deep, water flow slow, eddying, no waves form behind a 2-3 cm wide rule placed in the current, smooth surface appearance, water flow is silent |
| PE | Pebble: Inorganic particles 16-64 mm diameter | DG | Deep Glide: > =30 cm deep, water flow moderate/fast; waves form behind a 2-3 cm wide rule placed in the current, smooth surface appearance, water flow is silent. |
| CO | Cobble: Inorganic particles 64-256mm diameter | SG | Shallow Glide: < 30 cm deep, water flow moderate/fast; waves form behind a 2-3 cm wide rule is placed in the current, smooth surface appearance, water flow is silent. |
| BO | Boulder: Inorganic particles >256mm diameter | RU | Run: water flow fast, unbroken standing waves at surface; water flow is silent. |
| BE | Bedrock: Continuous Rock Surface | RI | Riffle: water flows fast, broken standing waves at surface; water flow is audible. |
| OB | Obstruction: Roots, wood, sheets of iron, barrels etc. | TO | Torrent: white water, chaotic and turbulent flow, water flow is noisy, difficult to distinguish substrate. |

**Table 21.4: Survey Locations**

| Survey Code | Segment Name | Drain or River | Upstream | Downstream |
|---|---|---|---|---|
| B01 | ECC 12: Marsh Road to Fosdyke Bridge | River Welland | TF315321 | TF322324 |
| B02 | ECC 13: Fosdyke to Surfleet Marsh OnSS/Marsh Drove | Fosdyke Bridge Outfall Water Body | No Access | TF317322 |
| B03 | ECC 13: Fosdyke to Surfleet Marsh OnSS/Marsh Drove | Risegate Eau Water Body | No Access | TF303316 |
| B04 | ECC 13: Fosdyke to Surfleet Marsh OnSS/Marsh Drove | River Welland | TF287302 | TF296309 |
| B05 | ECC 12: Marsh Road to Fosdyke Bridge | Wyberton Branch Drain | TF352397 | TF357399 |
| B06 | ECC 10: Church End Lane to The Haven | River Haven | TF355408 | TF359402 |
| B07 | ECC 10: Church End Lane to The Haven | Hobhole Drain | TF366410 | TF365405 |
| B08 | ECC 6: Steeping River to Fodder Dike Bank/Fen Bank | Lymn/Steeping Water Body | TF481592 | TF485590 |
| B09 | ECC 6: Steeping River to Fodder Dike Bank/Fen Bank | Lymn/Steeping Water Body | TF485602 | TF490600 |

### 21.3.3 Fish Habitat Assessment

21. The main objective of the survey was to draw together a detailed understanding of the survey location, the condition of the habitats within the wetted width of the river, and, where applicable, to assess for both fish habitat quality (FHQ) and salmonid spawning potential (SSP). This assessment was made during a walkover survey, identifying and evaluating habitats for a range of salmonid life stages and other aquatic species, and recording information including channel width; channel depth; flow type; substrate composition; instream and bankside cover; riparian canopy cover; fish spawning potential; riparian land uses; and limiting factors. From this, further analysis was undertaken, and evaluations were made for FHQ along the watercourse. Each survey location was then given a rating for fish habitat quality (High, Good, Moderate, Low or Poor) described in Table 21.5.

**Table 21.5: Fish Habitat Suitability Grades**

| Grade | Conditions |
|---|---|
| High | All desirable habitat conditions are met. |
| Good | Most of desirable habitat requirements met with few adverse conditions present. |
| Moderate | Habitat displays a mixture of both desirable and adverse conditions. |
| Poor | Habitat primarily consists of adverse conditions with few desirable conditions present. |
| Low | Little/no desirable habitat conditions present. |

22. All survey locations identified for FHQ were further subjected to analysis for the SSP of the watercourse. Survey locations were graded as having Optimal, Sub-Optimal or Not Suitable salmonid spawning potential. Spawning potential is considered optimal if an area greater than $10m^2$ is present with clean and suitable substrate likely suitable to all salmonids. Spawning potential is considered sub-optimal if spawning area is $<10m^2$ with a mix of suitable and unsuitable substrate types. Habitat that is Not Suitable contains no features that could be utilised for spawning. In line with Scottish Fisheries Co-ordination Centre: Habitat Surveys Training Course Manual (SFCC, 2007), additional assessment of SSP was taken to provide further information on the categories assessed: substrate type, substrate compaction, river depth, flow type, and siltation (SFCC, 2007). The spawning habitat potential assessment criteria are shown in Table 21.6.

**Table 21.6: Suitable Atlantic salmon and brown/Sea trout spawning habitat (taken from Louhi *et al*., 2008)**

| Species | Substrate | Substrate Compaction | Depth (cm) | Flow Type | Siltation |
|---|---|---|---|---|---|
| Salmon | Gravel, Pebble, Cobble | Uncompacted | 20-50 | Swift velocities | No siltation |
| Trout | Gravel, Pebble, Cobble | Uncompacted | 15-45 | Slower flow | No siltation |

### 21.3.4 Limitations

23. Record searches that result in a lack of species records within an area may not reflect an actual absence of that species but could simply be a consequence of limited recording/survey effort in that area.

24. Due to safety concerns, ecologists were not permitted to enter any intertidal zone. All intertidal zones were assessed from the banks only. Drainage systems were investigated, although due to the gradients and water depth, ecologists were not permitted to enter, and assessments were again made from the banks where access was permitted. This has no constraints on our understanding of the baseline data as lack of flow within these systems and algae coverage allowed for the conclusion that the watercourses were poor.

25. Access was not available for the upstream survey sections of B02 and B03. However sufficient survey data was collected at distance and from the downstream sections, which provided adequate survey information for the assessment.

26. No suitable fish habitats with the potential to be significantly impacted by the Project were identified during the fish habitat assessment, therefore no species-specific surveys for fish were deemed necessary.

# 21.4 Results

## 21.4.1 Desk Study Results

### 21.4.1.1 Designated Sites

27. The desk study identified four statutory designated sites with aquatic interest, although no fish species were clearly identified as the primary reason for designation (Table 21.7). Summary descriptions for each designation are provided in Table 21.7, with full citations available in Appendix 21.1 – Desk Study: Annex A.

28. A further 15 non-statutory designated sites with aquatic interest were identified, although no fish species were clearly identified within the designated site citations (Table 21.8).

**Table 21.7: Statutory Designated Sites for Order Limits**

| Site Name | Distance from the Order Limits (km) | Nearest Segment | Compass Direction | Area of Designation (ha) | Description |
|---|---|---|---|---|---|
| Saltfleetby-Theddlethorpe Dunes National Nature Reserve (NNR) | 12.7 | ECC 1: Landfall to A52 - Hogsthorpe | ESE | 619 | NNR: Site forms part of the Saltfleetby-Theddlethorpe Dunes Sites of Special Scientific Interest (SSSI), as well as part of the Humber Estuary Special Area of Conservation (SAC). It is an important reserve containing tidal sand and mudflats, salt and freshwater marshes and sand dunes. On the foreshore, accreting mud and silt flats and saltmarsh in the north give way to a narrower sandy beach at the southern end. |
| The Wash (and North Norfolk Coast) SAC | 0.2 | ECC 11: The Haven to Marsh Road | E | 107,720 | SAC: Important habitats include marine areas, sea inlets, tidal rivers, estuaries, mudflats, sand flats, lagoons (including saltwork basins), saltmarshes, salt pastures and salt steppes. Annex 1 habitat that are the primary reason for designation:<br>sandbanks which are slightly covered by sea water all the time;<br>mudflats and sandflats not covered by seawater at low tide;<br>large shallow inlets and bays;<br>reefs;<br>Glasswort and other annuals colonising mud and sand;<br>Atlantic salt meadows;<br>Mediterranean and rutico-Atlantic halophilous scrubs (Sarcocornetea ruticose); and<br>Coastal lagoons (a qualifying features though not a primary reason for designation).<br>The SAC is also designated for Annex II species common seal, with otter also listed as a qualifying feature but not the primary reason for designation. |
| The Wash NNR | 0.6 | ECC 12: Marsh Road to Fosdyke Bridge | ENE | 8777 | NNR: Site of mixed open deep water, permanent shallow water, mudflats and saltmarsh, representing one of Britain’s most important winter-feeding areas for waders and wildfowl (Natural England via Lincolnshire’s National Nature Reserves Webpage). It comprises Kirton |

| | | | | | |
|---|---|---|---|---|---|
| | | | | | Marsh, Terrington St Clement Marsh, Point Green, and the North Wootton Marsh. It's a valuable breeding zone for birds such as redshank and supports one of the largest common seal populations in England. |
| The Wash SSSI | 0.1 | ECC 11: The Haven to Marsh Road | E | 62,044 | SSSI: Covers the same area and footprint as the SPA and Ramsar. An area of international biological interest. The intertidal mudflats and saltmarshes represent one of Britain's most important winter-feeding areas for waders and wildfowl outside of the breeding season. Enormous numbers of migrant birds, of international significance, are dependent on the rich supply of invertebrate food. The saltmarsh and shingle communities are of considerable botanical interest and the mature saltmarsh is a valuable bird breeding zone. In addition, the Wash is also very important as a breeding ground for common seals. |

**Table 21.8: Non-Statutory Designated Sites for Order Limits**

| Site Name | Distance from the Order Limits (km) | Nearest Segment | Compass Direction | Area of Designation (ha/km) | Description |
|---|---|---|---|---|---|
| Chapel Six Marshes | 0.5 | ECC 1: Landfall to A52 – Hogsthorpe | ESE | 12.9ha | Main Habitats: Coarse or rank grassland, lake, reedbed, scrub - scattered/dense (also ditch, marsh/fen, non-native plantation - on ancient/new, pond, scrub - scattered/dense)<br>A 750m stretch of coast and is partly a Lincolnshire Wildlife Trust (LWT) Reserve.<br>Within the small area of reserve managed by LWT, wetland plants typical of brackish water include parsley water-dropwort, sea-milkwort, probable brackish water-crowfoot, saltmarsh rush and distant sedge. Growing with these are ivy-leaved duckweed, common fleabane, angelica, creeping bent, toad rush and false fox-sedge.<br>The remainder of the site is managed by Lincolnshire County Council (LCC) and is publicly accessible. Major works have been carried out in 2014/2015 to enhance the value of the site for wetland flora and fauna, involving creation of winding water channels on land to north and south of the entrance road. Habitats present over the site as a whole are bare sand and short vegetation in car parking areas, coarse grassland, a little open water, much reedbed, and varying cover of trees and scrub. The resulting flora is diverse and interesting.<br>Fauna recorded includes moorhen, migrating whimbrel, wood pigeon, green-veined white, small tortoiseshell, and common darter. |
| Hogsthorpe Pit | 0.1 | ECC 1: Landfall to A52 – Hogsthorpe | SSW | 1.4ha | Main Habitat: Standing water, willow carr, grassland.<br>Around the pond is diverse wetland vegetation and some drier grassland and scrub. Lesser bulrush and common reed are abundant at the water's edge. Also present are water dock, branched bur-reed, water mint, purple loosestrife, greater pond-sedge, and yellow iris. Marshy areas, particularly to the east of the pond, support further species, such as marsh bedstraw, hoary |

| Site Name | Distance from the Order Limits (km) | Nearest Segment | Compass Direction | Area of Designation (ha/km) | Description |
|---|---|---|---|---|---|
| | | | | | willowherb, tufted forget-me-not, water-cress, meadowsweet and jointed rush. Of most note is a sizeable patch of brookweed amongst tall fen vegetation beside an angler's path. Mature and younger specimens of various willows dominate the remainder of the site, with a restricted range of common ground flora plants beneath. Some sycamore is also present.<br>Botanically-rich grassland is restricted to small areas of dry bank on the southern and northern margins of the pond. Species present include autumn hawkbit, tufted vetch, yarrow, lady's bedstraw and meadow vetchling. A larger patch of coarser grassland is used as a car park (in the northwest corner of the site). This supports much common knapweed, together with bird's-foot-trefoil, common sorrel, red clover, red fescue, tall fescue and tufted hair-grass. Adjacent to this is neglected former grassland that is now dominated by species such as field bindweed, creeping thistle, bramble, cow parsley, upright hedge-parsley (*Torilis arvensis*), field horsetail and false oat-grass. Scrub species include hawthorn, elder, blackthorn and some dogwood that appears to be non-native.<br>Coot, moorhen, and common dragonflies were recorded. |
| Risegate Eau | 0 | ECC 13: Fosdyke to Surfleet Marsh OnSS/Marsh Drove | W | 9km | <u>Main Habitat</u>: Coarse or rank grassland, drain, linear reedbed, scrub.<br>A central 9km of a 15km long watercourse extending from South Forty Foot Drain in the west to River Welland in the east. Channel size varies from one to about six metres wide. Banks along the 65m of drain that is west of Allen's Bridge have been managed and studied by local resident Leslie Hebdon since the late 1980s, during which time a selection of nectar-rich and pollen-rich plants have been introduced to encourage insect populations. Population of the locally and nationally rare Deptford pink (*Dianthus armeria*). A very small patch of adjacent woodland planted in 1990 comprises native trees and shrubs such as pedunculate oak, alder, goat willow (*Salix* |

| Site Name | Distance from the Order Limits (km) | Nearest Segment | Compass Direction | Area of Designation (ha/km) | Description |
|---|---|---|---|---|---|
| | | | | | *caprea*), field maple, alder buckthorn, hazel, guelder-rose (*Viburnum opulus*) and hawthorn.<br>A good diversity of insects include: Essex skipper, common blue, gatekeeper, shaded broad bar, blood vein (*Timandra comae*), silver Y (*Autographa gamma*), Roesel's bush-cricket (*Metrioptera roeselii*), common carder bee (*Bombus pascuorum*), brown hawker (*Aeshna grandis*) and common darter. Other fauna recorded were reed warbler, kingfisher (*Alcedo atthis*), common snipe, grey heron (*Ardea cinerea*), moorhen, green sandpiper (*Tringa ochropus*) and common frog. Water voles (*Arvicola amphibius*) were present near Allen's Bridge in 2013 and have been known to occur there for many years.<br>Records show that there is an excellent selection of bees, wasps, and other insects west of Allen's Bridge. One of these, the large garden bumblebee (or ruderal bumblebee) (*Bombus ruderatus*), is a nationally notable UK BAP species, while the nationally rare tawny longhorn beetle (*Paracorymbia fulva*) is listed as RDB3. The abundance of dandelion (*Taraxacum officinale*) and white dead-nettle (*Lamium album*) is important in providing food for bees immediately after they emerge from hibernation. |
| Moulton Marsh | 0 | ECC 12: Marsh Road to Fosdyke Bridge | SSE | 28.3ha | <u>Main Habitat</u>: native plantation, reedbed, saltmarsh, saline lagoon (also coarse grassland, drain)<br>An area of dense planted woodland (including aspen, alder, field maple, with some pine, rowan (*Sorbus aucuparia*), birch (*Betula* sp.), hawthorn, and dogwood), and very coarse grassland with a variety of shrubs including large amounts of sea buckthorn.<br>Frequently flooded, saltmarsh. Two, large saline ponds with little aquatic or marginal vegetation but some important invertebrate species typical of saline lagoons of SSSI quality. This is a wetter area enclosed on all sides by high banks with a mixture of reedbed (c.70%), areas of saltmarsh vegetation with the occasional pool, |

| Site Name | Distance from the Order Limits (km) | Nearest Segment | Compass Direction | Area of Designation (ha/km) | Description |
|---|---|---|---|---|---|
| | | | | | and drier areas of coarse grassland. A c.10-20m wide strip of trees has been planted along the southeast edge.<br><br>The saltmarsh vegetation occurs at the wetter edges of the reedbed and includes glasswort (*Salicornia europaea*), lesser sea-spurrey (*Spergularia marina*) and a small unidentified rush (*Juncus* sp.). The more negotiable areas on higher, drier ground have large amounts of saltmarsh rush, clumps of distant sedge, sea aster (*Tripolium pannonicum*), brookweed, common fleabane, sea-milkwort, and sea couch.<br><br>Fennel pondweed was found in some of the small pools that were present, and wood small-reed (*Calamagrostis epidejos*) occurred in patches throughout. |
| Anderby Gravity Outfall | 0.2 | ECC 1: Landfall to A52 – Hogsthorpe | N | 0.6ha | <u>Main Habitats</u>: Drain, semi-improved neutral and coarse grassland<br><br>The canalised downstream end of Main Drain and its steep banks on the southern edge of Anderby Creek. Adjacent to both Anderby Creek Sand Dunes and Anderby Marsh LWT nature reserve. The drain is maintained, limiting the brackish floral community present. Sea club-rush and common reed are abundant on both of the steep lower banks, as is typical of brackish drains. Few aquatic species can survive the saline conditions, but any that do are kept under control by regular management. The very steep banks prevented comprehensive study of water plants, but at the more accessible landward end there is much fennel pondweed and some bulrush.<br><br>Good assemblage of birds (reed and sedge warbler, common whitethroat, wren, swallow, swift, house martin), damselflies and common frog. |
| Vernatt's Drain | 1.0 | ECC 14: Surfleet Marsh OnSS/Marsh Drove to Order Limits NG Substation | SW | 10.7km | <u>Main Habitat</u>: Drain, calcareous grassland, neutral grassland, reedbed, coarse grassland (also scattered non-planted trees, tussocky vegetation, steep slopes. South-facing slopes, earthworks/hummocky ground) |

| Site Name | Distance from the Order Limits (km) | Nearest Segment | Compass Direction | Area of Designation (ha/km) | Description |
|---|---|---|---|---|---|
| | | | | | Vernatt's Drain is a large man-made watercourse resulting from the amalgamation of Counter Drain, North Drove Drain and South Drove Drain at Pode Hole.<br>Substantial stretches with a rich grassland flora. Species often found in good quality neutral grassland include yellow rattle, common knapweed, lady's bedstraw, pignut (*Conopodium majus*), southern marsh-orchid, tufted vetch, meadow vetchling, crested dog's-tail and sweet vernal-grass. Plants typical of calcareous soils are also present.<br>Common reed dominates much of the water's edge, but there are sections where a rich mixture of other wetland vegetation occurs. Some of the waterside plants in these places are flowering-rush (*Butomus umbellatus*), yellow iris, water dock, common club-rush, branched bur-reed, fool's-water-cress, lesser water-parsnip, water-cress, reed canary-grass and reed sweet-grass. Species characteristic of marshy areas include meadowsweet, marsh-marigold (*Caltha palustris*), angelica, common fleabane, brooklime (*Veronica beccabunga*), water mint, common spike-rush, and common and jointed rush. In addition, the presence of sea club-rush, sea-purslane (*Halimione portulacoides*), sea couch and reflexed saltmarsh grass (*Puccinellia distans subsp. Distans*) suggests that the drain water includes a slightly saline element.<br>Amongst the many aquatic plants recorded in the period 2009-11 are five pondweeds, namely curled pondweed (*Potamogeton crispus*), hairlike pondweed (*Potamogeton trichoides*), fennel pondweed, flat-stalked pondweed (*Potamogeton friesii*) and perfoliate pondweed (*Potamogeton perfoliatus*). The aquatic flora also includes arrowhead (*Sagittaria latifolia*), spiked water-milfoil, mare's-tail, water-violet (*Hottonia palustris*), rigid hornwort (*Ceratophyllum demersum*), fan-leaved water-crowfoot (*Ranunculus circinatus*), fat duckweed (*Lemna gibba*), unbranched bur-reed (*Sparganium emersum*) and the national rarity ribbon-leaved water-plantain (*Alisma gramineum*). |

| Site Name | Distance from the Order Limits (km) | Nearest Segment | Compass Direction | Area of Designation (ha/km) | Description |
|---|---|---|---|---|---|
| | | | | | The site supports a good range of fauna, including breeding populations of reed and sedge warblers, reed bunting and sand martin. Amongst the invertebrates present are small skipper, small heath (*Coenonympha pamphilus*), ringlet, meadow brown, gatekeeper, smoky wainscot moth (*Mythimna impure*), common blue damselfly and Roesel's bush-cricket. An otter spraint was also found. |
| River Glen Corridor | 1.3 | ECC 14: Surfleet Marsh OnSS/Marsh Drove to Order Limits NG Substation | WSW | 21.6km | <u>Main Habitat</u>: River, coarse or rank grassland, semi-improved neutral grassland (also scrub, linear reedbed, scattered non-planted trees, steep slopes, ROW, south-facing slopes.<br>This is a botanically rich 20km stretch of the River Glen between Baston and Thurlby Fens Site of Special Scientific Interest and a sluice near the confluence with the River Welland. The 10-25m wide channel and both banks are included, as well as a strip of adjacent grassland within Willow Tree Fen nature reserve. The Macmillan Way long distance footpath is beside the river throughout.<br>A wide range of aquatic plants in the river includes fennel and perfoliate pondweed, yellow water-lily (*Nuphar lutea*), whorled water-milfoil (*Myriophyllum verticillatum*), common, fat and ivy-leaved duckweed, water starwort (*Callitriche stagnalis*), unbranched bur-reed, arrowhead, rigid hornwort, water-crowfoot and *Riccia fluitans* (an aquatic liverwort). Amongst the diverse waterside flora are blue water-speedwell (*Veronica persica*), water-cress, brooklime, marsh woundwort (*Stachys palustris*), water forget-me-not (*Myosotis scorpioides*), common fleabane, yellow iris, water dock, reed sweet-grass, reed canary-grass, common reed, greater pond-sedge and tufted-sedge (*Eriophorum angustifolium*).<br>Coarse grassland dominates drier habitats, but species typical of good neutral grassland are also present, such as common bird's-foot-trefoil, lady's bedstraw, yellow rattle, pignut (*Conopodium majus*), common knapweed, meadow vetchling, crested dog's-tail, |

| Site Name | Distance from the Order Limits (km) | Nearest Segment | Compass Direction | Area of Designation (ha/km) | Description |
|---|---|---|---|---|---|
| | | | | | yellow oat-grass, tor-grass (*Bromus madritensis*) and glaucous sedge. A few parts are quite well wooded, but typically the banks only support a scatter of woody plants, including grey willow (*Salix cinerea*), goat willow, white willow (*Salix alba*) and crack willow, hawthorn, elder, sycamore and bramble. |
| Blue Gowt Drain, North | 1.5 | ECC 14: Surfleet Marsh OnSS/Marsh Drove to Order Limits NG Substation | WSW | 1.1km | <u>Main Habitat</u>: Drain, coarse or rank grassland (also scattered scrub, linear reedbed)<br>Measuring 1.1km long and 6-10m wide, this stretch of watercourse is of national significance due to the presence of a population of ribbon-leaved water-plantain, a species also occurring naturally in the nearby Counter Drain/Vernatt's Drain complex, but only in two other places in Britain. Consequently, the plant is protected under Schedule 8 of the Wildlife and Countryside Act (1981), is considered Critically Endangered, and is the subject of a Biodiversity Action Plan. It appears that ribbon-leaved water-plantain only grows and sets seed in Blue Gowt Drain in the years immediately following de-silting. The last record here was in 2007, when an estimated 50 plants produced 36 fruiting heads, as reported by Richard Lansdown.<br>Other aquatic plants seen in 2012 were spiked water-milfoil, perfoliate and fennel pondweed, duckweed and the non-native Nuttall's waterweed (*Elodea nuttallii*). Waterside species include yellow iris, water figwort, meadowsweet, amphibious bistort, great willowherb, reed sweet-grass, reed canary-grass, common reed, and greater pond-sedge.<br>Drier bankside habitat is mostly dominated by coarse grassland, as well as some hawthorn and elder bushes. Some of the more interesting plants here are tufted vetch, meadow vetchling, lesser trefoil, and red fescue. |

| Site Name | Distance from the Order Limits (km) | Nearest Segment | Compass Direction | Area of Designation (ha/km) | Description |
|---|---|---|---|---|---|
| Moggs Eye Sea Bank Ponds | 1.5 | ECC 1: Landfall to A52 – Hogsthorpe | NNW | 2.9ha | Main Habitat: Standing water, reedbed<br>A long, thin area of standing water, possibly formed by excavation of the earth sea wall. To the north, the site is almost 100% common reed with the road embankment supporting wooded patches of crack willow, alder and sycamore. Few aquatic species noted, although some wet edges support sea club-rush, mare's-tail, common duckweed, least duckweed and the invasive non-native New Zealand pigmyweed. The southern end of the site is used by anglers.<br>Marshy edges of the site are botanically diverse. Species present include brookweed, saltmarsh and jointed rushes, clustered dock, hoary willowherb and false fox-sedge. The slightly drier conditions nearby provided a chance sighting of adder's-tongue, a fern that is usually very inconspicuous in late summer. Other grassland species include crested dog's-tail, red fescue, common bent, meadow buttercup, meadow vetchling and lesser hawkbit. |
| Hobhole Drain, Simmon House Bridge to Benington Bridge | 1.4 | ECC 8: Broadgate to Ings Drove | W | 2.8km | Main Habitat: Drain, coarse grassland<br>The channel is approximately 15m wide. No submerged or floating aquatic species were found. The southern stretch has much more emergent marginal vegetation than the north, although there are large patches of common reed near the pumping station in the north.<br>The more diverse community of marshy species recorded at the edges of the drain towards the south included gypsywort (*Lycopus europaeus*), common fleabane, water mint, wild angelica and marsh woundwort in addition to the ubiquitous common reed, reed canary-grass and reed sweet-grass.<br>The bridges along the drain have numerous species growing on them, particularly in the south. Species include black spleenwort (*Asplenium adiantum-nigrum*), maidenhair spleenwort (*Asplenium* |

| Site Name | Distance from the Order Limits (km) | Nearest Segment | Compass Direction | Area of Designation (ha/km) | Description |
| --- | --- | --- | --- | --- | --- |
| | | | | | *trichomanes*), hart's-tongue (*Asplenium scolopendrium*), and smooth meadow-grass.<br>Large trees have been planted almost all the way along the drain on the eastern side. |
| Pinchbeck Marsh | 2.4 | ECC 14: Surfleet Marsh OnSS/Marsh Drove to Order Limits NG Substation | SW | 2.3km | Main Habitat: Calcareous grassland (also river, reedbed)<br>The original Site of Nature Conservation Interest here is now a large area of arable land between the Vernatt's Drain and the River Welland. Two crops were being grown there at the time of survey, wheat, and potatoes. The potato crop had recently been sprayed with acid.<br>The southern end of this site is formed by the bank of the A16 Spalding Bypass and was also once the bank on the old Spalding to Boston Railway. When the road was completed in the early 1990s the verge was landscaped, and some planting took place on this bank.<br>The Welland bank is more open and true grassland. On the river side of the bank there are patches of rank vegetation, but most is grassland, cut once a year by the EA. Some areas on the field side have been closed off and used to graze cattle.<br>This stretch of the Welland is tidal. Incidental bird sightings included 35 mallard, a grey heron and a shag (*Gulosus aristotelis*) on or by the water. |
| Steeping Marsh | 2.7 | ECC 5: Low Road to Steeping River | ESE | 22.1ha | Main Habitat: Coarse or rank grassland, saltmarsh, river, drain, ditch (also scrub, saline lagoon, reedbed, ruderal)<br>This is a 70-190m wide and 1.5km long 'island' of several interesting habitats surrounded by low-lying arable land.<br>Growing on the riverbanks are typical saltmarsh plants such as spear-leaved orache (*Atriplex prostrata*), sea club-rush, reed |

| Site Name | Distance from the Order Limits (km) | Nearest Segment | Compass Direction | Area of Designation (ha/km) | Description |
|---|---|---|---|---|---|
| | | | | | canary-grass, sea couch and common cord-grass (*Spartina Anglica*). Flatter areas nearby hold both temporary and permanent saline pools amongst saltmarsh. These salt-rich habitats support sea plantain, sea-purslane, sea aster (*Aster tripolium*), sea milkwort, sea arrowgrass, annual sea-blite (*Suaeda maritima*), greater sea-spurrey (*Spergularia media*), common scurvygrass (*Cochlearia officinalis*), glasswort and toad rush. One area of disturbed ground is favoured by grass-leaved orache.<br>The Relief Channel is at least 30m wide. There is a varied selection of freshwater species along the margins, including common reed, angelica, marsh bedstraw, meadowsweet, yellow iris, amphibious bistort, bulrush, branched bur-reed, and false fox-sedge. Some saltiness is indicated by the presence of sea club-rush, while the few bankside trees and shrubs include grey and crack willow.<br>Woody species present are hawthorn, sea buckthorn, wild privet and elder, with some sycamore further north. The boundary drain flora includes common reed, reed sweet-grass, angelica, water mint, common fleabane, and common duckweed. Amongst the grassland species on the adjacent embankment are meadow vetchling, tufted vetch, smooth hawk's-beard, yarrow, common mouse-ear, upright hedge-parsley, and red fescue. |
| The Lymm | 1.2 | ECC 5: Low Road to Steeping River | WNW | 3.2km | <u>Main Habitat</u>: River and linear reedbed (also coarse grassland, semi-improved neutral grassland, and scattered scrub). Botanical diversity varies along areas of the Lymn with many aquatic plants recorded such as five pondweed species, yellow water-lily, ivy-leaved duckweed, water starwort and rigid hornwort. Wetland species also include common reed, reed canary-grass, reed sweet-grass and water dock whilst the flat road. |

| Site Name | Distance from the Order Limits (km) | Nearest Segment | Compass Direction | Area of Designation (ha/km) | Description |
|---|---|---|---|---|---|
| Botolphs Park Pond | 1.7 | ECC 11: The Haven to Marsh Road | NW | 1.1ha | Main Habitat: Pond, Garden<br>Large pond, former brick pit, forming part of a large garden. Some non-native species present. A large garden pond with a sinuous form; there is a great variety of marginal habitats present including dense stands of common reed and bulrush, areas of rip rap with rush species growing, muddy margins with lower growing macrophytes such as watercress, water forget me not and blue water speedwell and small shallow inlets with some water starwort and common duckweed. The aquatic flora is relatively poor probably due to an abundance of water lilies covering the surface of the pond (particularly at the western end).<br>Areas of the pond are becoming covered in invasive water lilies and there are some exotic species present. The water lilies have spread since the last survey visit.<br>There are some banksides trees and scrub including willow species, hawthorn and exotic species.<br>The banksides comprise amenity grassland with typical garden species.<br>There is a small fountain within the pond. |
| Hall Weir | 1.5 | ECC 11: The Haven to Marsh Road | W | 2.3ha | Main Habitat: Wet Woodland<br>A mosaic of wet woodland, marshy areas, ponds, drains, and patchy wet/neutral grassland. It was possibly the site of former brick pits but has regenerated to secondary wet woodland in the main. There is no management and as a result there is abundant fallen dead wood, shading over the ponds, fallen trees in the ponds and wet areas and some very dense scrub.<br>Scrub and trees: Dominated by willow species and alder with some poplar, elm, birch, snowberry, horse chestnut, elder, hawthorn. Much fallen and standing dead wood. |

| Site Name | Distance from the Order Limits (km) | Nearest Segment | Compass Direction | Area of Designation (ha/km) | Description |
|---|---|---|---|---|---|
| | | | | | Ponds and wet flushes: Dominated by yellow iris, gyspywort, water mint, reed canary grass, bittersweet, reed sweet grass, pond sedge, pendulous sedge, meadowsweet, water plantation, pendulous sedge and common reed. There are areas of the ponds, drains and wetlands in the interior of the site that are very shaded, therefore little emergent/fringing aquatic vegetation occurs.<br>Drains: wet drain running to the south of the site supports brooklime, pink water speedwell, water starwort, fool’s water cress, watercress, common duckweed.<br>Wet grassland and rough grassland: dominated by creeping buttercup, rush species, great willowherb, silverweed, hogweed, false oat grass, common nettle, hedge bindweed, creeping thistle, Yorkshire fog, cow parsley, hedge woundwort and dock species.<br>Water voles signs recorded in the wet drain running along the south side of the site. Signs of badger activity located towards the northern area of the site. The site is likely to be a valuable foraging area for local bat populations, and it has high potential to support a rich invertebrate assemblage. The presence of hard fern is locally notable. |

### 21.4.1.2 Desk Study Results

29. GLNP did not return any records of fish from within the Order Limits.

30. GLNP returned records of two species from within study area. Three records for river lamprey were returned from the River Welland at the southern end of the Order Limits, and one record of burbot (*Lota lota*) from a fishing lake approximately 1.5km west of the Order Limits.

31. The search of EA online records identified 32 fish species recorded within the study area. Of these 32 fish species, (refer to Volume 3: Appendix 21.1: Onshore Ecology Desk Study (document reference 6.3.21.1)), only two species were of conservational concern. The results are reported below in Table 21.9.

**Table 21.9: Records of Fish Species Inside and Within the study area**

| Species | Number of Records | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 |
| Cod (Gadus morhua) | 2 | 0 | 0 | 0 | 0 | 3 | 1 | 0 |
| European Eel (Anguilla anguilla) | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 0 |

### 21.4.2 Water Quality

**32.** Water quality parameters collected by the EA returned Bad to Moderate ecological status results for all surveyed locations. The results are reported below in Table 21.10

33. Two of the main watercourses surveyed were the River Haven and the River Welland. The River Haven is in "Poor" ecological and chemical condition, due to poor soil and nutrient management, high levels of dissolved oxygen, high levels of pollutants including mercury and its compounds, polybrominated biphenyls (PBDEs). The River Welland has a "Moderate" ecological status and a "failing" chemical status due to poor nutrient management, high levels of dissolved oxygen, high levels of pollutants including mercury as well as PBDE and its components.

**Table 21.10: Records of Water Quality Parameters (2022) within the study area**

| Watercourse | Water Quality Parameters | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | pH | Dissolved Oxygen | Biochemical Oxygen Demand (BOD) | Phosphate | Ammonia (Phys-Chem) | Temperature | Hydrological Regime | Ecological Status |
| River Welland | - | High | - | - | - | - | Supports good | Moderate |
| River Haven | - | High | - | - | - | - | | Bad |
| Fosdyke Bridge Outfall Water Body | High | Poor | Moderate | Poor | Moderate | High | Does not support good | Bad |
| Risegate Eau Water Body | High | Poor | Not available | Poor | Good | High | Does not support good | Poor |
| Hobhole Drain | High | Poor | Moderate | High | Good | High | Does not support good | Bad |
| Lymn/Steeping Water Body | High | High | High | Good | High | High | Does not support good | Moderate |

### 21.4.3 Fish Habitat Assessment

34. The results of the FHQ and SSP surveys, conducted in October 2023, are presented in Table 21.11.

35. FHQ within both the large drain systems (B02, B03, B05, B07, B08, B09) and intertidal zones (B01, B04, B06) was deemed **Low** for all survey locations (Figure 21.9.1). No survey locations (potential water crossing points) within the Order Limits support suitable habitat for salmonids, lamprey or eel (Maitland, P.S.,2003; Inside Ecology, 2020). No fish passes were present at the drain system exit points thus migration is completely impeded within these zones and no stocking has been recorded within the drainage systems. No survey locations were assessed as having **High**, **Good**, **Moderate** or **Poor** quality for fish.

36. No survey locations (potential water crossing points) within the Order Limits support suitable SSP. All survey locations within the large drain systems were deemed **Not Suitable** (B02, B03, B05, B07, B08, B09) and all intertidal survey locations were also deemed **Not Suitable** (B01, B04, B06); refer to Figure 21.9.2). Water flow was extremely poor and macrophyte canopy cover was extremely high during the survey which will likely smother eggs and impede development.

**Table 21.11: Fish Habitat Assessment Summary of Findings**

| Survey Location | FHQ | Reach Description and Limiting Factors | SSP | Reach Description and Limiting Factors |
|---|---|---|---|---|
| **B01** | Low | Intertidal Zone: Wet width ranged from 18 – 31.78 m. Flow type was dominated by DG (100%). Depth was 100% >50cm. Substrate visibility was poor but during low tides high silt/mud levels were noted. No instream cover was present during the survey. The flow types and substrates made this watercourse low for salmonids at a range of life stages and lamprey. Land use is predominately artificial open water and road use. Limiting factors within this section are low water levels during low tide times and artificial straighten of the river, reducing instream coverage (Annex 1: Site Photos: Plate 1). No suitable eel habitat was identified due to lack of instream coverage, large boulder formation or bankside cover for predator avoidance and shelter. Eels are likely to migrate through the system and utilise the feeding opportunities. | Not Suitable | High salinity environment which will like impede egg development of salmonids, limited spawning substrates present (mud and silt will smother eggs). No substrates present for lamprey spawning. |
| **B02** | Low | Drainage System: Wet width ranged from 8.2 -17.53m. Flow type was dominated by SM (100%). Depth was 100% >50cm. Substrate visibility was poor and water colouration was olive green/brown (potential filamentous algae). Potential marginal instream cover from vegetation. No undercutting observed. The flow types and substrates made this watercourse low for salmonids at a range of life stages and lamprey. Land use was predominately arable and road use. Limiting factors within this section are the likely agricultural runoff impacting water quality and no fish pass present reducing the likelihood of migrating fish to be present (Annex 1: Site Photos: Plate 2). No suitable eel habitat was identified due to lack of instream coverage, large boulder formation or bankside cover for predator avoidance and shelter. | Not Suitable | No spawning substrates were observed. Lack of flow throughout would limit egg survival or development. No substrates or flow present for lamprey spawning. |
| **B03** | Low | Drainage System: Wet width ranged from 9.1 -10.73m. Flow type was dominated by SM (100%). Depth was 100% >50cm. Substrate visibility was poor and water colouration was olive green/brown (potential filamentous algae). Potential marginal instream cover from vegetation. No undercutting observed. High macrophyte presence observed (duckweed). The flow types and substrates made this watercourse low for salmonids at a range of life stages and lamprey. Land use was predominately arable Limiting factors within this section are the likely agricultural runoff impacting water quality and no fish pass present reducing the likelihood of migrating fish to be present (Photos: Plate 3). No suitable eel habitat was identified due to lack of instream coverage, large boulder formation or bankside cover for predator avoidance and shelter. | Not Suitable | No spawning substrates were observed. Lack of flow throughout would limit egg survival or development. No substrates or flow present for lamprey spawning. |

| Survey Location | FHQ | Reach Description and Limiting Factors | SSP | Reach Description and Limiting Factors |
|---|---|---|---|---|
| **B04** | **Low** | Intertidal Zone: Wet width ranged from 25.03 – 42.04m. Flow type was dominated by DG (100%). Depth was 100% >50cm. Substrate visibility was poor but during low tides high silt/mud levels were noted. No instream cover was present during the survey. The flow types and substrates made this watercourse low for salmonids at a range of life stages and lamprey. Land use is predominately artificial open water and arable. Limiting factors within this section are low water levels during low tide times, artificial straighten of the river, reducing instream coverage and likely agricultural runoff impacting water quality (Annex 1: Site Photos: Plate 4). No suitable eel habitat was identified due to lack of instream coverage, large boulder formation or bankside cover for predator avoidance and shelter. Eels are likely to migrate through the system and utilise the feeding opportunities. | **Not Suitable** | High salinity environment which will like impede egg development of salmonids, limited spawning substrates present (mud and silt will smother eggs). No substrates present for lamprey spawning. |
| **B05** | **Low** | Drainage System: Wet width ranged from 4.1 – 4.9m. Flow type was dominated by SM (100%). Depth was 100% >50cm. Substrate visibility was poor and water colouration was olive green/brown (potential filamentous algae). Potential marginal instream cover from vegetation. No undercutting observed. High macrophyte presence observed. The flow types and substrates made this watercourse low for salmonids at a range of life stages and lamprey. Land use was predominately arable. Limiting factors within this section are the likely agricultural runoff impacting water quality and no fish pass present reducing the likelihood of migrating fish to be present (Annex 1: Site Photos: Plate 5). No suitable eel habitat was identified due to lack of instream coverage, large boulder formation or bankside cover for predator avoidance and shelter. | **Not Suitable** | No spawning substrates were observed. Lack of flow throughout would limit egg survival or development. No substrates or flow present for lamprey spawning. |
| **B06** | **Low** | Intertidal Zone: Wet width ranged from 101 – 108.59m. Flow type was dominated by DG (100%). Depth was 100% >50cm. Substrate visibility was poor but during low tides high silt/mud levels were noted and boulders were observed (though not within the main stream). No instream cover was present during the survey. High levels of duck were noted at low tide on the banks. The flow types and substrates made this watercourse low for salmonids at a range of life stages and lamprey. Land use is predominately artificial open water and arable. Limiting factors within this section are low water levels during low tide times, artificial straighten of the river, reducing instream coverage and likely agricultural runoff impacting water quality (Annex 1: Site Photos: Plate 6). No suitable eel habitat was identified due to lack of instream coverage, large boulder formation or bankside cover for predator avoidance and shelter. Additionally due to the survey location within the intertidal zone, though | **Not Suitable** | High salinity environment which will like impede egg development of salmonids, limited spawning substrates present (mud and silt will smother eggs). No substrates present for lamprey spawning. |

| Survey Location | FHQ | Reach Description and Limiting Factors | SSP | Reach Description and Limiting Factors |
|---|---|---|---|---|
| | | boulders at low tide were observed, lack of water would be a limiting factor surrounding the substrate. Eels are likely to migrate through the system and utilise the feeding opportunities. | | |
| **B07** | Low | Drainage System: Wet width ranged from 27.1 – 27.4m. Flow type was dominated by SM (100%). Depth was 100% >50cm. Substrate visibility was poor and water colouration was olive green/brown (potential filamentous algae). Potential marginal instream cover from vegetation on the right bank. No undercutting observed on left bank. The flow types and substrates made this watercourse low for salmonids at a range of life stages and lamprey. Land use was predominately arable and road use. Limiting factors within this section are the likely agricultural runoff impacting water quality and no fish pass present reducing the likelihood of migrating fish to be present (Annex 1: Site Photos: Plate 7). No suitable eel habitat was identified due to lack of instream coverage, large boulder formation or bankside cover for predator avoidance and shelter. | **Not Suitable** | No spawning substrates were observed. Lack of flow throughout would limit egg survival or development. No substrates or flow present for lamprey spawning. |
| **B08** | Low | Drainage System: Wet width ranged from 13 – 15m. Flow type was dominated by SM (85%) and DG (15%). Depth was 100% >50cm. Substrate visibility was poor and water colouration was olive green/brown (potential filamentous algae). Potential marginal instream cover from vegetation. Banks had been reinforced. No undercutting observed. The flow types and substrates made this watercourse low for salmonids at a range of life stages and lamprey. Land use was predominately arable Limiting factors within this section are the likely agricultural runoff impacting water quality and no fish pass present reducing the likelihood of migrating fish to be present (Annex 1: Site Photos: Plate 8). No suitable eel habitat was identified due to lack of instream coverage, large boulder formation or bankside cover for predator avoidance and shelter. | **Not Suitable** | No spawning substrates were observed. Lack of flow throughout would limit egg survival or development. No substrates or flow present for lamprey spawning. |
| **B09** | Low | Drainage System: Wet width ranged from 32- 34.5m. Flow type was dominated by SM (55%) and DG (45%). Depth was 100% >50cm. Substrate visibility was poor and water colouration was olive green/brown (potential filamentous algae). Potential marginal instream cover from vegetation and rooted macrophytes. Banks had been reinforced. No undercutting observed. The flow types and substrates made this watercourse low for salmonids at a range of life stages and lamprey. Land use was predominately arable. Limiting factors within this section are the likely agricultural runoff impacting water quality and no fish pass present reducing the likelihood of migrating fish to be present (Annex 1: Site Photos: Plate 9). No suitable eel habitat | **Not Suitable** | No spawning substrates were observed. Lack of flow throughout would limit egg survival or development. No substrates or flow present for lamprey spawning. |

| Survey Location | FHQ | Reach Description and Limiting Factors | SSP | Reach Description and Limiting Factors |
|---|---|---|---|---|
| | | was identified due to lack of instream coverage, large boulder formation or bankside cover for predator avoidance and shelter. | | |
| Substrate: SI (Silt), SA (Sand), GR (Gravel), PE (Pebble), CO (Cobble), BO (Boulder), BE (Bedrock), OB (Obstruction)<br>Flow: SM (Still Marginal), DP (Deep Pool), SP (Shallow Pool), DG (Deep Glide), SG (Shallow Glide), RU (Run), RI (Riffle), TO (Torrent) | | | | |

## 21.5 Conclusion

37. The records of cod returned by the desk study (Table 21.9) indicate intertidal, or marine species. There are some circumstances under which such species might be found in rivers and estuaries; these occurrences are relatively rare and typically involve specific conditions or factors such as:

- Migration: Some primarily marine species (e.g. cod) which undertake long migrations have been known to enter estuaries or coastal rivers temporarily. This can happen if they are following prey species or are disoriented in some way;
- Environmental Changes: Changes in water temperature or other environmental factors can affect the distribution of some fish species (e.g. cod). If, for example, there is an unusual and sustained change in water temperature, some cod may move to different areas, including rivers, in search of more suitable conditions;
- Human Activities: Human activities, such as overfishing, pollution, or habitat destruction in their typical offshore habitats, might force marine species to seek refuge in estuaries or rivers if they are relatively safer or offer more stable conditions; and
- Inaccurate Identification: In some cases, fish may be misidentified when found in rivers.

38. However, based on the findings from the fish habitat quality assessment, cod are highly unlikely to be present in the drainage sites within the study area as no fish passes were observed during the survey and stocking had not taken place.

39. Sea lamprey are diadromous migratory fish that rely upon marine and freshwater habitats to complete their life cycle so would be expected to be within both environments. Again, the absence of fish passes will limit their ability to migrate along the river systems within the study area.

40. Low dissolved oxygen readings, as observed at locations within the study area, commonly occur when there is high amount of nutrients in water column. High nutrients can lead to excessive plant growth, resulting in increased levels of dissolved oxygen due to respiration during photosynthesis and decomposition of plant matter (Guiry 2014; Barber 2014). Levels of dissolved oxygen are expected to

show further depletion during the night hours where carbon dioxide is produced as a by-product of photosynthesis being halted (Fondriest Environmental, 2013). This is turn can impact on fish populations during oxygen depletion hours, significantly reducing habitat suitability.

41. In addition to low oxygen levels, the lack of flow will also reduce the spawning suitability for a range of fish species, which require rich oxygenated waters to facilitate egg development. Salmonids and Lamprey require clean gravels in fast flowing waters however, across all survey locations, no clean gravels were observed and the intertidal zone where high salinity waters is present is not suitable for egg development and juvenile life stages to thrive.

42. European eels within the freshwater life stages (Elver and Yellow eel) prefer shallow habitats, but that aquatic plants, submerged root systems, woody debris, pier supports, undercut banks and channel substrates all provide physical structures that eels could use as refuges or ambush points. The drainage system across the study area lacks such features and therefore does not offer good habitat quality for European eels.

43. Eels, salmonids and lamprey are known to utilise the intertidal zone during upstream and downstream migrations, though unlikely to reside there due to the high salinity environments. For eel specifically, this is dependent on the current life stage (Don Catchment Rivers Trust Website, 2023). Therefore, although habitat suitability is generally low, we are unable to entirely conclude that salmonids, lamprey and eel were not present within the intertidal zone during the October surveys.

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## Legend

- Order Limits
- Onshore Segment Break
- Onshore Substation (OnSS) Footprint
- Landfall Trenchless Works Area
- Transition Joint Bay Area
- Connection Area

Sources:
Aerial Imagery (2021)
Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community


Coordinate System: British National Grid

0 2.5 5 10 Kilometers

Scale: 1:200,000

A3 Page Size

Environmental Statement

Fish Habitat Quality

Figure 21.10.1.1

OUTER DOWSING OFFSHORE WIND

Date: 21/02/2024
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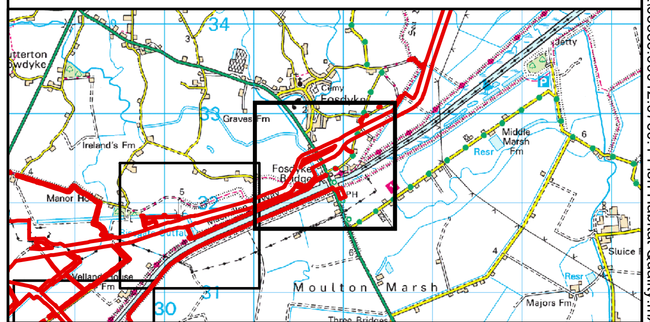
## Legend

- Order Limits
- Onshore Segment Break
- Upstream Survey Location
- Downstream Survey Location

**Surveyed Watercourse Extent (With Survey Reference ID)**

- Low Fish Habitat Quality - Little / No Desirable Habitat Conditions Present

Sources:
Aerial Imagery (2021)
Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

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Scale: 1:5,000

A3 Page Size

Environmental Statement

Fish Habitat Quality

Figure 21.10.1.2

OUTER DOWSING OFFSHORE WIND

Date: 21/02/2024
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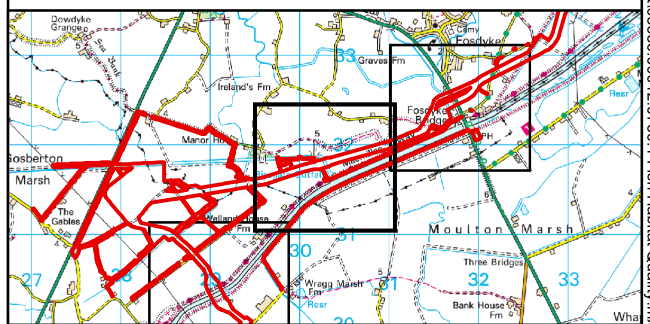
# Legend

- Order Limits
- Onshore Segment Break
- Upstream Survey Location
- Downstream Survey Location

**Surveyed Watercourse Extent (With Survey Reference ID)**

- Low Fish Habitat Quality - Little / No Desirable Habitat Conditions Present

**Sources:**
Aerial Imagery (2021)
Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community




Coordinate System: British National Grid

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Scale: 1:5,000

A3 Page Size

Environmental Statement

Fish Habitat Quality

Figure 21.10.1.3

OUTER DOWSING OFFSHORE WIND

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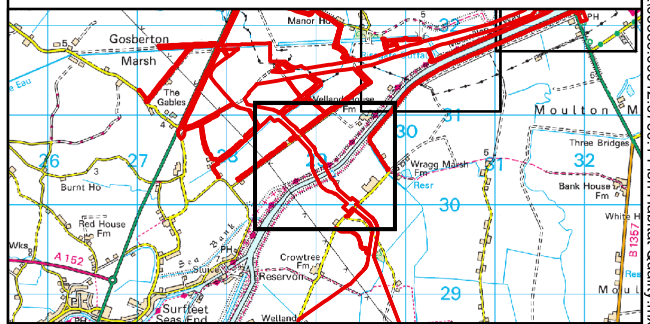
## Legend

- Order Limits
- Onshore Segment Break
- Upstream Survey Location
- Downstream Survey Location

**Surveyed Watercourse Extent (With Survey Reference ID)**

- Low Fish Habitat Quality - Little / No Desirable Habitat Conditions Present

Sources:
Aerial Imagery (2021)
Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community




Coordinate System: British National Grid

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Scale: 1:5,000

A3 Page Size

Environmental Statement

Fish Habitat Quality

Figure 21.10.1.4

OUTER DOWSING OFFSHORE WIND

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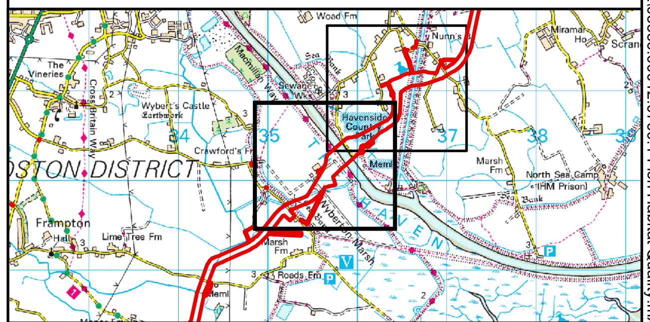
## Legend

- Order Limits
- Onshore Segment Break
- Upstream Survey Location
- Downstream Survey Location

**Surveyed Watercourse Extent (With Survey Reference ID)**

- Low Fish Habitat Quality - Little / No Desirable Habitat Conditions Present

Sources:
Aerial Imagery (2021)
Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community




Coordinate System: British National Grid

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Scale: 1:5,000

A3 Page Size

Environmental Statement

Fish Habitat Quality

Figure 21.10.1.5

OUTER DOWSING OFFSHORE WIND

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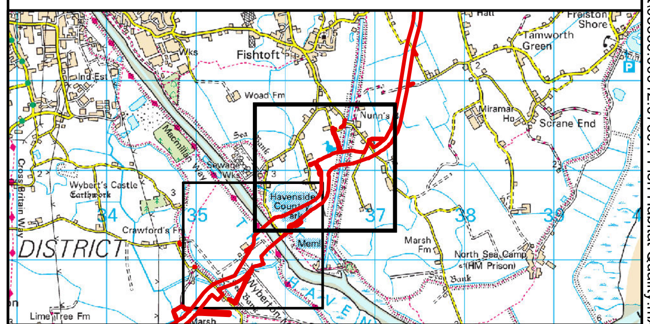
## Legend

- Order Limits
- Onshore Segment Break
- Upstream Survey Location
- Downstream Survey Location

**Surveyed Watercourse Extent (With Survey Reference ID)**

- Low Fish Habitat Quality - Little / No Desirable Habitat Conditions Present

**Sources:**
Aerial Imagery (2021)
Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community




Coordinate System: British National Grid

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Scale: 1:5,000

A3 Page Size

Environmental Statement

Fish Habitat Quality

Figure 21.10.1.6

OUTER DOWSING OFFSHORE WIND

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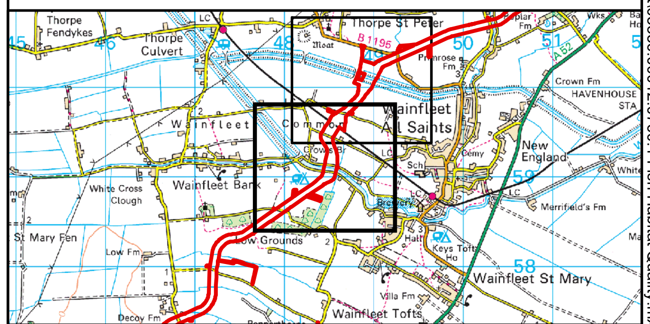
## Legend

- Order Limits
- Onshore Segment Break
- Upstream Survey Location
- Downstream Survey Location

**Surveyed Watercourse Extent (With Survey Reference ID)**

- Low Fish Habitat Quality - Little / No Desirable Habitat Conditions Present

Sources:
Aerial Imagery (2021)
Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

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Scale: 1:5,000

A3 Page Size

Environmental Statement

Fish Habitat Quality

Figure 21.10.1.7

OUTER DOWSING OFFSHORE WIND

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## Legend

- Order Limits
- Upstream Survey Location
- Downstream Survey Location

**Surveyed Watercourse Extent (With Survey Reference ID)**

- Low Fish Habitat Quality - Little / No Desirable Habitat Conditions Present

Sources:
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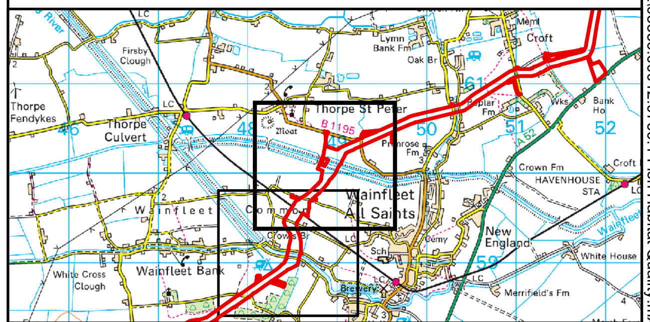
Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community



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Scale: 1:5,000

A3 Page Size

Environmental Statement

Fish Habitat Quality

Figure 21.10.1.8

OUTER DOWSING OFFSHORE WIND

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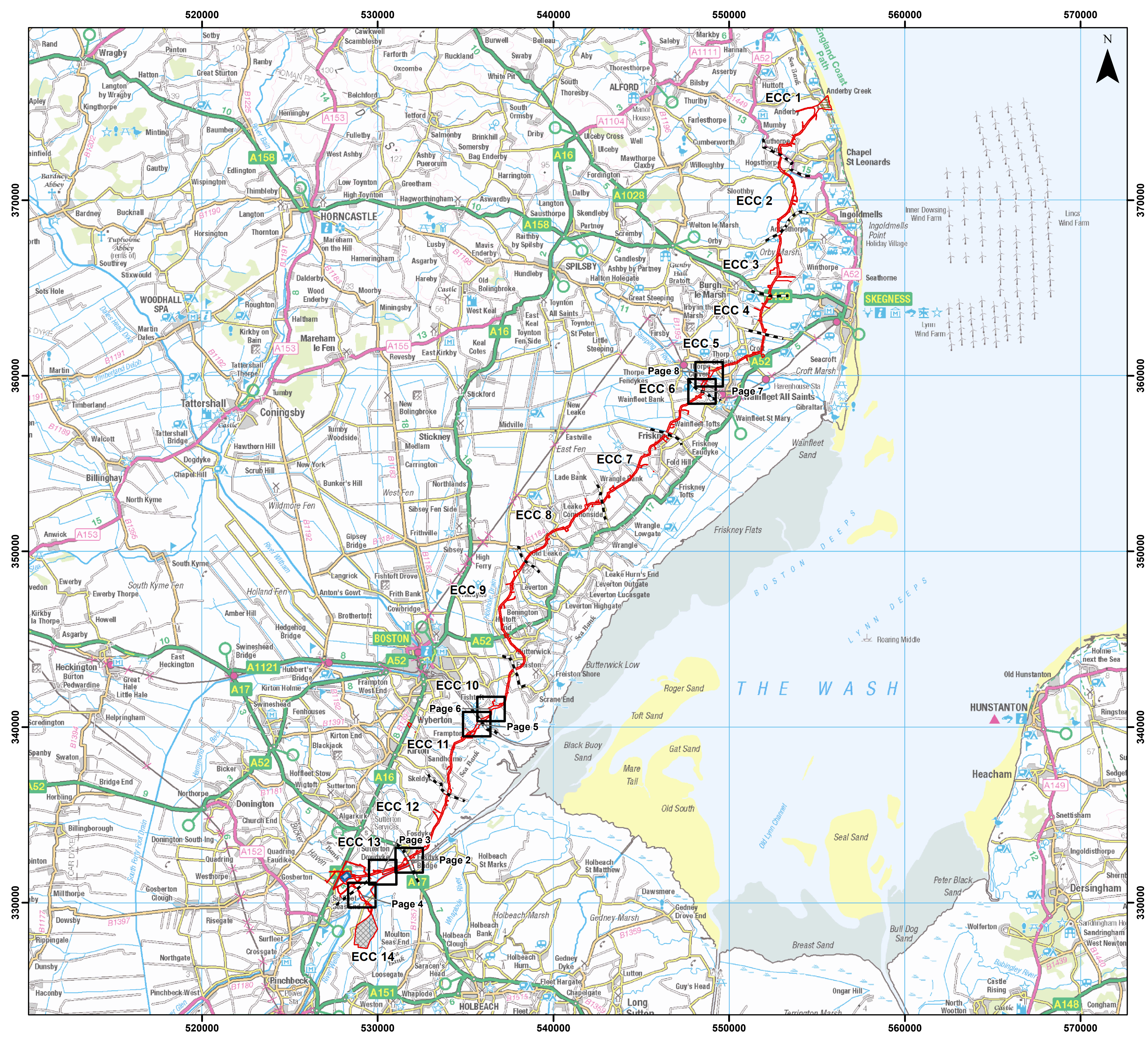


# Legend

- Order Limits
- Onshore Segment Break
- Onshore Substation (OnSS) Footprint
- Landfall Trenchless Works Area
- Transition Joint Bay Area
- Connection Area

Sources:
Aerial Imagery (2021)
Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community


Coordinate System: British National Grid

0 2.5 5 10 Kilometres

Scale: 1:200,000

A3 Page Size

Environmental Statement

Salmonoid Spawning Potential

Figure 21.10.2.

OUTER DOWSING OFFSHORE WIND

Date: 29/02/2024
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## Legend

- Order Limits
- Onshore Segment Break
- Onshore Substation (OnSS) Footprint
- Landfall Trenchless Works Area
- Transition Joint Bay Area
- Connection Area

**Sources:**
Aerial Imagery (2021)
Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

Coordinate System: British National Grid

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Scale: 1:200,000

A3 Page Size

Environmental Statement

Salmonoid Spawning Potential

Figure 21.10.2.1

OUTER DOWSING OFFSHORE WIND

Date: 21/02/2024
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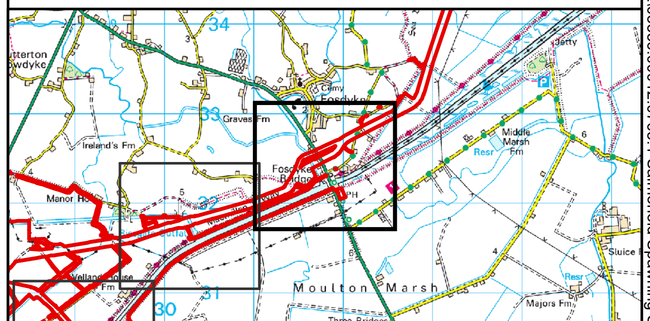
## Legend

- Order Limits
- Onshore Segment Break
- Upstream Survey Location
- Downstream Survey Location

**Surveyed Watercourse Extent (With Survey Reference ID)**

- Salmonoid Spawning Potential - Not Suitable

Sources:
Aerial Imagery (2021)
Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

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A3 Page Size

Environmental Statement

Salmonoid Spawning Potential

Figure 21.10.2.2

OUTER DOWSING OFFSHORE WIND

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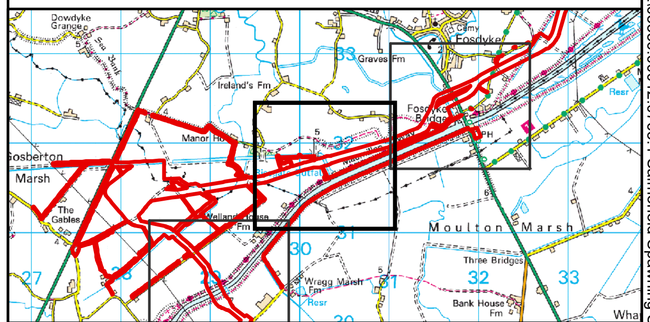
## Legend

- Order Limits
- Onshore Segment Break
- Upstream Survey Location
- Downstream Survey Location

**Surveyed Watercourse Extent (With Survey Reference ID)**

- Salmonoid Spawning Potential - Not Suitable

Sources:
Aerial Imagery (2021)
Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community



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A3 Page Size

Environmental Statement

Salmonoid Spawning Potential

Figure 21.10.2.3

OUTER DOWSING OFFSHORE WIND

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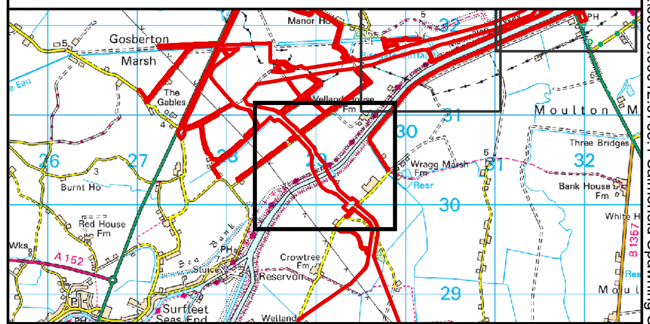
## Legend

- Order Limits
- Onshore Segment Break
- Upstream Survey Location
- Downstream Survey Location

**Surveyed Watercourse Extent (With Survey Reference ID)**

- Salmonoid Spawning Potential - Not Suitable

**Sources:**
Aerial Imagery (2021)
Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community



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Scale: 1:5,000

A3 Page Size

Environmental Statement

Salmonoid Spawning Potential

Figure 21.10.2.4

OUTER DOWSING OFFSHORE WIND

Date: 21/02/2024
Produced By: JCS
Revision: 0.1

SLR



Document Path: P:\05356 - GoBe Consultants Ltd\00012 GTR4 Outer Dowsing\Tech\GIS\Dwgs\Wking\2023 09 Environmental Statement\Ecology\TA\Fish Habitat\05356.00012.0763.1 Salmonoid Spawning Suitability.mxd

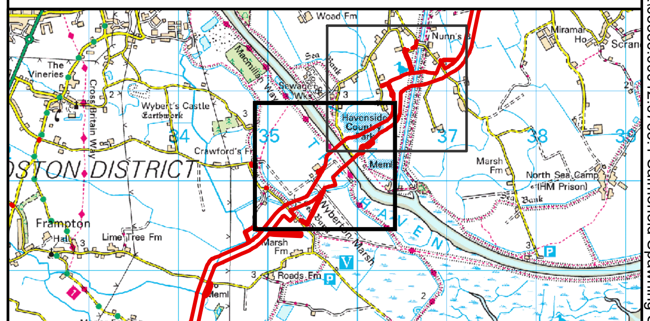

## Legend

- Order Limits
- Onshore Segment Break
- Upstream Survey Location
- Downstream Survey Location

**Surveyed Watercourse Extent (With Survey Reference ID)**

- Salmonoid Spawning Potential - Not Suitable

Sources:
Aerial Imagery (2021)
Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community




Coordinate System: British National Grid

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Scale: 1:5,000

A3 Page Size

Environmental Statement

Salmonoid Spawning Potential

Figure 21.10.2.5

OUTER DOWSING OFFSHORE WIND

Date: 21/02/2024
Produced By: JCS
Revision: 0.1

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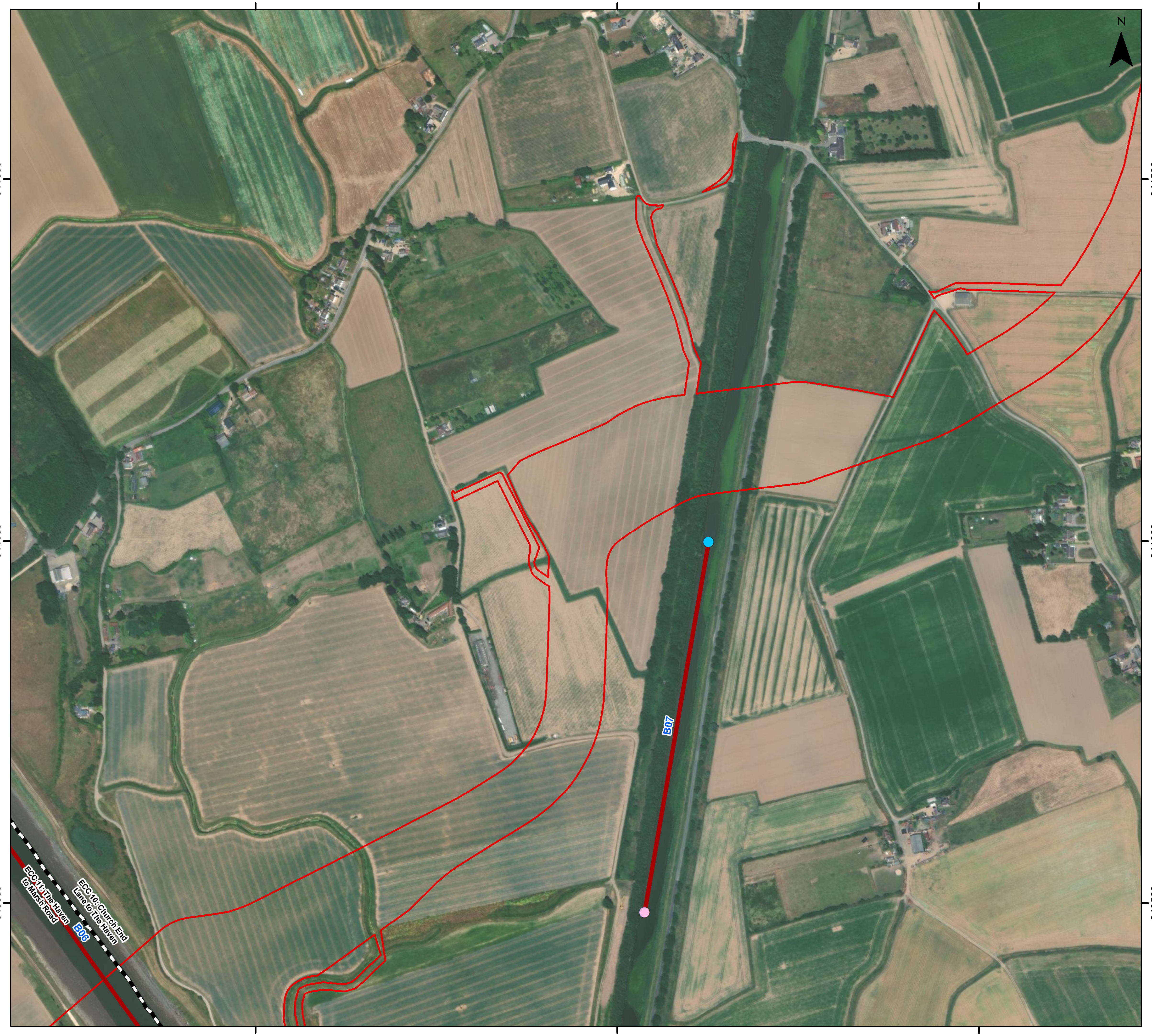


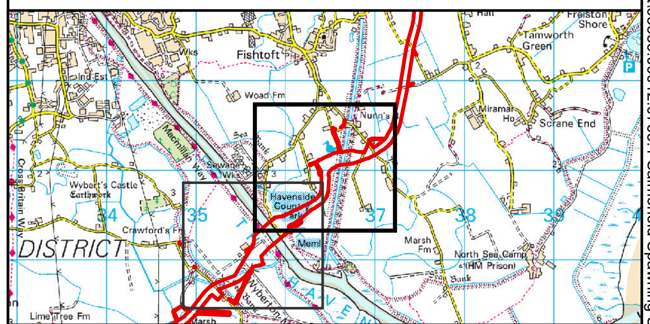

# Legend

- Order Limits
- Onshore Segment Break
- Upstream Survey Location
- Downstream Survey Location

**Surveyed Watercourse Extent (With Survey Reference ID)**

- Salmonoid Spawning Potential - Not Suitable

**Sources:**
Aerial Imagery (2021)
Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community




Coordinate System: British National Grid

0 50 100 200 Meters

Scale: 1:5,000

A3 Page Size

Environmental Statement

Salmonoid Spawning Potential

Figure 21.10.2.6

OUTER DOWSING OFFSHORE WIND

Date: 21/02/2024
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SLR



Document Path: P:\05356 - GoBe Consultants Ltd\00012 GTR4 Outer Dowsing\Tech\GIS\Dwgs\Wking\2023 09 Environmental Statement\Ecology\TA\Fish Habitat\05356.00012.0763.1 Salmonoid Spawning Suitability.mxd

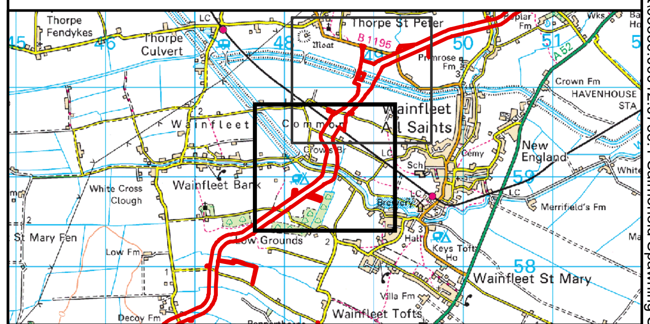

## Legend

- Order Limits
- Onshore Segment Break
- Upstream Survey Location
- Downstream Survey Location

**Surveyed Watercourse Extent (With Survey Reference ID)**

- Salmonoid Spawning Potential - Not Suitable

Sources:
Aerial Imagery (2021)
Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community




Coordinate System: British National Grid

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Scale: 1:5,000

A3 Page Size

Environmental Statement

Salmonoid Spawning Potential

Figure 21.10.2.7

OUTER DOWSING OFFSHORE WIND

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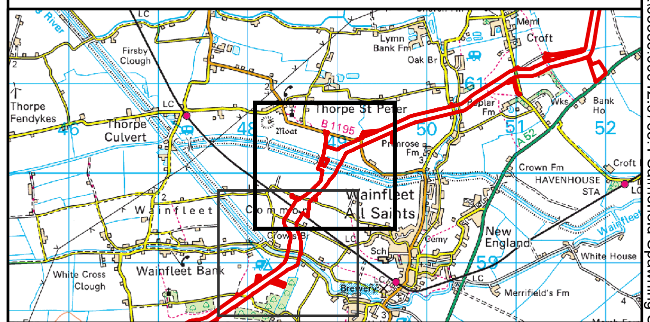
## Legend

Order Limits
Upstream Survey Location
Downstream Survey Location

**Surveyed Watercourse Extent (With Survey Reference ID)**

Salmonoid Spawning Potential - Not Suitable

Sources:
Aerial Imagery (2021)
Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community



Coordinate System: British National Grid

0 50 100 200 Meters

Scale: 1:5,000

A3 Page Size

Environmental Statement

Salmonoid Spawning Potential

Figure 21.10.2.8

OUTER DOWSING OFFSHORE WIND

Date: 21/02/2024
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# Annex 1: Site Photos

## Volume 3, Appendix 21.10: Fish Habitat Study

**Outer Dowsing Offshore Wind Environmental Statement**

**GoBe Consultants Ltd Consultants Ltd**

Client Reference No: 05356

18 January 20241 March 2024

**Plate 1: B01**

**Plate 2: B02**

**Plate 3: B03 - Flow gate where change in turbidity was observed.**

**Plate 3: B04**

**Plate 4: B05 - Macrophyte canopies**

**Plate 5: B06 - Intertidal silt and mud/duckweed present**


**Plate 6: B07 - No fish pass present.**


**Plate 7: B08**

**Plate 8: B09 - Rooted macrophytes**

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