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

NWIFCA-R&A-EMS-COCKLE FISHERY-SOUTHPORT– 2022
22nd September 2022

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

The NWIFCA proposes to authorise a hand-gathered cockle fishery on the Southport cockle bed within the protected site

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 2023 under Byelaw 3 (2019).

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)

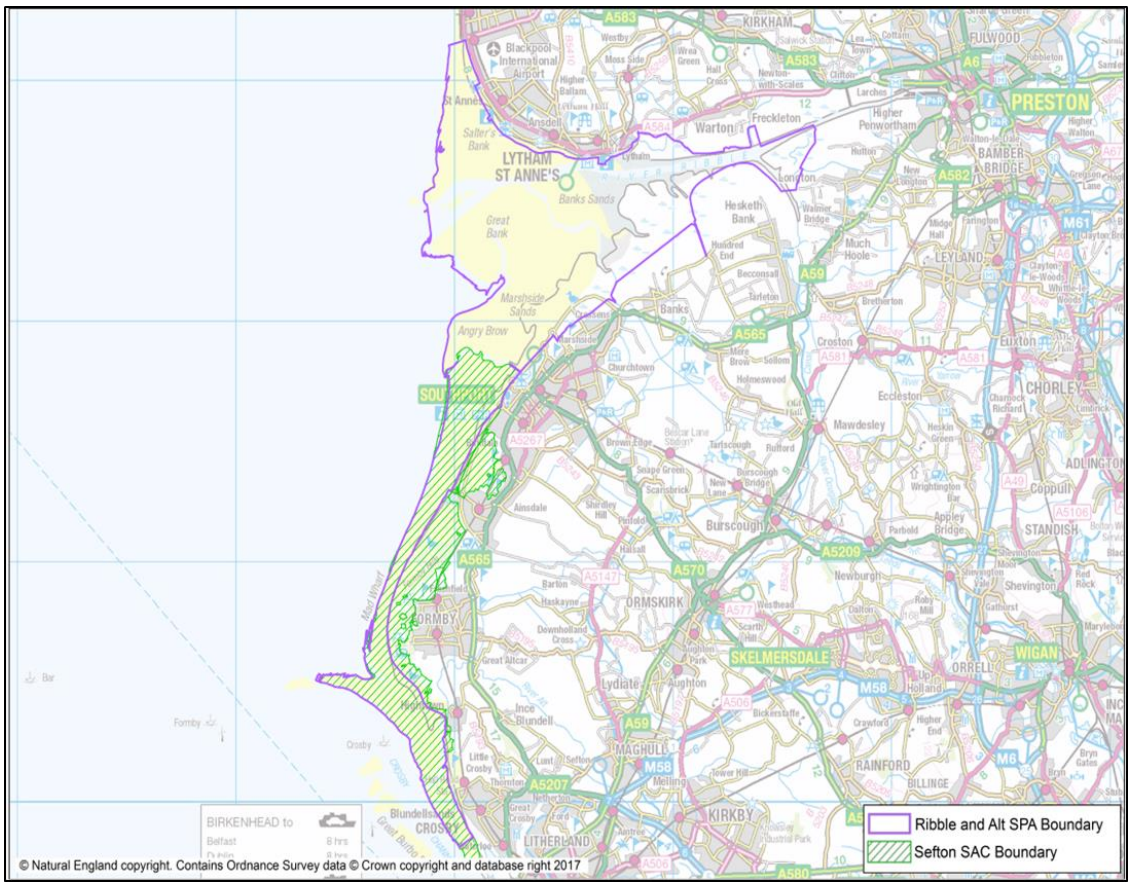
2. Information about the EMS

(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

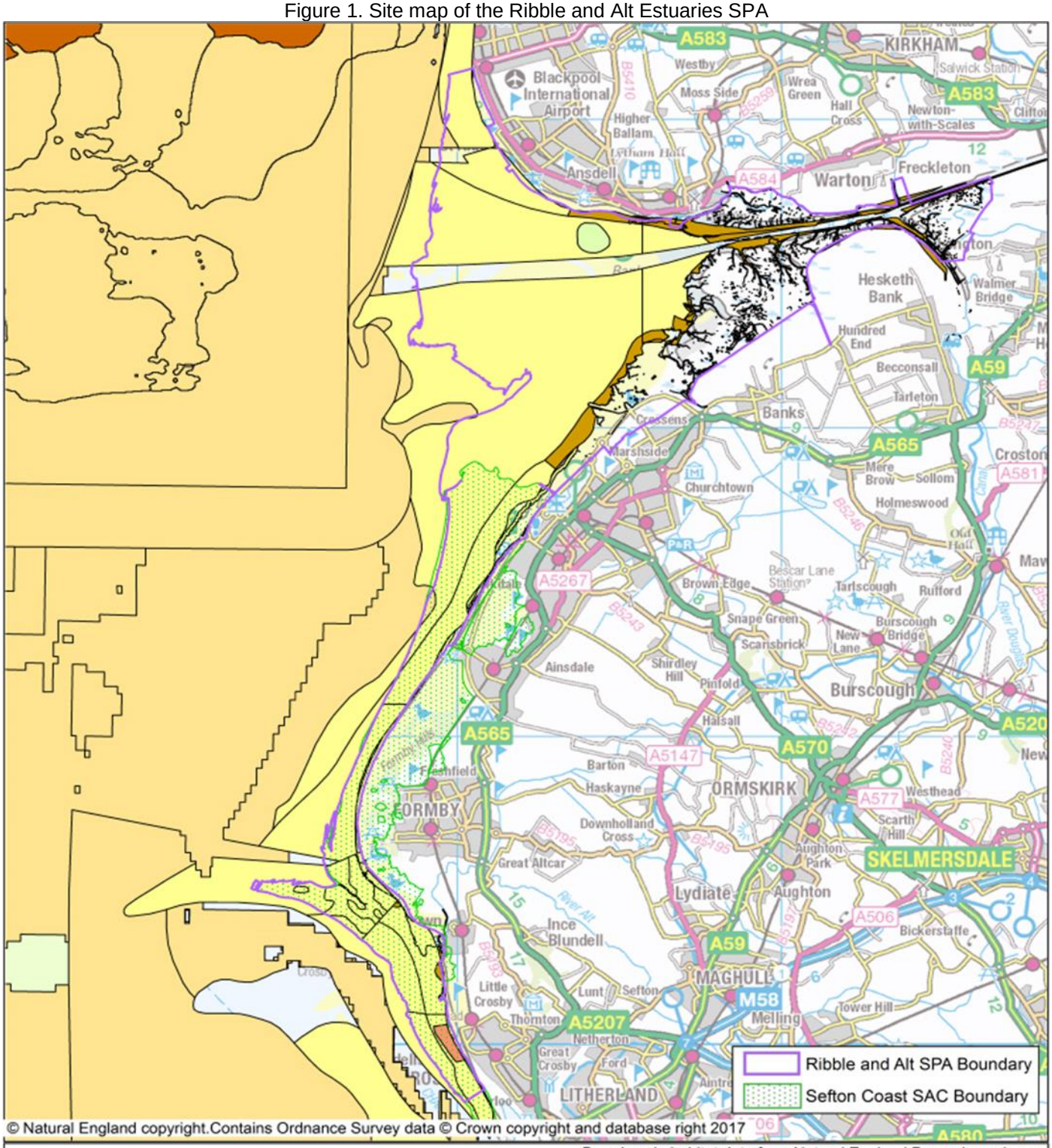


Figure 2. feature map of the Ribble and Alt estuaries SPA

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. The last cockle fishery took place on Southport in 2018 where an undersize fishery was permitted. 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. Prior to this, the last commercial size fishery on the bed was in 2012 when high stock levels were present. Since then, the level of cockle stocks has been too low to consider it as a viable fishery and, as such, it has been closed. This year there is once again a large number of size cockles falling into the same age cohort. This is likely indicative of a successful spat fall the previous year, which has now reached size. In addition, there has been considerable changes in sediment movement across the bed in comparison to previous years.

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 2022 – 2023 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

With limited staff resources available to NWIFCA, 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.

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 bed has been surveyed twice this year. The first on the 30th May to get an idea of the size of the cockle bed and the possible stock available. The most recent survey on the 1st of September aimed to again, gather information on the bed, biomass of stock available, and determine how much previously undersize cockle had reached size.

In the September survey, 84 stations were sampled from a 350m grid. The survey grid location was based on the inspection carried out by NWIFCA in April 2022 and a previous survey in May 2022. There was a band of size and undersize cockle present on the bed running from NE to SW. Since the last survey a spat fall has occurred, with patches of 0-5mm cockle also present towards the North of the surveyed area. The cockle has grown since the last inspection with the majority of the cockle between 20-28mm in length. An area to the North of the survey grid which previously had high densities of cockle was not surveyed due to the ground being too soft to safely access. The full survey report is provided in Annex 1.

Means were calculated from all stations with zero counts on the edge of the bed removed. Less than 5mm cockle was not used in the undersize figures due to the high variable survivability of cockle at this small size but has been included as a separate figure.

Mean number of size cockle	17 per m²	(min 0, max 340)
Mean number of undersize cockle	50 per m²	(min 0, max 508)
Mean number of 0-5mm cockle	24 per m²	(min 0, max 400)

Biomass estimates:

	Area (ha)	Size Cockle (tonnes)[1]	Undersize Cockle (tonnes)[2]
Southport	**877**	**1100-1200**	**1200-1300**

The denser patches of size cockle are present to the western side of the bed (figure 3). The black line demarcates the area of the cockle bed. The cockle consisted predominantly of a single age cohort of 1 year that would have likely settled in spring/summer 2021 and grown on to size this summer. There was a high volume of cockle in the 20-28 mm length range, with a many falling just undersize, or size (figure 6).

Recommendation: This year, due to the presence of potentially commercially viable cockle on the Southport the bed, it is proposed that this bed be opened for hand gathered cockle fishing to Byelaw 3 Permit holders.

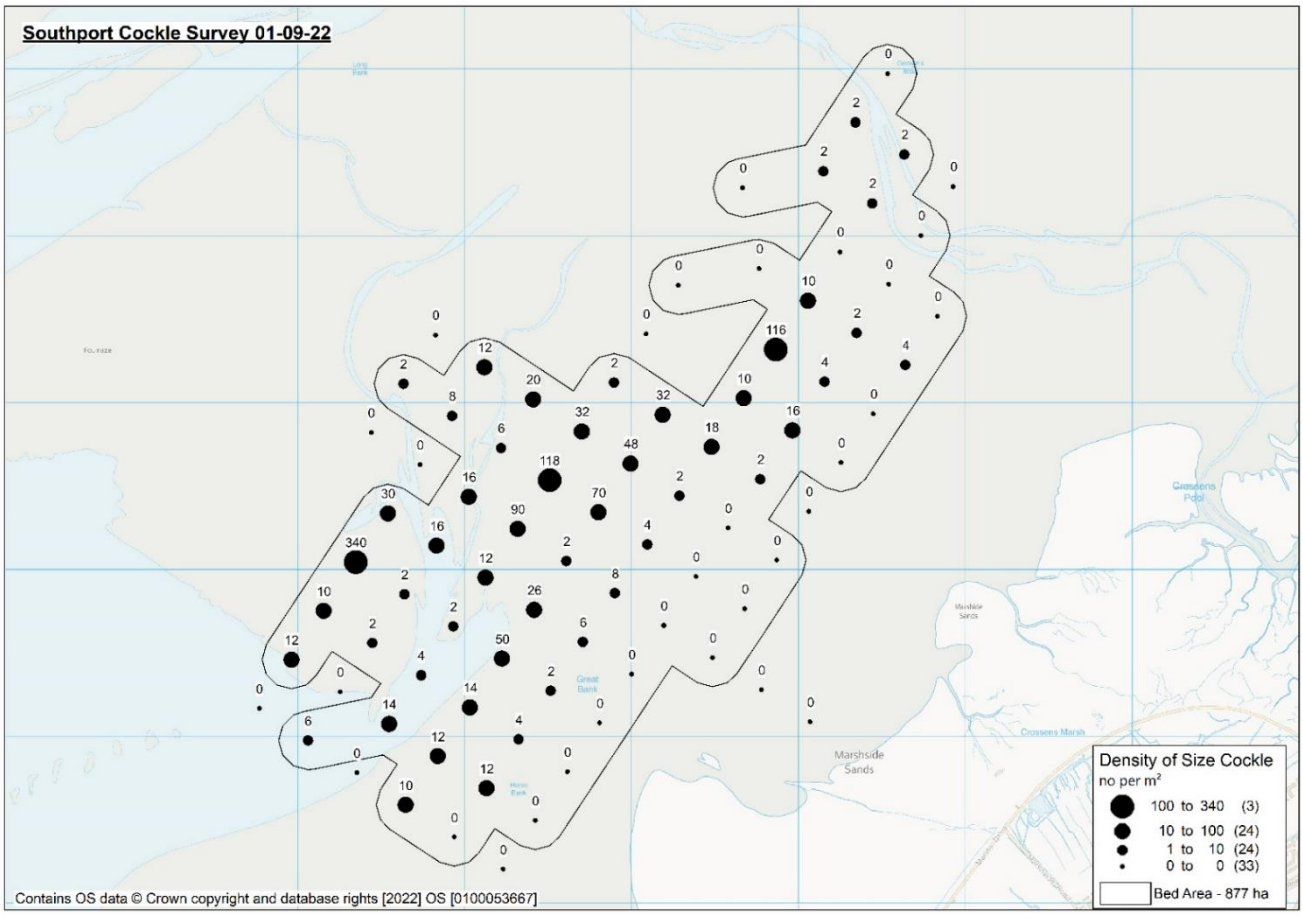


Figure 3. Density of size cockle per m² at Southport September 2022.

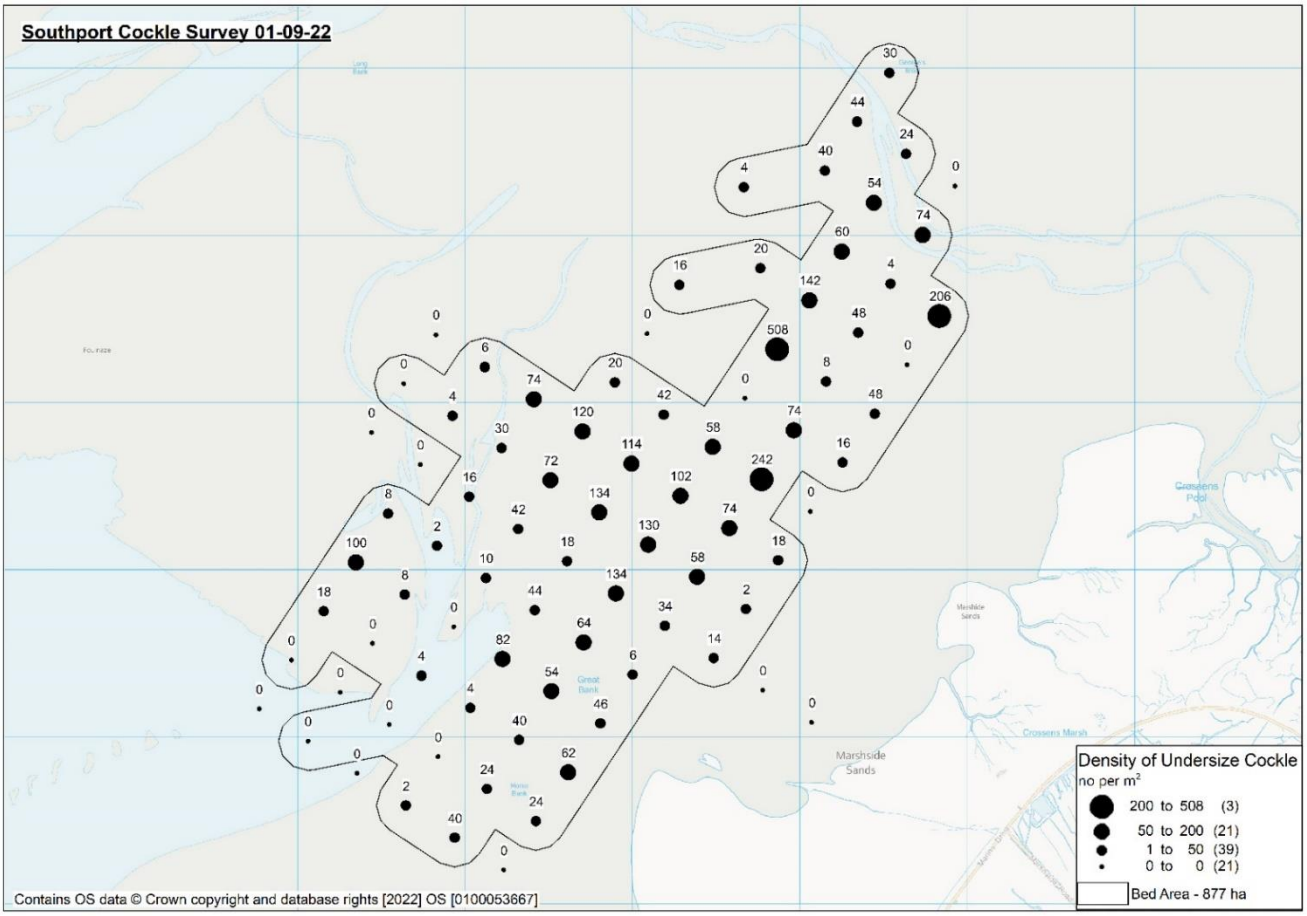


Figure 4. Density of undersize cockle per m² at Southport September 2022.

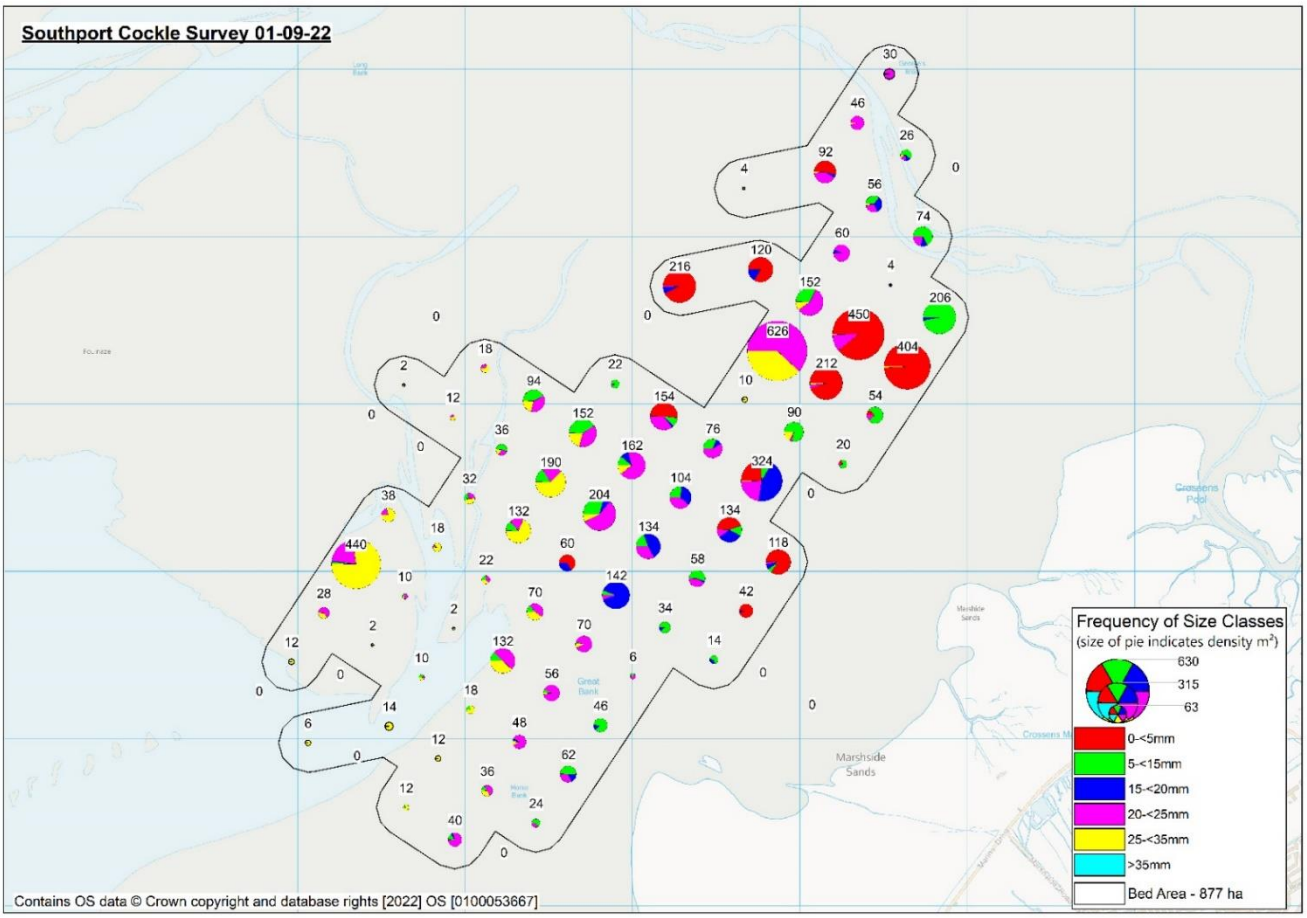


Figure 5. Frequency of size classes of cockle per m² at Southport September 2022.

4.6 Summary of proposed fishery and restrictions

Based on the information provided in the survey reports, the following fishery (Table 2) 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 2. Summary of proposed cockle fisheries to be opened in the Ribble and Alt Estuaries in 2022 .

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.

There are currently 137 permit holders, who could prosecute the bed. It is expected that there would initially be 20-60 permit holders fishing. Once the fishery has opened and the initial volume of cockle has been removed, the number of gatherers will likely reduce significantly. 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.

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.

Permit holders will only be allowed to fish for cockles by hand or rake in the manner detailed in section 4.1. Due to the high presence of undersize cockle on the beds, the requirement for riddling catch will be specified in the Flexible Permit conditions. 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 at Haul road. A checkpoint system will be operated by IFCOs from Haul road. All vehicles must be parked on haul road, and cockles loaded onto transport on Haul Road.

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 week days only, and to one tide a day.

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 2. 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	NO NO NO	The access is restricted to one access route, Haul road which is an established access route with hard standing causing no physical damage to the feature.
	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	NO NO NO	The access is restricted to one access route, Haul road which is an established access route with hard standing causing no physical damage to the feature.

A157 - **Bar-tailed godwit,** Limosa lapponica (non-breeding) A037 - **Bewick's swan**, Cygnus columbianus bewickii (non-breeding)	Supporting Habitats assessed above	Removal of target species (Cockles)	Some species sensitive, others screened out	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
A616 – **Black-tailed godwit,** Limosa limosa islandica (non-breeding)		Removal of non-target species	Sensitive	YES	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.
A193 - **Common tern**, Sterna hirundo (breeding)		Visual disturbance	Sensitive	YES	All species taken through to AA
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) 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

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.

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. When NWIFCA officers are inspecting the fisheries, they will be able to monitor levels of littering.

The NWIFCA is confident that littering will be controlled, and monitoring will be in place 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 September, 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.

Due to the size of the beds, the number of Byelaw 3 permits holders likely to target the fishery, and the amount of undersized cockle on the beds it is likely that there will be areas of the opened beds that will remain un-fished. The east side and edges 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 3. On Southport there is between 1200 and 1300 tonne of undersize cockle, much of which is in the same age cohort as the size mussel. This stock (which makes up over half of the cockle available) will not be removed, and will be available for future spawning.

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.

The presence of dense size cockle in this area is highly variable and not consistent given the size fishery last took place in 2012, and the previous 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, adult cockle will have already spawned and risk to juvenile cockles is likeyly lower than it would be on the 1st September.

Although there is size cockle on a proportion of the beds much 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.

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;

Due to the size of the bed (877ha), the number of Byelaw 3 permits holders likely to target the fishery 20-60), and the amount of undersized cockle on the beds it is likely that there will be areas of the opened beds that will remain un-fished. The east side and edges 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 3. Once these areas have been fished the number of people accessing the fishery will decrease quickly.

On Southport there is between 1200 and 1300 tonne of undersize cockle, much of which is in the same age cohort as the size mussel in the 20-25 mm range. This stock (which makes up over half of the cockle available) will not be removed, and will be available for future spawning and as a food resource for the birds. The minimum landings size and other byelaw measures will be enforced rigorously by NWIFCA officers as detailed in section 4.6 to ensure juvenile stock is retained on the bed.

Evidence from previous fisheries show that fishing concentrates in areas with the densest cockles and once cockles in these areas reduces, the fishery declines. 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, again, insures some is left for the birds and as future spawning stock.

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, 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 2023. 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 with all operations (parking and tonning up) occurring on Haul Road. Haul Road is a hard-core track located 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. 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.

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 weekdays and for one tide a day, 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.

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 thoughout the intertidal area. Visual disturbance to dunlin, grey plover, knot, oystercatchers and red shank will be minimal and any displacement temporary and short lived for the following reasons:

- The fishery will be closed on weekend tides and will only be open one tide a day,
- 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.
- 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.

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. Should visual disturbance take place it will be minimal and any displacement temporary and short lived for the following reasons:

- The fishery will be closed on weekend tides and will only be open one tide a day,
- 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.
- 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. NWIFCA will carry out an assessment of risk in conjunction with Natural England during periods of cold weather and may close the fishery if cold weather is predicted to be below zero for more than 12 hours a day for 5 consecutive and if advice is that fishing poses a risk to SPA features. 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) 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);

c) Monitoring and inspection to inspect catch and ensure that there are no litter issues;
d) NWIFCA enforcement officers will use intelligence and contacts with fellow enforcement agencies to pursue any suspicions of non-permitted or illegal gathering activity;
e) A NWIFCA officer will be present on the beds and at the check point and can enforce a closure at any point.

Table 2: 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 - current management measures sufficient with monitoring of the fishery.
		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
		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

[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.

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 (mussels)	Potential to affect the:- - Food availability - Condition and survival of SPA species - Abundance of SPA species	As in 6.2.2 (i)	None - current management measures sufficient with monitoring of the fishery
		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 - Redshank, Tringa totanus - Ringed plover, - Charadrius hiaticula, - Ruff, hilomachus - pugnax - Sanderling, Calidris alba - Shelduck, Tadorna tadorna - Teal, Anas crecca - Whooper swan, Cygnus cygnus	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)	None - current management measures sufficient with monitoring of the fishery

- 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					

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

The seed fishery is only being authorised due to the high likelihood that the mussel in its current state is likely to suffer high mortality rates over the winter. 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 be closed on weekend tides and the fishery will only be open one tide a day for the first two weeks, two tides a day for the third week and one tide a day for the last two week the fishery is open. 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 of the undersize mussel fisheries 2022 are implemented and upheld.

Annex 1 – Southport Cockle Survey Note 1st September 2022

Survey method - Jumbo and 0.5m^2 quadrat

84 stations were sampled from a 350m grid. The survey grid location was based on the inspection carried out by NWIFCA in April 2022 and a previous survey in May 2022. There was a band of size and undersize cockle present on the bed running from NE to SW. Since the last survey a spat fall has occurred, with patches of 0-5mm cockle also present towards the North of the surveyed area as shown in figure 3. The cockle has grown since the last inspection with the majority of the cockle between 20-28mm in length. An area to the North of the survey grid which previously had high densities of cockle was not surveyed due to the ground being too soft to safely access.

Means

Means were calculated from all stations with zero counts on the edge of the bed removed. Less than 5mm cockle was not used in the undersize figures due to the high variable survivability of cockle at this small size but has been included as a separate figure.

Mean number of size cockle	17 per m^2	(min 0, max 340)
Mean number of undersize cockle	50 per m^2	(min 0, max 508)
Mean number of 0-5mm cockle	24 per m^2	(min 0, max 400)

Maps

Maps were created showing the overall survey area, density of size cockle, density of undersize cockle, 0-5mm size range cockle, and 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).

Biomass

	Area (ha)	**Size Cockle (tonnes)[1]**	**Undersize Cockle (tonnes)[2]**
Southport	**877**	**1100-1200**	**1200-1300**

[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.

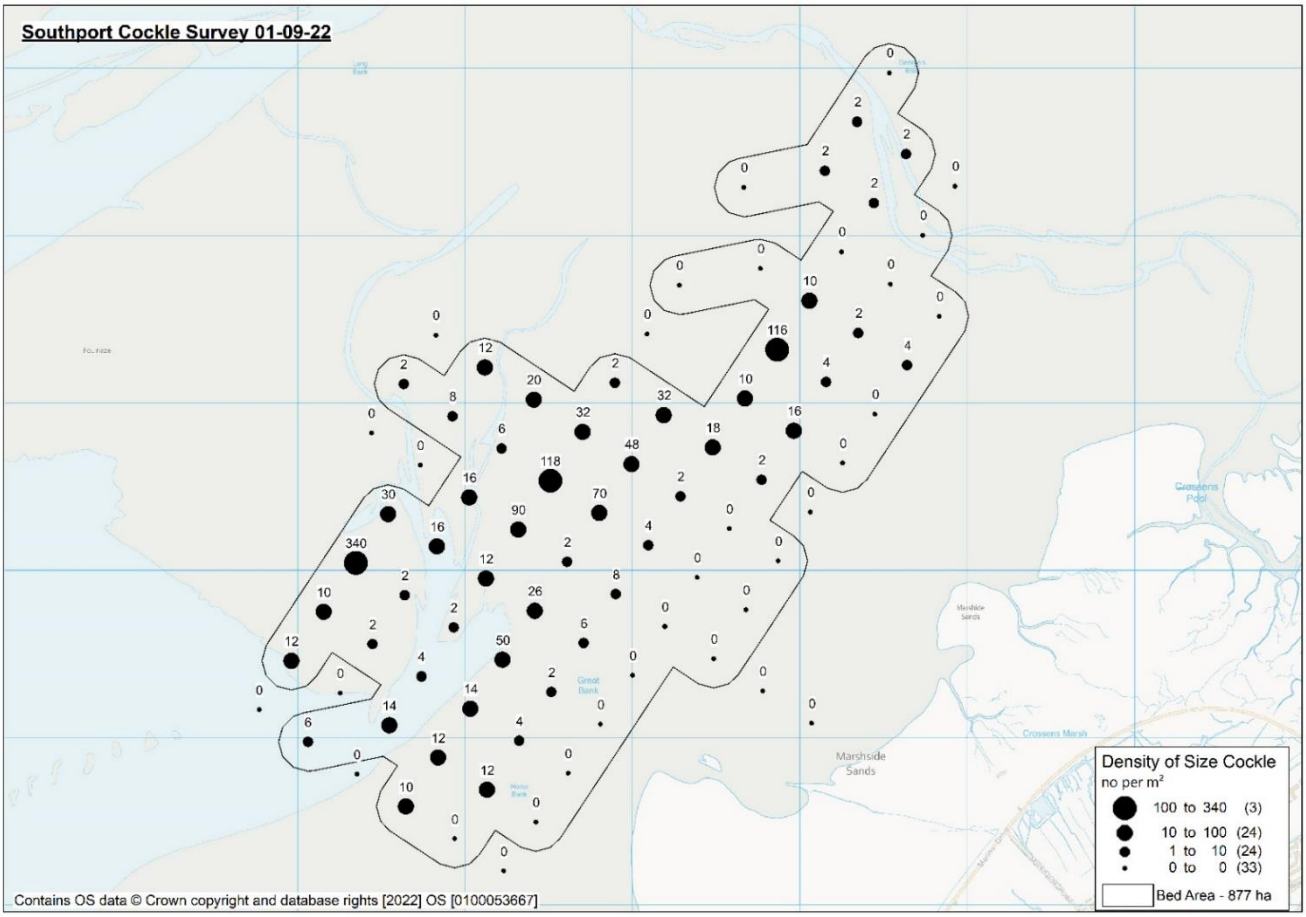


Figure 1. Density of size cockle per m² at Southport September 2022.

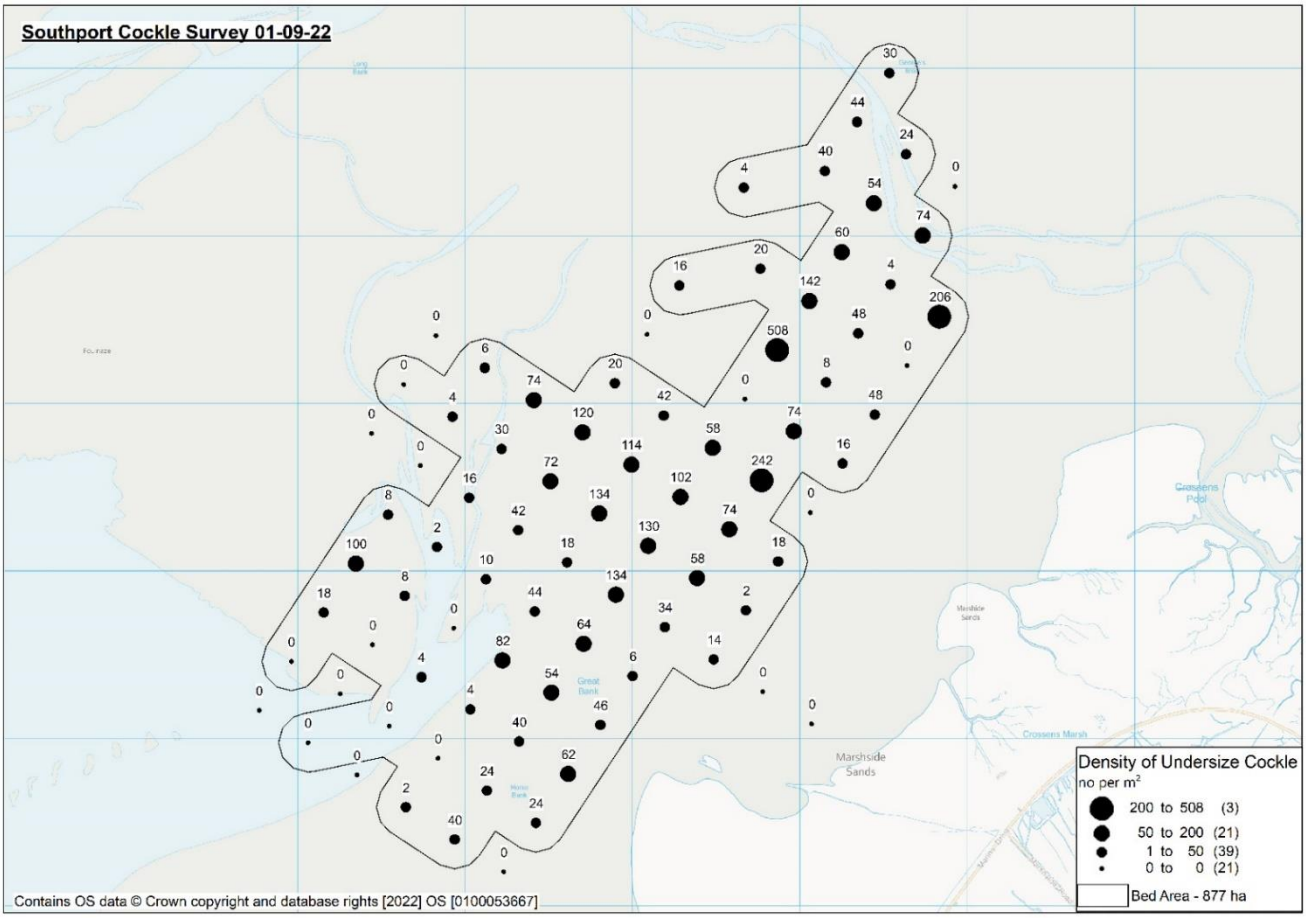


Figure 2. Density of undersize cockle per m² at Southport September 2022.

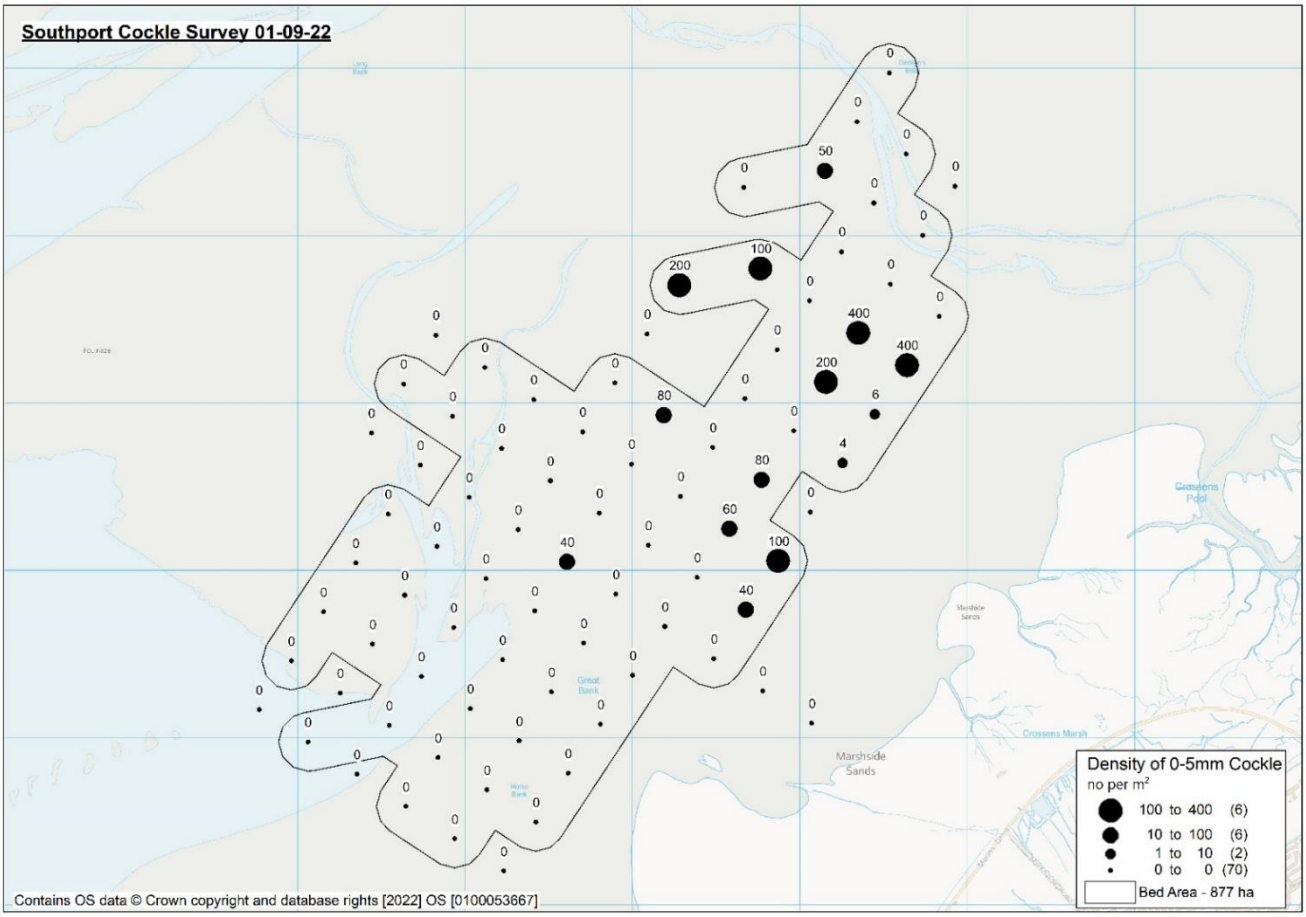


Figure 3. Density of 0-5mm per m² at Southport September 2022.

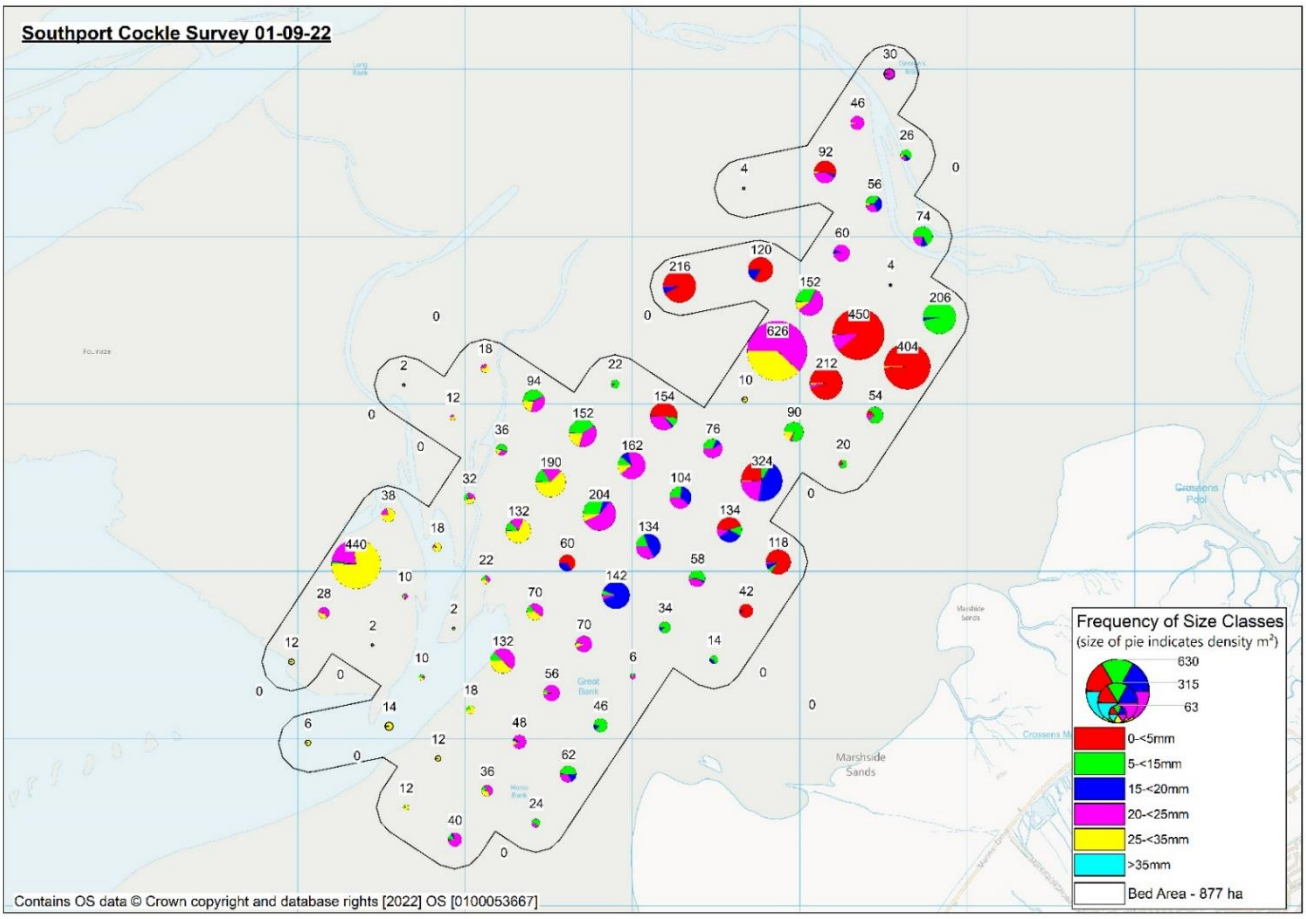


Figure 4. Frequency of size classes of cockle per m² at Southport September 2022.

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