Fisheries in EMS Habitats Regulations Assessment for Amber and Green risk categories

NWIFCA-R&A-EMS-COCKLE FISHERY-SOUTHPORT– 2023
25th September 2023

Site: Ribble and Alt Estuaries

European Designated Sites: Ribble and Alt Estuaries Ramsar
Ribble and Alt Estuaries SPA
Ribble Estuary SSSI
Sefton Coast SAC
Liverpool Bay SPA adjoins this site, for fullness of assessment bird features have been included in this document.

Marine Conservation Zones: Ribble estuary MCZ

European Marine Site: Ribble and Alt Estuaries

Qualifying Feature(s):
SPA and Ramsar

A157 - Bar-tailed godwit, Limosa lapponica (non-breeding)
A037 - Bewick's swan, Cygnus columbianus bewickii (non-breeding)
A616 - Black-tailed godwit, Limosa limosa islandica (non-breeding)
A193 - Common tern, Sterna hirundo (breeding)
A672 - Dunlin, Calidris alpina alpina (non-breeding)
A140 - Golden plover, Pluvialis apricaria (non-breeding)
A141 - Grey plover, Pluvialis squatarola (non-breeding)
A143 - Knot, Calidris canutus (non-breeding)
A183 - Lesser black-backed gull, Larus fuscus (breeding)
A130 - Oystercatcher, Haematopus ostralegus (non-breeding)
A040 - Pink-footed goose, Anser brachyrhynchus (non-breeding)
A054 - Pintail, Anas acuta (non-breeding)
A162 - Redshank, Tringa totanus (non-breeding)
A137 - Ringed plover, Charadrius hiaticula, (non-breeding)
A151 - Ruff, Philomachus pugnax (breeding)
A144 - Sanderling, Calidris alba (non-breeding)
Seabird assemblage
A048 - Shelduck, Tadorna tadorna - (non-breeding)
A704 - Teal, Anas crecca non-breeding)
Waterbird assemblage (breeding)
A038-B - Whooper swan, Cygnus cygnus (non-breeding)
A050 - Wigeon, Anas penelope (non-breeding)
Ramsar specific:
Natterjack toad, Epidalea calamita
Wetland bird assemblage

Potential supporting habitat(s):
SPA and Ramsar

Atlantic salt meadows (Glauco-Puccinellietalia maritimae)
Freshwater and coastal grazing marsh
Intertidal mixed sediments
Intertidal mud
Intertidal rock
Intertidal sand and muddy sand
Salicornia and other annuals colonising mud and sand
Water column

SAC

H2110 - Embryonic shifting dunes
H2120 - Shifting dunes along the shoreline with *Ammophila arenaria* ("white dunes"); Shifting dunes with marram
H2130 - Fixed dunes with herbaceous vegetation ("grey dunes"); Dune grassland*
H2150 - Atlantic decalcified fixed dunes (*Calluno-Ulicetea*); Coastal dune heathland*
H2170 - Dunes with *Salix repens* ssp. *argentea* (*Salicion arenariae*); Dunes with creeping willow
H2190 - Humid dune slacks
S1166 -*Triturus cristatus*; Great crested newt
S1395 - *Petalophyllum ralfsii*; Petalwort

High Level Conservation Objectives:
Ribble and Alt Estuaries SPA and Ramsar

The site's conservation objectives apply to the site and the individual species and/or assemblage of species for which the site has been classified. The objectives are to ensure that, subject to natural change, the integrity of the site is maintained or restored as appropriate, and
that the site contributes to achieving the aims of the Wild Birds Directive, by maintaining or restoring;

- The extent and distribution of qualifying natural habitats of qualifying species
- The structure and function of the habitats of qualifying species
- The supporting processes on which the habitats of qualifying species rely
- The populations of qualifying features, and,
- The distribution of qualifying features within the site.

Sefton Coast SAC

With regard to the SAC and the natural habitats and/or species for which the site has been designated (the 'Qualifying Features' listed below), and subject to natural change;

Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the Favourable Conservation Status of its Qualifying Features, by maintaining or restoring;

- The extent and distribution of qualifying natural habitats of qualifying species
- The structure and function of the habitats of qualifying species
- The supporting processes on which the habitats of qualifying species rely
- The populations of qualifying features, and,
- The distribution of qualifying features within the site.

Ribble Estuary MCZ

For this Marine Conservation Zone (MCZ) site, Natural England is currently in the process of developing a Conservation Advice package

Fishing activities assessed:

Gear type(s):

Hand-gathered – Cockle (*Cerastoderma edule*)

1. Introduction

1.1 Need for an HRA assessment

Members of the Technical Science and Byelaw Committee of the NWIFCA Authority, proposed to authorise a hand-gathered cockle fishery on the Southport cockle bed within the protected site on the 15th of August 2023.

The proposed opened fisheries will be by permits issued under NWIFCA Byelaw 3, Permit to Fish Cockles and Mussels flexible conditions.

This proposal is classed as a plan or project and the area lies within a European designated site (also commonly referred to as Natura 2000 sites), and therefore has the potential to affect the designated features. European sites are protected under the Conservation of Habitats and Species Regulations 2017. The proposal site is within the Ribble and Alt estuaries SPA and Ribble Estuary MCZ. The site is also designated as a Ramsar and Site of Special Scientific Interest (SSSI), and is in close proximity to the Sefton Coast Special Conservation Area (SAC) and the Liverpool Bay Special Protection Area (SPA). Under Habitats Directive, all existing and potential commercial fishing activities must be managed in accordance with Article 6.

An assessment of the feature/activity interactions taking place within the site has been previously completed. Any activities considered to be 'red risk' and the most likely to cause damage to features, had the highest priority for implementing management. Management measures for these features was implemented by 2013.

Activity/feature interactions identified within the matrix as amber risk require a site-level assessment to determine whether management of an activity is required to conserve site features. Activity/feature interactions identified within the matrix as green also require a site level assessment if there are "in combination effects" with other plans or projects. The feature interactions with the cockle fishery activity have been categorised as 'amber' or 'green' risk.

As a competent authority under the provisions of the Habitats Regulations, the NWIFCA should have regard for any potential impacts that a plan or project may have. Under the provisions of the Habitats Regulations and in accordance with Regulation 61, NWIFCA has undertaken an Appropriate Assessment of the proposal. Natural England is a statutory consultee on the Appropriate Assessment stage of the Habitats Regulations Assessment process, and their advice is incorporated into this document.

The purpose of this site-specific assessment document is to assess whether or not, in the view of NWIFCA the proposed fishing activity of hand-gathering cockle at the specified cockle bed in Southport, is likely to have a significant effect on the designated features of the site. This assessment will determine whether the proposed activities will have an adverse effect on the integrity of this European Site.

1.2 Proposal

The NWIFCA proposes to authorise a hand-gathered cockle fishery on the Southport cockle bed from October to the beginning of the closed season on the 1st of May 2024 under Byelaw 3 (2019).

Due to concerns over the ancillary activities of the fishery causing encroachment into the saltmarsh and damaging the protected features of the site, this year the access on haul road is allowed for **transiting only**. Industry is responsible for finding suitable parking and ancillary work areas for 'tonning up' (loading cockles for transportation) outside of the SPA and SSSI area.

In addition, the fishery will be subject to a Total Allowable Catch (TAC) of 230 tonnes, due to the diminished stock levels on the bed. Further information on the reasoning behind these decisions is provided in section 4.6.

1.3 Documents reviewed to inform this assessment

- Natural England's risk assessment Matrix of fishing activities and European habitat features and protected species[1]
- Natural England's advice on operations (https://designatedsites.naturalengland.org.uk/Marine/FAPMatrix.aspx?SiteCode=UK9005103&SiteName=ribble&SiteNameDisplay=Ribble+and+Alt+Estuaries+SPA&countyCode=&responsiblePerson=&SeaAr+ea=&IFCAArea=&NumMarineSeasonality=20)
- Site map(s) – sub-feature/feature location and extent
- Fishing activity data (map(s), etc)

2. Information about the EMS

(See cover pages, where details of the designated features and sub-features are listed)

The Ribble and Alt estuaries SPA is 12449.92 ha and consists of extensive intertidal mud and sandflats and large areas of saltmarsh. The inner flats of the Ribble Estuary are flanked by very large areas of saltmarsh.

The outer flats of the Ribble Estuary are sandy. They run south as a wide sandy shore along the Sefton Coast, merging into the Alt Estuary and extending as far south as Crosby. There is a large area of developing saltmarsh at Southport extending north. The intertidal sandflats on the Sefton Coast are extensive and have the highest exposure to wave action. The central flats of the Alt Estuary are also sandy but with a higher mud content, and a small saltmarsh on the east bank of the channel.

The large areas of intertidal sand and mudflats are submerged at high tide and exposed in the estuaries at low tide. They provide an important feeding habitat for birds. The estuary also provides extensive roosting sites for large populations of water birds. It is of major importance during the winter for duck and wader species and for supporting wader populations moving along the west coast of Britain during the spring and autumn migration periods.

[1] See Fisheries in EMS matrix: http://www.marinemanagement.org.uk/protecting/conservation/documents/ems_fisheries/populated_matrix3.xls

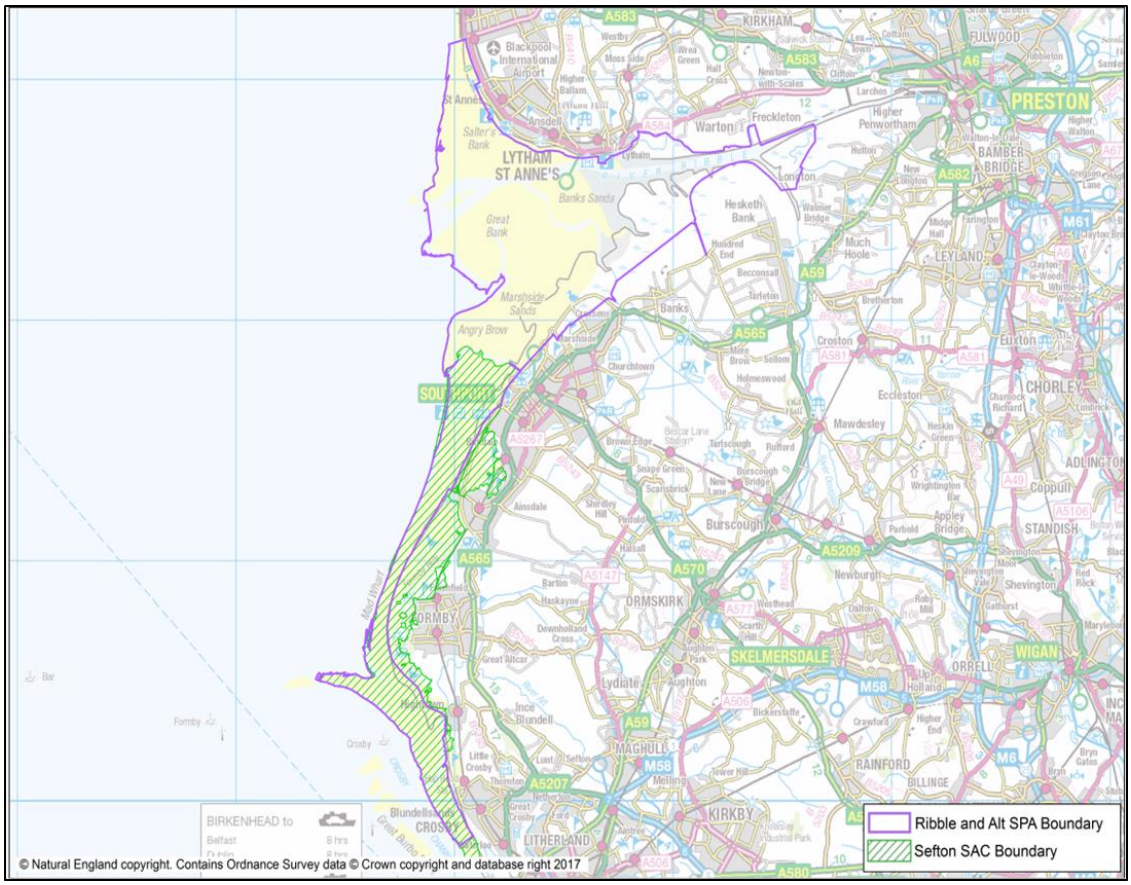
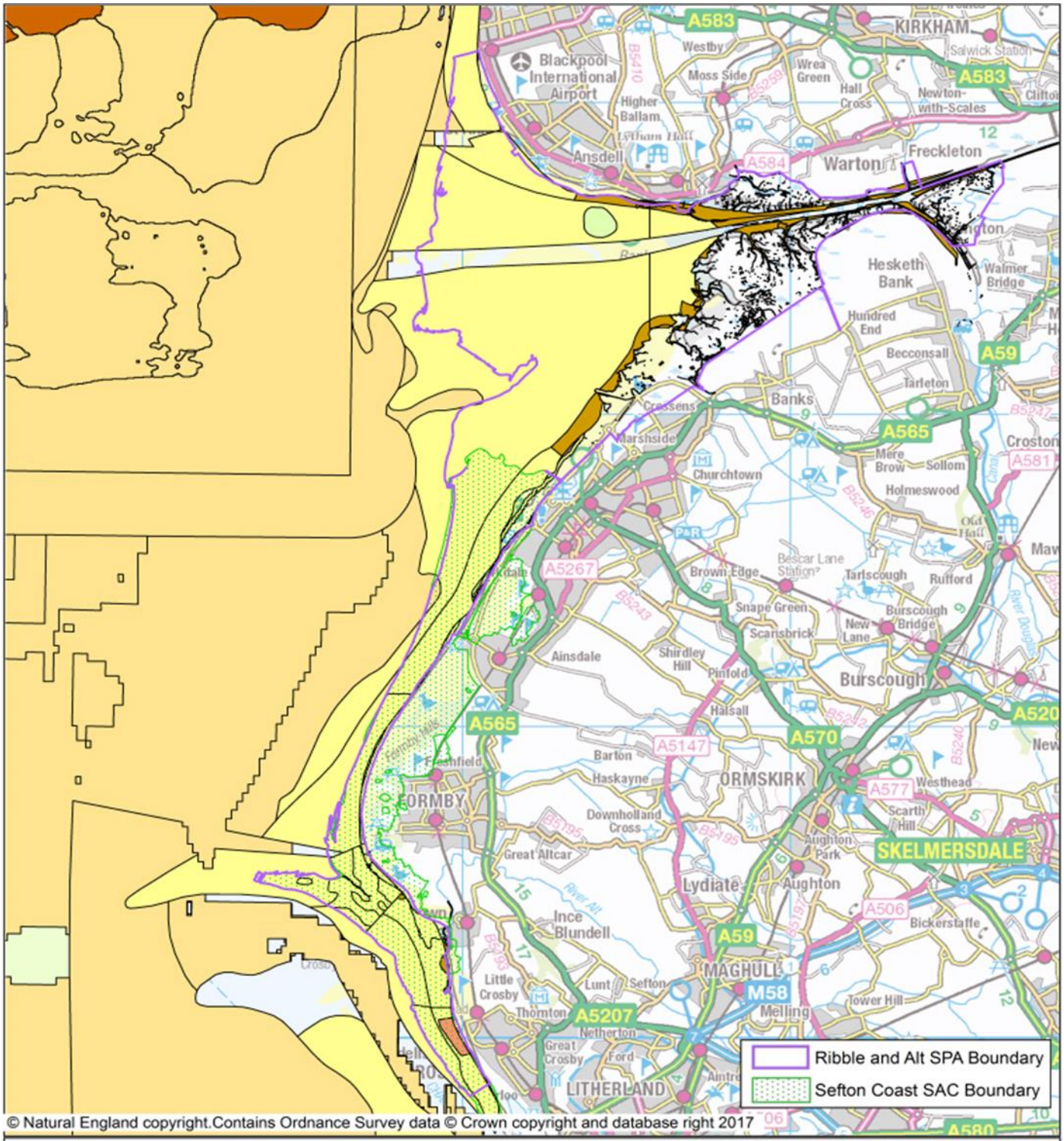


Figure 1. Site map of the Ribble and Alt Estuaries SPA



Broad scale habitat data from Natural England December release

Broad Scale Habitat

Eunis Code	EMS Subfeature Common Name
A1	Intertidal rock
A2.1	Intertidal coarse sediment
A2.2	Intertidal sans and muddy sand
A2.3	Intertidal mud
A2.4	Intertidal mixed sediment
A2.5	Saltmarsh
A2.61	Intertidal seagrass bed
A2.71	Intertidal biogenic reef. Sabellaria spp.

Eunis Code	EMS Subfeature Common Name
A3	Infralittoral rock
A4	Circalittoral rock
A5.1	Subtidal coarse sediment
A5.2	Subtidal sand
A5.3	Subtidal mud
A5.4	Subtidal mixed sediment
SF_SH_5	Intertidal biogenic reef. mussel bed
SF_SH_6	Subtidal biogenic reef. mussel bed

Figure 2. feature map of the Ribble and Alt estuaries SPA

3. Interest feature(s) of the EMS categorised as 'Red' risk and overview of management measure(s) (if applicable)

None applicable

4. Information about the fishing activities within the site

4.1 Background

Hand-gathering of cockles has been a long-standing traditional fishery within the NWIFCA District. Methods have changed very little over the years, with fishers using a jumbo to fluidise the soft sediments in which the buried cockles are found. Once the sediment is fluid, the cockles rise to the sediment surface where they are then raked into buckets or net bags, put through a hand-held riddle whereby the undersize cockle is returned to the bed, and the size cockle then placed into 20-25kg cockle sacks. Cockles are able to rebury themselves quickly, so any not removed will soon become invisible under the sand once again. There is little to no by-catch associated with this fishery as it is highly selective.

Fishermen access the beds by ATVs due to the high risk of getting stuck in soft sediment. Depending on the area to be fished, the time when the bed is uncovered and safe to get on to and return from may be severely restricted by the tides.

The cockle fishery at Southport is highly variable in its production and consequently, its prosecution. Records show variability in stock levels and inconsistency of associated fishing activity as a long-standing feature of the fishery. A fishery was undertaken at Southport in 2012 when high stock levels were present. From 2013 to 2018, the level of cockle stocks was too low to be consider a viable fishery and, as such, it was closed during this period. An undersize cockle fishery took place on Southport in 2018 as the stocks on the bed had been monitored in the four years prior and shown to be stunted in growth due to the conditions of the bed. As a result of warm weather in the summer of 2018 and evidence of die off, the stock was allowed to be fished. Higher levels of size stock falling into the same age cohort was identified in 2022, likely indicative of a successful spat fall the previous year. The fishery was subsequently opened for the 2022/23 fishing season.

This year, stock assessments indicate that the level of stock (size, undersize and total) has decreased (see section 4.5). The results of this year's surveys were presented to Members of the Technical Science and Byelaw Committee of the Authority on the 15th of August. Members of the committee and industry determined that the fishery could be opened subject to implementation of a total allowable catch (TAC) of a third the total size cockle with a sufficient buffer (230 tonnes).

4.2 Regulation of Hand-gathering

NWIFCA regulates cockle hand-gathering fisheries in its District under the NWIFCA Byelaw 3 Cockle and mussel hand-fishing permit (2019) (in force as of Sep 1st 2022).

NWIFCA Byelaw 3 (2019) builds on the original Byelaw 3 introduced in 2012 in that it introduces Flexible Permit Conditions, allowing the Authority to implement adaptive manage of the fishery. The Byelaw retains much of the same powers as was detailed in the original Permit to Fish for Cockles and Mussels introduced in 2012. This Byelaw vastly improved management of the fisheries and encouraged a more professional and responsible group of fishers. Under the current regulations, there is a maximum of 150 permits, which could be issued for the 2023 – 2024 season under the new NWIFCA Byelaw 3. Without a permit within the NWIFCA

district, it is still permissible for recreational fishers to fish ‘non-commercial’ cockle beds for 5kg per person per day outside of the closed season under Byelaw 3.

Every commercial cockle bed is surveyed annually and the results presented at the quarterly Technical, Science and Byelaw meetings. These meetings consist of Authority members made up of MMO representatives, recreational and commercial fishers, representatives from Natural England, Environment Agency and IFCA officers. Based on officer knowledge of the sites and historical survey data, IFCA officers will recommend whether a bed has viable commercial stock levels, and therefore, should be considered for opening to permit holders. Members discuss and subsequently vote on the opening of the fishery subject to HRA approval. As the activity is not considered necessary for the management of the site, and has the potential to affect the protected features, a HRA is conducted, and management implemented if/where required.

4.3 Multi Agency Liaison Group

Due to the location of the fishery, effective control of fishing effort is organised with the assistance of other organisations. Consequently, in administering the fishery, the Authority works closely with other organisations such as the police, local councils, the Maritime and Coastguard Agency (MCA), the Health & Safety Executive (HSE), the Department for Work and Pensions (DWP), Natural England (NE), the Gangmaster and Labour Abuse Authority (GLAA) and the Environment Agency (EA). This joint working is facilitated at a strategic level through a multi-agency liaison group. The completion of a Multi-Agency Operational Plan will have undoubted benefit to the management of the fishery.

Access to the Southport cockle fishery occurs via Haul Road, which is a historical right of way. The road passes through saltmarsh which is a supporting feature of the Ribble and Alt Estuary SPA and a feature of the Ribble estuary SSSI. The Saltmarsh area is leased to the RSPB from Sefton council who have authority to prevent certain activities being undertaken in the area under the terms of their lease. This year, due to concerns over the impact of ancillary works along the Haul Road and nearby saltmarsh, the RSPB have requested the road be used for **transiting the saltmarsh only,** and all ancillary works must take place outside of the designated SPA and SSSI area.

Alternative access and ancillary works areas were considered with regards to this year's fishery. The main aim for exploring alternate access routes was to remove or minimise the interaction of the activity with the protected features of the site and address some of the concerns regarding removing ancillary works way from Haul Road into surrounding areas.. Stakeholders, officers and representatives from partner organisations were asked to contribute to the exploration of alternate access routes. Access via the Southport RNLI Lifeguard station was considered, as the area is typically used in the summer for parking and beach access, and there is limited interaction with saltmarsh features. However, this site was assessed as non-HRA compliant given the bird disturbance concerns of fishers transiting from the beach area to the fishery. Further detail on the assessment of this alternative area is provided in section 6.2.2 (iii).

4.4 Biosecurity

The Ribble Estuary is currently shellfish disease free and the Authority considers it a priority to maintain this status. The non-native species Chinese Mitten Crab (*Eriocheir sinensis*), and American Lobster (*Homarus americanus*) have previously been recorded within the area. In order to implement effective measures to revent the introduction and / or spread of diseases or non-natives the Authority has developed and published a Biosecurity Plan, detailing controls and conditions that will be applied to all commercial shellfish activities. The Biosecurity Plan seeks to ensure that consignments and/or areas from which they come, are regularly and thoroughly checked for invasive non-native invasive species (INNS).

4.5 Current Status of Stock

4.5.1 Southport

Southport Cockle survey report 09-06-23

This year, Southport cockle bed was surveyed on the 9th of June on a 1.8m low water. The survey was undertaken with a jumbo, and 0.5m^2 quadrat following the longstanding NWIFCA survey using the methodology detailed in Agenda Item 7 survey and Inspection report presented to the TSB at the meeting on the 15th of August (https://www.nw-ifca.gov.uk/app/uploads/Agenda-Item-7-Survey-and-Inspection-Report-August-2023.pdf).

67 stations were sampled from a 350m grid. The survey grid location was based on the 2022 cockle surveys. The cockle is in a similar location with and the bed running from NE to SW. There has been a significant decrease in density of across the bed which is expected due to fishery and natural mortality over winter.

Means

Means were calculated from all stations with zero counts on the edge of the bed removed. There were no less than 5mm cockle recorded in the survey.

Mean number of size cockle	14 per m²	(min 0, max 78)
Mean number of undersize cockle	3 per m²	(min 0, max 16)
Mean weight of size cockle kg/m²	0.126 kg/m²	(min 0, max 0.832)
Mean number of undersize cockle kg/m²	0.019 kg/m²	(min 0, max 0.232)

Maps

Maps were created showing the overall survey area, density of size cockle, the frequency of size classes (pie charts show the frequency of different size classes, the size of the pie chart indicates the total density of cockles present), and the weight of undersize and size cockle.

Biomass

	Area (ha)	Size Cockle (tonnes)[1]	Undersize Cockle (tonnes)[2]
Southport	**637**	**800**	**120**

[1]In regards to biomass size cockle defined as cockle which will not pass through a square gauge 20 x 20mm in size.
[2]The biomass of undersize cockle does not include any estimates of cockle less than 5mm due to the high variability of survival of this size class.

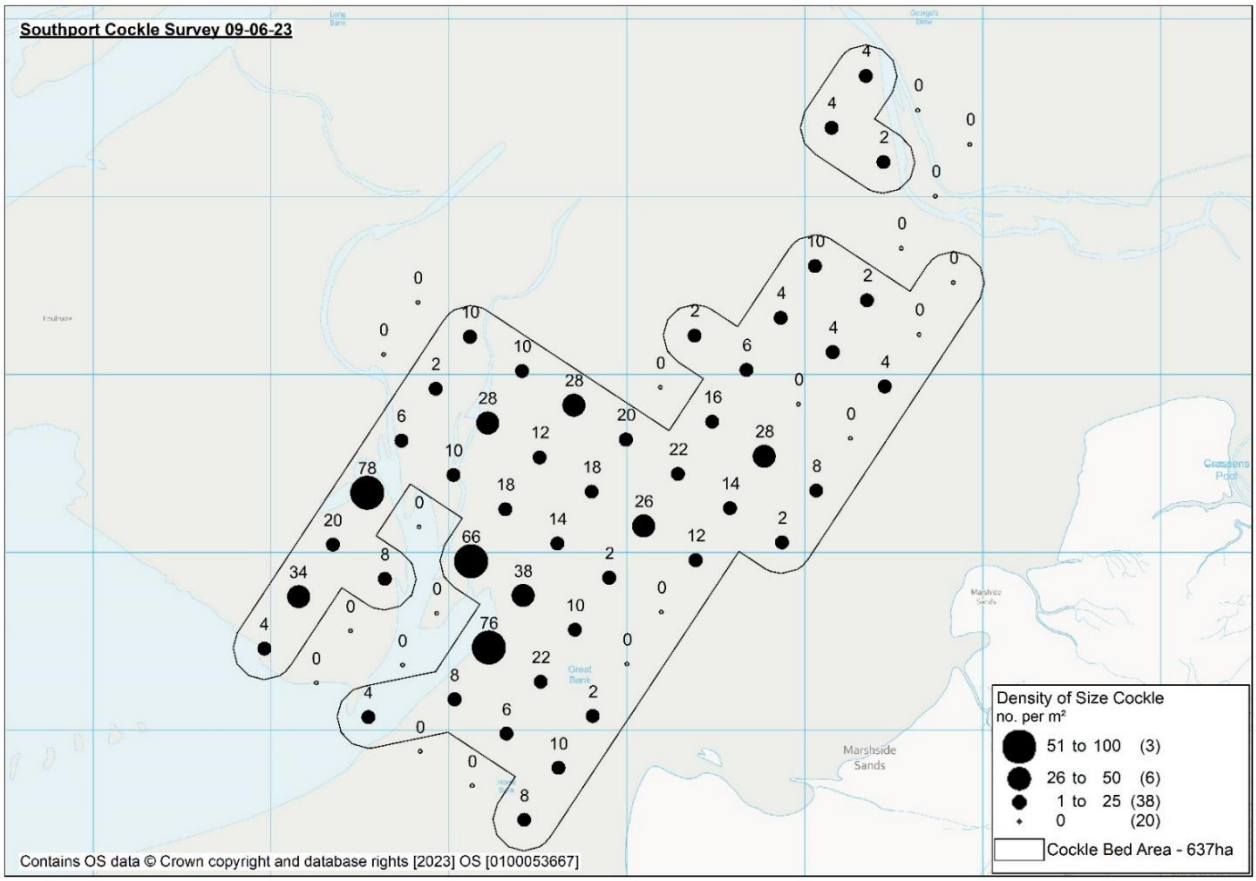


Figure 3. Density of size cockle per m² at Southport June 2023.

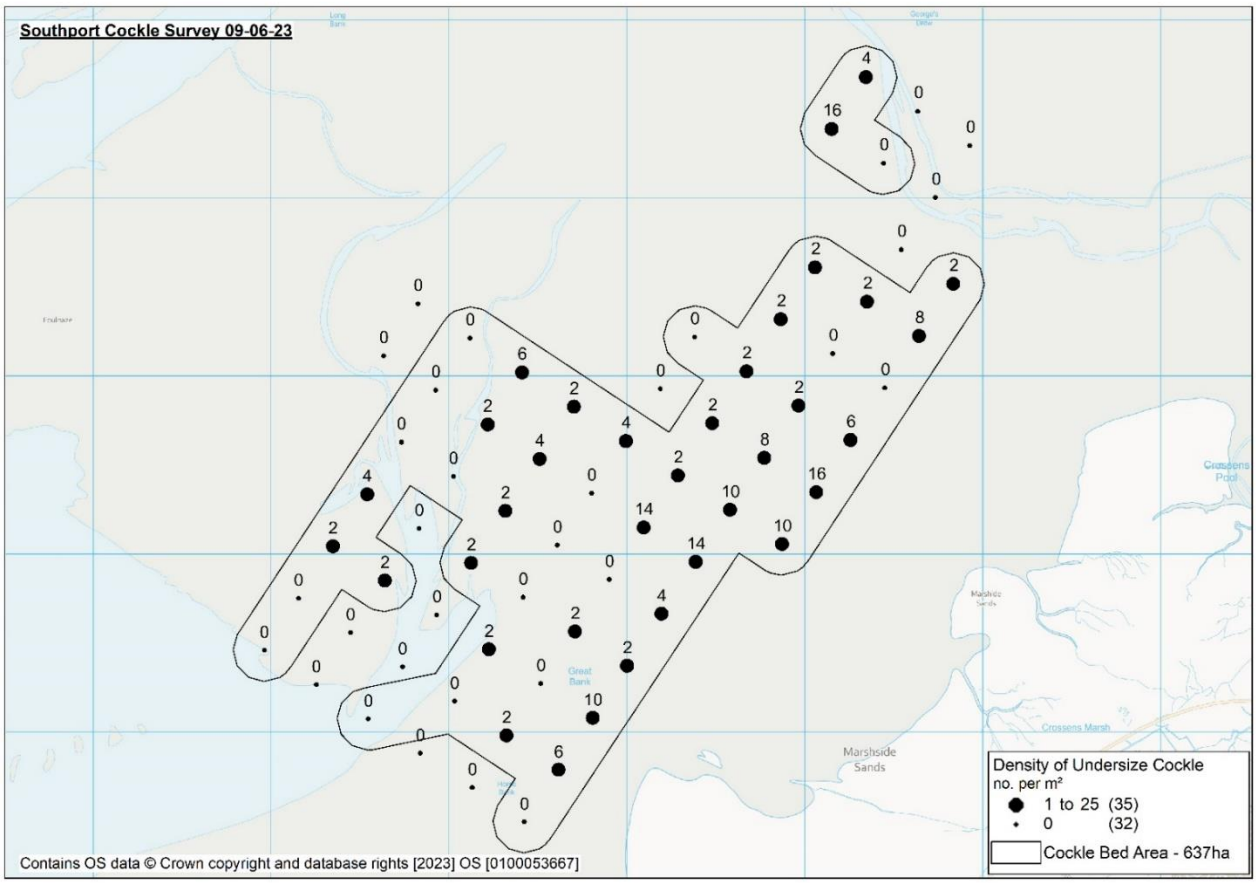


Figure 4. Density of undersize cockle per m² at Southport June 2023.

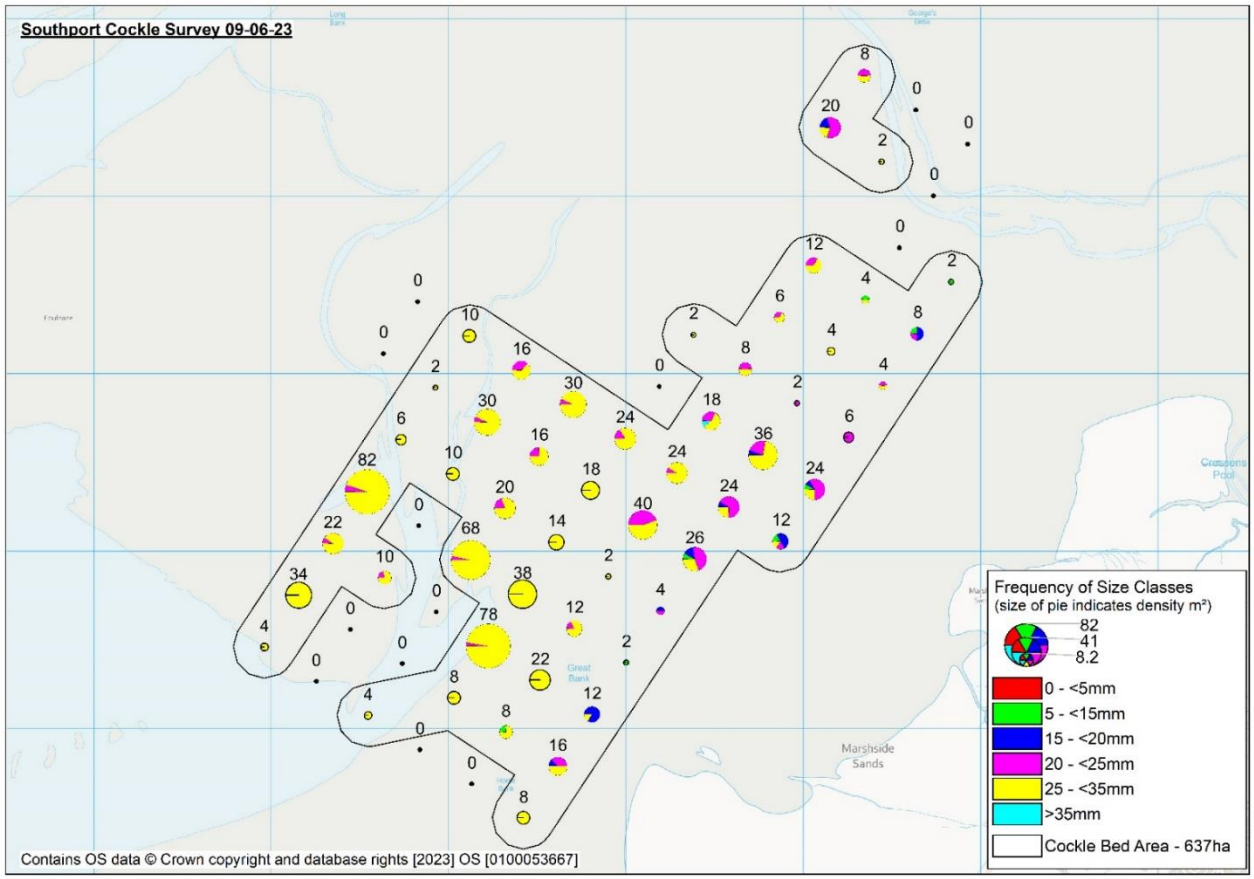


Figure 5. Frequency of size classes of cockle per m² at Southport June 2023.

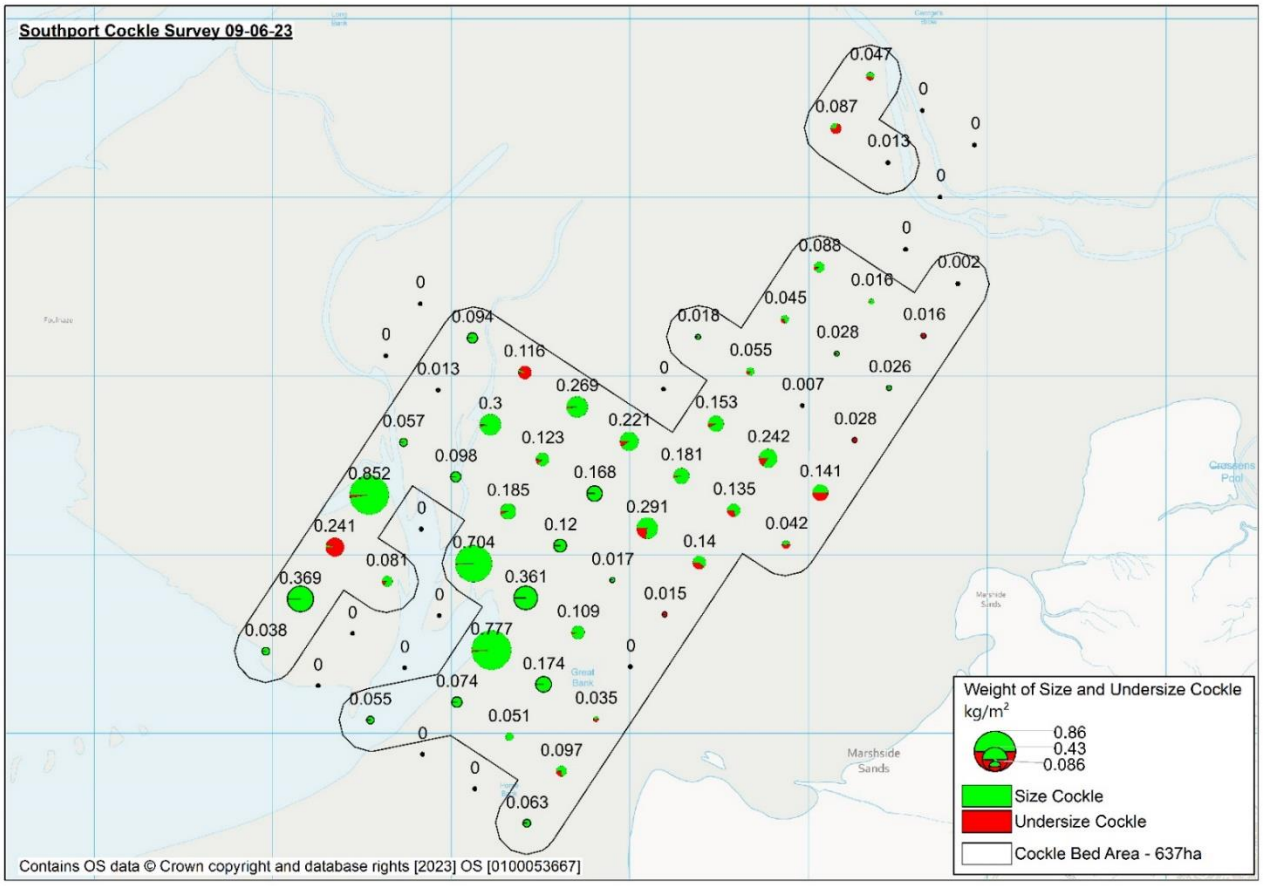


Figure 5. Weight of size and undersize cockle kg/m² at Southport June 2023

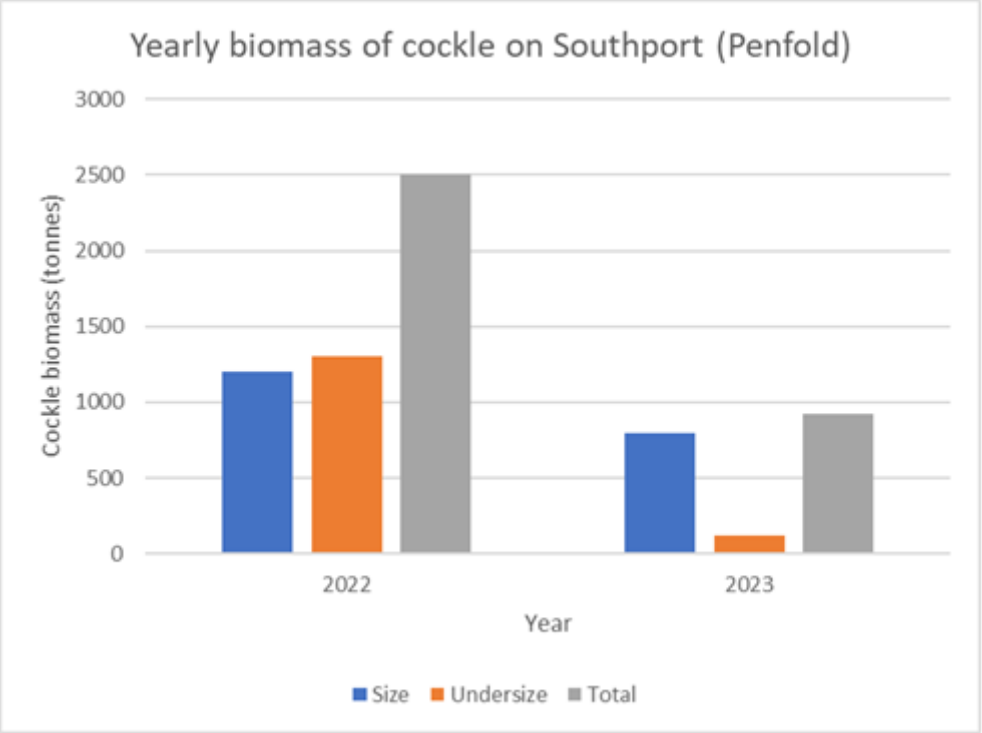


Figure 6. The biomass of size, undersize and total biomass of cockle on the Southport cockle bed in 2022 and 2023.

Since last year the total biomass of size and undersize has decreased likely due to fishing activity and winter mortality. In addition, there is limited undersize coming through to replace the stock in the following years. Based on these surveys, a TAC of 230 tonnes (1/3rd of the total size cockle biomass with sufficient buffer) is proposed.

Table 2. The biomass of size, undersize and total biomass of cockle on the Southport cockle bed in 2022 and 2023.

Year	Area (ha)	Size cockle (tonne)	Undersize cockle (tonne)	Total cockle (tonne)
2022	877	1200	1300	2500
2023	637	800	120	920

4.6 Summary of proposed fishery and restrictions

Based on the information provided in the survey reports, the following fishery (Table 3) is proposed for this year. The possible impact of this fishery on the designated features of the Ribble and Alt Estuaries EMS will be assessed further in this document.

Table 3. Summary of proposed cockle fisheries to be opened in the Ribble and Alt Estuaries in 2023 .

Cockle bed	Proposed fishery	Legislation	Open date
Southport	Hand gathered cockle	NWIFCA Byelaw 3	October

The proposal is to:

- Open Southport cockle bed to Byelaw 3 permit holders to hand gather cockle from the date of classification (October) to the beginning of the cockle closed season on May 1st OR until the **TAC of 230 tonnes of size cockle** is reached. This will be specified in the Flexible Permit conditions.
- Officers will monitor the TAC through the returns provided by Byelaw 3 permit holders under the conditions of Byelaw 3 and through daily inspections.
- Access to and from the fishery will be via ATV / quad bikes from Haul road, Marshside in Southport. **Access by boat is not authorised**. All other access routes from Fylde and Sefton coast will be closed to cockle fishers. Permit holders are expected to access Haul road approximately 3 hours before low water and will progress on to the fishery 2 hours before. All permit holders using ATVs are required to have permits issued from Sefton council and must only use the track for transiting to and from the fishery.
- **Ancillary works are prohibited along haul road** and within the SSSI and SPA area– this includes parking and loading of cockles onto wagons (inclusive of all 'tonning up' operations). This will be specified in the Flexible Permit Conditions
- Permit holders will only be allowed to fish for cockles by hand or rake in the manner detailed in section 4.1.
- Flexible permit conditions will also specify set tides and days of the week permit holders can prosecute the fishery. This year, fishing will be limited to one tide a day weekdays only.

There are currently 150 permit holders, who could prosecute the bed, however based on numbers of fishers from the previous year's fishery, it is expected that as a worst case scenario there could initially be around 70 permit holders fishing. This number is dependent on the weather, price of cockle and the duration of alternative fisheries, for example a number of Byelaw 3 permit holders also hold permits for the Dee fishery which may be open concurrently. Expert officer knowledge predicts that in the first week there will likely be 40 people targeting the fishery. Typically, it is one quadike/ATV to a permit holder as it is their main means of accessing the fishery. The numbers are typically higher during the first week as permit holders prospect the beds and determine economic viability. Once the fishery has opened and the initial volume of cockle has been removed, the number of gatherers will likely reduce. The majority of the bed is within a commercial area where the ability to remove 5kg of cockle has been removed for personal consumption. The small area that is outside of the commercial area is where the cockle are at a low density and undersize. No other person is allowed to take or remove cockle.

Permit holders will only be allowed to fish for cockles by hand or rake in the manner detailed in section 4.1. In addition, officers will conduct regular ATV patrols to ensure compliance. Bagged cockles will then be transported off the bed on ATV trailers and loaded onto transport outside of Haul road. No tonning up operations will be allowed to take place along Haul Road or on the beach area – all tonning up and ancillary works will be out with the SPA area. A checkpoint system will be operated by IFCOs from Haul road. **No vehicles will be parked on haul road, and cockles will not be loaded onto transport on Haul Road.**

These conditions have been applied to previous fisheries in the Ribble Estuary.

5. Test for Likely Significant Effect (LSE)

The Habitats Regulations Assessment (HRA) is a step-wise process and is first subject to a coarse test of whether a plan or project will cause a likely significant effect on an EMS[2].

Is the activity/activities directly connected with or necessary to the management of the site for nature conservation? NO

5.1 Table 1: Assessment of LSE

Features: All qualifying features and sub-features that do not interact with the fishing activity have been **screened out.** Features and sub-features identified to interact with the fishing activity have been included table 1 below. All Sefton Coast SAC feature have been screened out as no fishing or travel to and from the fishery will occur on or close to the boundary of the SAC. The Ribble Estuary rMCZ feature smelt (*Osmerus eperlanus*) has been screened out due fishing activity being outside the MCZ and fishing activity not considered a concern for the recovery of this feature.

Pressures: All pressures from the Advice on Operations table provided in the Ribble and Alt SPA Conservation Advice package https://designatedsites.naturalengland.org.uk/Marine/FAPMatrix.aspx?SiteCode=UK9005103&SiteName=ribble&SiteNameDisplay=Ribble+and+Alt+Estuaries+SPA&countyCode=&responsiblePerson=&SeaArea=&IFCAArea=&NumMarineSeasonality=20) have been screened out, other than the pressures in the following table, due to the nature of the fishing activity.

Table 4. Designated features, their sensitivity to fishing activity and the potential for likely significant effect.

Qualifying Feature	Sub-feature	Potential pressure(s) from hand gathered and/or dredge fishing (where relevant)	Sensitivity	Potential for Likely Significant Effect?	Justification and evidence
SPA supporting habitats	Intertidal mud	Abrasion/disturbance of the substrate on the surface of the seabed	Sensitive	NO	The fishing activity does not occur on the feature and access is via an established route.
		Habitat structure changes – removal of substratum (extraction)	Sensitive	NO	
		Penetration and/or disturbance of the substrate below the surface of the seabed, including abrasion	Sensitive	NO	
		Removal of non- target species	Sensitive	NO	
		Removal of target species	Sensitive	NO	

[2] Managing Natura 2000 sites: http://ec.europa.eu/environment/nature/natura2000/management/guidance_en.htm

	Intertidal sand and muddy sand	Abrasion/disturbance of the substrate on the surface of the seabed	Sensitive	NO	Access to fishery will be over feature, and hand gathering with a rake will interact with the feature, but both are unlikely to have any impact in such a highly dynamic site, due to low levels of effort and number of tides available for fishing.
		Habitat structure changes – removal of substratum (extraction)	Sensitive	NO	Access to fishery will be over feature, and hand gathering with a rake will interact with the feature, but both are unlikely to have any impact in such a highly dynamic site, due to low levels of effort and number of tides available for fishing
		Penetration and/or disturbance of the substrate below the surface of the seabed, including abrasion	Sensitive	NO	Access to fishery will be over feature, and hand gathering with a rake will interact with the feature, but both are unlikely to have any impact in such a highly dynamic site, due to low levels of effort and number of tides available for fishing
		Removal of non- target species	Sensitive	YES	Highly selective fishery - no by-catch of non-target species. However, there is possibility of damaging juvenile cockles (considered a non-target)
		Removal of target species	Sensitive	YES	Feature and pressure taken through to AA.
	Intertidal rock	Abrasion/disturbance of the substrate on the surface of the seabed	Sensitive	NO	Activity will not interact with the feature.
		Habitat structure changes – removal of substratum (extraction)	Sensitive	NO	
		Penetration and/or disturbance of the substrate below the surface of the seabed, including abrasion	Sensitive	NO	
		Removal of non- target species	Sensitive	NO	
		Removal of target species	Sensitive	NO	
	Intertidal mixed sediments	Abrasion/disturbance of the substrate on the surface of the seabed	Sensitive	NO	Fishery does not interact with this feature.
		Habitat structure changes – removal of substratum (extraction)	Sensitive	NO	
		Penetration and/or disturbance of the substrate below the surface of the seabed, including abrasion	Sensitive	NO	
		Removal of non- target species	Sensitive	NO	
		Removal of target species	Sensitive	NO	

	Salicornia and other annuals colonising mud and sand; Glasswort and other annuals colonising mud and sand; Pioneer saltmarsh	Abrasion/disturbance of the substrate on the surface of the seabed Habitat structure changes – removal of substratum (extraction) Penetration and/or disturbance of the substrate below the surface of the seabed, including abrasion	Sensitive Sensitive Sensitive	YES NO NO	The access is restricted to one access route, Haul road which is an established access route with hard standing. This access route will be used for transiting only, no ancillary operations will be allowed to take place along this road. However, there is there is the potential for further encroachment or damage to the saltmarsh as the edge of the road is not demarcated. There is a risk vehicles used to access the fishery could use the edges of the road while transiting and cause damage to the saltmarsh and associated flora.
	Atlantic salt meadows (Glauco-Puccinellietalia maritimae) (referred to as Saltmarsh)	Abrasion/disturbance of the substrate on the surface of the seabed Habitat structure changes – removal of substratum (extraction) Penetration and/or disturbance of the substrate below the surface of the seabed, including abrasion	Sensitive Sensitive Sensitive	YES NO NO	The access is restricted to one access route, Haul road which is an established access route - this access route will be used for transiting only, no ancillary operations will be allowed to take place along this road. However, there is there is the potential for further encroachment or damage to the saltmarsh as the edge of the road is not demarcated. There is a risk vehicles used to access the fishery could use the edges of the road while transiting and cause damage to the saltmarsh and associated flora.

A157 - **Bar-tailed godwit,** Limosa lapponica (non-breeding) A037 - **Bewick's swan**, Cygnus columbianus bewickii (non-breeding) A616 – **Black-tailed godwit,** Limosa limosa islandica (non-breeding) A193 - **Common tern**, Sterna hirundo (breeding) A672 - **Dunlin**, Calidris alpina alpina (non-breeding) A140 - **Golden plover**, Pluvialis apricaria (non-breeding) A141 - **Grey plover**, Pluvialis squatarola (non-breeding) A143 - **Knot,** Calidris canutus (non-breeding) A183 - **Lesser black-backed gull**, Larus fuscus (breeding) A130 -**Oystercatcher**, Haematopus ostralegus (non-breeding) A040 – **Pink-footed goose**, Anser brachyrhynchus (non-breeding) A054 - **Pintail**, Anas acuta (non-breeding) A162 - **Redshank,** Tringa totanus (non-breeding) A137 - **Ringed plover**, Charadrius hiaticula, (non-reeding) A151 - **Ruff**, hilomachus pugnax (breeding) A144 - **Sanderling**, Calidris alba (non-breeding) A048 - **Shelduck**, Tadorna tadorna - (non-breeding) A704 - **Teal**, Anas crecca non-breeding) A038-B -**Whooper swan**, Cygnus cygnus (non-breeding)	Supporting Habitats assessed above	Removal of target species (Cockles) Removal of non-target species Visual disturbance	Some species sensitive, others screened out Sensitive Sensitive	YES YES YES	For all shore feeding SPA features that feed on infaunal molluscs in particular species sensitive to removal of cockles: - Oystercatcher - Knot - Scaup - Common scoter Highly selective fishery. No by-catch or discards of non-target species. However, there is potential for removal of juvenile cockle or other mollusc due to damage. All species taken through to AA

A050 - **Wigeon,** Anas penelope (non-breeding) **Seabird Assemblage (breeding):** -Black headed gull Chroicocephalus ridibundus -Common Tern Sterna hirundo **Water bird Assemblage (non-breeding):** -Cormorant (phalacrocorax carbo -Scaup Aythya marila -Common scoter Melanitta nigra -Lapwing Vanellus vanellus -Wimbrel Numenius phaeopus -Curlew Numenius arquata					

Litter is not a potential pressure listed as sensitive to any of the features of the site, however, it has been identified in past fisheries as an environmental impact, and therefore, will also be taken through to AA for consideration.

Is the potential scale or magnitude of any effect likely to be significant?[3]	**Alone** Yes **Comments :**	**OR In-combination[4]** Yes **Comments :** These activities also occur at the site: • Beam Trawl (Shrimp) • Pots and Creels • Light otter trawl (Fish) • Drift and Fixed nets (including stake) • Hand working (size and undersize mussel) • Hand-working (cockles)
Have NE been consulted on this LSE test? If yes, what was NE's advice?	No - NWIFCA consider AA required	

[3] Yes or uncertain: completion of AA required. If no: LSE required only.
[4] If conclusion of LSE alone an in-combination assessment is not required.

6. Appropriate Assessment

Potential risks to features

6.1 Potential risks to SPA supporting habitat features Ribble and Alt Estuary from a hand-gathered cockle fishery

Features at risk of interacting with fishing activity:

- Intertidal sand and muddy sand
- Salicornia and other annuals colonising mud and sand; Glasswort and other annuals colonising mud and sand; Pioneer saltmarsh
- Atlantic salt meadows (Glauco-Puccinellietalia maritimae) (referred to as Saltmarsh)

6.1.1 Pressures and Potential Impacts

The pressures that each Ribble and Alt Estuary's supporting feature are susceptible to are detailed in Natural England's 'Advice on Operations'. The key impacts that the relevant supporting features are vulnerable to are detailed below.

i. Litter – Intertidal sand and muddy sand and saltmarsh

Past fisheries have had a poor reputation for large amounts of litter being deposited on the parking and access areas, and being left on the cockle beds. Items have included food and drink receptacles, cockle net bags and sacks. Potential impacts could include entanglement of fish and birds in the bags and sacks, and swallowing / entanglement of birds and mammals (both marine and terrestrial) of other litter.

ii. Removal of target species - Intertidal sand and muddy sand

Potential to effect the presence and spatial distribution of feature communities, the presence and abundance of typical species and the species composition of component communities.

iii. Removal of non-target species - Intertidal sand and muddy sand

Potential to affect the presence and spatial distribution of feature communities, the presence and abundance of typical species and the species composition of component communities through damage from fishing activity.

iv. Abrasion/disturbance of the substrate on the surface of the seabed

Potential to cause abrasion associated with the movement of vehicles used for access or participation in the fishing activitywhich could result in damage to infauna and epifauna as well as sensitive habitats.

6.1.2 Exposure

i. Litter

Between 2016 – 2018 cockle fisheries have occurred on Leven Island, Flookburgh, Pilling Sands and Leasowe cockle beds as well as ongoing size mussel fisheries around NWIFCA district. In this time there were reports of litter being an issue at these fisheries. These have subsequently been highlighted to Byelaw 3 hand-gathers and buyers. There is a Code of Conduct (Annex 2) which sets out good practices for Intertidal shellfish fisheries, which includes not leaving litter. In addition, there is the requirement for buyers to pay a bond to the local council to provide for facilities such as skips, bins and toilets to maintain sanitary conditions. Both NWIFCA officers and local partner agencies will monitor levels of littering when on duty, however, NWIFCA do not have enforcement powers when it comes to managing litter activities as this falls under council regulation.

However, the main area where littering has been observed during fisheries is typically in the area where ancillary works such as parking take place. As this has been removed to outside the designated area, the impact of this activity on the designated features in this case should be minimised.

The NWIFCA is confident that littering will be controlled, and monitoring will be in place alongside partner agencies to identify quickly if litter is a problem. Therefore, the NWIFCA can conclude that litter will have no risk of adverse effect on the integrity or conservation status of the designated features within the site.

ii. Removal of target species - Intertidal sand and muddy sand, mixed and coarse sediments only

Surveys have been carried out in Southport in June, and the results on the current stock status provided in section 4.5 of this assessment.

The target species is size cockle, which will be removed by the fishery. Cockle stocks are naturally highly variable and not a regular feature of this bed with there being very limited stock in previous years, and the bed being known to ‘stunt’. The years Southport cockle fishery was opened since 2012 to present are detailed in Table 5.

Table 5. The yearly biomass of figures for size, undersize and total biomass of cockles in the Ribble Estuary in from 2012 to 2022. *figures represent the max cockle biomass

Year	All surveyed Ribble Estuary cockle beds				Beds opened
	Area (ha)	Size cockle (tonne)	Undersize cockle (tonne)	Total cockle (tonne)	
2012		data unavailable	data unavailable	data unavailable	open
2013	-	-	-	-	Closed
2015	-	-	-	-	Closed
2016	-	-	-	-	closed
2017	-	-	-	-	closed
2018	38	*Not estimated due to limited access	*Not estimated due to limited access	*Not estimated due to limited access	open
2019	-	-	-	-	closed
2020	-	-	-	-	closed -
2021	-	-	-	-	closed
2022	877	1200	1300	2500	open
2023	637	800	120	920	Proposed open

Due to the size of the bed, the number of Byelaw 3 permit holders likely to target the fishery will be low (approximately >70 individuals). and there will likely be areas of the opened beds that will remain un-fished. The North westedges of the bed are particularly likely to be less targeted as operators will target areas with the greatest concentration of size cockle as seen in figure 5. On Southport there is between approximately 800 tonne of size cockle. However, only a third of this will be permitted for removal through the enforcement of a 230 tonne TAC for the fishery. The expectation is then that another third is available for the bird species and spawning, and another third that may be lost to natural mortality. Sufficient buffer has been included to ensure it is not exceeded. This rule of thirds is common practice in many other national fisheries.

The minimum landings size and other byelaw measures will be enforced rigorously to protect and return juvenile stock to the bed. There is an economical level below which the financial return is not worth the time and effort of gathering the cockle, and the fishermen do not gather all the cockles present on a bed. This ensures that cockles are left across the beds for future spawning stock. Daily landings will be monitored by officers, alongside monthly returns to ensure the TAC is not exceeded.

The presence of dense size cockle in this area is highly variable over the past 11 years and not consistent given the only two size fisheries took place in 2012, and the 2018 fishery was a limited, undersize fishery authorised due to the stunting of cockle and likelihood of it being lost. Given this inconsistency, it is likely that birds rely on alternative food sources during these times.

NWIFCA is confident that the removal of target species will have no risk of adverse effect on the integrity or conservation status of the designated features within the site.

iii. Removal of non-target species

The fishery is highly selective with minimal bycatch, however, there is the potential for damage to occur to juvenile species or other bivalvues. NWIFCA tested a number of fishing methodologies to investigate the potential impact of jumbo-ing and raking on juvenile cockle. Unfortunately, due to the difficulty of designing a methodology that removes the numerous variables that affect the breakage rates of cockles, changing environmental factors and the natural variation of cockle densities, the investigations did not produce results from which the difference in sample size(number of individuals) could be assigned to damage or loss during the fishing activity. However, a number of observations can be drawn from the data collected. There was no significant numbers of damaged cockle observed in any of the samples and although the sample sizes (number of individual cockles) varied between treatments (control, jumbo-ing, jumbo-ing and raking) there was no significant mortality of juvenile stock from fishing.

NWIFCA Byelaw 3 close season is for the protection of adult cockles whilst spawning and for the protection of juvenile cockle when it has newly settled. As the fishery will open after the summer in October, adult cockle will have already spawned and risk to juvenile cockles is likely low.

Although there is size cockle on a proportion of the beds parts of the bed will remain unfished because the cockle density is not high enough to make it commercially viable to fish it.

NWIFCA is confident that the removal of non-target species will have no risk of adverse effect on the integrity or conservation status of the designated features within the site.

iv. Abrasion/disturbance of the substrate on the surface of the seabed

The access to the fishery is restricted to one access route, Haul road which is an established, historical access route also used by members of the public to access the foreshore. The road is formed of hard standing and is surrounded on both sides by saltmarsh.

Ancillary and vehicle access from the 2022 fishery was identified as posing a potential threat to saltmarsh features in the area as parking and traversing along the edges of the road during bad weather caused encroachment in areas. To mitigate this impact all ancillary works for the fishery have been prohibited along the access route and the beach beyond. This decision was taken in light of the concerns raised by the land lease holders (RSPB) on SSSI features. In addition, there is the possibility for transiting vehicles accessing the fishery to use the edges of the road that transition to saltmarsh and cause further damage. Therefore, **NWIFCA alongside RSPB propose to demarcate the edges of the hardcore track** based on the boundaries provided in the lease. This access route will be stipulated in the flexible permit conditions provided to the fishery. This measure will ensure that the edges of the saltmarsh and associated fauna are protected. NWIFCA officers will enforce the prohibition of tonning up operations along on Haul Road and the beach. **All tonning up operations will take place out with the SPA and SSSI area.**

However, beyond the saltmarsh and between mean high-water mark and the mean high water of neap tides, is where pioneer saltmarsh can occur. The area from Haul Road out onto the main sand flats is a historical access track where both fishers and members of the public traverse the potential pioneer saltmarsh area beyond the extent of Haul Road. The use of ATVs and limited tractors (1 to 2) proposed to be used in this operation are small, shrimp fishery tractors which also typically use the track for access to the shrimp fishery. The use of the tractor will limit the number of heavily laden vehicles traversing the site, be localised, and will not impact a significant portion of potential pioneer saltmarsh across the main extent of the area in combination with ATV use.

An alternative route from the Southport RNLI Lifeboat station was considered to remove the interaction and pressure of this activity associated with access via the Haul Road route. However, this site was assessed as non-HRA compliant given the bird disturbance concerns of fishers transiting from the beach area to the fishery. Further detail on the assessment of this alternative area is provided in section 6.2.2 (iii).

NWIFCA is confident that the abrasion and/or disturbance of the substrate due to the activities of the fishery have been sufficiently minimised due to the management measures taken and will have no risk of adverse effect on the integrity or conservation status of the designated features within the site

6.2 Potential risks to SPA and Ramsar features of Ribble and Alt Estuaries from hand gathered cockle fishery.

Features at risk of interacting with fishing activity:

- SPA and Ramsar birds

6.2.1 Pressures and Potential Impacts

The pressures that each Ribble and Alt Estuaries SPA feature and sub-feature are susceptible to are detailed in Natural England's 'Advice on Operations'. The key impacts that the relevant sub-features are vulnerable to are detailed below.

Removal of target species (cockles) for all shore feeding SPA features that feed on infaunal molluscs
Cockles form part of an important prey resource for oystercatchers, knot, scaup and common scoter. If bird populations are to be maintained in healthy condition, sufficient shellfish to meet their demands must remain for them.

If fishing removes essential prey and there is a lack of food, the impacts on these species will vary at different times of year. For example, prey resource requirements will be far greater during autumn and at the beginning of winter than at other times of the year, as enough resource needs to be present for all the birds to feed through the cold months, when energy requirements are higher. Over-wintering waders require to put on weight and get into best condition prior to migrations north for the summer, or they will not survive long flight distances and suffer high mortalities.

Oystercatchers mainly eat larger-sized cockles, which are the target of the cockle fisheries. Although the birds can eat alternative prey species such as earthworms when shellfish are scarce, these prey often do not enable birds to survive as well, and in such good body condition, as when shellfish are abundant (Atkinson et al 2003; Goss-Custard et al 2004).

Knot eat smaller bivalves with lower and upper size limits of around 5 and 12.5mm shell length respectively (Bell et al 2001).

Scaup and common scoter mainly eat larger-sized bivalves and are known to feed on a variety of bivalve species including cockle. Scaup and common scoter dive below the water in search of prey items.

i) Removal of non-target species – for all shore feeding SPA features that feed on infaunal molluscs

Infaunal molluscs form part of an important prey resource and form part of a wide variety of prey items for many of the designated species. The impact of removing an essential prey resource by fishing activity varies at different times of the year. For example, prey resource requirements are far greater during autumn and at the beginning of winter than at other times of the year, as enough resource needs to be present for all the birds to feed through the cold months when energy requirements are higher. Over-wintering waders require additional resources to put on weight and get into best condition in the spring prior to migrations for the summer, or they will not survive long flight distances and suffer high mortalities.

ii) Visual disturbance - All SPA species within vicinity of fishery, on the saltmarsh access route and over the sandbanks.

Visual disturbance could impact on condition of any of the listed bird species, by causing unnecessary energy expenditure if flushed and taking to flight. For birds feeding on the affected areas it could also reduce feeding times, and increase competition if birds are forced to concentrate into reduced feeding areas. From mid-March onwards some species, such as Redshank, establish breeding territories on the saltmarsh and will be actively displaying. Disturbance caused by access to the fishery across the saltmarsh during nesting and breeding times may reduce breeding success of this nationally declining species.

6.2.2 Exposure

In this section, the level of potential pressure caused by the proposed hand gathered fishery on each feature is considered, and a recommendation as to whether the activity is likely or not to affect the integrity of the designated feature.

i) Removal of target species (cockles) for all shore feeding SPA features that feed on infaunal molluscs;

The number of Byelaw 3 permits holders likely to target the fishery will be low (approximately >70 individuals as a worst case scenario) due to the low biomass of cockle on the ground. On Southport there is approximately 800 tonne of size cockle. Biomass figures from the 2023 surveys indicated there has been a reduction in biomass of both size (1200 tonnes in 2022 to 800 tonnes in 2023) and undersize cockle (1300 tonnes in 2022 to 120 tonne in 2023) across the bed, with the mean density of size and under size cockle also reducing from 17 per m^2 and 50 per m^2 respectively in 2022, to 14 per m2 and 3 per m^2 in 2023. This significant decrease in undersize cockle means there is limited stocks available to grow on to size the following year. NWIFCA also does not have an agreed minimum total cockle biomass for Ribble Estuary from which to recommend the opening or closing of a fishery.

Therefore, as a management measure, NWIFCA will be stipulating a TAC of 230 tonnes for the fishery (approximately less than a third) be permitted for removal. The expectation is then that another third is available for the bird species and spawning, and another third that may be lost to natural mortality. This rule of thirds is common practice in many other national fisheries. Under these conditions NWIFCA can provide more confidence that the integrity of the protected feature will be maintained.

In addition, cockle stocks are naturally highly variable and not a regular feature of this bed with there being very limited stock in previous years, and the bed being known to 'stunt'. The years Southport cockle fishery was opened since 2012 to present are detailed in Table 5. It is, therefore, likely that the cockles on the Southport bed form part of an opportunistic prey source for bird species, rather than a consistent one.

There are alternative feeding sources of bivalves in the Ribble Estuary these are:

- Mussel of varying sizes (5-55mm) on the Ribble training walls.
- A small area of cockle on the North side of the Ribble Estuary at the North Run cockle bed high up the beach.
- Areas of low cockle densities on the South side of the Ribble Estuary on the surrounding beds.

Although no specific figures have been given for the bird food requirements for bivalve eating birds, by leaving 1/3rd for the birds, NWIFCA is confident that the removal of target species (cockle) will have no risk of adverse effect on the SPA features, which utilise cockle as a prey source and therefore have no risk of adverse effect on integrity or conservation status of the site.

ii. Removal of non-target species for all shore feeding SPA features that feed on infaunal molluscs

The impact of the removal of non-target species has been assessed above in section 6.1.2 (iii) with no further management required due to the minimum impact of fishing activity on undersize cockle and other infaunal molluscs, which will be available as a prey source.

NWIFCA is confident that the removal of non-target species will be minimal (if any) and therefore will have no risk of adverse effect on the SPA features, which utilise cockle as a prey source. There is therefore no risk of adverse effect on integrity or conservation status of the site.

iii. Visual disturbance - All SPA species within vicinity of the fishery, on the saltmarsh access route and over the sandbanks

The fishery at Southport will be prosecuted from October through to the closed season starting on May 1st 2024. The site provides overwintering habitat for waders including cockle-predating species such as oystercatcher and knot. There is subsequently a risk of disturbance to these birds during fishing activity, which will be focussed around low water times.

The fishery will be accessed by quadbike via Haul Road only. The track, which is made of hardcore, traverses the salt marsh on the south side of the Ribble Estuary. It is an established access route for cockle and shrimp fisheries, as well as for dog walkers and others accessing the sands. Fishers will only be permitted to use the road for transiting, and not for parking or any associated ancillary works such as loading of cockles.

Due to the proximity to the saltmarsh, there is the potential for the activity to disturb the birds on the saltmarsh. Disturbance to high tide roosting birds is very unlikely due to the timing of the fishery – i.e. fishers will access the beach around three hours after high water and will have left the area around three hours before high water. Disturbance to birds utilising the top of the beach and surrounding saltmarshes will be limited by only having one access routes on to the bed. The access routes is habitually used by dog walkers, other members of the public who walk along the track, and by other fishing activities such as shrimping and intertidal netting. Birds are therefore likely to be habituated to a certain level of disturbance.

All other ancillary operations including parking and loading cockles onto wagons (‘tonning up’) will occur outside of Haul road and outside of the SPA and SSSI area. Industry are responsible for sourcing suitable areas to undertake this work. Possible solutions put forward by industry are: to use local private land to conduct these activities, and to use tractors which will transit through Haul Road to the shore, where cockles will be loaded and taken back through Haul road to a suitable location for loading onto a wagon.

Consideration of alternative areas:

NWIFCA have considered alternative access routes to limit the interaction of the access and ancillary activities with the protected features and address some of the concerns surrounding limiting the Haul Road to transiting only – as removing ancillary works to surrounding areas raises concerns for partner organisations. Members of industry, partner organisations and officers were asked to provide alternative suggestions, giving due consideration to the variety of concerns raised by external partners such as vehicle safety and traffic concerns,

A viable alternative proposed was to use access via the slipway and beach area near the Southport RNLI Lifeguard station (Figure 7). The area offers the benefit of not traversing saltmarsh, and the beach is used in the summer for parking. However, the access route is 3.5 km away from the fishing bed. In comparison, the access from the end of Haul road is <1km from the Penfold cockle bed, As the fishery will take place over the wintering period, there is likely to be significant disturbance to birds feeding in the intertidal area by approximately 30-40 individuals traversing the shoreline enroute to the fishing bed when accessing from the

RNLI slipway. Though some species such as Oyster catcher are tolerant to this type of disturbance, species such as Bar-tailed godwit and Grey plover are less so and may suffer from repeated disturbance along the access route during the winter.

Access from Haul Road under the proposed measures provides for less disturbance to the designated features during the timings of the fishery proposed and is the access route considered in this assessment.

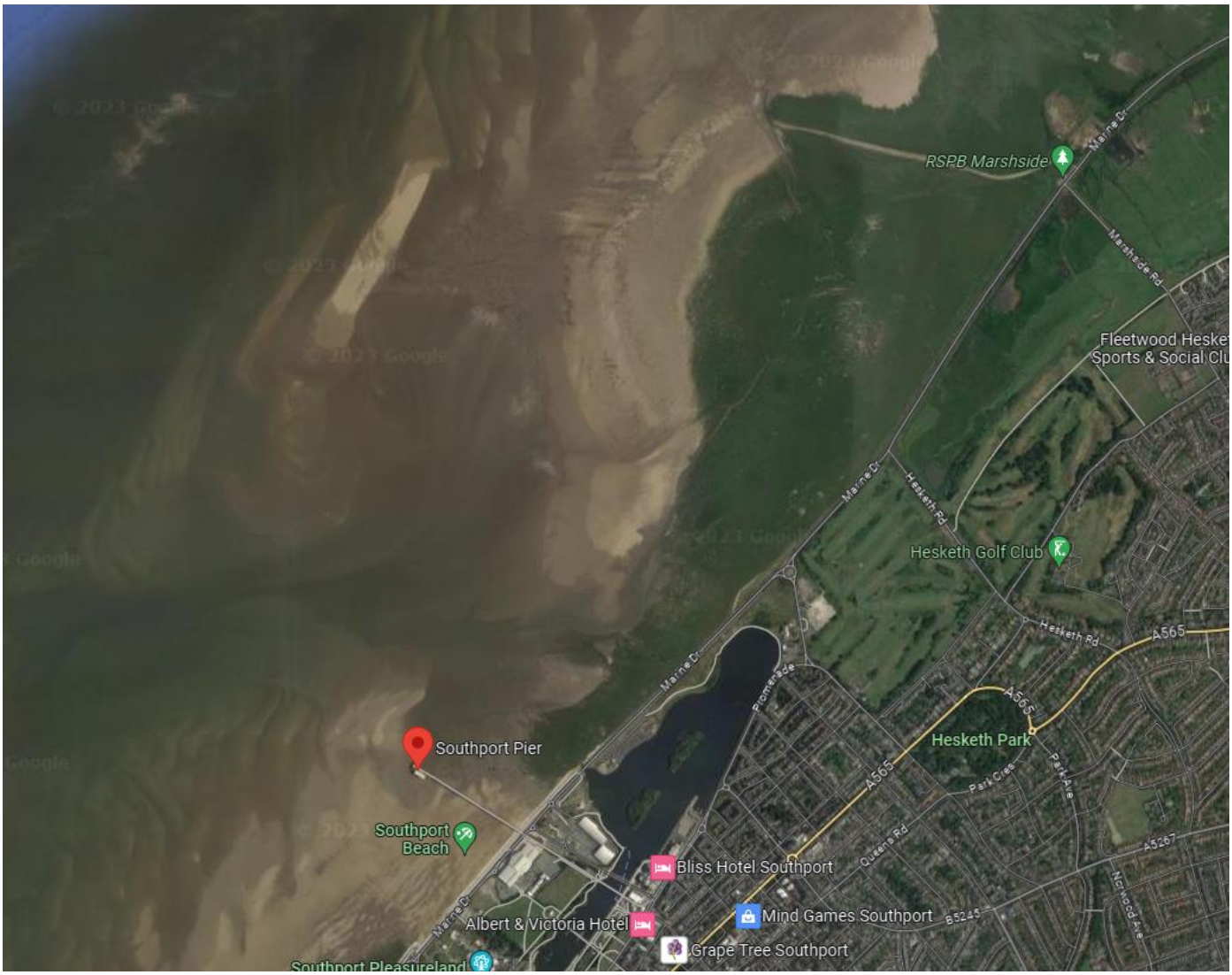


Figure 7. The location of alternative access routes considered.

The opening of the fishery will be in October, it is likely the fishery will have stopped by spring and closed by May, which will avoid the nesting period and avoid disturbance to nesting birds, which can be particularly sensitive to disturbance in the spring and summer.

Disturbance will be further minimised to the birds utilising the top of the beach and surrounding saltmarshes by vehicles only travelling to and from the fishery once each way per tide. The fishery will be open one tide a day, five days a week (weekdays), with the tide with the most daylight being chosen as the allocated tide. This leaves two high tides and one low tide, Monday to Friday and all tides on Saturday and Sunday where there will be no disturbance from the fishery. The fishery is North West from the access point meaning there will be minimal transiting along the higher intertidal area.

Disturbance to the designated species, which use the site for breeding is very unlikely due to the timing of the fishery. The majority of the effort will be between October and December and the fishery closes in May if the fishing hasn't ceased before this date. This gives very little cross over with the breeding season for common tern, lesser black-backed gull, ruff, and those listed in the seabird assemblage.

Black-tailed godwit favour the freshwater marshy grassland areas in the site and Bewick's and Whooper Swans rarely use the intertidal area at low water, it is therefore unlikely there will be any interaction between the fishery and species.

Golden plover are only likely to feed in the intertidal areas when weather conditions are harsh and the ground is hard from frost on their normal inland feeding areas. There are known small feeding areas on the intertidal mud and sandflats on the outer Ribble Estuary at Formby and Hightown, which is not near the fishery.

Bar-tailed godwit feed throughout the estuary with large numbers feeding on the Formby Channel in the Alt Estuary. Ringed plover feed at low tide on the intertidal mud and sandflats at Lytham and St Annes on the Ribble Estuary, and at Formby and Hightown near the Alt Estuary. The majority of Sanderling feed at low tide within the northern areas of the Ribble Estuary, and within the Alt Estuary. The highest densities of sanderling are found at Ainsdale Beach, Formby and Lytham Beach. The fishery is not within the vicinity of the preferred feeding grounds for bar-tailed godwit, ringed plover and sanderling and therefore disturbance unlikely.

Impacts on Dunlin, Grey plover, Knot, oystercatchers, and redshank:

Dunlin are known to feed throughout the intertidal areas of the SPA and that there is considerable movement within the site as the birds follow the tide and exposed feeding habitats. Grey plover feed at low tide on the intertidal sand at the mouth of the Ribble Estuary, and South to Ainsdale beach, with concentrations at Marshside with some feeding on the Alt Estuary to Crosby. The majority of Knot feeding occurs on the sand and mudflats on the Southern side of the Ribble Estuary. There is considerable movement of knot within the site, as the birds follow the tide and feed on exposed habitats. Oystercatcher feeds throughout the SPA, however the majority of low-tide feeding activity occurs on the intertidal mud and sandflats at the mouth of the Ribble Estuary. Redshank feed throughout the intertidal area.

Visual disturbance to dunlin, grey plover, knot, oystercatchers and red shank from the fishery have the potential to cause significant affects, however visual disturbance will be minimal and any displacement temporary and short lived for the following management measures implemented by NWIFCA:

- The fishery will only be **open one tide a day** five days a week (weekdays),
- The majority of **fishing will occur in daylight**
- The fishing will only occur for **two hours either side of low water** when the bed is uncovered.
- The **gatherers will only travel once** to and from the fishing area per tide.
- All access is from **one access** point and by quad only, with **no parking or ancillary works allowed within the SPA**, only transiting
- Activity may be high initially but will likely drop off significantly once the larger portion of dense size cockle has been removed.
- There are large areas of the estuary which will remain unfished

Breeding Redshank may still be vulnerable to the impacts of high levels of vehicle traffic transiting Haul Road during March and April time. Levels of fishing activity are expected to decrease significantly by March 2024. If, however, the TAC has not been reached by February, and it looks likely that significant levels of fishing continue beyond March 1st 2024, NWIFCA will assess the impact of this activity on breeding Redshank and

will consider closure of the fishery in light of this. NWIFCA will liaise with Natural England on this matter and inform members of Industry at the time of assessment in February.

Impacts on Pink-footed geese, Shelduck, Pintail, Teal, and Wigeon:

Pink-footed geese feed at the mouth of the Ribble Estuary, as well as further south at Hightown. Shelduck, feeding sites are located further up river from the River Douglas confluence, and on the mud and sand flats off the beaches of Lytham and St Annes, and on Banks and Crossens marshes. Pintail feed across the full extent of the intertidal mud flats from St Annes and Lytham Beaches to Warton Marsh. On the southern side of the estuary, pintail feed in smaller numbers on the intertidal mud and sandflats near Banks and Crossens marshes at the river mouth. Teal feed all along the intertidal mudflat areas on the northern side of the estuary and on the intertidal areas at the river mouth. Feeding areas are generally close to shallow water and muddy areas on the fringes of the saltmarsh. Wigeon feeds throughout the marshy areas of the Ribble Estuary. Visual disturbance to pink-footed geese, shelduck, pintail, teal, and wigeon is unlikely due to the area of the fishery being relatively small in comparison to the area of the site.

Visual disturbance to Pinkfooted geese, shelduck, pintail, teal and wigeon from the fishery have the potential to cause significant affects, however visual disturbance will be minimal and any displacement temporary and short lived due to the management measures implemented by NWIFCA:

- The fishery will only be **open one tide a day** five days a week (weekdays),
- The majority of **fishing will occur in daylight**
- The fishing will only occur for **two hours either side of low water** when the bed is uncovered.
- The **gatherers will only travel once** to and from the fishing area per tide.
- All access is from one access point and by quad only with **no parking or ancillary works allowed within the SPA**, only transiting

- Activity may be high initially but will likely drop off significantly once the larger portion of dense size cockle has been removed.
- There are large areas of the estuary, which will remain unfished.

There is therefore no reason to suggest that disturbance to birds would be damaging unless weather was exceptionally severe. In the even of severe weather, NWIFCA will follow the procedures set out in the NWIFCA Intertidal Fisheries Cold Weather Protocol (Annex 1) agreed with Natural England in April 2023 and will be reviewed upon requirement. Agreed weather stations for taking measurements are detailed in the shared internal cold weather protocol and will be reviewed at the time of use.

. If there is evidence of high levels of disturbance and a risk of adverse effect identified to the European Site then the NWIFCA Authority will close the fishery.

The NWIFCA is confident that visual disturbance to the SPA features will have no risk of adverse effect on the integrity or conservation status of the site.

7. Management and Mitigation to Ensure No Adverse Effect on the Integrity of the European Site:

In order for the NWIFCA to be fully confident of no risk of adverse effect on the integrity or conservation status of the sites a precautionary approach is being taken, and the following management measures implemented:

a) Rigorous enforcement of the conditions set out in the authorisation and permit conditions (detailed in section 4.6) including sensitive areas outside of the fishery;

b) Implementation of a 230 tonne TAC which will be monitored via landings returns and officer daily records (point c)

c) Monitored landings through:

   i. Regular IFCO reporting of numbers fishing and estimates of quantities removed;

   ii. Landings returns from Byelaw 3 permit holders (required under the byelaws);

   monitored landings and inspection reports will be used to determine when the TAC has been reached and the fishery is required to close.

d) Monitoring and inspection to inspect catch and ensure that there are no litter issues;
e) Haul road will be used for transiting only along the demarcated route and all ancillary works are prohibited along the road and within the SPA to prevent any encroachment on the saltmarsh
f) Fishery will be opened for only one tide a day, five days a week
g) NWIFCA enforcement officers will use intelligence and contacts with fellow enforcement agencies to pursue any suspicions of non-permitted or illegal gathering activity;
h) A NWIFCA officer will be present on the beds and at the check point and can enforce a closure at any point.

Table 6: Summary of Impacts

Feature/Sub feature(s)	Conservation Objective	Potential pressure[5] (such as abrasion, disturbance) exerted by gear type(s)[6]	Potential ecological impacts of pressure exerted by the activity/activities on the feature[7] *(reference to conservation objectives)*	Level of exposure[8] of feature to pressure	Mitigation measures[9]
Intertidal sand and muddy sand	Maintain or restore the extent, distribution structure or function of the feature.	Litter	Littering impacts could include entanglement of fish and birds in the bags and sacks, and swallowing / entanglement of birds and mammals (both marine and terrestrial) of other litter. .	As in 6.1.2 (i)	None – Removal of ancillary works to outside the designated area will reduce the impact of litter on the site.
		Removal of target species	Removal of target species could change the invertebrate community composition of the sandbanks.	As in 6.1.2 (ii)	None - current management measures sufficient with monitoring of the fishery

[5] Guidance and advice from NE.
[6] Group gear types where applicable and assess individually if more in depth assessment required.
[7] Document the sensitivity of the feature to that pressure (where available), including a site specific consideration of factors that will influence sensitivity.
[8] Evidence based e.g. activity evidenced and footprint quantified if possible, including current management measures that reduce/remove the feature's exposure to the activity.
[9] Detail how this reduces/removes the potential pressure/impact(s) on the feature e.g. spatial/temporal/effort restrictions that would be introduced.

		Removal of non-target species	Removal of target species could change the invertebrate community composition of the sandbanks	As in 6.1.2 (iii)	None - current management measures sufficient with monitoring of the fishery
All shore feeding SPA features that feed on infaunal molluscs - *Haematopus ostralegus*: Eurasian oystercatcher - *Calidris canutus*; Red knot - Scaup Aythya marila - -Common scoter Melanitta nigra	Maintain or restore the population of each of the qualifying features, and, the distribution of the qualifying features within the site	Removal of target species (cockles)	Potential to affect the:- - Food availability - Condition and survival of SPA species - Abundance of SPA species	As in 6.2.2 (i)	Implementation of TAC of 230 tonnes, and monitoring of daily catch to ensure real-time monitoring of the TAC. A buffer has also been provided for to limit exceeding a third of the total 800 tonnes of size.
		Removal of non-target species	Potential to affect the:- - Food availability - Condition and survival of SPA species Abundance of SPA species	As in 6.2.2 (ii)	None - current management measures sufficient with monitoring of the fishery
- Bar-tailed godwit, Limosa lapponica - Bewick's swan, Cygnus columbianus bewickii - Black-tailed godwit, Limosa limosa islandica - Common tern, Sterna hirundo - Dunlin, Calidris alpina alpina - Golden plover, Pluvialis apricaria - Grey plover, Pluvialis squatarola - Knot, Calidris canutus - Lesser black-backed gull, Larus fuscus - Oystercatcher, - Haematopus ostralegus Pink-footed goose, Anser Brachyrhynchus Pintail, Anas acuta	Maintain or restore the population of each of the qualifying features, and, the distribution of the qualifying features within the site	Visual disturbance	Potential to affect the:- - Condition and survival of SPA species - Abundance of SPA species - Extent and distribution of supporting habitat available whilst a fishing activity is occurring	As in 6.2.2(iii)	The fishery will be opened only one tide a day for five days a week. Ancillary activities are prohibited on Haul road and will take place out with of the designated site. If significant activity is likely to go on beyond march 1st, NWIFCA will assess the impact of this activity on breeding Redshank and consider closure.

- Redshank, Tringa totanus - Ringed plover, - Charadrius hiaticula, - Ruff, hilomachus pugnax - Sanderling, Calidris alba - Shelduck, Tadorna tadorna - Teal, Anas crecca - Whooper swan, Cygnus cygnus - Wigeon, Anas penelope - Seabird Assemblage (breeding): - -Black headed gull Chroicocephalus ridibundus - -Common Tern Sterna hirundo - Water bird Assemblage (non-breeding): - -Cormorant (phalacrocorax carbo - -Scaup Aythya marila - -Common scoter Melanitta nigra - -Lapwing Vanellus vanellus - -Wimbrel Numenius phaeopus - -Curlew Numenius arquata					
- Salicornia and other annuals colonising mud and sand; Glasswort and other annuals colonising mud and sand; Pioneer saltmarsh	Maintain or restore the population of each of the qualifying features, and, the distribution of the qualifying features within the site	Abrasion/disturbance of the substrate on the surface of the seabed	Potential to cause abrasion associated with the movement of vehicles used for access or participation in the fishing activity which could result in damage to infauna and epifauna as well as sensitive habitats.	As in 6.1.2 (iv)	Ancillary works will be prohibited from Haul Road, and the track demarcated to ensure no transiting vehicles cross the edges of the road to the surrounding salt marsh.
- Atlantic salt meadows (Glauco-	Maintain or restore the population of each of the qualifying features, and,	Abrasion/disturbance of the substrate on the surface of the seabed	Potential to cause abrasion associated with the movement of vehicles used for access or participation in the fishing activitywhich could	As in 6.1.2 (iv)	Ancillary works will be prohibited from Haul Road, and the track demarcated to

Puccinellietalia maritimae) (referred to as Saltmarsh)	the distribution of the qualifying features within the site		result in damage to infauna and epifauna as well as sensitive habitats.		ensure no transiting vehicles cross the edges of the road to the surrounding salt marsh.

8. Conclusion

The authorisation, management and mitigation measures applied to this fishery, and the use of an effective enforcement team of NWIFCA Officers with multi-agency support, allows the NWIFCA to conclude that the cockle hand-gathered fishery on the Southport cockle bed in the Ribble Estuary will not have an adverse effect on the integrity of the European Site.

9. In-combination assessment

9.1 Other ongoing and Authorised Fisheries to be Included in the In-combination assessment:

Key information for the in-combination assessment has been collated below for the assessment; a full copy of the HRAs reference below can be located on NWIFCA website, link below.
https://www.nw-ifca.gov.uk/marine-protected-areas/hra/

NWIFCA-RA-SPA-002 – Shrimp Trawling

- Four intertidal commercial shrimp operators, 100 – 180 tides per year, 3.150 sq. km (2.55%), low tide.
- Southport and Formby area.
- One vessel – 4.857 sq. km (3.94%), almost exclusively subtidal, no subtidal features designated.
- Occurs on sand and muddy sand habitat.
- Main fishing time spring to autumn with a lull June – July.

NWIFCA-RA-SPA-005 – Pot and Creels

- One commercial vessel using less than 20 pots, subtidal fishery only on the edge of the boundary and to the south of site

NWIFCA-RA-SPA-006 – Static Fixed Netting

- Intertidal nets October to June.
- Vessel netting has increased due to the ban of using drift nets to catch bass meaning vessels engaged in drift netting now use fixed nets - 7 vessels, 4 full time, 3 part time, April – November, mainly targeting bass.

NWIFCA-RA-SPA-007 – Drift Netting

- Very little drift netting due to new bass regulations, most have changed to static netting

Seed Mussel Fishery

- Seafield slip – 4 people maximum. Limited tide times and the likihood the resource will be lost before the winter months. There is a very small amount of mussel here that will likely be fished before the opening of the cockle fishery. Effort from fishers will be either the mussel fishery or cockle fishery

9.1.2 In-Combination Assessment

Pressures and features assessed within the in combination assessment.

Seed mussel fishery - removal of target species (cockles) for oystercatcher, knot, scaup, common scoter

There is a possibility for a seed mussel fishery in Lytham that will be undertaken during the cockle fishery. The seed fishery will only be authorised if there is a high likelihood that the mussel in its current state is likely to suffer high mortality rates over the winter. This fishery is typically less than 1.6 ha which is less than 0.012% of the site and located on the opposite side of the Ribble estuary, and therefore, likely to have little interaction with the cockle fishery. The cockle on the Southport bed is highly variable, and undersize stock will be left as

food for birds. Therefore, when considering in combination effects of the removal of target species for SPA species that utilise bivalve as a prey source NWIFCA considers the in-combination effects of removal of target species (cockle) from the intertidal sand and muddy sand will have no risk of adverse effect on the integrity or conservation status of the site.

All fisheries mentioned in section 8.1 above – visual disturbance all SPA feature

There is no access to the fishery by vessel and due to the location of the cockle bed, mid shore and away from the main Ribble and Alt river channels, it is very unlikely that fishing and access to and from the fishery by quadbike/ tractor will disturb the birds whilst on the water, meaning there will be no increase to disturbance to those birds whilst on the water. There is also likely to be a decrease in boat activity whilst the cockle fishery is open as some of those who fish for other species by vessel also hold a Byelaw 3 permit and are likely to be fishing for cockles.

Intertidal netting occurs year round and therefore has the potential to cross over with the cockle fishery, which will be open from mid-October until the 1st of May. The netting activity is low level, conducted by 6 to 8 individuals, who fish intermittently on a recreational basis. They mainly target flat fish and bass, and operate south of the main cockle bed near Taylors Bank, Southport and Ainsdale. The low number of individuals taking part in this activity over an area as large as the Ribble Estuary, and the effort level being low enough to support recreational fishing requirements means NWIFCA are confident there will be minimal in combination impacts of this fishery alongside the proposed cockle fishery.

There is potential for in-combination effects with the intertidal shrimping using a tractor. Due to the following reasons the NWIFCA considers the in-combination effects of visual disturbance will have no risk of adverse effect on the integrity or conservation status of the site.

- The cockle fishery will only be open one tide a day five days a week on weekdays only. The shrimp fishery will not occur on all days and all tides whilst the cockle fishery is open.
- The majority of fishing will occur in daylight with the majority of the shrimp fishing occurring in the daylight.
- All fishing will only occur for two hours either side of low water.
- Access to and from the cockle and shrimp fishery will only be once per tide.
- All access to the cockle fishery is from Haul Road and by quad or tractor only and access to shrimp fishery is via Weld Road and by tractor.

10. Summary of consultation with Natural England

Natural England were involved in discussions around the management of the fishery when discussed at TSB.

11. Integrity test

The NWIFCA concludes no adverse effect on the integrity of the European Site providing the management and mitigation measures provided in table 6 are implemented and upheld.

Annex 1 – NWIFCA Intertidal Fisheries Cold Weather Protocol

NORTH WESTERN IFCA INTERTIDAL FISHERIES COLD WEATHER PROTOCOL

April 2023

1. Purpose of this protocol

During periods of severe cold weather (as defined in section 2), the NWIFCA must assess whether fishing activities taking place within a Special Protection Area (SPA) pose a risk to the designated bird species. This requirement arises from the legal obligation upon the NWIFCA to carry out a Habitats Regulation Assessment (HRA) for activities it regulates and to implement any mitigation measures identified as necessary. The purpose of this protocol is to set out the criteria that must be met, the risks that must be considered, and the steps that NWIFCA will follow when such an event occurs. This protocol has been reviewed and agreed with Natural England.

1.1 Background

Intertidal fisheries in the NWIFCA District that operate within a European Marine Site (EMS) must undergo a HRA in accordance with Article 6 of the Habitats Directive. The purpose of this assessment is to ensure the proposed fishing activities do not hinder the conservation objectives of the protected features. The sensitivity of designated features to fishing activity is detailed in Natural England's Conservation Advice Packages: https://designatedsites.naturalengland.org.uk/.

Certain bird species are vulnerable to pressures from disturbance and removal of food resources from fishing activities. A HRA of a fishery may determine that during periods of severe cold, when birds require additional energy to maintain condition, there is the risk that fishery related pressures could result in an adverse effect on bird populations. The NWIFCA must therefore have a protocol to ensure these impacts are mitigated for and that there is no adverse effect on the integrity of the site.

1.2 Legal framework

The following legislation underpins NWIFCA's duty to protect designated features within the Northwest District under both UK (relevant to Marine Conservation Zones) and retained EU (relevant to European Marine Sites) law.

The Conservation of Habitats and Species Regulations (2017)

> ***24 Control of potentially damaging operations – Assessment of implications for European sites***
>
> *(1) Where it appears to the appropriate nature conservation body that a notice of a proposal under section 28E(1)(a) of the WCA 1981 relates to an operation which is or forms part of a plan or project which—*
>
> > *(a) is likely to have a significant effect on a European site (either alone or in combination with other plans or projects), and*
> >
> > *(b) is not directly connected with or necessary to the management of that site,*
>
> *it must make an appropriate assessment of the implications for that site in view of that site's conservation objectives.*
>
> *(2) In the light of the conclusions of the assessment, it may give consent for the operation only after having ascertained that the plan or project will not adversely affect the integrity of the site.*

Further information regarding the UK Government's guidance to carrying out a HRA can be found here: https://www.gov.uk/guidance/habitats-regulations-assessments-protecting-a-european-site

2. Protocol

A suspension of fishing within an SPA should be triggered during severe cold conditions, defined as:

A period during which temperatures are ***at or below 0 degrees Celsius for 60 hours total out of 120 consecutive hours (5 days).***

Temperatures will be monitored from agreed weather stations for each shellfishery within a SPA. Temperatures will be monitored in real-time.

Once the 60 hour trigger is reached, fishing will be suspended for five consecutive days (inclusive of weekends). Temperatures will continue to be monitored while fishing is suspended. The suspension will be lifted once a period of sustained warming (over 60 hours total within a 120 hour period, from the start of the suspension) is reached.

Predictive or forecasted temperatures will not be used to initiate a closure, however, they can be used to notify industry of the potential for a closure (see section 3.2 and 3.3).

2.1 Temperature stations

The weather stations from which to monitor temperature readings for the respective fisheries have been agreed with Natural England as of April 2023. Stations will be reviewed yearly. Stations will be reviewed for any fishery at the time when this protocol is applied, agreed with Natural England and detailed in the HRA.

2.2 Additional considerations

In addition to the temperature, NWIFCA will review other factors which may influence the level of impact on birds during severe cold. These will include (but will not be limited to):

- The intensity of fishing (frequency, number of operators, timings etc.)
- The potential for displacement of fishers into other fisheries

3. Communication procedure

3.1 Communication with Natural England

NWIFCA will notify Natural England when there is a risk of severe temperatures and provide regular updates during cold weather.

NWIFCA will consult with Natural England regarding the relative conditions of the relevant SPA and the potential for a suspension.

3.2 Communication with Industry members

If a forecast has indicated severe cold weather, NWIFCA will notify industry members via the website and by text message of the potential for a cold weather suspension as soon as possible.

NWIFCA will notify industry members via text and website updates as soon as temperature monitoring has begun.

If it looks likely that the minimum requirements of 60 hours will be reached, NWIFCA will notify fishers via text and website updates of this possibility.

Once 60 hours of severe cold is reached NWIFCA will notify fishers that the fishery will be closed within 24 hours.

3.3 Communication with Authority members

If a forecast has indicated severe cold weather, NWIFCA will notify members of the Technical Science and Byelaw Subcommittee (TSB) via email of the potential for a cold weather suspension as soon as possible.

NWIFCA will notify TSB members via email as soon as temperature monitoring has begun and notify members of suspension of the fishing, should the cold weather conditions (specified in 2. Protocol) be met.

Date of next review	**Completed by**	**NE Sign off**
October 2023		

Annex 2 – Code of Conduct for Intertidal Shellfisheries

North Western Inshore Fisheries and Conservation Authority

Code of Conduct for Intertidal Shellfisheries

Fishing for cockles and mussels on the shore is a long-established activity. In recent years the level of activity has increased, and there has been increasing public concern about it.

By observing this simple code of conduct you can help to reduce complaints and protect your own long-term interests.

1. Treat the foreshore with respect

Much of the foreshore is privately owned. Many landowners tolerate access to and from shellfisheries. This does not include the storage of fishing equipment or catches on private land. To protect your own interests:

- Don't damage gates, fences or signposts;
- Don't block access routes; and
- Get the landowner's agreement before storing any fishing equipment, vehicles or catches on private land.

2. Use vehicles on the shore carefully

Many landowners and coastal residents are concerned about the use of tractors, ATVs / Quad Bikes, and other vehicles on the shore. Try to minimise complaints by:

- Ensuring all vehicles are in good repair and have exhaust silencers;
- Keep noise to a minimum - especially early in the morning and at weekends;
- Avoid churning up mud at the top of the shore;
- Don't abandon vehicles on the shore.

3. Leave the shore as you find it

Frequent complaints are made about litter being left by fishermen. This includes food wrappers, cups, sacks used to transport shellfish, and shellfish dropped or discarded on the shore.

- Clear up any litter left at the end of the day;
- Don't leave unwanted shellfish or sacks lying around; and
- If storing gear or shellfish on the shore, make sure it doesn't impede access.

4. Have regard for wildlife

Much of the seashore is protected by wildlife designations. It is a criminal offence to harm protected wildlife. To avoid possible prosecution:

- Don't disturb bird nests or eggs;
- Avoid nature reserves;
- Don't take vehicles across areas of saltmarsh or seagrass; and
- Contact the NWIFCA office for advice if in any doubt.

5. Fish sustainably

IFCA byelaws protect the long-term future of shellfish stocks, and must be complied with at all times. Complying with byelaws protects your own future livelihood. You can help further by:

- Scattering riddled shellfish evenly back on the bed they were removed from - don't leave them in a heap;
- Avoid harming or gathering juvenile shellfish - they are the future of the fishery; and
- Ensure that vehicles used on the shore don't harm the shellfish beds.

6. Observe other guidance & advice

Other authorities may provide guidance relating to your activities. You should ensure that you are aware of:

- Guidance issued by local authorities and landowners concerning access and other issues;
- Guidance issued by the Health & Safety Executive and the Coastguard.

For further information, contact the NWIFCA at our Carnforth offices or visit www.nw-ifca.gov.uk