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

NWIFCA-MB-EMS-UNDERRSIZE MUSSEL FALKLANDS AND SOUTH AMERICA HANDGATHERING

May 2018

Completed by: Jon Haines

Site: Morecambe Bay and Duddon Estuary

European Designated Sites:

UK0013027	Morecambe Bay Special Area of Conservation (SAC)
UK9020326	Morecambe Bay and Duddon Estuary SPA
UK11045	Morecambe Bay Ramsar
UK11022	Duddon Estuary Ramsar

European Marine Site: **Morecambe Bay and Duddon Estuary**

Qualifying Feature(s):

SAC and Ramsar

H1110. Sandbanks which are slightly covered by sea water all the time; Subtidal sandbanks
H1130. Estuaries

H1140. Mudflats and sandflats not covered by seawater at low tide; Intertidal mudflats and sandflats
H1150. Coastal lagoons
H1160. Large shallow inlets and bays
H1170. Reefs
H1220. Perennial vegetation of stony banks; Coastal shingle vegetation outside the reach of waves (NON MARINE)
H1310. *Salicornia* and other annuals colonising mud and sand; Glasswort and other annuals colonising mud and sand; Pioneer saltmarsh
H1330. Atlantic salt meadows (*Glauco-Puccinellietalia maritimae)*
H2110. Embryonic shifting dunes (NON MARINE)
H2120. Shifting dunes along the shoreline with *Ammophila arenaria* ("white dunes"); Shifting dunes with marram (NON MARINE)
H2130. Fixed dunes with herbaceous vegetation ("grey dunes"); Dune grassland (NON MARINE)
H2150. Atlantic decalcified fixed dunes (*Calluno-Ulicetea*); Coastal dune heathland (NON MARINE)
H2170. Dunes with *Salix repens ssp. argentea* (*Salicion arenariae*); Dunes with creeping willow (NON MARINE)
H2190. Humid dune slacks (NON MARINE)
S1166. *Triturus cristatus*; Great crested newt (NON MARINE)
Natterjack Toad (NON MARINE)

SPA and Ramsar

A026 Egretta garzetta; Little egret (non-breeding)
A038 *Cygnus Cygnus*; Whooper swan (non-breeding)
A040 *Anser brachyrhynchus*; Pink-footed goose (non-breeding)
A048 *Tadorna tadorna*; Common shelduck (non-breeding)
A050 Anas Penelope; Wigeon - (non-breeding – Ramsar only)
A054 *Anas acuta*; Northern pintail (non-breeding)
A063 *Somateria mollissima*; Common eider (non-breeding – Ramsar only)
A067 Bucephala clangula; Goldeneye - (non-breeding – Ramsar only)
A069 Mergus serrator; Red-breasted merganser - (non-breeding – Ramsar only)
A130 *Haematopus ostralegus*; Eurasian oystercatcher (non-breeding)
A137 *Charadrius hiaticula*; Ringed plover (non-breeding)
A140 *Pluvialis apricaria*; European golden plover (non-breeding)
A141 *Pluvialis squatarola*; Grey plover (non-breeding)
A142 *Vanellus vanellus;* Lapwing - (non-breeding – Ramsar only)
A143 *Calidris canutus*; Red knot (non-breeding)
A144 *Calidris alba*; Sanderling (non-breeding)
A149 *Calidris alpina alpina*; Dunlin (non-breeding)
A151 *Calidris pugnax;* Ruff (non-breeding)
A156 *Limosa limosa;* Black-tailed godwit (non-breeding)
A157 *Limosa lapponica*; Bar-tailed godwit (non-breeding)
A160 *Numenius arquata*; Eurasian curlew (non-breeding)
A162 *Tringa totanus*; Common redshank (non-breeding)
A169 *Arenaria interpres*; Ruddy turnstone (non-breeding)
A176 Larus melancephalus; Mediterranean gull (non-breeding)
A183 *Larus fuscus*; Lesser black-backed gull (Breeding, non-breeding)
A184 *Larus argentatus*; Herring gull (Breeding)
A191 *Sterna sandvicensis*; Sandwich tern (Breeding)
A193 *Sterna hirundo*; Common tern (Breeding)
A195 *Sterna albifrons*; Little tern (Breeding)
Phalacrocorax carbo; Cormorant – (non-breeding – Ramsar only)
Podiceps cristatus; Great crested grebe - (non-breeding – Ramsar only)
Seabird assemblage
Waterbird assemblage

Site sub-feature(s)/Notable Communites:

SAC and Ramsar

Sandbanks which are slightly covered by sea water all the time – Subtidal coarse sediment, subtidal mixed sediments, subtidal sand, subtidal mud.

Estuaries - Intertidal mud, intertidal sand and muddy sand, intertidal mixed sediments, intertidal coarse sediment, intertidal rock, intertidal stony reef, intertidal biogenic reef: mussel beds, subtidal coarse sediment, subtidal mixed sediments, subtidal sand, subtidal mud, Salicornia and other annuals colonising mud and sand, Atlantic salt meadows (Glauco-Puccinellietalia maritimae).

Mudflats and sandflats not covered by seawater at low tide; Intertidal mudflats and sandflats – Intertidal mud, intertidal sand and muddy sand, intertidal mixed sediments, intertidal seagrass beds, intertidal coarse sediment.

Coastal lagoons

Large shallow inlets and bays – Intertidal mud, intertidal sand and muddy sand, intertidal mixed sediments, intertidal seagrass beds, intertidal coarse sediment, intertidal rock, intertidal stony reef, intertidal biogenic reef: mussel beds, intertidal biogenic reef: Sabellaria spp., subtidal stony reef, circalittoral rock, subtidal coarse sediment, subtidal mixed sediments, subtidal sand, subtidal mud, Salicornia and other annuals colonising mud and sand, Atlantic salt meadows (Glauco-Puccinellietalia maritimae).

Reefs – Circalittoral rock, intertidal biogenic reef: mussel beds, intertidal biogenic reef: Sabellaria spp., intertidal rock, intertidal stony reef, subtidal stony reef.

Perennial vegetation of stony banks: Coastal shingle vegetation outside the reach of waves

***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)

Embryonic shifting dunes

Shifting dunes along the shoreline with *Ammophila arenaria* ("white dunes"); Shifting dunes with marram

Fixed dunes with herbaceous vegetation ("grey dunes"); Dune grassland

Atlantic decalcified fixed dunes (*Calluno-Ulicetea*); Coastal dune heathland

Dunes with *Salix repens spp. Argentea* (*Salicion arenariae*); dunes with creeping willow

Humid dune slacks

Great crested newt (*Triturus cristatus*)

Supporting habitat: Great crested newt (NON MARINE) – coastal sand dunes
Natterjack Toad (NON MARINE)- coastal sand dunes

SPA and Ramsar

Annual vegetation of drift lines, Atlantic salt meadows (Glauco-puccinellietalia maritimae), coastal lagoons, freshwater and coastal grazing marsh, intertidal biogenic reef: mussel beds, intertidal coarse sediment, intertidal mud, intertidal rock, intertidal sand and muddy sand, intertidal seagrass beds, intertidal stony reef, Salicornia and other annuals colonising mud and sand, water column.

Generic sub-feature(s):

Intertidal mud and sand, Intertidal mud, Seagrass, Saltmarsh spp., Brittlestar beds, Subtidal muddy sand, Intertidal boulder and cobble reef, Subtidal boulder and cobble reef, *Sabellaria* spp. reef, Intertidal boulder and cobble reef, Surface feeding birds, Estuarine birds, Intertidal mud and sand, Intertidal boulder and cobble reef, Saltmarsh spp., Coastal lagoons.

High Level Conservation Objectives:

Morecambe Bay SAC

With regard to the SAC and the natural habitats and/or species for which the site has been designated (the 'Qualifying Features' listed above), 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 and habitats of qualifying species
- The structure and function (including typical species) of qualifying natural habitats
- The structure and function of the habitats of qualifying species
- The supporting processes on which qualifying natural habitats and the habitats of qualifying species rely
- The populations of qualifying species, and,
- The distribution of qualifying species within the site.

Morecambe Bay SPA

With regard to the SPA and the individual species and/or assemblage of species for which the site has been classified and the Ramsar Site and the wetland habitats and/or species for which the site has been listed (the 'Qualifying Features' listed above), 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 aims of the Wild Birds Directive and ensure that the site contributes to achieving the wise use of wetlands across the UK, by maintaining or restoring:

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

Duddon Estuary SPA

With regard to the SPA and the individual species and/or assemblage of species for which the site has been classified and the Ramsar Site and the wetland habitats and/or species for which the site has been listed (the 'Qualifying Features' listed above), 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 aims of the Wild Birds Directive and ensure that the site contributes to achieving the wise use of wetlands across the UK, by maintaining or restoring:

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

Fishing activities assessed:

Gear type(s):

Hand-gathered – Undersize Mussel (*Mytilus edulis*)

1. Introduction

1.1 Need for an HRA assessment

THE CONSERVATION OF HABITATS AND SPECIES REGULATIONS 2010 (AS AMENDED)

The NWIFCA proposes to authorise an undersize (less than 45mm) mussel hand-gathered fishery at the mussel beds known as South America and Falklands situated in North Morecambe Bay by derogating against the minimum landing size for mussel. 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 afforded protection under the Conservation of Habitats and Species Regulations 2010, as amended (the 'Habitats Regulations'). The proposal site is within the Morecambe Bay and Duddon Estuary SPA and the Morecambe Bay Special Area of Conservation (SAC). The site is also listed as Morecambe Bay Ramsar site and also notified at a national level as Morecambe Bay Site of Special Scientific Interest (SSSI).

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, NWIFCA has undertaken an Appropriate Assessment of the proposal, in accordance with Regulation 61. 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.

1.2 Proposal

The NWIFCA proposes to authorise a limited hand-gathered fishery for undersize mussel in the North Morecambe Bay on the mussel beds known as South America and Falklands from Monday 14th May pm tide until Saturday 19th May am tide, under written authorisation against NWIFCA Byelaw 3 para. 6, minimum landing size.

The purpose of this site specific assessment document is to assess whether or not in the view of NWIFCA the fishing activity of hand-gathering undersize mussel at the mussel beds known as South America and the Falklands located in North Morecambe Bay, has a likely significant effect on the qualifying features of the Morecambe Bay and Duddon Estuary European Site and on the basis of this assessment whether or not it can be concluded that hand-gathering undersize mussel at the mussel beds known as South America and the Falklands located in North Morecambe Bay will not have an adverse effect on the integrity of this European Site.

2. Information about the EMS

(See cover pages).

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

The Morecambe Bay and Duddon European Site interest features, boulder and cobble reef, *Sabellaria alveolata* reef and Seagrass beds are protected from all bottom towed gears, in addition Seagrass beds are protected from bait collecting or working a fishery by hand or using a hand operated implement through a prohibition under NWIFCA Byelaw 6, introduced in May 2014.

4. Information about the fishing activities within the site

4.1 Background

It is important to note that mussel beds in Morecambe Bay are almost exclusively found on hard substrate - post-glacial moraine skears – and consequently respond quite differently to fishing pressures than in other fisheries such as the Wash in the UK and the Waddensee in the Netherlands where mussel beds are underlain by soft substrates. There are two distinct mussel resources in Morecambe Bay which can be highly variable in abundance and distribution. These are size mussel (>45mm), and undersize (seed and part-grown) mussel.

A feature of Morecambe Bay is the irregular but frequent occurrence of large and extensive mussel spat settlements. These settlements are usually very dense with little or no embyssment to the underlying substrate and quickly build up large amounts of sediment and pseudo-faeces (mussel mud). Within a very short space of time these populations become unstable and vulnerable to erosion through weather and/or tide, or predation from vast numbers of starfish. They are referred to as "ephemeral" beds (Dare, 1971 & 1976) and the Authority takes the line that although they are undersized they should be fished as early as possible as they would otherwise be washed out of the fishery and a valuable commercial resource lost. The mussel is fished, either by hand-raking or by specialised mussel dredgers, neither of which impact the cobble and boulder skears due to the deep soft mud layer on which the mussel sits. The harvested mussel is re-deposited in another area to grow on until of a commercially viable size. The number of mussel cultivation sites has grown in areas such as the Wash, Northern Irish loughs, and the Menai Strait, the latter of which is an MSC accredited sustainable fishery. Consultation via the Bivalve Mollusc Working Group, a multi-sectoral group facilitated by NWIFCA, is carried out with the industry and conservation interests prior to authorisations to fish being issued by the Authority.

Size mussel beds also develop in areas such as Heysham Flat (lowest skears), the bottom end of Foulney and rarely in the Duddon Estuary (Hardacre). However, these are not regular in their occurrence, and mussel at Foulney becomes 'pearled' at around 42mm and therefore not of great value commercially. Fishing effort for size mussel is low with only hand-gathering permitted and generally prosecuted by a maximum of 40 Byelaw 3 permit holders.

4.2 Mussel Hand-gathering

Hand-gathering of mussel has been a long-standing traditional fishery within Morecambe Bay and the Duddon Estuary. Methods have changed very little over the years, with a rake and net bag used to remove the mussel from the underlying muddy substrate.

Fishermen access the beds mainly by ATVs and occasionally tractors due to the high risk of getting stuck in soft sediment. Depending on the area being fished, the time when the bed is uncovered and safe to get on to and return from the fishing time may be severely restricted. Tides in Morecambe Bay are notoriously dangerous for the inexperienced or risk-prone, with tidal ranges up to 10m.

4.3 Regulation of Hand-gathering

NWIFCA regulates fisheries in its District through a suite of byelaws. Regulations relating specifically to are listed below with the full text of the regulations in Annex 7.

NWIFCA Byelaw 3	Permit to fish for cockles and mussels
NWSFC Byelaw 13a	Cockles and mussels – management of the fishery
NWSFC Byelaw 16	Shellfishery – temporary closure

NWIFCA Byelaw 3 Permit to Fish for Cockles and Mussels (Annex 7), was introduced in 2012 and succeeded in creating vastly improved management of the fishery. The regulation has created a more professional and responsible group of fishers. Under these regulations, the number of permit holders has been reduced significantly. There are currently 111 permits issued for the whole NWIFCA District with a possible 10 renewals yet to renew giving a total maximum of 121 permits (correct 04/05/18).

Without a permit within the NWIFCA district it is still permissible when mussel beds are open for 5kg per person per day of size mussel to be collected for human consumption.

4.4 Biosecurity

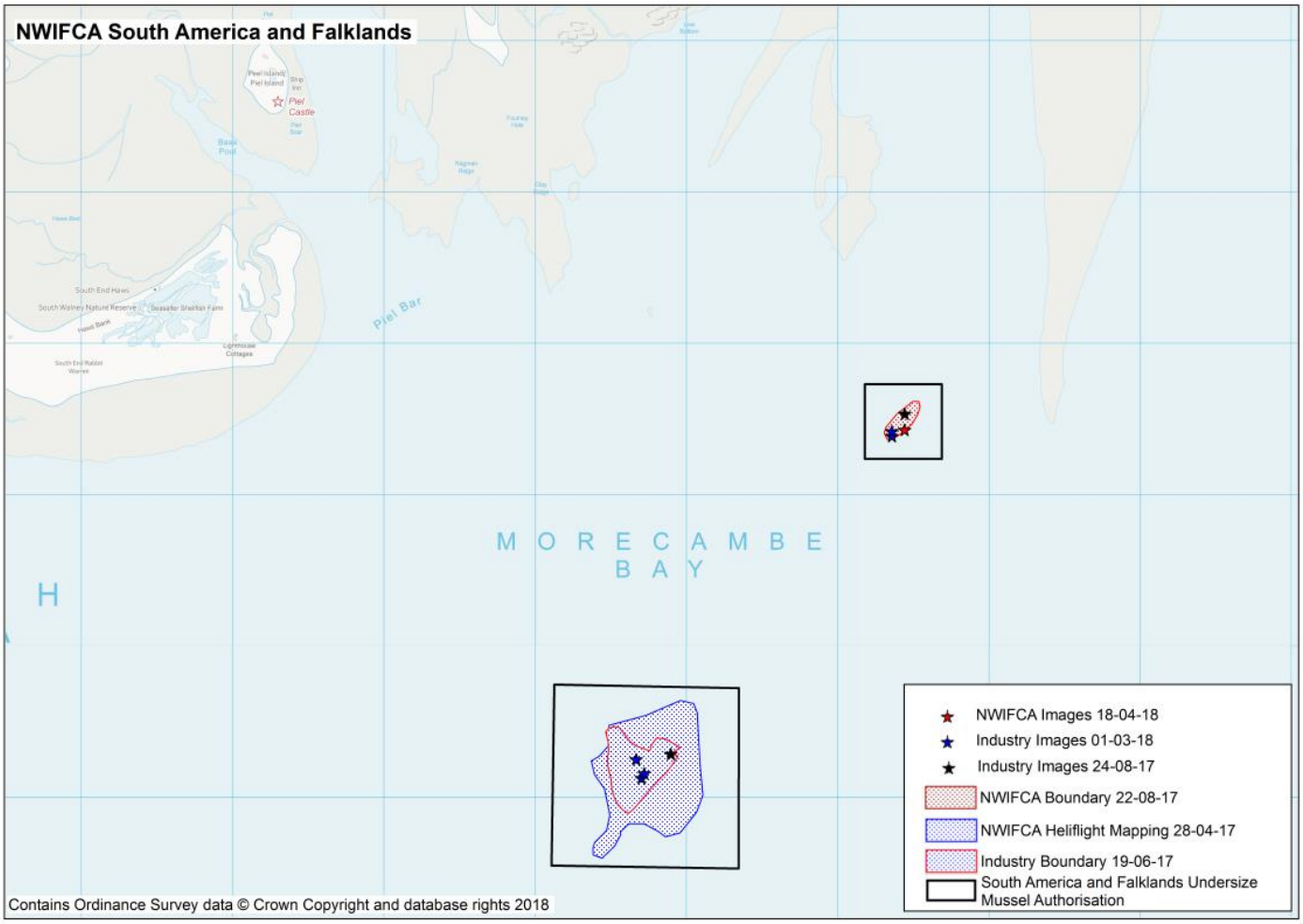
Morecambe Bay is currently shellfish disease free and the Authority considers it a priority to maintain this status. The non-native species Japweed (*Sargassum muticum)* and Leathery Sea-squirt (*Styela clava)* have previously been recorded within the area. In order to implement effective measures to prevent 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 the areas from which they come, are regularly and thoroughly checked for invasive non-native invasive species (INNS). The NWIFCA science team will monitor this fishery for any INNS.

4.5 Current Status of Stock

Due to the difficulty of accessing the bed and the tides size required the following information has been produced from a range of sources including NWIFCA and Industry. The map below shows a record of the dates and by whom the information is provided by (industry or NWIFCA). In 2017, there was a spat settlement on South America and Falklands some of which has persisted through to present (May 2018).

NWIFCA carried out an inspection on 18th April 2018 of South America. The main area, 0.029km² (taken from NWIFCA inspection 22nd August 2017) of mussel on South America mussel bed is 35-45mm with some size mussel present. The mussels are on a sandy substrate and appear to be in bands forming ridges. In between some of the ridges, the underlying hard substrate (cobbles) is exposed. The sand ridges with mussel on top are approximately 0.5m high. The mussel on the ridges is relatively loose but has persisted through the winter. There are small quantities of spat mixed in with this mussel on the sand ridges. Around the northern edge of the bed the mussel appears to be more stable using dead cockle shell to bind together with byssus threads. Moving off of the main areas of 35-45mm mussel the spat becomes more abundant and persistent with some evidence of small isolated clumps of *Sabellaria alveolata* tubes. The *Sabellaria alveolata* tubes are unlikely to persist due to the high volume of mussel spat on them. It was notable that there was a lack of starfish on the bed.

Industry report of Falklands 1st March 2018, georeferenced images were provided and from that information the condition of the mussel looks to be very similar to the mussel on South America. Estimated area 0.154 km² (GPS tracks provided by industry 19th June 2017).



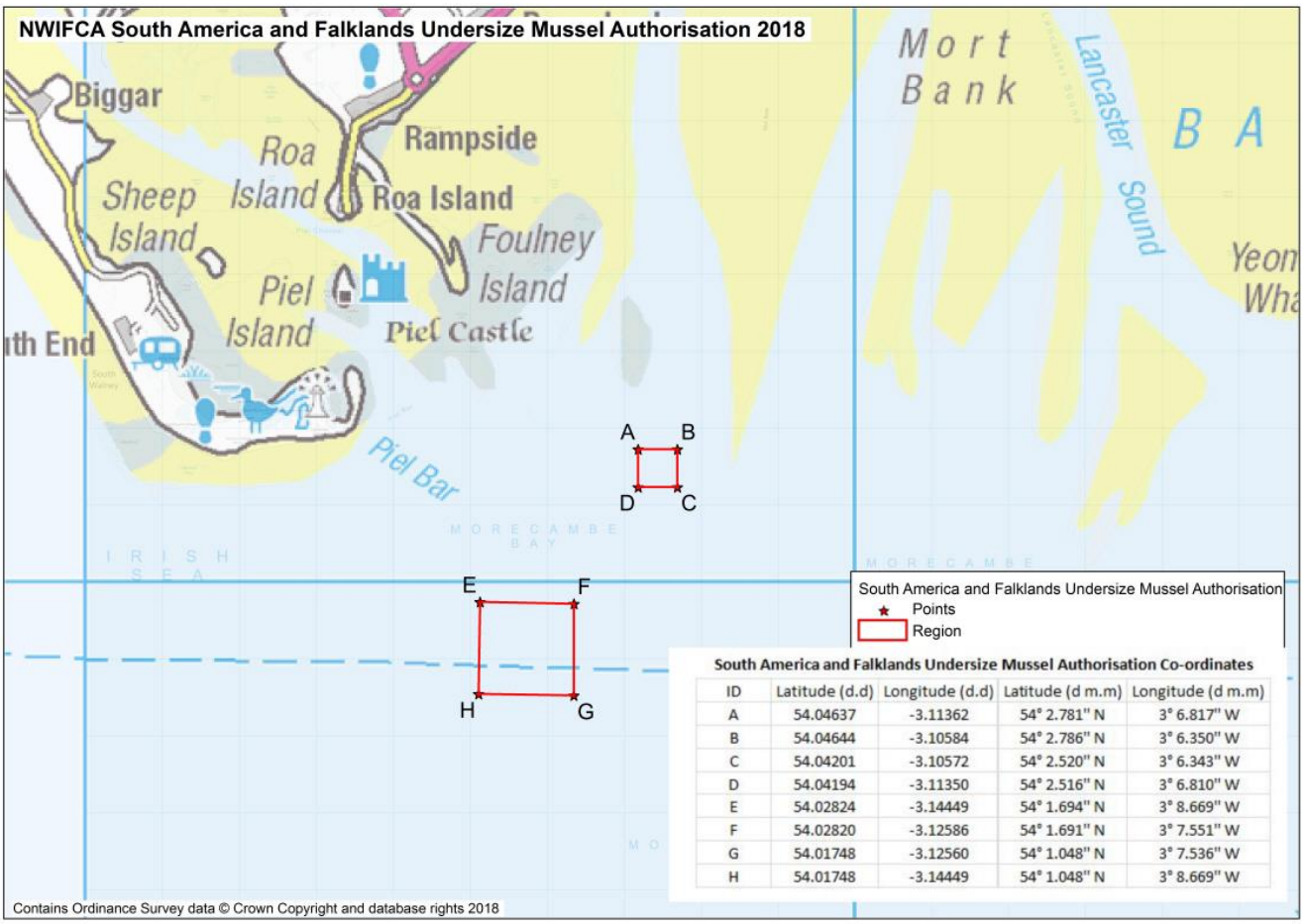
4.6 Information on Fishing Activity

A feature of Morecambe Bay is the irregular but frequent occurrence of large and extensive mussel spat settlements. These settlements are usually very dense with little or no embyssment to the underlying substrate and quickly build up large amounts of sediment and pseudo-faeces (mussel mud). Within a very short space of time these populations become unstable and vulnerable to erosion through weather and/or tide, or predation from vast numbers of starfish. They are referred to as “ephemeral” beds (Dare, 1971 & 1976). Science Officers in the NWIFCA have witnessed this over many years. There is a high likelihood that the 2017 mussel (35-45mm) on South America and Falklands bed will get smothered by a dense 2018 spat settlement as the new mussel grows and produces large volumes of mussel mud. A time limited, small highly regulated undersize mussel fishery has been proposed to remove some of the 35-45mm mussel before it is potentially choked by the 2018 spat settlement.

The proposed fishery will be permitted under written authorisation against NWIFCA Byelaw 3 para. 6, minimum landing size to all NWIFCA byelaw 3 permit holders and for specific tides. Currently there are 111 permit holders with a maximum of 121 permit holders. From figures of attendance to other cockle and mussel fisheries regulated within the NWIFCA district it is expected that a maximum of 30 byelaw 3 permit holders per tide will prosecute the fishery. If more than this number is reported the HRA will be reassessed. Due to the location of the bed, the tide limits the days and amount of time the bed can be fished, with fishing time being approximately one to two hours over low water. The access of the bed is also very

weather dependent with strong winds from the northwest, west and southwest restricting access. The proposed limitations in the Authorisation are as follows:-

- The fishery will be limited to the areas on South America and Falklands where 35-45mm mussel is present and due to the location of the beds (map below)



South America and Falklands Undersize Mussel Authorisation Co-ordinates

ID	Latitude (d.d)	Longitude (d.d)	Latitude (d m.m)	Longitude (d m.m)
A	54.04637	-3.11362	54° 2.781" N	3° 6.817" W
B	54.04644	-3.10584	54° 2.786" N	3° 6.350" W
C	54.04201	-3.10572	54° 2.520" N	3° 6.343" W
D	54.04194	-3.11350	54° 2.516" N	3° 6.810" W
E	54.02824	-3.14449	54° 1.694" N	3° 8.669" W
F	54.02820	-3.12586	54° 1.691" N	3° 7.551" W
G	54.01748	-3.12560	54° 1.048" N	3° 7.536" W
H	54.01748	-3.14449	54° 1.048" N	3° 8.669" W

- The fishery will be limited by tides. Due to the location of the beds access to the beds will be on tides which are 1.2m or less at low water (spring tides). These will be the only tides authorised as shown in the table below.

May 2018 - Liverpool (Gladstone) tides - times shown are BST					
LOW WATER					
		Morning		Afternoon	
Date	Day	Time	Height (m)	Time	Height (m)
14	Mon	x	x	18:02	1.2
15	Tue	06:23	1.2	18:45	1.0
16	Wed	07:07	0.9	19:27	0.9
17	Thur	07:50	0.8	20:08	0.9
18	Fri	08:33	0.9	20:48	1.1
19	Sat	09:18	1.1	x	x

- The fishery will only be accessed by tractor and quadbike, no access by boat.
- Removal of mussel will be limited to hand and rake only.

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[1].

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 have been screened out other than those in the table below, due to there being no interaction between the fishing activity and the qualifying features and sub-features.

Pressures: All pressures from the Advice on Operations table provided in the Morecambe and Duddon Estuary Conservation Advice package have been screened out, other than the pressures in the following table, due to the nature of the fishing activity.

Qualifying Feature	Sub-feature	Potential pressure(s)	Sensitivity	Potential for Likely Significant Effect?	Justification and evidence
H1130. Estuaries H1140. Mudflats and sandflats not covered by seawater at low tide; Intertidal mudflats and sandflats H1160. Large shallow inlets and bays SPA Supporting Habitats	Intertidal mud	Abrasion/disturbance of the substrate on the surface of the seabed Penetration and/or disturbance of the substrate below the surface of the seabed, including abrasion	Sensitive Sensitive	No No	Activity does not occur within the vicinity of intertidal mud. Access to fishery will not be over the feature.
	Intertidal sand and muddy sand intertidal mixed sediments, intertidal coarse sediment	Abrasion/disturbance of the substrate on the surface of the seabed Penetration and/or disturbance of the substrate below the surface of the seabed, including abrasion	Sensitive Sensitive	No No	Access to fishery will be over feature but unlikely to have any impact in such a highly dynamic site. Access to fishery will be over feature but unlikely to have any impact in such a highly dynamic site.
	Intertidal sand and muddy sand intertidal mixed sediments, intertidal coarse sediment	Abrasion/disturbance of the substrate on the surface of the seabed Penetration and/or disturbance of the substrate below the surface of the seabed, including abrasion	Sensitive Sensitive	No No	Access to fishery will be over feature but unlikely to have any impact in such a highly dynamic site. Access to fishery will be over feature but unlikely to have any impact in such a highly dynamic site

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

	Intertidal stony reef Intertidal biogenic reef: including mussel and Sabellaria communities	Abrasion/disturbance of the substrate on the surface of the seabed Penetration and/or disturbance of the substrate below the surface of the seabed, including abrasion Genetic modification & translocation of indigenous species Litter Physical change (to another seabed type) Removal of non-target species Removal of target species	Sensitive Sensitive Sensitive Sensitive Sensitive Sensitive Sensitive	No No No Yes No No Yes	Due to the nature of the mussel and mussel being on a soft substrate (mixture of sand and sandy mud, hand-raking skims the mussel from its underlying layers of sediment, ensuring no contact with the cobble and boulder reef beneath. Vehicle access is going to be to and from the bed with limited driving on the mussel and there is very little hard substrate exposed. The area is shellfish disease and INNS free. Industry are encouraged to use recognised procedures to ensure equipment is clean of INNS. Consignments are monitored closely through CEFAS shellfish hygiene inspections, and NWIFCA liaison with regulators in Northern Ireland and North Wales to ensure risk of translocation is minimal Feature and pressure taken through to AA. Due to the nature of the mussel and mussel being on a soft substrate (mixture of sand and sandy mud, hand-raking skims the mussel from its underlying layers of sediment, ensuring no contact with the cobble and boulder reef beneath. There is little or no by-catch in this highly selective fishery. Feature and pressure taken through to AA. The proposal is to remove mussel from the skear. Mussel beds are a characteristic and fluctuating community of the intertidal boulder and cobble skear interest sub-feature.
H1310 *Salicornia* and other annuals colonising mud and sand; Glasswort and other annuals colonising mud and sand; Pioneer saltmarsh H1330. Atlantic salt meadows (*Glauco-Puccinellietalia maritimae) (referred to as Saltmarsh)* SPA Supporting Habitats		Abrasion/disturbance of the substrate on the surface of the seabed Penetration and/or disturbance of the substrate below the surface of the seabed, including abrasion	Sensitive Sensitive	No No	Access via established routes, parking is on layby near the road and slipway goes onto the intertidal sand. Access via established routes, parking is on layby near the road and slipway goes onto the intertidal sand.
A026 Egretta garzetta; Little egret A038 *Cygnus Cygnus*; Whooper swan A040 *Anser brachyrhynchus*; Pink-footed goose A048 *Tadorna tadorna*; Common shelduck A050 Anas Penelope; Wigeon A054 *Anas acuta*; Northern pintail	Supporting Habitats assessed above	Removal of target species (Mussels) Removal of non-target species Visual disturbance	Some species sensitive, others screened out Sensitive Sensitive	Yes No Yes	Species sensitive to removal of mussels: - Common eider - Eurasian oystercatcher - Red knot - Herring gull Highly selective fishery. No by-catch or discards of non-target species. All species taken through to AA

A063 *Somateria mollissima*; Common eider (Breeding)					
A067 Bucephala clangula; Goldeneye					
A069 Mergus serrator; Red-breasted merganser					
A130 *Haematopus ostralegus*; Eurasian oystercatcher					
A137 *Charadrius hiaticula*; Ringed plover					
A140 *Pluvialis apricaria*; European golden plover					
A141 *Pluvialis squatarola*; Grey plover					
A142 *Vanellus vanellus;* Lapwing					
A143 *Calidris canutus*; Red knot					
A144 *Calidris alba*; Sanderling					
A149 *Calidris alpina alpina*; Dunlin					
A151 Calidris pugnax; Ruff					
A156 *Limosa limosa;* Black-tailed godwit					
A157 *Limosa lapponica*; Bar-tailed godwit					
A160 *Numenius arquata*; Eurasian curlew					
A162 *Tringa totanus*; Common redshank					
A169 *Arenaria interpres*; Ruddy turnstone					
A176 Larus melancephalus; Mediterranean gull					
Phalacrocorax carbo; Cormorant					
Podiceps cristatus; Great crested grebe					
A183 *Larus fuscus*; Lesser black-backed gull (Breeding)					
A184 *Larus argentatus*; Herring gull (Breeding)					
A191 *Sterna sandvicensis*; Sandwich tern (Breeding)					
A193 *Sterna hirundo*; Common tern (Breeding)					
A195 *Sterna albifrons*; Little tern (Breeding)					
Seabird assemblage					
Waterbird assemblage					

Is the potential scale or magnitude of any effect likely to be significant?[2]	**Alone** Yes **Comments :**	**OR In-combination[3]** 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) • Longlines • Shrimp push-net • Hand working (mussels)
Have NE been consulted on this LSE test? If yes, what was NE's advice?	Yes – see below	

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

6. Appropriate Assessment

Potential risks to features

6.1 Potential risks to SAC and SPA supporting habitat features

- Intertidal biogenic reef: including mussel and *Sabellaria alveolata* communities

6.1.1 6.1.1 Pressures and Potential Impacts

i) Litter

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 fishery. Items have included food and drink receptacles, 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 from biogenic mussel bed communities

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.

6.1.2 Exposure

i. Litter

Between 2016 – 2018 cockle fisheries have occurred on Leven Island, Flookburgh, Pilling Sands and Leasowe cockle beds and in most years there has been a fishery on Heysham Flat for seed mussel as well as ongoing size mussel fisheries around Morecambe Bay. There have only been a couple of reports of litter being an issue at these fisheries, which when highlighted to byelaw 3 hand-gathers and buyers at the fishery have been sorted and the litter has been cleaned up. There is a Code of Conduct (Annex 8) 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 minimal and controlled and monitoring will be in place to identify quickly if litter is a problem. Therefore 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 biogenic reef: including mussel and *Sabellaria alveolata* communities

The fishery is only being authorised due to the high likelihood that the presence of 2018 spat will smoother the remaining 2017 mussel (35-45mm) on South America and Falklands bed as it grows and produces large volumes of mussel mud. The fishery is very restricted by time - 10 tides over 6 days, and only 1 – 2 hours fishing time on each tide. The condition of the beds will be monitored by officers with an agreement that industry will provide information whilst the fishery is open.

There are small isolated clumps of *Sabellaria alveolata* which are new to this area. Historic evidence leads to an expert opinion that these clumps are highly likely to also be smothered by a 2018 mussel spat settlement.

The NWIFCA is confident that the removal of target species from the Intertidal biogenic reef: including mussel and *Sabellaria alveolata* communities features will have no risk of adverse effect on the integrity or conservation status of the site as the mussel being fished is likely to be smothered and not persist.

6.2 SPA and Ramsar Features

- SPA and Ramsar birds

6.2.1 Potential Impacts

i) Removal of target species (mussels) for Common eider, Eurasian oystercatcher, Red knot, Herring gull;

Mussels form part of an important prey resource for eiders, oystercatchers, knot and herring gull. If bird populations are to be maintained in healthy condition, sufficient shellfish to meet their demands must remain for them.

If fisheries remove 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. Equally the breeding eider population of Morecambe Bay needs to get into prime condition prior to mating in order to reproduce successfully. This applies to both sexes but in particular to females who once on the nest do not feed again until ducklings have fledged, a period of up to three weeks. There have been concerns raised over the Bay's eider population, its sex ratio skew (3:1 males to females) and the lack of success in breeding.

Oystercatchers eat a range of sizes of mussels. Although the birds will eat alternative prey species when shellfish are scarce, these prey often are not as nutritious and 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).

Eiders generally feed on a mixed range of sizes of bivalves, although it is understood they will consume high quantities of small mussels when they are available.

Herring gulls fed on a range of sizes of bivalves with around 20mm thought to be the preferred size (Hilgerloh *et al*, 1997)

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

Visual disturbance could impact on the 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. By mid-March some species, such as Redshank, will be establishing breeding territories on the saltmarsh and actively displaying. Disturbance caused by access to the fishery across the saltmarsh may reduce breeding success of this nationally declining species.

6.2.2 Exposure

i) Removal of target species (mussels) for Common eider, Eurasian oystercatcher, Red knot, Herring gull;

The size of the mussel removed by the fishing activity will be in the 35-45mm size range and therefore outside of the typical feeding size range for knot. This size class is within the feeding range for eider, oystercatcher and herring gull. Although no specific figures have been given for the bird food requirements for bivalve eating birds, using the summary of the cockle and mussel beds provided (Annex 6) and the reason listed below, NWIFCA is confident that the bird food requirements are met for the site. NWIFCA is confident that the removal of target species (mussel) will have no risk of adverse effect on the SPA features, which utilise mussel as a prey source and therefore have no risk of adverse effect on integrity or conservation status of the site. Work is ongoing on bird food requirements and NWIFCA are working with other organisation such as Natural England, RSPB and Bangor University.

- the fishing is time limited between 14th May and 19th May 2018 for 10 consecutive tides
- due to the limited time the fishery is authorised the amount of mussel which can be removed is limited
- hand gathering is only likely to remove a small percentage of mussel on the bed
- 35-45mm mussel has a high likelihood of being smothered by 2018 mussel
- most fishing activity will be on South America due to it being easier to access
- the fishing can only occur for one to two hours over low water when the beds are uncovered
- the gatherers will only travel once to and from the fishing area per tide
- the authorised area is small with a combined area of 1.71 sq km
- the majority of the fishing activity will occur in daylight hours
- all cockle beds within the European site are closed due to the close season giving alternative feeding areas
- there will be no mussel fishing on Foulney, Low Bottom and near the Walney Channel due to lack of commercial stock but a presence of mussel suitable for bird feeding
- there will be no mussel fishing on Heysham due to lack of commercial stock but presence of mussel suitable for bird feeding
- wader numbers are greatest during the winter months meaning feeding requirements are lower during this time
- cockle and mussel stock present on other beds (Annex 6)

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

Little egret have the potential to be disturbed when feeding. Little egret prefer to feed in shallow water 10cm to 20cm in depth (Kushlan & handcock 2005). There is potential for the birds to be disturbed when tractors and quad bikes are travelling to and from the fishing areas and fishing. Little egret commonly feeds in solitary or in lose flocks (del hoyo et al. 1992), and therefore any disturbance is likely to affect only a few individuals and any displacement temporary and short lived for the following reasons;-

- the fishing is time limited between 14th May and 19th May 2018 for 10 consecutive tides
- the fishing can only occur for one to two hours over low water when the beds are uncovered
- the gatherers will only travel once to and from from the fishing area per tide
- the authorised area is small with a combined area of 1.71 sq km
- the majority of the fishing activity will occur in daylight hours

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. Due to the fishing activity occurring in May it is unlikely that golden plover will be found near the fishery.

Dunlin, black tailed godwit, bar tailed godwits, curlew and redshank mainly target mudflats as their feeding grounds. Lapwing use a variety of habitats (marine and terrestrial), and when present on the intertidal they tend to target mudflats. The fishing activity does not occur on or near to mudflats. Redshank are found on saltmarsh and are known to nest on saltmarsh but the fishing activity does not occur on or near saltmarsh. All access to the fishing grounds is by established access routes and visual disturbance is unlikely.

Oystercatcher, ringed plover, grey plover, knot, sanderling and turnstone all feed on a variety of substrates in the intertidal area. Waders will move in and out with the tide feeding in and on the sediment, each wader will have a preferred prey source and size. Travel to and from the authorised area and fishing has the potential for disturbance. Visual disturbance to Oystercatcher, ringed plover, grey plover, knot, sanderling and turnstone will be minimal and any displacement temporary and short lived for the following reasons:

- the fishing is time limited between 14th May and 19th May 2018 for 10 consecutive tides
- the fishing can only occur for one to two hours over low water when the beds are uncovered
- the gatherers will only travel once to and from the fishing area per tide
- the authorised area is small with a combined area of 1.71 sq km
- the majority of the fishing activity will occur in daylight hours
- all cockle beds within the European site are closed due to the close season
- there will be no mussel fishing on Foulney, Low Bottom and near the Walney channel due to lack of commercial stock
- there will be no mussel fishing on Heysham due to lack of commercial stock
- from the seasonality table provided by Natural England in the interim advice packages grey plover, and knot are not present in significant numbers further reducing the risk to these species.
- wader numbers are greatest during the winter months

Shelduck, pintail and wigeon spend a proportion of their time feeding on intertidal mud. The fishing activity does not occur on or near to mudflats meaning disturbance is unlikely. Red breasted merganser, cormorant and great crested grebe spend the majority of time on the water, so there will be minimal to no disturbance from an intertidal fishery accessed from the shore. Whooper swans and pink footed geese numbers are greatest during the winter, and as the fishery is in May and for a short period of time disturbance is likely to be minimal if any.

Eiders are known to feed on submerged mussels at shallow depths (2-3m) (Larsen & Guillemette 2000) and are regularly observed at or near to the Falklands beds, Foulney Island, Low Bottom, Morecambe and Fleetwood. Any visual disturbance to Eiders by the fishing activity will be minimal and any displacement temporary and short lived for the following reasons:

- the fishing is time limited between 14th May and 19th May 2018 for 10 consecutive tides, all other tides the beds will be able to be utilised by eiders
- the fishing can only occur for one to two hours over low water when the beds are uncovered, all other states of tides can be utilised by eiders
- the gatherers will only travel once to and from the fishing area per tide
- the authorised area is small with a combined area of 1.71 sq km
- the majority of the fishing activity will occur in daylight hours
- all cockle beds within the European site are closed due to the close season
- there will be no mussel fishing on Foulney, Low Bottom and near the Walney channel due to lack of commercial stock

- there will be no mussel fishing on Heysham due to lack of commercial stock

Mediterranean gull, lesser black-backed gull, herring gull are present on both the intertidal and open water and therefore there is potential for visual disturbance from access and fishing to the authorised area. Visual disturbance to gulls will be minimal and any displacement temporary and short lived for the following reasons:

- gulls utilise a range of habitats both marine and terrestrial
- the fishing is time limited between 14th May and 19th May 2018 for 10 consecutive tides
- the fishing can only occur for one to two hours over low water when the beds are uncovered
- the gatherers will only travel once to and from the fishing area per tide
- the authorised area is small with a combined area of 1.71 sq km
- the majority of the fishing activity will occur in daylight hours
- all cockle beds within the European site are closed due to the close season
- there will be no mussel fishing on Foulney, Low Bottom and near the Walney channel due to lack of commercial stock
- there will be no mussel fishing on Heysham due to lack of commercial stock

Sandwich tern, common tern, and little tern rarely use the intertidal area at low water but will use the shallow areas covered by water. The tern species do nest in coastal areas but none of the known nest areas are access points for the fishery. The known nesting areas for Terns in the European Site are Foulney and Hodbarrow. There is potential for fishing activity to disturb the terns while fishing in shallow water at low tide but terns have large foraging ranges and will not be displaced a large distance by the fishing activity.

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) A multi-agency enforcement approach to ensure only legitimate permit holders commercially fish the bed;
b) Rigorous enforcement of the conditions set out in the authorisation;
c) Monitored landings through:
    i. Regular IFCO reporting of numbers fishing and estimates of quantities removed;
    ii. Monthly landings returns from Byelaw 3 permit holders (required under byelaw);
d) Monitoring and inspection to ensure that there are no litter issues;
e) NWIFCA enforcement officers will use intelligence and contacts with fellow enforcement agencies to pursue any suspicions of non-permitted or illegal gathering activity.

Table 2: Summary of Impacts

Feature/Sub feature(s)	Conservation Objective	Potential pressure[4] (such as abrasion, disturbance) exerted by gear type(s)[5]	Potential ecological impacts of pressure exerted by the activity/activities on the feature[6] *(reference to conservation objectives)*	Level of exposure[7] of feature to pressure	Mitigation measures[8]
Intertidal biogenic reef: including mussel and *Sabellaria alveolata* communities (Reefs)	Maintain or restore the extent, distribution structure or function of the feature.	Litter	Litter could pose potential threat to wildlife, especially birds through ingestion or entanglement;	As in 6.1.2 (i)	None - current management measures sufficient with monitoring of the fishery
		Removal of target species	Potential to effect the:- - Presence and spatial distribution of the feature communities - Presence and abundance of typical species - The species composition of component communities	As in 6.1.2 (ii)	None - current management measures sufficient with monitoring of the fishery
• *Somateria mollissima*; Common eider • *Haematopus ostralegus*: Eurasian oystercatcher • *Calidris canutus*; Red knot *Larus argentatus*; Herring gull	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 effect 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
• Common eider • Eurasian oystercatcher Red knot Little egret Whooper swan Pink-footed goose Common shelduck Wigeon Northern pintail Common eider	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 effect 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(ii)	None - current management measures sufficient with monitoring of the fishery

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

Goldeneye Red-breasted Merganser Eurasian oystercatcher Ringed plover European golden plover Grey plover Lapwing Red knot Sanderling Dunlin Ruff Black-tailed godwit Bar-tailed godwit Eurasian curlew Common redshank Ruddy turnstone Mediterranean gull Cormorant Great crested grebe Seabird assemblage Waterbird assemblage Lesser black-backed gull Herring gull Sandwich tern Common tern Little tern					

7. Conclusion[9]

The authorisation, management and mitigation measures incorporated into this fishery, and the use of an effective enforcement team of NWIFCA Officers with multi-agency support, allows the NWIFCA to conclude that the time limited undersize mussel hand-gathered fishery at South America and Falklands will not have an adverse effect on the integrity of the European Site.

8. In-combination assessment[14]

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

Tractor shrimp fishery – It is possible that some operators could go shrimp fishing in close proximity with the mussel fishery.

Size mussel fisheries – There is potential for size mussel fisheries around the Bay.

8.1.2 In Combination Assessment

At the time of the fishery there is not likely to be any other gathering of cockles or mussels within Morecambe bay as all cockle beds are in the close season and there is very little commercial stock on the mussel beds. Those interested in fishing mussel will be prosecuting the South America and Falklands authorised fishery.

The shrimp fishery has undergone an HRA which concluded no adverse effect on the integrity of the European Site. Most of the shrimp fishing occurs between spring and autumn with autumn being the key time. Most of the shrimp tractor fishers in Morecambe Bay are also Byelaw 3 permit holders. Most of them prosecute a range of fisheries and it is most likely that they will fish the mussels ,which will result in reduced shrimp fishing.

Considering mussel and shrimp fisheries in the Bay in combination the NWIFCA can conclude no adverse effect on the integrity of the European Site providing the management measures of the authorised mussel fishery are implemented and enforced.

9. Summary of consultation with Natural England

A Bivalve Mollusc Working Group meeting was held on the 3rd May 2018, which is attended by NWIFCA, Natural England representatives, NWIFCA authority members and representatives from various mussel and cockle industries. No issues were raised when information and agreement to the management of the South America and Falklands mussel fishery was proposed.

10. Integrity test

The NWIFCA concludes no adverse effect on the integrity of the European Site providing the management and mitigation measures of the South America and Falklands limited mussel fishery 2018 are implemented and upheld.

[9] If conclusion of adverse effect alone an in-combination assessment is not required.

Annex 1: Reference list

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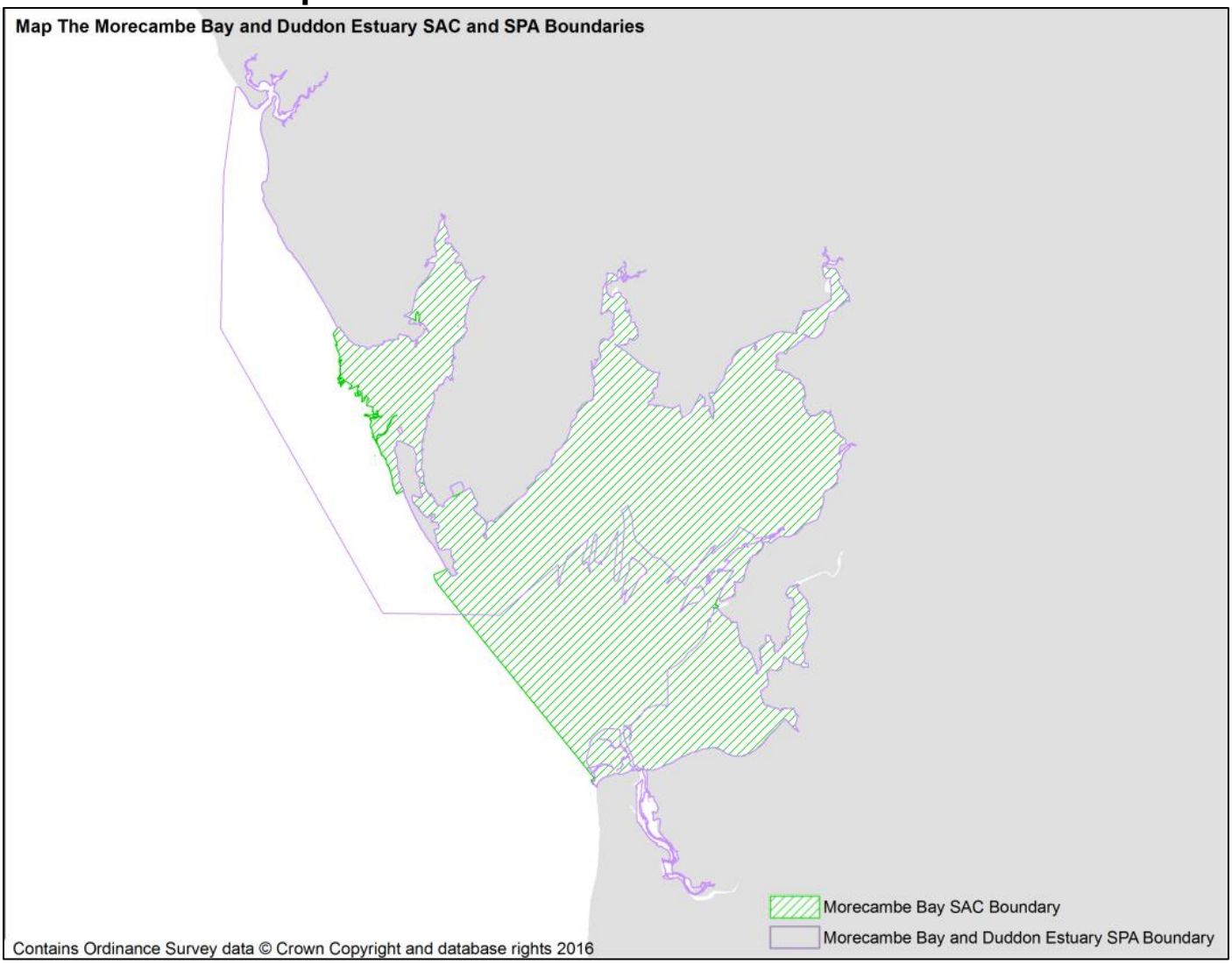
Annex 2: Natural England's consultation advice

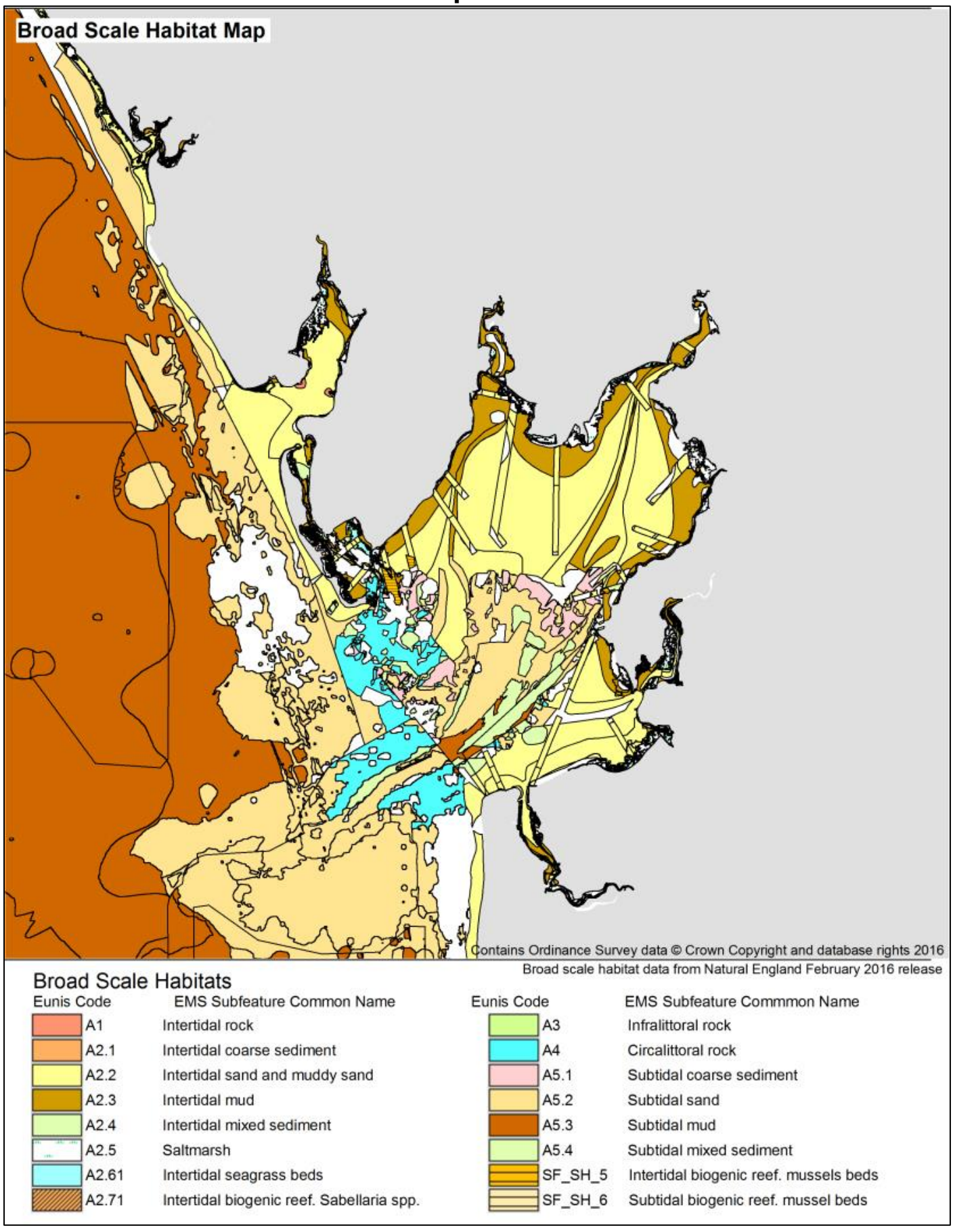
A Bivalve Mollusc Working Group meeting was held on the 3rd May 2018, which is attended by NWIFCA, Natural England representatives, NWIFCA authority members and representatives from various mussel and cockle industries. No issues were raised when information and agreement to the management of the South America and Falklands mussel fishery was proposed.

Verbal conformation was received from Natural England that they had no comments on the HRA.

Annex 3: Site Map



Annex 4: Broad Scale Habitat Map



North Western IFCA
Inshore Fisheries and Conservation Authority

AUTHORISATION TO FISH UNDERSIZED MUSSELS FROM SOUTH AMERICA AND FALKLANDS BEDS, MORECAMBE BAY 2018

All Current NWIFCA Byelaw 3 Permit Holders **With effect from 14/05/2018**

Issue Date: **14/05/2018** **Expiry Date:** **19/05/2018**

All current Byelaw 3 permit holders are hereby authorised, under Byelaw 3, paragraph 6 (Minimum Sizes) to fish undersized mussels from the South America and Falklands beds, ***within the areas as defined in paragraph 2, and during the times defined in paragraph 3,*** and are responsible for complying with the conditions given below at paragraph 1.

1. Conditions of Authorisation

This authorisation is issued subject to the following conditions.

(a) It is only valid for the period from the issue date **14/05/18** to the expiry date **19/05/18.**

(b) That the mussels shall only be gathered by hand or with a rake.

(c) That fishing shall only take place within the areas specified.

(d) That fishing shall only take place on the days and tides specified.

(e) The authorisation is only valid for current Byelaw 3 permit holders. It does not allow any other person to take or remove undersized mussels.

(f) This authorisation does not exonerate the holder from other sea fisheries legislation, nor does it prejudice any other consents the holder may need to obtain nor does it override or provide permission to go over private land.

(g) Any fishing taking place under this authorisation shall be carried out in accordance with the Authority's Code of Conduct for Intertidal Shellfisheries.

(h) Access to the fishery shall be by tractor or ATV only. Access by boat is not authorised.

2. Definition of Authorised Area

Part of two areas within Morecambe Bay known as South America and Falklands skears as illustrated on the map attached at Annex A, and bound by the co-ordinates below:

ID	Latitude (d.d)	Longitude (d.d)		Latitude (d m.m)	Longitude (d m.m)
A	54.04637	-3.11362		54° 2.781'' N	3° 6.817'' W
B	54.04644	-3.10584		54° 2.786'' N	3° 6.350'' W
C	54.04201	-3.10572		54° 2.520'' N	3° 6.343'' W
D	54.04194	-3.1135		54° 2.516'' N	3° 6.810'' W
E	54.02824	-3.14449		54° 1.694'' N	3° 8.669'' W
F	54.0282	-3.12586		54° 1.691'' N	3° 7.551'' W
G	54.01748	-3.1256		54° 1.048'' N	3° 7.536'' W
H	54.01748	-3.14449		54° 1.048'' N	3° 8.669'' W

3. Definition of Authorised Days and Tides:

May 2018 - Liverpool (Gladstone) tides - times shown are BST					
		LOW WATER			
		Morning		Afternoon	
Date	**Day**	**Time**	**m**	**Time**	**m**
14th	Mon	x	x	18:02	1.2
15th	Tue	06:23	1.2	18:45	1.0
16th	Wed	07:07	0.9	19:27	0.9
17th	Thur	07:50	0.8	20:08	0.9
18th	Fri	08:33	0.9	20:48	1.1
19th	Sat	09:18	1.1	x	x

4. Advisory Notes

(a) NWIFCA officers have the power to withdraw authorisations at any point should the need arise, and will consult with Natural England throughout the duration of the fishery to ensure no risk to any of the conservation features in Morecambe Bay.

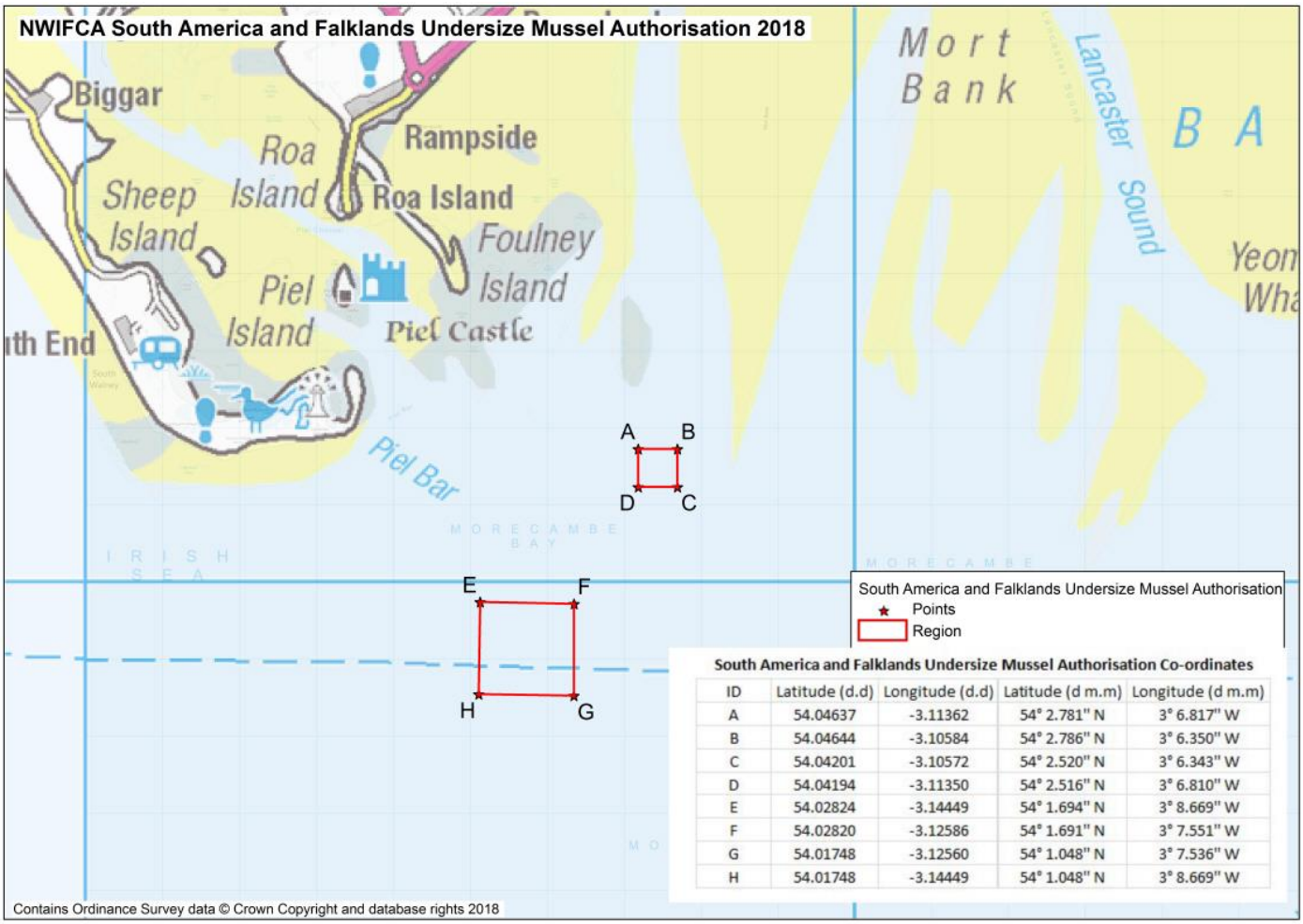
(b) Avoid driving vehicles over the mussels as far as possible to avoid unnecessary damage to the stock.

This authorisation may be revoked by the NWIFCA at any time and any breach of the terms or conditions of this authorisation shall make it null and void.

By Order of the Authority
STEPHEN ATKINS
Chief Executive

Annex A

South America and Falklands skears – Authorised Areas for Removal of Undersize Mussel May 2018



South America and Falklands Undersize Mussel Authorisation Co-ordinates

ID	Latitude (d.d)	Longitude (d.d)	Latitude (d m.m)	Longitude (d m.m)
A	54.04637	-3.11362	54° 2.781" N	3° 6.817" W
B	54.04644	-3.10584	54° 2.786" N	3° 6.350" W
C	54.04201	-3.10572	54° 2.520" N	3° 6.343" W
D	54.04194	-3.11350	54° 2.516" N	3° 6.810" W
E	54.02824	-3.14449	54° 1.694" N	3° 8.669" W
F	54.02820	-3.12586	54° 1.691" N	3° 7.551" W
G	54.01748	-3.12560	54° 1.048" N	3° 7.536" W
H	54.01748	-3.14449	54° 1.048" N	3° 8.669" W

Annex 6 – Summary of Mussel and Cockle Bed in Morecambe (NWIFCA 2018)

Mussel Bed Name	Month	Area (ha)	Densities			Percentage Cover			Biomass (tonnes)
			Size Class < 10mm	Size Class 10 - 30mm	Size Class > 30mm	Size Class < 10mm	Size Class 10 - 30mm	Size Class > 30mm	
Perch Scar	Survey Planned May 2018								
Black Scar	Survey Planned May 2018								
Kings Scar	Survey Planned May 2018								
Neckings	Survey Planned May 2018								
Rossall skear	Survey Planned May 2018								
Wyre End	Survey Planned May 2018								
Knott End Spit	Survey Planned May 2018								
Heysham Flat	Apr	n/a	Super abundant	Rare	X	n/a	n/a	n/a	n/a
Heysham Outer Skears	Jan	Whole skear	Rare	Rare	Rare	n/a	n/a	n/a	n/a
Low Bottom	Apr	n/a	X	Abundant	Abundant	n/a	n/a	n/a	n/a
Foulney Main Skear	Mar	n/a	Occasional	Common	Common	n/a	n/a	n/a	n/a
Walney Channel	Mar	n/a	Occasional	Common	Common	n/a	n/a	n/a	n/a
Foulney Island	Mar	No Stock							
Falklands	Information provide in section 4								
South America	Information provide in section 4								
Hardacre	Jun	No Stock							
Priest Skear	Mar	No Stock							

Cockle Bed Name	Month	Area (ha)	SACFOR Size class <10mm	SACFOR Size class 10 - 30mm	SACFOR Size class >30mm	Average Undersize Cockle Density (m^2)	Average Size Cockle Density (m^2)	Estimated Undersize Cockle Biomass (tonnes)[1]	Estimated Size Cockle Biomass (tonnes)[2]
Middleton Sands (main bed)	Survey Planned for 2018								
Pilling Sands	Mar	1154	Occasional	Abundant	Abundant	19 (max 234)	25 (max 180)	n/a	n/a
Flookburgh	Feb	n/a	Occasional	Common	Common	16 (max 92)	15 (max104)	n/a	n/a
Leven Sands	Stock present survey planned 2018								
Warton Sands	Mar	n/a	Rare	Rare	Rare	n/a	n/a	n/a	n/a
Newbiggin	Apr	295	Rare	Abundant	Abundant	13 (max 42)	23 (max 60)	n/a	n/a
Cockerham	Feb	0.9	Rare	Abundant	Abundant	n/a	n/a	n/a	n/a

Annex 7: Byelaws regulating cockle fishing in Morecambe Bay

NWIFCA BYELAW 3 - PERMIT TO FISH FOR COCKLES (*Cerastoderma edule*) AND MUSSELS (*Mytilus edulis*)

Interpretation

1. In this byelaw:

   a. "cockles" means the species *Cerastoderma edule;*

   b. "mussels" means the species *Mytilus edulis*;

   c. "fishery" means an area of sea, seabed, exposed estuary, seashore, or other marine environment in any part of the District;

   d. "the NWIFCA" means the North Western Inshore Fisheries and Conservation Authority and is defined in articles 2 and 4 of the North Western Inshore Fisheries and Conservation Order 2010 (S.I. 2010 No. 2200);

   e. "the District" means North Western Inshore Fisheries and Conservation District and is defined in articles 3 and 4 of the North Western Inshore Fisheries and Conservation Order 2010 (S.I. 2010 No. 2200);

   f. "full gathering permit" means a permit which authorises a person to gather cockles and mussels and carry out all related activities, such as moving them and transporting them;

   g. "support worker permit" means a permit which authorises a person to carry out activities related to the gathering of cockles and mussels, such as moving them and transporting them to support a person with a full gathering permit but only after the cockles and mussels have been placed in a receptacle, and in the case of cockles after having been passed through a riddle, by person with the full gathering permit;

   h. "gathering" includes all activities related to the gathering of cockles and mussels such as moving and transporting them;

   i. "Commercial Shellfish Fisheries Area" means an area designated by the NWIFCA pursuant to paragraph 13;

   j. "Morecambe Bay Commercial Fisheries Area" means the area enclosed by straight lines joining the following co-ordinates in order:

      I. 54° 08.490'N 03° 02.011'W
      II. 54° 07.686'N 02° 53.497'W
      III. 54° 03.204'N 02° 56.331'W
      IV. 54° 04.062'N 03° 03.776'W
      V. 54° 08.490'N 03° 02.011'W

   k. "Ribble Estuary Commercial Fisheries Area" means the area enclosed by straight lines joining the following co-ordinates in order:

      I. 53° 43.008'N 03° 05.177'W
      II. 53° 43.572'N 02° 59.986'W
      III. 53° 40.902'N 03° 00.341'W
      IV. 53° 40.860'N 03° 05.122'W
      V. 53° 43.008'N 03° 05.177'W

   l. "Gangmaster Licensing Authority licence" means a licence issued under the Gangmasters Licencing) Act 2004;

   m. "Foreshore Gatherers Safety Training Certificate" means a document issued by a Seafish Industry Group Training Association or a trainer approved by the NWIFCA, certifying that the person named on the certificate has completed a safety training course for intertidal shellfishing.

Permit

2. Subject to paragraphs 10, 11, 25 and 26 of this byelaw no person shall gather cockles or mussels within or from a fishery unless he has in his possession a full gathering permit.

3. Subject to paragraphs 10, 11, 25 and 26 of this byelaw, no person shall, in the area of the District below mean high water springs, move or transport cockles or mussels within or from a fishery unless he has either a full gathering permit or a support worker permit.

4. No person shall have in their possession any article for use in the course of or in connection with gathering cockles or mussels within or from a fishery in breach of this byelaw.

5. No person shall have in their possession any cockle or mussel gathered within or from a fishery in breach of this byelaw.

Minimum Sizes

6. No person shall gather within or from a fishery any cockle which will pass through a gauge having a square opening of 20mm measured across each side of the square or any mussel less than 45mm in length.

Fishing Methods

7. No person shall gather cockles or mussels except:

   a) by hand or using hand-held rakes;
   b) in the case of cockles by using craams, rakes, spades, tamps or jumbos; or
   c) by using buckets, sacks, net bags, ton bags and other such containers ordinarily used for the storage of cockles and mussels.

8. No person shall place cockles that have just been fished into a container unless they have been passed through a rigid riddle designed to retain cockles which will not pass through a gauge having a square opening of 20mm measured across each side.

Redeposit

9. Any person who removes or possesses shellfish the removal or possession of which is prohibited by or in pursuance of these byelaws or any Act of Parliament shall immediately redeposit the same without injury as nearly as possible in the fishery from which they were taken or under the written authority of the NWIFCA on another suitable fishery and shall spread them thinly and evenly through the fishery.

Written permission

10. This byelaw shall not apply to any person performing an act which would otherwise constitute an offence against this byelaw if that act was carried out in accordance with a written permission issued by the NWIFCA permitting that act for scientific, management, stocking or breeding purposes.

Exception for Personal Consumption to the Requirement for a permit

11. No person shall require a permit under this byelaw to gather less than a total of 5kg of cockles and 5kg of mussels during a calendar day intended for their own personal consumption within or from a fishery which is neither closed pursuant to paragraph 12 of this byelaw or byelaw 13A of the North Western and North Wales Sea Fisheries Committee (cockles and mussels – management of the fishery) or byelaw 18 of the Cumbria Sea Fisheries Committee (shellfishery – temporary closure) nor designated a Commercial Shellfish Fishery Area pursuant to paragraph 13 of this byelaw nor part of the District managed under the Dee Estuary Cockle Fishery Order (2008).

Fisheries Closure

12. No person shall gather any cockle within or from a fishery on or between the 1st day of May and the 31st day of August in the same year or have in their possession any cockle or mussel from a fishery area that has been closed pursuant to byelaw 13A of the North Western and North Wales Sea Fisheries Committee (cockles and mussels – management of the fishery) or byelaw 18 of the Cumbria Sea Fisheries Committee (shellfishery –

temporary closure) or from within that part of the District managed under the Dee Estuary Cockle Fishery Order (2008) without a licence to fish issued within the terms of that Order.

Commercial cockle or mussel fisheries

13. The NWIFCA designates the Morecambe Bay Commercial Fisheries Area and the Ribble Estuary Commercial Fisheries Area as Commercial Shellfish Fisheries Areas.

Application for Permits

14. The period of validity of permits shall be from 1st September in any given year to 31st of August the following year unless otherwise stated. Permits shall be annually renewable subject to paragraph 15 of this byelaw. A fee of £500 will be charged each year by the NWIFCA for all Byelaw 3 permits.

15. Holders of a permit to gather cockles or mussels under this byelaw in any given year shall be entitled to renew the permit for the next year up to one year after the permit term has expired.

16. Applications for the renewal of permits pursuant to this byelaw shall be made using the printed forms available from the NWIFCA offices or the NWIFCA website. Renewal forms will be made available 2 calendar months before the date each permit term begins. On renewal, applicants must satisfy the NWIFCA that at some time in the previous 3 years they have derived a substantial part of their income from fishing activities by providing evidence which may include a personal statement detailing fishing activities in the last 3 years and evidence that tax has been paid on fishing income in the last 3 years.

17. Applications for new permits pursuant to this byelaw shall be made using the printed forms available from the NWIFCA offices or the NWIFCA website. Applications for new permits to be issued pursuant to paragraphs 22 and 27 of this byelaw shall be made by first registering an interest with the NWIFCA in writing. If the number of applicants registering an interest exceeds the number of available permits a waiting list will be compiled on a 'first come, first served' basis and an applicant will be invited to complete an application for a new permit in the first year a new permit becomes available. Applications shall meet all the requirements of paragraph 22 in the case of full gathering permits and paragraph 27 in the case of support worker permits.

18. A permit issued pursuant to this byelaw is not transferable.

19. Failure to produce, on the reasonable demand of a properly warranted Officer or a Constable, a valid permit when carrying out any activity for which a permit is required constitutes a breach of this byelaw.

20. Failure to notify the NWIFCA of any change of name or address during the period of the validity of a permit constitutes a breach of this byelaw.

Filing returns

21. The holder of a permit to gather cockles or mussels under this byelaw shall be required to file with the NWIFCA, no later than the 5th day of the month following, such information in regard to catches and fishing effort for the previous month, under the terms of such permit, as the NWIFCA may require. Nil returns may be required at the discretion of the NWIFCA. Permit holders not filing returns may have their permits suspended by the NWIFCA until returns have been filed.

New Permits

22. New full gathering permits shall be issued each year to a maximum of the first 10 applicants on the waiting list who have not held a permit pursuant to this byelaw in the previous year on production of:

    1. evidence of the applicant's identity, containing photograph and signature, such as a valid passport; or a driving licence with photo;
    2. evidence of the applicant's address, such as a utility bill issued in the preceding 4 months of application or a current tenancy agreement;
    3. evidence of the applicant's National Insurance Number;
    4. 2 recent passport style photographs of the applicant signed on the back by the applicant;
    5. the applicant's valid Foreshore Gatherers Safety Training certificate or proof of the successful completion of an equivalent safety training course. Equivalence is determined at the discretion of the NWIFCA; and

6. payment of the fee set in paragraph 14.

Transitional Arrangements

23. Holders of a permit for 2011/2012 issued under byelaw 5 of the NWIFCA (permit to fish for cockles (*Cerastoderma edule*) and mussels (*Mytilus edulis*)) shall be entitled to renewal of that permit under this byelaw 3 for the year 2012/2013.

24. Permits to fish for cockles and mussels for the year 2012/2013 shall be issued to 40 new applicants under the rules set out in Byelaw 5 of the NWIFCA (permit to fish for cockles (*Cerastoderma edule*) and mussels (*Mytilus edulis*)). No permits to fish for cockles and mussels shall be issued to new applicants under this byelaw 3 for the year 2012/2013.

25. Persons who provide evidence to the satisfaction of the NWIFCA that they have in the past held a permit issued under Cumbria Sea Fisheries Committee byelaw 21 (cockles – permit scheme) or 23 (mussels – permit scheme) and have in the past been engaged in commercial cockle or mussel fishing activities in a specified region or regions within the district formerly administered by the Cumbria Sea Fisheries Committee shall be eligible to apply to the NWIFCA for written authority to continue to fish in any fisheries within that region or regions. The obligations in this byelaw apply to a person fishing under a written authority but no fee is payable for the issue of that authority.

26. Persons who provide evidence to the satisfaction of the NWIFCA that they have in the past been engaged in commercial cockle or mussel fishing activities in a specified region or regions within the Dee Estuary shall be eligible to apply to the NWIFCA for written authority to continue to fish in any fisheries within that region or regions. The obligations in this byelaw apply to a person fishing under a written authority but no fee is payable for the issue of that authority.

Support worker permit

27. Commercial organisations trading in cockles and mussels may apply to the NWIFCA for permits for specified members of staff who they wish to perform ancillary trading activities within a cockle or mussel fishery which would constitute taking, removing or transporting cockles or mussels within or from a fishery including driving transport vehicles, transporting shellfish, weighing shellfish. The NWIFCA may issue up to a maximum of 6 support worker permits to each commercial organisation upon receipt of complete applications on production of:

- The names, contact details, national insurance numbers and proof of right to work of the members of staff. Proof of identity of those members of staff containing photograph and signature, such as a valid passport; or a driving licence with photo and proof of address of those members of staff, such as a recent utility bill;
- Proof from the annual account or annual report of the organisation's trade in cockles or mussels;
- Evidence that the organisation holds a Gangmaster Licensing Authority licence for shellfish operations if required;
- Statement of the duties members of staff will perform in the shellfish fishery;
- Two recent passport style photographs of the members of staff signed and dated on the back by the members of staff;
- Valid Foreshore Gatherers Safety Training certificates for each of the members of staff or proof of the successful completion of an equivalent safety training course. Equivalence is decided at the discretion of the NWIFCA; and
- Payment of the fee set in paragraph 14.

Use of boats

28. No holder of a permit pursuant to this byelaw shall use a boat to access shellfish beds in order to gather, remove or transport cockles or mussels without having their permit endorsed as a boat user by the NWIFCA. The NWIFCA will endorse permits as boat users on production of evidence that the holder has completed training of an equivalent standard to the courses provided by Seafish in: Sea Survival, First Aid, Fire Fighting and Health and Safety Awareness. Equivalence is decided at the discretion of NWIFCA.

29. No person shall be granted an endorsement as a boat user unless they have in their possession a serviceable life jacket and the boat they will use is equipped with a serviceable means of communication such as a VHF radio or mobile telephone, a serviceable means of navigation such as global positioning equipment and

serviceable safety provision including marine distress flares and an adequate anchor with a means of effective deployment.

Revocation of Legacy Byelaws

30. Byelaw 5 (permit to fish for cockles (*Cerastoderma edule*) and mussels (*Mytilus edulis*)) made by the NWIFCA is revoked.

31. The following byelaws made by the North Western and North Wales Sea Fisheries Committee are revoked in so far as they apply within the District:

(a) byelaw 5 (permit to fish for cockles (*Cerastoderma edule*) and mussels (*Mytilus edulis*));
(b) byelaw 13 (cockles – minimum size);
(c) byelaw 14 (cockle fishery – seasonal closure);
(d) byelaw 15 (mussels – minimum size);
(e) byelaw 17 (redeposit of shellfish);

32. The following byelaws made by the Cumbria Sea Fisheries Committee are revoked in so far as they apply within the District:

(a) byelaw 5 (minimum removal size for mussels);
(b) byelaw 6 (minimum removal size for cockles);
(c) byelaw 12 (re-depositing of shellfish);
(d) byelaw 16 (cockles - seasonal closure).
(e) byelaw 21 (cockles - permit scheme)
(f) byelaw 22 (cockles - catch restrictions)
(g) byelaw 23 (mussels - permit scheme)
(h) byelaw 24 (mussels – catch restrictions)

Explanatory Note: (This note does not form part of the byelaw)

1. *The purpose of this byelaw is to control the exploitation of shellfish fisheries of cockles and mussels to ensure catches remain at a sustainable level and are obtained by sustainable fishing methods. As cockle and mussel fishing can be highly lucrative depending on price variations the NWIFCA has concluded a permit scheme is necessary to limit the number of fishermen and consequently the number of cockles gathered, along with the methods they use.*

2. *The byelaw prohibits the gathering of cockles or mussels for sale without a full gathering permit and prohibits the moving and transporting of cockles or mussels for sale below mean high water springs without a support worker permit (paragraphs 2 and 3). The full gathering permit also permits the holder to move and transport cockles or mussels below mean high water springs (definition of 'full gathering permit' in paragraph 1).*

3. *The byelaw prohibits the possession of articles to gather cockles or mussels in breach of the byelaw and specifies the fishing methods that may be used (paragraphs 4, 7 and 8).*

4. *The byelaw prohibits the possession of cockles or mussels gathered in breach of the byelaw (paragraph 5) and provides for their redeposit (paragraph 9).*

5. *The byelaw sets minimum sizes for cockles and mussels (paragraph 6).*

6. *The byelaw provides an exemption for a person who carries out an act which would otherwise constitute an offence if it is in accordance with a written permission issued by the NIFCA permitting that act for scientific, stocking or breeding purposes (paragraph 10).*

7. *The byelaw provides that a person does not need a permit to gather less than 5kg of cockles or mussels for personal consumption from areas that are not closed or in Commercial Shellfish Fisheries Areas (paragraph 11).*

8. *The byelaw provides for the annual closure of cockle fisheries throughout the District for a specified period (paragraph 12).*

9. *The byelaw provides for the designation of certain cockle beds as Commercial Shellfish Fisheries Areas as shown in the indicative maps (paragraph 13).*

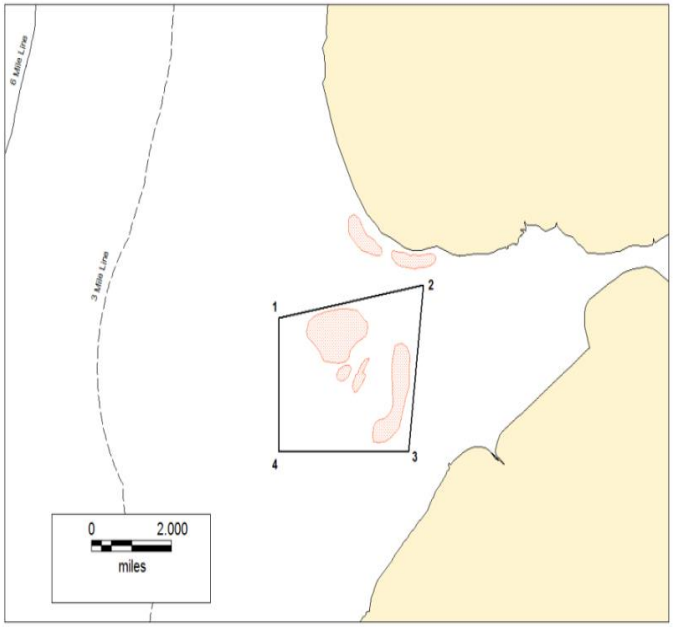


Fig 1. Ribble Commercial Fisheries Area with known historical cockle beds

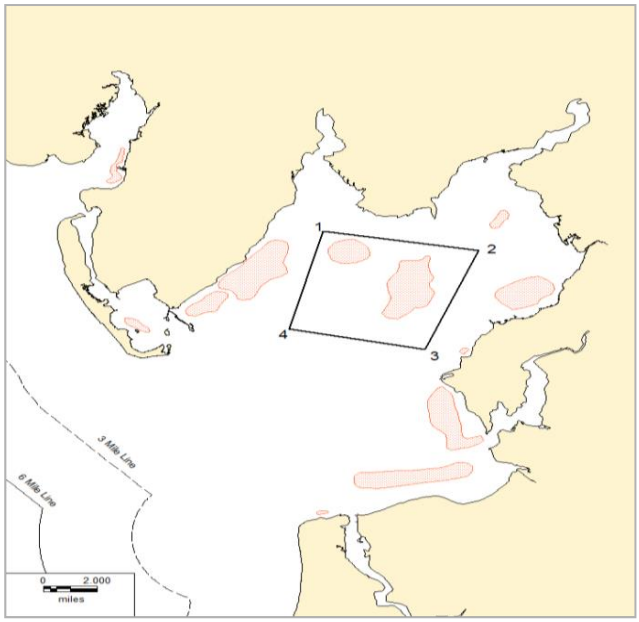


Fig 2. Morecambe Bay Commercial Fisheries Area with known historical cockle beds

10. The byelaw provides an application procedure for permits (paragraphs 14 to 20).

11. The byelaw provides for permit holders to file returns (paragraph 21).

12. The byelaw provides for the renewal of permits and the issue of new permits (paragraph 22).

13. The byelaw provides transitional arrangements for those with a right to gather shellfish under existing byelaws (paragraphs 23 to 26).

14. The byelaw provides for the issue of support worker permits (paragraph 27).

15. The byelaw provides that a full gathering permit must be endorsed if the holder uses a boat to access shellfish beds (paragraphs 28 and 29).

16. The byelaw provides for the revocation of specified byelaws that previously applied in the District (paragraphs 30, 31, and 32).

The North Western Inshore Fisheries and Conservation Authority and the North Western Inshore Fisheries and Conservation District are defined in articles 2, 3 and 4 of the North Western Inshore Fisheries and Conservation Order 2012 (S.I. 2010 No. 2200).

Byelaw confirmed 23.08.12

NWSFC BYELAW 13A - COCKLES AND MUSSELS -MANAGEMENT OF THE FISHERY

1. The Committee, may close any cockle (*Cerastoderma edule*) or mussel (*Mytilis edulis*) bed or part of a bed for the purposes of fishery management or for controlling the rate of exploitation with regard to cockles and mussels.

2. Such closure shall be for a specified period and be undertaken only after the Joint Committee has consulted such persons or bodies appearing to them to represent local cockle or mussel fishermen, and provided the Committee has been advised by fishery scientists who appear to them to be suitably qualified, as to the need for such action.

3. No person shall, without the consent of the Committee, under the written authority in that behalf signed by the Clerk, remove, take or disturb any cockle or mussel from a bed or part of a bed of cockles or mussels which has been closed pursuant to this byelaw.

Byelaw confirmed 29.03.96

NWSFC BYELAW 16 – SHELL FISHERY -TEMPORARY CLOSURE

Where, in the opinion of the Committee, in any fishery, any bed or part of a bed of shellfish is so severely depleted as to require temporary closure in order to ensure recovery, or any bed or part of a bed contains mainly immature shellfish which in the interests of the protection and development of the fishery ought not to be disturbed for the time being, or any bed of transplanted shellfish ought not to be fished until it has become established, and where the bed, or part thereof, has been clearly defined in notices displayed in the vicinity prohibiting the removal or disturbance of the shellfish, no person shall, while the bed or part thereof is so defined, take away or otherwise disturb any shellfish therein.

Provided that no bed or part of a bed may remain closed under this byelaw at any one time for a longer period than one year, without review by the Committee.

Byelaw confirmed 14.09.73

Annex 8 – 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