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

**NWIFCA-RA-SPA-002**
Date completed: 01/02/17
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## Site: Ribble and Alt Estuaries

| | | |
|---|---|---|
| European Designated Sites: | UK9005103 | Ribble and Alt Estuaries Special Protection Area (SPA) |
| | UK11057 | Ribble and Alt Estuaries Ramsar |
| | UK0013076 | Sefton Coast SAC |
| | UK3020294 | Liverpool Bay SPA and pSPA adjoins this site, for fullness of assessment bird features have been included in this document. |
| **European Marine Site** | **Ribble and Alt Estuaries** | |

**Qualifying Feature(s):**

**SPA and Ramsar**
A037 *Cygnus columbianus bewickii*; Bewick's swan (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*; Eurasian wigeon (Non-breeding)
A052 *Anas crecca*; Eurasian teal (Non-breeding)
A054 *Anas acuta*; Northern pintail (Non-breeding)
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)
A143 *Calidris canutus*; Red knot (Non-breeding)
A144 *Calidris alba*; Sanderling (Non-breeding)
A149 *Calidris alpina alpina*; Dunlin (Non-breeding)
A151 *Philomachus pugnax*; Ruff (Breeding)
A156 *Limosa limosa islandica*; Black-tailed godwit (Non-breeding)
A157 *Limosa lapponica*; Bar-tailed godwit (Non-breeding)
A162 *Tringa totanus*; Common redshank (Non-breeding)
A183 *Larus fuscus*; Lesser black-backed gull (Breeding)
A193 *Sterna hirundo*; Common tern (Breeding)
Waterbird assemblage
Seabird assemblage
Breeding Waterbird Assemblage

Natterjack toad (NON MARINE)

**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

**Site sub-feature(s):**

**SPA and Ramsar**

**Supporting Habitat:**

- intertidal rock
- intertidal sand and muddy sand
- intertidal mud
- intertidal mixed sediment
- coastal saltmarshes and saline reedbeds – (Saltmarsh)
- freshwater and coastal grazing marsh (Saltmarsh)
- coastal sand dunes (Sand dunes)
- water column

***Great crested newt and Natterjack toad Supporting Habitat:*** Coastal sand dunes

**Generic sub-feature(s):**

Estuarine birds, Surface feeding birds, Benthic feeding seabirds, Intertidal mud and sand, Saltmarsh spp.

**High Level Conservation Objectives:**

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.

**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 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.

## Fishing activities assessed:

**Gear type(s):**

Towed Demersal **–** Tractor and Boat Beam Trawl (Shrimp – *Crangon crangon*)

# 1. Introduction

## 1.1 Need for an HRA assessment

In 2012, the Department for Environment, Food and Rural Affairs (Defra) announced a revised approach to the management of commercial fisheries in European Marine Sites (EMS). The objective of this revised approach is to ensure that all existing and potential commercial fishing activities are managed in accordance with Article 6 of the Habitats Directive.

This approach is being implemented using an evidence based, risk-prioritised, and phased basis. Risk prioritisation is informed by using a matrix of the generic sensitivity of the sub-features of EMS to a suite of fishing activities as a decision making tool. These sub-feature-activity combinations have been categorised according to specific definitions, as red, amber, green or blue.

Activity/feature interactions identified within the matrix as red risk have the highest priority for implementation of management measures by the end of 2013 in order to avoid the deterioration of Annex I features in line with obligations under Article 6(2) of the Habitats Directive.

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.

Some European Sites within the NWIFCA District consist of features that are not fully marine (eg. sand dunes) and therefore fall outwith of the EMS Review process. They have not been included in the original risk matrix. Due to the nature of some of the fisheries in the District, particularly intertidal fisheries, the NWIFCA has adopted the approach of carrying out full HRA on all the features (including non-marine) within European Sites to ensure that any potential risk from fishing activity has been identified and assessed.

Site level assessments are being carried out in a manner that is consistent with the provisions of Article 6(3) of the Habitats Directive, that is to determine that fishing activities are not having an adverse effect on the integrity of the site, to inform a judgement on whether or not appropriate steps are required to avoid the deterioration of natural habitats and the habitats of species as well as disturbances of the species for which the areas have been designated, in so far as such disturbance could be significant in relation to the objectives of this directive.

If measures are required, the revised approach requires these to be implemented by 2016.

The purpose of this site specific assessment document is to assess whether or not in the view of NWIFCA the fishing activity of ‘Beam trawling for white fish and shrimp, and light otter trawls’ has a likely significant effect on the qualifying features of the Ribble and Alt Estuaries European Site and on the basis of this assessment whether or not it can be concluded that ‘Beam trawling for white fish and shrimp, and light otter trawls’ will not have an adverse effect on the integrity of this European Site.

## 1.2 Documents reviewed to inform this assessment

- Natural England's risk assessment Matrix of fishing activities and European habitat features and protected species[1]
- Reference list[2] (Annex 1)
- Natural England's consultation advice (Annex 2)
- Site map(s) – sub-feature/feature location and extent (Annex 3)
- Fishing activity data (map(s), etc) (Annex 4)

# 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)

No interest features of the EMS categorised as 'Red' risk.

# 4. Information about the fishing activities within the site

Fishing for shrimp within the Ribble and Alt SPA goes back hundreds of years and is a local artisanal industry and is still done by the local fishing communities. The knowledge of the fishery is often passed down through the fishing families. The principle and target areas are still much the same. Much of the shrimping from the shore used to be done by horse and cart but now uses a tractor. The size of the fleet fishing for shrimp has decreased considerably over the years only leaving one active boat which still commercially trawls for shrimp. Much of the processing of the shrimp is done locally. Potting the shrimp increases the value of the catch and means that fishing smaller quantities remains commercially viable.

Beam trawling for shrimp in the Ribble and Alt European Site can be split into two distinct methods: shrimp beam trawling from a boat and shrimp beam trawling from a tractor. The season for shrimp fishing historically starts in the spring as the water temperature increases, with a lull in peak summer (June / July), understood to be due to egg-bearing females moving offshore, and then 0-class juveniles returning and moving into shallow waters in the upper reaches of the estuaries. Once females return, fishing tends to recommence and then ceases in late autumn when the air temperature begins to decrease, and influx of freshwater increases. Shrimps move offshore into deeper water under these conditions. Some operators will fish through out the year but on a less frequent basis out of the main season. Fishers typically target the channels and natural depressions in the sand where there are concentrations of shrimp.

<u>Boat Based Fishery</u>

Local fishery officer's report there is only one boat which commercially fishes for shrimps. The gear used is rectangular metal frame known locally as a shank net. The main difference of a shank net compared to a conventional beam trawl is that on a shank there is a metal bar along the bottom rather than a chain.

The vessel is a small inshore vessel which is less than 7 metres in total length, the size of the vessel limits the size of the beam that can be carried and the weather and tidal conditions it can be fished in. Fishing can occur at any time but smaller tides are preferred as the tide is not as strong. On spring tides a small

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

[2] Reference list will include literature cited in the assessment (peer, grey and site specific evidence e.g. research, data on natural disturbance/energy levels etc)

lightweight beam will lift off the sea bed as the tide is too strong. The boat fishes most days when the weather and tides permit, typically between 120 and 150 tides per year. Most of the fishing occurs around low water. A typical beam length is between five and ten meters with ten being the maximum permitted under NWSFC Byelaw 6. Fishing is restricted by technical measures by NWSFC Byelaw 6 and EC Council Regulation No. 850/98.

Annex 4 indicates the areas in which fishing occurs. Operators target channels and naturally occurring depressions in the sandy substrate meaning the actual fished area is much smaller than indicated on the map. The shrimp boat mainly works the main river channel. Fishing always occurs on sandy substrates where the bar bounces along the surface of the substrate rather than digging into the substrate. The area indicated on the map is 4.857 sq. km in area which equates to 3.94% of the total SPA area. Almost all of the area is subtidal and in the main channel and all of the supporting habitats are intertidal or coastal apart from the water column. The amount of shrimps landed each tide is typically 12-18 kg. The catch is riddled and all material including small shrimps and fish are returned to the sea under NWIFCA Byelaw 6 paragraph (d).

Tractor Based Fishery

The local IFCO reports that there are four people who commercially fish for shrimp with a tractor and a shank net. The gear used is a lightweight metal frame usually constructed of a hollow metal tube 50mm in diameter on the bottom with a 20mm metal frame. The nets are attached to the tractors; usually the fishers will use two nets of 5 metres each. The maximum total combined length of beam which can be used is restricted by NWSFC Byelaw 6. Three of the tractor operators fish most days when the weather and tides permit and one operator fishes less. Typically each operator will fish between 100 and 180 tides per year.

Annex 4 indicates the areas in which fishing occurs. Operators target channels and naturally occurring depressions in the sandy substrate meaning the actual fished area is much smaller than indicated on the map. Shrimping can occur around the low water level from Southport on most tides; the area indicated off of Formby is fished occasionally. Fishing always occurs on sandy substrates where the bar bounces along the surface of the substrate rather than digs into the substrate. The area indicated on the map is 3.150 sq. km in area which equates to 2.55% of the total SPA area. The amount of shrimps landed each tide is typically 20-75 kg. The catch is riddled and all material including small shrimps and fish are returned to the sea under NWIFCA Byelaw 6 paragraph (d).

Regulations Covering Beam Trawls for Shrimp from a Vessel

EC Council Regulation 850/98 (Commercial fishing vessels only)

- Article 25 – Restrictions on fishing for shrimps to protect flatfish (Annex 6)

Regulations Covering Beam Trawls for Shrimp

**North Western SFC District**

| | | | |
|---|---|---|---|
| NWSFC | Byelaw 2 | Attachment to nets | (Annex 6) |
| NWSFC | Byelaw 6 | Shrimp and prawns – restriction on fishing | (Annex 6) |
| NWSFC | Byelaw 9 | Mechanically propelled vessels – maximum length | (Annex 6) |

# 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[3].

**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 Sefton Coast SAC and all SPA sand dune and saltmarsh supporting habitats have been screened out due to the fishing activity either happening from a boat or access to the intertidal area via established access routes. It is not considered that any of the fishing activities will have an effect on the coastal processes which saltmarsh and sand dune features and sub features require. The NWIFCA undertook an exercise to overlay the fishing activity (Annex 4) onto mapping of the supporting habitats of the SPA (Annex 5). This has not been reproduced here as the detail gets lost in a reproduction – however, the only habitats that the fishing activity occurs on is intertidal sand and muddy sand. The supporting habitat of the water column has been screened in, all other SPA supporting habitat features have been screened out. All SPA feature (bird species) have been screened in to the assessment.

**Pressures:** All pressures from the Advice on Operations table provided in the Ribble and Alt Estuary Conservation Advice package have been screened out, other than the pressures in the following table. The reasoning behind this is: the nature of the fishing activity, the areas where the activity occurs, the number of fishers, the vehicles and vessel used are small (typical sized tractor and vessel under 7m), the activity levels are low to medium, and the gear used is relatively small and lightweight compared to conventional gear used elsewhere in Europe.

| Qualifying Feature | Sub-feature | Potential pressure(s) | Sensitivity | Potential for Likely Significant Effect? | Justification and evidence |
|---|---|---|---|---|---|
| SPA Supporting Habitats | Intertidal sand and muddy sand | Abrasion/disturbance of the substrate on the surface of the seabed | Sensitive | Yes | |
| | | Changes in suspended solids (water clarity) | Not Sensitive | Yes | |
| | | Penetration and/or disturbance of the substrate below the surface of the seabed, including abrasion | Sensitive | Yes | |
| | | Siltation rate changes, including smothering (depth of vertical sediment overburden) | Sensitive | Yes | |
| | | Removal of target species (Shrimps) | Sensitive | Yes | |
| | | Removal of non-target species (Shrimp beam trawling bycatch) | Sensitive | Yes | |

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

| | | | | | |
|---|---|---|---|---|---|
| | Water Column | Changes in suspended solids (water clarity) | Sensitive | Yes | |
| A037 *Cygnus columbianus bewickii*; Bewick's swan | Supporting Habitats assessed above | Collision above water with static or moving objects not naturally found in the marine environment (e.g., boats, machinery, and structures) | Sensitive | Yes | All species have been taken through to AA. |
| A038 *Cygnus Cygnus*; Whooper swan | | | | | |
| A040 *Anser brachyrhynchus*; Pink-footed goose | | Collision below water with static or moving objects not naturally found in the marine environment (e.g., boats, machinery, and structures) | Sensitive | Yes | Only species which could collide with objects below the water taken through to AA.<br>- Scaup<br>- Common scoter<br>- Red throated diver<br>- Little gull<br>- Little tern |
| A048 *Tadorna tadorna*; Common shelduck | | | | | |
| A050 Anas Penelope; Wigeon | | | | | |
| A052 *Anas crecca*; Eurasian teal | | | | | |
| A054 *Anas acuta*; Northern pintail | | Removal of target species (Shrimps) | Sensitive | Yes | All species have been taken through apart from Bewick and Whooper swan and Pink footed goose as shrimps can be found in the diet of the other designated species |
| A130 *Haematopus ostralegus*; Eurasian oystercatcher | | | | | |
| A137 *Charadrius hiaticula*; Ringed plover | | Removal of non-target species (Shrimp beam trawling bycatch) | Sensitive | Yes | All species have been taken through apart from Bewick and Whooper swan and Pink footed goose as bycatch species can be found in the diet of the other species |
| A140 *Pluvialis apricaria*; European golden plover | | | | | |
| A141 *Pluvialis squatarola*; Grey plover | | | | | |
| A143 *Calidris canutus*; Red knot | | | | | |
| A144 *Calidris alba*; Sanderling | | Visual disturbance | Sensitive | Yes | All species have been taken through to AA. |
| A149 *Calidris alpina alpina*; Dunlin | | Changes in suspended solids (water clarity) | Sensitive | Yes | Only species which could be affected by a change in water clarity due to suspended solids have been taken through to AA.<br>- Scaup<br>- Common scoter<br>- Red throated diver<br>- Little gull<br>- Little tern |
| *A151 Calidris pugnax;* Ruff | | | | | |
| A156 *Limosa limosa;* Black-tailed godwit | | | | | |
| A157 *Limosa lapponica*; Bar-tailed godwit | | | | | |
| Waterbird assemblage<br><br>*(inc. whimbrel, curlew, cormorant, scaup, common scoter, - not assessed in their own right)* | | | | | |
| Liverpool Bay SPA/pSPA features that have not been assessed elsewhere:-<br><br>Red throated diver<br>Little gull<br>Little tern | | | | | |
| A183 *Larus fuscus*; Lesser black-backed gull (Breeding) | Supporting Habitats assessed above | Collision above water with static or moving objects not naturally found in the marine environment (e.g., boats, machinery, and structures) | Sensitive | Yes | All species have been taken through to AA. |
| A193 *Sterna hirundo*; Common tern (Breeding) | | | | | |
| Seabird assemblage<br><br>*(inc. black-headed gull, -not assessed in their own right)* | | Collision below water with static or moving objects not naturally found in the marine environment (e.g., boats, machinery, and structures) | Sensitive | Yes | All species have been taken through to AA. |

| | | | | | |
|---|---|---|---|---|---|
| | | Removal of target species (Shrimps) | Sensitive | Yes | All species have been taken through to AA. |
| | | Removal of non-target species (Shrimp beam trawling bycatch) | Sensitive | Yes | All species have been taken through to AA. |
| | | Visual disturbance | Sensitive | Yes | All species have been taken through to AA. |
| | | Changes in suspended solids (water clarity) | Sensitive | Yes | Only common tern taken through to AA |

| | | |
|---|---|---|
| **Is the potential scale or magnitude of any effect likely to be significant?[4]** | **Alone**<br><br>Yes<br><br>**Comments** | **OR In-combination[5]**<br><br>Yes<br><br>**Comments :**<br><br>These activities also occur at the site:<br>• Handworking (access from land and vessel)<br>• Static- fixed nets<br>• Drift nets (demersal and pelagic)<br>• Longlines (demersal)<br>• Shrimp push nets<br>• Digging for bait<br>• Pots/ creels<br><br>In combination effects will be assessed when all initial TLSEs for a site are completed. |
| **Have NE been consulted on this LSE test? If yes, what was NE's advice?** | Yes | |

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

# 6. Appropriate Assessment

## 6.1 Potential risks to SPA supporting habitat features

### 6.1.1 Pressures and Potential Impacts

The potential direct impacts to the intertidal sand and muddy sand caused by shrimp beam trawling is the change to the substrate on the surface of the seabed through sediment compaction, sediment resuspension and removal of sediment, as well as the damage to communities associated with the features and removal of target and non-target species. The potential indirect impact is smothering of fished and surrounding habitats and an increase in suspended solids (decreasing water clarity affecting the water column) due to the resuspension of sediment.

#### 6.1.1.1 Abrasion/disturbance of the substrate on the surface of the seabed
#### Penetration and/or disturbance of the substrate below the surface of the seabed

Bergmen and Hup (1992) investigated the effects of a 12m beam trawl weighing 7 tonne with varying sizes of tickler chains on the macro fauna of sandy sediment. The study area was in the southern North Sea. Each study area was trawled three times over two days and sediment samples were taken up to two weeks after trawling. It was concluded that tickler chains penetrated at least 6cm into the sediment surface due to the species composition and the fact the tracks made by the beam shoes were visible on side scan sonar 16hrs later. The sediment samples showed there was a significant decrease (40-60%) in the number of *Asterias rubens*, *Echinocardium cordatum*, *Lanice conchilega* and *Spiophanes bombyx*, whereas *Magelona papillicornis* showed an increase in number. The less abundant mollusc and polychaete species showed no change in number after trawling. It was concluded that the effect of beam trawling has a greater effect on the number of individuals living on the sediment (starfish and urchins). The larger individuals (larger bivalves) tend to live deeper or have better modes of escape.

Kaiser and Spencer (1996) investigated the effects of a commercial beam trawl weighing 3.5 tonnes fitted with tickler chains on a 4x2km study area in Liverpool Bay. The areas were trawled to ensure disturbance by the fishing gear. It was observed that in some areas the physical characteristics of the surface sediment were changed. For example surface ripples being flattened but mega ripples not showing change. It is suggested that the tickler chain may have caused the sediment to become unconsolidated. The conclusion is that the particle size distribution was not affected and observed changes may only be in the superficial layers of the sediment. It was shown that beam trawling in stable sediment areas had a negative effect on the abundance and diversity of species. In the top 20 common species, 19 species showed a decrease in number, and nine of these changes were statistically significant. In areas characterised by mobile sediment which are subject to frequent natural disturbance there were no detectable differences, as the sediments are already mobile and subject to continuous change due to natural processes, so the effects of fishing activity on the sediment structure would soon be undetectable. Overall, fragile infaunal species have a greater vulnerability to damage.

Leth and Kuijpers (1996) investigated the physical effects of beam trawling in the Danish North Sea using side scan to observe trawl marks in the sediment. It was seen that in finer sediment areas the trawl marks were faint. In one area of coarse grained sediment there were very clear well preserved trawl marks. It appeared that the trawl marks had been filled with finer sediment assumed to be from the conditions created by the tickler chain.

Under normal working conditions beam trawls influence only the top layers of the sea bed up to 30mm on muddy ground and up to 10mm on sandy ground. Summary of results to date suggest average penetration

depth 4-7cm. The depth depends on the bottom type and structure of the ticklers and does not always penetrate as the gear moves over the seabed at speeds of 6-7 knots (Groot. 1995).

#### 6.1.1.2 Removal of target species (Shrimps)

Removal of target species has the potential to affect the spatial distribution of intertidal sand and muddy sand communities, change the presence and abundance of typical species and change the species composition of component communities. Shrimp are an important food source for many marine species and a significant reduction of stock could affect the overall ecosystem function of the European Site.

#### 6.1.1.3 Removal of non-target species (Shrimp beam trawling bycatch)

Lancaster and Frid (2002) looked at the fate of discarded juvenile brown shrimps in the Solway Firth. The fishing gear used was a 6m beam trawl with 21-23mm mesh fitted with a 30-65mm square mesh piece of net called a veil or sieve which is designed to reduce the catch of juvenile fish by up to 80%. The catch was then standardised to a 60 minute tow.

The study was taken on commercial fishing vessels between 1995 and 1997. Forty-seven hauls were sampled from commercial operators on forty three separate occasions throughout the study period. Tables 1 to 3 give a summary of the weight and percentage of each fraction and the weight and percentage of catch composition (shrimp, fish and other) of each fraction.

Table 1. Catch and riddle fraction composition by weight of commercial fishing vessels in the Solway Firth, study period1995-1997 (Lancaster and Frid. 2002)

| Riddle Fraction | Composition of Fraction | Mean Weight (kg) | Mean proportion of haul (%) | Fate |
|---|---|---|---|---|
| Top | Large fish, crabs and debris | 7.55 | 14.59 | Discarded |
| Consumption | Consumption shrimps and fish | 22.98 | 56.27 | Cooked |
| Discards | Small shrimps and fish | 13.2 | 29.13 | Discarded |

Table 2. Percentage of catch and riddle fraction composition by weight of commercial fishing vessels in the Solway Firth, study period1995-1997 (Lancaster and Frid. 2002)

| Riddle Fraction | Percentage of *C. crangon* | Percentage of fish | Percentage of crab | Percentage of weed / trash |
|---|---|---|---|---|
| Top | 2.0 | 90.5 | 3.7 | 3.4 |
| Consumption | 85.7 | 10.0 | 0.8 | 3.4 |
| Discards | 83.5 | 6.0 | 0.01 | 10.5 |
| **Total** | **75.5** | **18.5** | **0.8** | **5.2** |

Table 3. Weight of catch for composition of each riddle fraction of commercial fishing vessels in the Solway Firth, study period1995-1997 (Lancaster and Frid. 2002)

| Riddle Fraction | Weight of *C. crangon* (kg) | Weight of fish (kg) | Weight of crab (kg) | Weight of weed / trash (kg) |
|---|---|---|---|---|
| Top | 0.15 | 6.83 | 0.28 | 0.26 |
| Consumption | 19.69 | 2.30 | 0.18 | 0.78 |
| Discards | 11.02 | 0.79 | 0.01 | 1.39 |
| **Total** | **30.87** | **9.92** | **0.46** | **2.42** |

Lancaster and Frid (2002) found that 99% of discarded undersized shrimps were returned to the sea alive of which it was estimated that 92% would have survived after 24 hours. Taking into account bird and fish

predation, it was estimated that between 77 - 80% of all undersized shrimp entering a shrimp beam trawl in the Solway Firth would survive depending on the level of bird predation.

Berghahn et el. (1992) investigated the mortality of fish from the by-catch of shrimp beam trawlers in the North Sea. Trawl times were one hour using a cod end mesh size of 11-12mm. Berghahn found in the discard fraction 100 % mortality was observed for whiting (*Merlangius merlangus*) and 10% mortality for sculpin (*Myxocephalus scorpius*), hooknose (*Agonus catapbractus*), and eelpout (*Zoarces viviparus*). The survival of flatfish depended strongly on the species, size of the specimens as well as the catch and catch processing conditions, and ranged from 17 to 100%. It was observed that mortalities increased considerably after the catch passed through a sorting sieve.

#### 6.1.1.4 Changes in suspended solids (water clarity)

#### Siltation rate changes, including smothering (depth of vertical sediment overburden)

There may be increased turbidity of the water column caused by dragging gear along (or close to) the seabed and disturbing sediments. An increase in suspended sediment can reduce light penetration and potentially reduce primary productivity and algae growth. Other organisms such as benthic fauna can become smothered which will reduce the ability of the organisms to feed. For organisms that are sessile, such as hydroids and bryozoan, smothering will reduce feeding and depending on the level of smothering will cause mortality.

### 6.1.2 Exposure of SPA supporting habitat features to pressures

#### 6.1.2.1 Abrasion/disturbance of the substrate on the surface of the seabed
#### Penetration and/or disturbance of the substrate below the surface of the seabed

Most of the research into the effects of beam trawling on the structure function and associated fauna of a sediment type has been performed using much larger and heavier beams. Shrimp beam trawling in the SPA uses lightweight beams or shank nets. Most research indicates that using heavy beam trawls between 3 and 7 tonnes will on average penetrate the substrate 4 to 7 cm depending on the substrate. It can therefore be inferred that any penetration of the beam trawls or shank nets used by the Ribble and Alt fishermen will be much less if any at all. The length of time in which the trawl marks are present in the sediment is very dependent on the energy levels of the habitat. In high energy areas the trawl marks will soon be filled in by surrounding sediment and the sediment which has been displaced during the trawling activity.

There is potential for all operators that use a tractor to beam trawl to fish at the same time but this is unlikely because the fishermen that prosecute the shrimp fishery also prosecute a variety of other fisheries. The tractor shrimpers are restricted to the duration of fishing by the tide, meaning they can only fish the target ground for approximately 3 hours over low water. When catches of shrimp are good a full time operator would fish between 100 and 180 tides per year with the majority of the tides between spring and autumn with a lull in peak summer. There is one active vessel that commercially trawls for shrimp within the SPA, and when the catches of shrimps are good the fisher will fish about 120-150 tides a year. The main fishing season is in the spring and in the autumn.

Annex 4 indicates the areas in which fishing occurs. The total area indicated in the map is approximately 4.857 sq. km for the boat based fishery and 3.150 sq. km which equates to 3.94% for the boat based fishery and 2.55% of the total SPA area for the tractor based fishery. Operators target channels and naturally occurring depressions in the sandy substrate meaning the actual fished area is much smaller than indicated on the map. Much of the ground targeted is subtidal and all of the supporting habitats are intertidal or coastal apart from the water column.

The natural environment in Ribble and Alt SPA is highly dynamic and changeable. The channels and the sandbanks are constantly changing and moving geographically. Due to the number of operators fishing, the seasonality of the fishery, the gear used, the area targeted and taking into account the highly dynamic and changeable environment in which the activity occurs, it is unlikely to have an adverse effect on the integrity of the European Site.

#### 6.1.2.2 Removal of target species (Shrimps)

The Ribble and Alt Estuary has a long history of shrimp fishing going back hundreds of years. The number of operators which still prosecute the fishery has dramatically reduced from previous times. Foster (Date of Publication Unknown) relates that in 1848 eighteen boats and 40 men fished from the Southport area for shrimp, and in 1903 seventy boats and 200 fishermen were engaged in shrimping. Catches of shrimp can vary greatly. A typical catch is between 12 and 75kg for a trip. Taking maximum fishing effort and the higher end of the typical landings would result in a total of 325kg being removed per day. It is unlikely that the amount of shrimp removed by fishing would have a significant effect on the overall shrimp population; environmental factors have a much greater effect. The shrimp population in the European Site is variable year on year regardless of fishing effort. It is unlikely that the removal of shrimp at the current levels will have an adverse effect on the integrity of the European Site.

#### 6.1.2.3 Removal of non-target species (Shrimp bycatch)

Mortality of bycatch in a shrimp fishery varies according to species, size of specimens and haul durations as well as other factors such as total catch, catch composition, durations of catch processing and exposure to solar radiation. Within NWSFC Byelaw 6 are measures to reduce the destruction of immature fish by ensuring that the total catch from the shrimp beam trawl is riddled as soon as practically possible and that immature fish that pass through the riddle must be returned to the sea. Article 25 of EC Council Regulation 850/98 sets out the requirements for all commercial vessels to have installed on board a functioning device designed to separate flatfish from common shrimps and fish with a separator trawl or a trawl with a sorting grid for the protection of flatfish. Larger fish mainly flatfish which are caught are kept if there is a market value for them or returned alive if not.

Lancaster and Frid (2002) found that the average percentage of fish in the total catch was 18.5% with the majority being larger specimens. The total average weight of small discarded fish caught in a 6m beam trawl towed for 60 minutes was 0.79kg, and the majority of the discards were made up of juvenile shrimp 83.5%. The survival of flatfish depended strongly on the species, size of the specimens as well as the catch and catch processing conditions, and ranged from 17 to 100%. Larger flatfish will have a higher survival rate as they will be more resistant to being crushed and damaged. Lancaster and Frid (2002) estimated that the survival rates of discarded shrimps to be between 77 - 80% taking into account bird predation. From results taken from the Solway Firth shrimp fishery and from discussions with fishermen, the majority of the discards is shrimp that is too small for processing and debris. If the non-shrimp part of the catch (crabs, fish, jellyfish, plant debris, rubbish, shell) exceeds 30% of the total catch than it has been reported that the tractor shrimpers stop fishing.

Due to the levels of bycatch being low, and the survival rates of the fish being good, shrimping is unlikely to affect the overall fish populations of the European Site and it is therefore unlikely that the removal of non-target species (shrimp trawling bycatch) at the current levels will have an adverse effect on the integrity of the European Site.

#### 6.1.2.4 Changes in suspended solids (water clarity)
#### Siltation rate changes, including smothering (depth of vertical sediment overburden)

Beam trawling has the potential to decrease the water clarity by increasing the suspended solids in the water. Increasing the suspended solids can cause a change in siltation rates including smothering. The natural environment in Ribble and Alt Estuary is highly dynamic and changeable. The sediment is constantly shifting meaning that the background levels of suspended sediment are already naturally high and due to the operators using small lightweight beam trawls with shallow penetration depths over only 6.49% of the Site, the extra suspended solids from beam trawling is unlikely to have an adverse effect on the integrity of the European Site.

## 6.2 Potential risks to SPA features (birds)

### 6.2.1 Pressures and Potential Impacts

The potential impact of the removal of target and non-target species, change of water quality and visual disturbance is that the condition, productivity and survivability of the qualifying bird features could be decreased leading to an overall population decrease. The removal of target and non-target species has the potential to remove a food source for the qualifying bird species. A decrease in water clarity can affect the success rate of feeding for plunge and diving birds. Visual disturbance can cause an increase in the amount of energy which is used due to the extra flights and increased alertness the bird takes to avoid the activity, decrease the amount of feeding time and concentrate the number of individuals into a smaller area which in turn increases competition rates and potentially decreases the availability of the food resource.

#### 6.2.1.1/2 Removal of target species and non-target species (Shrimps and bycatch)

Some regional declines of seabirds have been related to fishing activity (Anker-Nilssen *et al.* 1997). There may be indirect effects to birds from fishing activity through removing and competing for prey resources, as seen in the North Sea where black-legged kittiwakes have declined by over 50% since 1990 during a period where there was an active lesser sandeel fishery (Frederiksen *et al.* 2004). This was also thought to be partly due to profound oceanographic changes at the same time (Frederiksen *et al.* 2004).

There may also be benefits from fishing to birds, where birds gain extra food through feeding on fishing offal and discards (Hudson & Furness, 1989; Campyhusen *et al.* 1996), or where numbers of small fish prey increase following the removal of larger predatory fish (Tasker *et al.* 2000; Furness, 1982). However there can be negative impacts too, where smaller fish are targeted by fishing activity, reducing the food available as prey to birds and leading to increased competition (Frederiksen *et al.* 2004; Tasker *et al.* 2000).

A study by Oro and Ruix (1997) assessed how discards from trawlers are used by seabirds - 'gulls and terns followed behind the trawlers, Procellariiformes were noted away from the stern…" and found that the discards at one of the two sites were unable to support the energy requirements of the scavenging seabird populations but could support them at the other site (Oro & Ruix, 1997). Camphuysen *et al.* (1995) showed species that profited most from scavenging, which included several gull species. In a study by Depestele et al. (2012) on the interactions between seabirds and fishery discards, lesser and greater black-backed gull were found to be associated with fishing vessels (potentially as scavengers), whilst little gull and black-headed gull were less frequently seen behind boats.

Walter and Becker (1997) investigated the occurrence and consumption of seabirds scavenging on shrimp trawler discards in the Wadden Sea. It was observed that the main scavengers were herring gull (*Larus argentatus*) and black-headed gull (*L. ridibundus*) with common gull (*L. canus*), lesser black-backed gull (*L. fuscus*), great black-backed gull (*L. marinus*), and common/arctic tern (*Sterna hirundo/paradisaea*) being less numerous. Herring gulls made up 45% of the birds counted but consumed 82% of the total number of discarded items. Out of the total number of items discarded seabirds consumed 41% of flatfish, 79% of round fish, 23% of invertebrates and 10% of the shrimp. When these percentages are applied to the total discards from the shrimping fleet of Lower Saxony it was estimated that the consumed discards met the energy demand of 60,000 birds for the year and suggest that discards may have a strong effect on the bird population of the Wadden Sea.

Seabird mortality from demersal trawling can be caused by birds becoming entangled in the net when it is being hauled or shot. Birds do not often become caught in the net when it is actively fishing. The birds which are at the highest risk are larger bodied birds such as petrels (Birdlife) and those which are attracted

to the vessel for an easy food source when the nets are being hauled, the catch is being sorted and the discards including offal are going back into the sea.

#### 6.2.1.3 Collision above water with static or moving objects not naturally found in the marine environment (e.g., boats, machinery, and structures).

Marine birds can be attracted to or become disorientated by artificial light sources, which can result in collision and therefore injury or death. Bird collisions with vessels, including fishing vessels, have been recorded with the risk being greatest at night for lighted ships near coastal areas and when the vessel is relatively close to large breeding aggregations of seabirds. Mortality can also be caused by the seabirds hitting into the warps (Maree et al. 2014). The birds are attracted to the vessel as it is often an easy food source. The highest level of mortality is when the nets are being hauled, the catch is being sorted and the discards including offal are going back into the sea.

#### 6.2.1.4 Collision below water with static or moving objects not naturally found in the marine environment (e.g., boats, machinery, and structures).

Marine birds particularly diving birds have the potential to collide with vessels under the water which could result in injury or death. Larger vessel and fast moving vessels are more likely to cause a collision due to the greater distances which have to be moved to avoid a large vessel and the speed that is needed to avoid a fast moving vessel.

Potential for birds to become entangled with nets underwater will be assessed in the SPA removal of non-target species section 6.2.1.2 (pressures) and 6.2.2.2 (exposure).

#### 6.2.1.5 Changes in suspended solids (water clarity)

There may be increased turbidity of the water column caused by dragging gear along (or close to) the seabed and disturbing sediment. Cook and Burton (2010) used the extent that different bird species used vision in foraging to assess the sensitivities of birds to the direct effects of turbidity and found that foraging terns, guillemot and gannets particularly used their vision. “The decline in Sandwich Tern *Sterna sandvicensis* populations in the Netherlands has been linked with increases in turbidity (Essink 1999) showing that on some scales this can have impacts at the population level”. A study by Furness and Tasker (2000) identified tern species as being vulnerable when looking at terns cost of foraging, potential foraging range, ability to dive, amount of spare time in the daily budget and ability to switch diet. Any reduction of feeding success due to changes in suspended solids (water clarity) could have a greater effect on terns compared to other species which are able to adapt more easily and scored as less vulnerable such as gannets, fulmar, cormorant and guillemot. Due to the relative inflexibility of their foraging habitat selection, Eider and Common Scoter were also found to be sensitive to the indirect effects of sedimentation.

#### 6.2.1.6 Visual Disturbance

Visual disturbance can cause an increase in the amount of energy which is used due to the extra flights and increased alertness the bird takes to avoid the activity, decrease the amount of feeding time and concentrate the number of individuals into a smaller area which in turn increases competition rates and potentially decreases the availability of the food resource.

### 6.2.2 Exposure to Pressures

#### 6.2.2.1 Removal of target species (Shrimps)

Shrimps are not considered a targeted food source for the following bird features of the site as they do not rely on this prey as a food resource: shelduck, wigeon, teal, pintail, oystercatcher, ringed plover, golden plover, grey plover, lapwing, red knot, sanderling, dunlin, ruff, bar tailed godwit, black tailed godwit, curlew, whimbrel, redshank, scaup and common scoter. Shrimps will occasionally be found in the diet of each of the species because as with most species of birds they are opportunistic and will feed on most food resources if they are available. It is therefore unlikely to affect the population and distribution of these species of birds.

Common and little tern and red throated diver feed on shrimp but a larger part of their diet comes from the associated bycatch species (fish). It is unlikely that the amount of shrimp removed by fishing would have a significant effect on the overall shrimp population (section 6.1.2.2); environmental factors have a much greater effect on the shrimp population. It is therefore unlikely that the removal of target species through shrimp beam trawling is going to affect the population and distribution of common tern and the NWIFCA can conclude no adverse effect on the integrity of the European Site from this pressure.

#### 6.2.2.2 Removal of non-target species (Shrimp beam trawling bycatch)

Fish are not considered a targeted food source for the following bird features of the site as they do not rely on this prey as a food resource: shelduck, wigeon, teal, pintail, oystercatcher, ringed plover, golden plover, grey plover, lapwing, red knot, sanderling, dunlin, ruff, bar tailed godwit, black tailed godwit, curlew, whimbrel, redshank, scaup and common scoter. Very small fish will very occasionally be found in the diet of each of the species because as with most species of birds they are opportunistic and will feed on most food resources if they are available. It is therefore unlikely to affect the population and distribution of these species of birds.

The gull species (lesser black-backed, black headed gull and little gull) are opportunistic feeders and have a variety of food sources both marine and non-marine. Gulls will often exploit the easiest food source available. Gulls are known to feed on the bycatch from fishing activities and can often benefit, as fishing bycatch is often an easy food source (Walter and Becker, 1997) and requires minimal energy expenditure. It is therefore unlikely the shrimp beam trawling will have an effect on the population and distribution of these species of birds.

The primary source of food for common and little tern, cormorant and red throated diver is juvenile fish and smaller fish species. The level of activity, legislation to protect juvenile flatfish and reduce catches of fish species, and the survival rates of discarded fish (as assessed above in section 6.1.2.3) allow the NWIFCA to conclude that the removal of non-target species is unlikely to have an effect on prey availability, or to affect the population and distribution of these bird species. It can therefore be concluded that the removal of non-target species is unlikely at the current levels to have an adverse effect on the integrity of the European Site.

The beam length used in the Ribble and Alt Estuary fishery is smaller in size than in other shrimp fisheries in Europe, and small in overall net size which reduces the risk of the birds becoming entangled in the net. The SPA species at risk of entanglement are diving birds, scaup, common scoter, red throated diver and cormorant, and to a lesser extent gulls and tern species. The NWIFCA can conclude that it is unlikely that any birds will become entangled and therefore no risk of adverse effect on the integrity of the European Site from this pressure, for the following reasons:

- fishing is seasonal (spring and autumn);

- footprint of the target area is 6.49% of the total area of the SPA;
- number of operators is low;
- operators target different areas at different times of the tide (fishing from a tractor only for three hours over low water);
- fishing gear used is lightweight and relatively small;
- fishing vessel under 7m;
- speed at which the tractors and vessel travel low;
- majority of activity occurring during daylight;
- lights used during occasional night fishing are small and few from the tractors and vessel;
- fishing does not occur close to large breeding aggregations;
- no known issues with birds becoming entangled with the shrimping gear in the site.

#### 6.2.2.3 Collision above water with static or moving objects not naturally found in the marine environment (e.g., boats, machinery, and structures).

The birds which may be attracted towards the fishing activity are gull species and potentially, but less likely, tern species. SPA features such as waders, ducks and geese are unlikely to be affected.

The NWIFCA can conclude that it is unlikely that any birds will collide with objects above water and therefore no risk of adverse effect on the integrity of the European Site from this pressure, for the following reasons:

- fishing is seasonal (spring and autumn);
- footprint of the target area is 6.49% of the total area of the SPA;
- number of operators is low;
- operators target different areas at different times of the tide (fishing from a tractor only for three hours over low water);
- fishing gear used is lightweight and relatively small;
- fishing vessel under 7m;
- speed at which the tractors and vessel travel low;
- majority of activity occurring during daylight;
- lights used during occasional night fishing are small and few from the tractors and vessel;
- fishing does not occur close to large breeding aggregations;
- no known issues with birds colliding with shrimping tractors and vessels in the site.

#### 6.2.2.4 Collision below water with static or moving objects not naturally found in the marine environment (e.g., boats, machinery, and structures).

The SPA features which could collide with objects below water are diving birds, scaup, common scoter, red throated diver, cormorant and to a less extent gulls and tern species. The NWIFCA can conclude that it is unlikely that any birds will collide with objects below water and therefore no risk of adverse effect on the integrity of the European Site from this pressure, for the following reasons:

- fishing is seasonal (spring and autumn);
- footprint of the target area is 6.49% of the total area of the SPA;
- number of operators is low;
- operators target different areas at different times of the tide (fishing from a tractor only for three hours over low water);
- fishing gear used is lightweight and relatively small;

- fishing vessel under 7m;
- speed at which the tractors and vessel travel low;
- majority of activity occurring during daylight;
- lights used during occasional night fishing are small and few from the tractors and vessel;
- fishing does not occur close to large breeding aggregations;
- no known issues with birds colliding with objects associated with the fishery in the site.

**6.2.2.5 Changes in suspended solids (water clarity)**

Beam trawling has the potential to decrease the water clarity by increasing the suspended solids in the water. For species which feed in the water column (common and little tern, scaup, common scoter, red throated diver and cormorant) and rely on sight it has the potential to reduce feeding success rates. The natural environment in Ribble and Alt Estuary is highly dynamic and changeable. The sediment is constantly shifting meaning that background level of suspended sediment is already naturally high. Due to the operators using small lightweight beam trawls with shallow penetration depths, suspended solids levels from beam trawling are low compared to background levels, and are unlikely to affect the feeding success of these SPA features.

**6.2.2.6 Visual Disturbance**

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 majority of the fishing activity occurring between spring and autumn it is unlikely that golden plover will be found near the fishery.

Dunlin, black tailed godwit, bar tailed godwits, curlew, whimbrel, redshank, oystercatcher, ringed plover, grey plover, knot and sanderling all feed on a variety of substrates in the intertidal area. Redshank are found on saltmarsh and are known to nest on saltmarsh. All access to the fishing grounds is by established access routes and visual disturbance is unlikely. Grey plover are not present in significant numbers between June and July further reducing the likelihood of disturbance to grey plover. Black tailed godwits are in low numbers between April and June further reducing the chance of disturbance. 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. The time in which the fishing activity has the potential to cause disturbance is the 3 hours over low water near the water's edge.

Additionally, the NWIFCA can conclude that risk of disturbance is low and any displacement will be temporary and only a short distance for the above species that feed mainly on a variety of substrates, for the following reasons:

- fishing is seasonal between spring and autumn when wader numbers are typically lower than the over wintering population;
- footprint of the target area is 6.49% of the total area of the SPA;
- low number of operators;
- operators target different areas at different times of the tide (fishing from a tractor only for three hours over low water);
- vessel used less than 7m;
- majority of activity occurs during daylight;
- lights used during occasional night fishing are small and few from the tractors and under 10m vessel;

Shelduck, pintail, wigeon, teal, scaup, common scoter and red throated diver numbers are greatest during the winter when fishing effort is decreasing or stopped. There is only one active operator fishing seasonally

between spring and autumn, the footprint of the target area being 6.49% of the total area of the SPA, the vessel which is used small, less than 7m and the majority of the fishing activity occurring during daylight resulting in very little visual disturbance compared to background vessel activity levels in the area. Shelduck, pintail, wigeon and teal spend a proportion of their time feeding on intertidal mud. As mudflats are not targeted by the tractor shrimp operators disturbance is unlikely.

Whooper and bewick swans and pink footed geese numbers are greatest during the winter when fishing effort is decreasing or stopped. As Whooper and Bewick swans are found on large bodies of open water, it is unlikely that the tractor beam trawling will cause any visual disturbance to them. There is a possibility of visual disturbance to swans and pink footed geese from boat shrimp trawling; however the impact would be minimal compared to background vessel activity levels in the area, due to low effort, seasonality of fishery, footprint, size of vessel and daylight activity.

Pink footed geese are known to roost on the higher shore and saltmarsh when they are not feeding on farmland, mainly on the reaches of the estuary closer to the River Douglas – ie. east of the access routes. Any disturbance will occur when tractors are travelling to and from the fishing areas. Access is via established routes that are used by a variety of beach users, both recreational and commercial. Due to the geese utilising a variety of habitats (both marine and terrestrial), the majority of the fishing activity occurring between spring and autumn and for 3 hours over low water, and access being a distance from the main saltmarsh areas, any disturbance will be minimal and displacement temporary and only a short distance.

Black-backed, black-headed gulls and little gulls are present on both the intertidal and open water and therefore there is potential for visual disturbance from both the shrimping tractors and boats. Gulls utilise a range of habitats both marine and terrestrial and likely to be attracted to the fishing as a food source opportunity.

Disturbance will be minimal and any displacement will be temporary and for short distances because:

- fishing footprint only 6.49% of the total area of the SPA;
- low number of operators;
- operators targeting different areas at different times of the tide (fishing from a tractor only for three hours over low water);
- vessel small and less than 7m;
- majority of activity occurs during daylight;
- lights used during occasional night fishing are small and few from the tractors and under 10m vessels.

Common and little terns rarely use the intertidal area at low water when the tractors are working. Common and little tern species do roost in coastal areas but none of the known roost areas are access points for the operators. The known roosting areas for common terns in the European Site are Banks Marsh, Longton Marsh and Cabin Hill nature reserve. Common and little terns do not nest within the SPA. There is potential for tractor beam trawling to disturb the terns when fishing in the channels at low water but terns have large foraging ranges and will not be displaced a large distance by the fishing activity. The low level of boat activity (one active vessel), the footprint of the target area being 6.49% of the total area of the SPA, the vessel which is used small, less than 7m meaning that there will be very little visual disturbance especially when compared to background vessel activity levels in the area.

## Table 2: Summary of Impacts

| Feature/Sub feature(s) | Conservation Objective | Potential pressure[6] (such as abrasion, disturbance) exerted by gear type(s)[7] | Potential ecological impacts of pressure exerted by the activity/activities on the feature[8] *(reference to conservation objectives)* | Level of exposure[9] of feature to pressure | Mitigation measures[10] |
|---|---|---|---|---|---|
| **Intertidal sand and muddy sand** (SPA supporting habitats) | Maintain or restore the extent, distribution structure or function of the Intertidal sand and muddy sand. | Abrasion/disturbance of the substrate on the surface of the seabed | Potential to effect the:-<br>- Extent and distribution<br>- Presence and spatial distribution of intertidal sand and muddy sand communities<br>- Presence and abundance of typical species<br>- Species composition of component communities<br>- Sediment composition and distribution | The natural environment in which the fishing activity occurs is highly dynamic and changeable. The channels which are targeted are constantly changing and moving geographically. The beam trawls are small and lightweight with shallow if any penetration depths. The activity is seasonal and typically occurs between spring and autumn. It will not affect the extent, distribution, structure or function of the feature, and will therefore not have an adverse effect on the integrity of the European Site. | None |
| | | Changes in suspended solids (water clarity) | Potential to effect the:-<br>- Water quality - turbidity | | |
| | | Penetration and/or disturbance of the substrate below the surface of the seabed, including abrasion | Potential to effect the:-<br>- Extent and distribution<br>- Presence and spatial distribution of intertidal sand and muddy sand communities<br>- Presence and abundance of typical species<br>- Species composition of component communities<br>- Sediment composition and distribution | | |
| | | Siltation rate changes, including smothering (depth of vertical sediment overburden) | Potential to effect the:-<br>- Extent and distribution<br>- Presence and spatial distribution of intertidal sand and muddy sand communities<br>- Presence and abundance of typical species<br>- The species composition of component communities<br>- Sediment composition and distribution<br>- Sediment movement and hydrodynamic regime<br>- Topography | | |

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

| | | | | | |
|---|---|---|---|---|---|
| | | Removal of target species (Shrimps)<br><br>Removal of non-target species (Shrimp beam trawling bycatch) | Potential to effect the:-<br>- Presence and spatial distribution of intertidal sand and muddy sand communities<br>- Presence and abundance of typical species<br>- The species composition of component communities | Due to the scale of the activity, the management measures in place, the seasonality and the fact that environmental conditions are more likely to have an effect on the shrimp population, it is unlikely at current levels of activity that beam trawling for shrimp will significantly affect the shrimp and fish populations and in turn the function of the SPA supporting habitat, and therefore will not have an adverse effect on the integrity of the European Site. | None |
| · *Tadorna tadorna*; Common shelduck<br>· *Anas Penelope*; Wigeon<br>· *Anas crecca*; Eurasian teal<br>*Anas acuta*; Northern pintail<br>· *Haematopus ostralegus*: Eurasian oystercatcher<br>· *Charadrius hiaticula*; Ringed plover<br>· *Pluvialis apricaria*; European golden plover<br>· *Pluvialis squatarola*; Grey plover<br>· *Vanellus vanellus;* Lapwing<br>· *Calidris canutus*; Red knot<br>· *Calidris alba*; Sanderling<br>· *Calidris alpina alpina*; Dunlin<br>· *Calidris pugnax;* Ruff<br>· *Limosa limosa;* Black-tailed godwit<br>· *Limosa lapponica*; Bar-tailed godwit<br>· *Numenius arquata*; Eurasian curlew<br>*Numenius phaeopus;* Whimbrel<br>· *Tringa totanus*; Common redshank<br>*Aythya marila;* Greater scaup<br>*Melanitta nigra;* | Maintain or restore the population and distribution of the qualifying features. | Removal of target species (Shrimps)<br><br>Removal of non-target species (Shrimp beam trawling bycatch – bird bycatch assessed below) | Potential to effect the:-<br>- Food availability<br>- Condition and survival of SPA species<br>- Abundance of SPA species | Shrimps and marine fish are not considered a key food resource for these species. The activity will not affect the population or distribution of the features, and will therefore not have an adverse effect on the integrity of the European Site. | None |

| | | | | | |
|---|---|---|---|---|---|
| *Common scoter* | | | | | |
| • *Larus fuscus*; Lesser black-backed gull<br>*Chroicocephalus ridibundus;* Black-headed gull<br>• *Hydrocoloeus minutus;* Little gull | Maintain or restore the population and distribution of the qualifying features. | Removal of target species (Shrimps)<br><br>Removal of non-target species (Shrimp beam trawling bycatch – bird bycatch assessed below) | Potential to effect the:-<br>- Food availability<br>- Condition and survival of SPA species<br>- Abundance of SPA species | Gulls are opportunists and have a variety of food sources. They will exploit the easiest. Most gull species are known to feed on fishing bycatch, and therefore they may benefit from shrimp beam trawling. The activity will not affect the population or distribution of the features, and will therefore not have an adverse effect on the integrity of the European Site. | None |
| • *Sterna hirundo*; Common tern (Breeding)<br>• *Sternula albifrons*; Little tern<br>• *Gavia stellate;* Red throated diver<br>• *Phalacrocorax carbo;* Cormorant | Maintain or restore the population and distribution of the qualifying features. | Removal of target species (Shrimps) | Potential to effect the:-<br>- Food availability<br>- Condition and survival of SPA species<br>- Abundance of SPA species | Shrimps are eaten by all these species but are not considered the preferred target species over fish. Activity levels in the European Site are not likely to have a significant impact on the shrimp population and will not affect the population or distribution of the features, and will therefore not have an adverse effect on the integrity of the European Site. | None |
| | | Removal of non-target species (Shrimp beam trawling bycatch– bird bycatch assessed below) | Potential to effect the:-<br>- Food availability<br>- Condition and survival of SPA species<br>- Abundance of SPA species | Small fish are the target prey for all of these species. Fishing activity levels and existing management measures reduce the amount of fish by-catch and increase survivability. It is unlikely that shrimp beam trawling will have a significant impact on the fish population and will not affect the population or distribution of the features, and will therefore not have an adverse effect on the integrity of the European Site. | None |
| • *Sterna hirundo*; Common tern (Breeding)<br>• *Aythya marila;* Greater scaup<br>• *Melanitta nigra; Common scoter*<br>• *Sternula albifrons*; Little tern<br>• *Gavia stellate;* Red throated diver<br>• *Phalacrocorax carbo;* Cormorant | | Changes in suspended solids (water clarity) | Potential to effect the:-<br>- Food availability<br>- Condition and survival of SPA species<br>- Abundance of SPA species | The natural environment in the Ribble and Alt Estuary is highly dynamic and changeable. The sediment is constantly shifting meaning that the background levels of suspended sediment is already naturally high and due to the operators using small lightweight beam trawls with shallow penetration depths the extra suspended solids from beam trawling will not increase the turbidity of the water and therefore not have an adverse effect on the integrity of the European Site. | None |
| • *Haematopus ostralegus*: Eurasian oystercatcher<br>• *Charadrius hiaticula*; | Maintain or restore the population and distribution of the qualifying features. | Visual disturbance | Potential to effect the:-<br>- Condition and survival of SPA species<br>- Abundance of SPA species<br>- Extent and distribution of supporting habitat available whilst a fishing activity is occurring | Golden plover – only likely to feed on intertidal in very cold condition when usual feeding areas frozen. Activity spring to autumn unlikely to be cold enough conditions to push golden plover | None |

| | | | | | |
|---|---|---|---|---|---|
| Ringed plover<br>· *Pluvialis apricaria*; European golden plover<br>· *Pluvialis squatarola*; Grey plover<br>· *Vanellus vanellus;* Lapwing<br>· *Calidris canutus*; Red knot<br>· *Calidris alba*; Sanderling<br>· *Calidris alpina alpina*; Dunlin<br>· *Calidris pugnax;* Ruff<br>· *Limosa limosa;* Black-tailed godwit<br>· *Limosa lapponica;* Bar-tailed godwit<br>· *Numenius arquata*; Eurasian curlew<br>*Numenius phaeopus;* Whimbrel<br>· *Tringa totanus*; Common redshank<br>· *Vanellus vanellus;* Lapwing | | | | onto intertidal.<br><br>Dunlin, black tailed godwit, bar tailed godwits, curlew, whimbrel, redshank, oystercatcher, ringed plover, grey plover, knot and sanderling all feed on a variety of substrates in the intertidal area. Potential for disturbance on saltmarsh for breeding redshank. Access by established routes any disturbance minimal and short lived. Grey plover not in significant numbers June to July. Black tailed godwits in low numbers between April and June. 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. The time in which the fishing activity has the potential to cause disturbance is the 3 hours over low water near the water's edge. Fishing spring and autumn, wader numbers highest during winter, tractor fishing only occurring three hours over low water and target fishing area being 6.49% of total SPA area. Any disturbance minimal and short lived. | |
| | | Collision above water with static or moving objects not naturally found in the marine environment (e.g. boats, machinery, and structures) | Potential to effect the:-<br>- Condition and survival of SPA species<br>- Abundance of SPA species<br>- Assemblage diversity | Very unlikely due to most of the fishing activity occurring in the day, when in dark small lights as from a tractor / under 10m vessel. Waders unlikely to be actively attracted to the fishing activity. Fishing gear used small in comparison with shrimp gear used elsewhere in Europe. | None |
| | | Collision below water with static or moving objects not naturally found in the marine environment (e.g. boats, machinery, and structures) | Potential to effect the:-<br>- Condition and survival of SPA species<br>- Abundance of SPA species<br>- Assemblage diversity | Extremely unlikely due to waders only wading in shallow water. | None |
| | | Removal of non-target species<br>(Bird bycatch) | Potential to effect the:-<br>- Condition and survival of SPA species<br>- Abundance of SPA species<br>- Assemblage diversity | Extremely unlikely due to waders only wading in shallow water. | None |
| · *Cygnus Cygnus*; Whooper swan<br>· *Cygnus columbianus bewickii*; Bewick's swan<br>· *Anser brachyrhynchus* Pink-footed goose | Maintain or restore the population and distribution of the qualifying features. | Visual disturbance | Potential to effect the:-<br>- Condition and survival of SPA species<br>- Abundance of SPA species<br>- Extent and distribution of supporting habitat available whilst a fishing activity is occurring | Numbers of geese are highest in winter when fishing activity low. Species use a variety of habitats (marine and terrestrial). Only one boat which compared to background levels meaning disturbance unlikely. Access by tractors via established route. Any disturbance minimal and short lived due to fishing being seasonally spring and autumn, the | None |

| | | | | | |
|---|---|---|---|---|---|
| | | | | footprint of the target area being 6.49% of the total area of the SPA, small vessel between under 7m and the majority of the fishing activity occurring during daylight. | |
| | | Collision above water with static or moving objects not naturally found in the marine environment (e.g. boats, machinery, and structures) | Potential to effect the:-<br>- Condition and survival of SPA species<br>- Abundance of SPA species<br>- Assemblage diversity | Unlikely due to number of operators, seasonality of fishing, areas fished and the size of gear. | None |
| | | Collision below water with static or moving objects not naturally found in the marine environment (e.g. boats, machinery, and structures) | Potential to effect the:-<br>- Condition and survival of SPA species<br>- Abundance of SPA species<br>- Assemblage diversity | Unlikely due to the nature of the species number of operators, seasonality of fishing, areas fished and the size of gear. | None |
| | | Removal of non-target species (Bird bycatch) | Potential to effect the:-<br>- Condition and survival of SPA species<br>- Abundance of SPA species<br>- Assemblage diversity | Unlikely due to the nature of the species number of operators, seasonality of fishing, areas fished and the size of gear. | None |
| • *Tadorna tadorna*; Common shelduck<br>• *Anas acuta*; Northern pintail<br>• Anas Penelope; Wigeon<br>• *Anas crecca*; Eurasian teal<br>*Aythya marila;* Greater scaup<br>*Melanitta nigra; Common scoter Gavia stellate;* Red throated diver<br>*Phalacrocorax carbo;* Cormorant | Maintain or restore the population and distribution of the qualifying features. | Visual disturbance | Potential to effect the:-<br>- Condition and survival of SPA species<br>- Abundance of SPA species<br>- Extent and distribution of supporting habitat available whilst a fishing activity is occurring | All species are often found on the open water only one active operator fishing from a vessel. The fishing is seasonal spring and autumn, the footprint of the target area being 6.49% of the total area of the SPA, the vessel used is small under 7m and the majority of the fishing activity occurring during daylight resulting in very little visual disturbance compared to background vessel activity levels in the area. Shelduck, pintail and wigeon spend a proportion of their time feeding on intertidal mud. Mudflats are not targeted by the tractor shrimp operators - therefore disturbance is unlikely. | None |
| | | Collision above water with static or moving objects not naturally found in the marine environment (e.g. boats, machinery, and structures) | Potential to effect the:-<br>- Condition and survival of SPA species<br>- Abundance of SPA species<br>- Assemblage diversity | Unlikely due to the number of operators, seasonality of fishing, areas fished and the size of gear. | None |
| | | Collision below water with static or moving objects not naturally found in the marine environment (e.g. boats, machinery, and structures) | Potential to effect the:-<br>- Condition and survival of SPA species<br>- Abundance of SPA species<br>- Assemblage diversity | Unlikely due to the number of operators, seasonality of fishing, areas fished and the size of gear. | None |
| | | Removal of non-target species (Bird bycatch) | Potential to effect the:-<br>- Condition and survival of SPA species<br>- Abundance of SPA species<br>- Assemblage diversity | Unlikely due to the number of operators, seasonality of fishing, areas fished and the size of gear. | None |

| | | | | | |
|---|---|---|---|---|---|
| • *Larus fuscus*; Lesser black-backed gull<br>• *Chroicocephalus ridibundus;* Black-headed gull<br>• *Hydrocoloeus minutus;* Little gull | Maintain or restore the population and distribution of the qualifying features. | Visual disturbance | Potential to effect the:-<br>- Condition and survival of SPA species<br>- Abundance of SPA species<br>- Extent and distribution of supporting habitat available whilst a fishing activity is occurring | Gulls utilise a range of habitats both marine and terrestrial and likely to be attracted to the fishing as a food source opportunity. Any disturbance likely to minimal due footprint of the target area being 6.49% of the total area of the SPA, the low number of operators, the operators targeting different areas at different times of the tide, the fishing from a tractor is only for three hours over low water, the vessel which is used is small under 7m, the majority of the fishing activity occurs during daylight. | None |
| | | Collision above water with static or moving objects not naturally found in the marine environment (e.g., boats, machinery, and structures) | Potential to effect the:-<br>- Condition and survival of SPA species<br>- Abundance of SPA species<br>- Assemblage diversity | Unlikely due to the number of operators, seasonality of fishing, areas fished and the size of gear. | None |
| | | Collision below water with static or moving objects not naturally found in the marine environment (e.g., boats, machinery, and structures) | Potential to effect the:-<br>- Condition and survival of SPA species<br>- Abundance of SPA species<br>- Assemblage diversity | Unlikely due to the number of operators, seasonality of fishing, areas fished and the size of gear. | None |
| | | Removal of non-target species (Bird bycatch) | Potential to effect the:-<br>- Condition and survival of SPA species<br>- Abundance of SPA species<br>- Assemblage diversity | Unlikely due to the number of operators, seasonality of fishing, areas fished and the size of gear. | None |
| • *Sterna hirundo*; Common tern<br>• *Sternula albifrons*; Little tern | Maintain or restore the population and distribution of the qualifying features. | Visual disturbance | Potential to effect the:-<br>- Condition and survival of SPA species<br>- Abundance of SPA species<br>- Extent and distribution of supporting habitat available whilst a fishing activity is occurring | Common and little terns rarely use the intertidal area at low water when the tractors are working. Common and little tern species do roost in coastal areas but none of the known roost areas are access points for the operators. The known roosting areas for common tern are Banks Marsh, Longton Marsh and Cabin Hill nature reserve. Common and little tern nest out of the SPA. There is potential for tractor beam trawling to disturb the terns when fishing in the channels at low water but terns have large foraging ranges and will not be displaced a large distance by the fishing activity. The low level of boat activity (one active vessel), the footprint of the target area being 6.49% of the total area of the SPA, the vessel which is used is small under 7m meaning that there will be very little visual disturbance especially when compared to background vessel activity levels in the area. | None |

| | | | | | |
|---|---|---|---|---|---|
| | | Collision above water with static or moving objects not naturally found in the marine environment (e.g., boats, machinery, and structures) | Potential to effect the:-<br>- Condition and survival of SPA species<br>- Abundance of SPA species<br>- Assemblage diversity | Unlikely due to the number of operators, seasonality of fishing, areas fished and the size of gear. | None |
| | | Collision below water with static or moving objects not naturally found in the marine environment (e.g., boats, machinery, and structures) | Potential to effect the:-<br>- Condition and survival of SPA species<br>- Abundance of SPA species<br>- Assemblage diversity | Unlikely due to the number of operators, seasonality of fishing, areas fished and the size of gear. | None |
| | | Removal of non-target species<br>(Bird bycatch) | Potential to effect the:-<br>- Condition and survival of SPA species<br>- Abundance of SPA species<br>- Assemblage diversity | Unlikely due to the number of operators, seasonality of fishing, areas fished and the size of gear. | None |

# 7. Conclusion[11]

Taking into account the information detailed in the Appropriate Assessment, it can be concluded that at the current level of beam trawling for shrimp there is no adverse effect on the integrity of the Ribble and Alt Estuary European Site interest features.

# 8. In-combination assessment[14]

In combination effects will be assessed in a separate document when all initial TLSEs for a site are completed.

# 9. Summary of consultation with Natural England

See attached advice from Natural England (Annex 2).

# 10. Integrity test

It can be concluded that shrimp beam trawling has no adverse effect on the integrity of the Ribble and Alt Estuary European Site interest features.

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

# Annex 1: Reference list


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- Ribble and Alt Esturaries Special Protection Area: site information
- Ribble and Alt Esturaries SPA: supplementary advice on qualifying features
- Ribble and Alt Esturaries SPA: advice on operations – the impact of marine activity on sensitive features

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## Annex 2: Natural England's consultation advice

Date: 24 February 2017
Our ref: 207806
Your ref: NWIFCA-RA-SPA-002

Hornbeam House
Crewe Business Park
Electra Way
Crewe
Cheshire
CW1 6GJ

T 0300 060 3900

North Western Inshore Fisheries and Conservation Authority (NWIFCA)
Preston Street
Carnforth
Lancashire
LA5 9BY

**BY EMAIL ONLY**

Dear Jon

**Formal Advice to NWIFCA. Fisheries in EMS Habitats Regulations Assessment for Amber risk Categories in Ribble & Alt Estuaries SPA, including gear types: Towed Demersal – Tractor and Boat Beam Trawl (Shrimp – *Crangon crangon*)**

Thank you for your consultation on the above which was received by Natural England on 03 February 2017.

Natural England is a non-departmental public body. Our statutory purpose is to ensure that the natural environment is conserved, enhanced, and managed for the benefit of present and future generations, thereby contributing to sustainable development.

In 2012, the Department for Environment, Food and Rural Affairs (Defra) announced a revised approach to the management of commercial fisheries in EMSs[1]. The objective of this revised approach is to ensure that all existing and potential commercial fishing activities are managed in accordance with Article 6 of the Habitats Directive. This document states that for 'green' risk activities a site level assessment will be required if there are 'in combination effects' with other plans or projects. The Department's strong preference is that site level assessments be carried out in a manner that is consistent with the provisions of Article 6(3) of the Habitats Directive. Appropriate management measures should be put in place to ensure that the fishing activity or activities either 1) have no likely significant effect on a site in view of its conservation objectives or 2) following assessment, can be concluded to have no adverse effect on the integrity of the site.

Natural England has considered the Habitats Regulations Assessment (HRA) prepared by North Western Inshore Fisheries and Conservation Authority (IFCA) for the purposes of making an assessment consistent with the provisions of Article 6(3). Please accept this letter as Natural England's formal advice on the assessment and the conclusions it makes. The assessment considers the effects of the following fishing activities on the Ribble & Alt Estuaries Special Protection Area (SPA):

- Towed Demersal – Tractor
- Boat Beam Trawl (Shrimp – *Crangon crangon)*

[1] Defra revised approach:
https://www.gov.uk/government/publications/revised-approach-to-the-management-of-commercial-fisheries-in-european-marine-sites-overarching-policy-and-delivery

We are content that the best available and most up to date evidence has been used to carry out the HRA by North Western IFCA officers to determine whether management of an activity is required to conserve site features, and thus to ensure the protection of the features, from direct and indirect impacts, from the collection of marine fisheries resources.

We note that in combination effects will be assessed in a separate document when all initial Tests of Likely Significant Effects (tLSEs) for a site are completed.

**Subject to the outcomes of the in combination assessments, it is Natural England's view that through their HRA, North Western IFCA officers appear to have appropriately identified those activities that are likely to have a significant effect in view of the site's conservation objectives, and whether management measures are required in order to ensure that the assessed fishing activity or activities will have no adverse effect on the integrity of the EMS.**

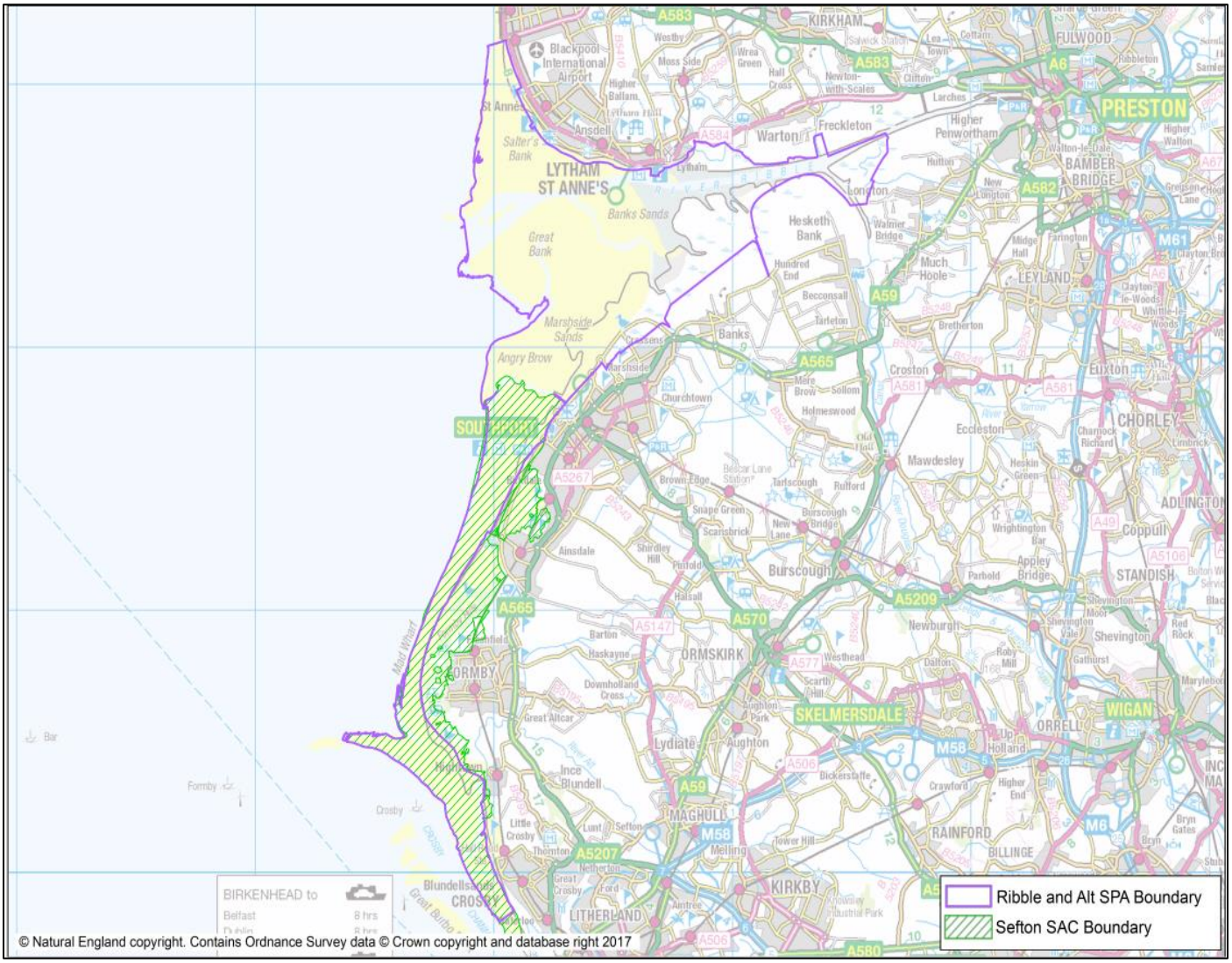
It is Natural England's view that any foreseeable risk, or harm to the site has been appropriately assessed; and a robust mechanism for re-assessing that risk is in place. This view is based on our current knowledge of the impacts of these fishing activities on the designated features.

If you require any further comments or have any queries regarding the above please contact me to discuss them further.

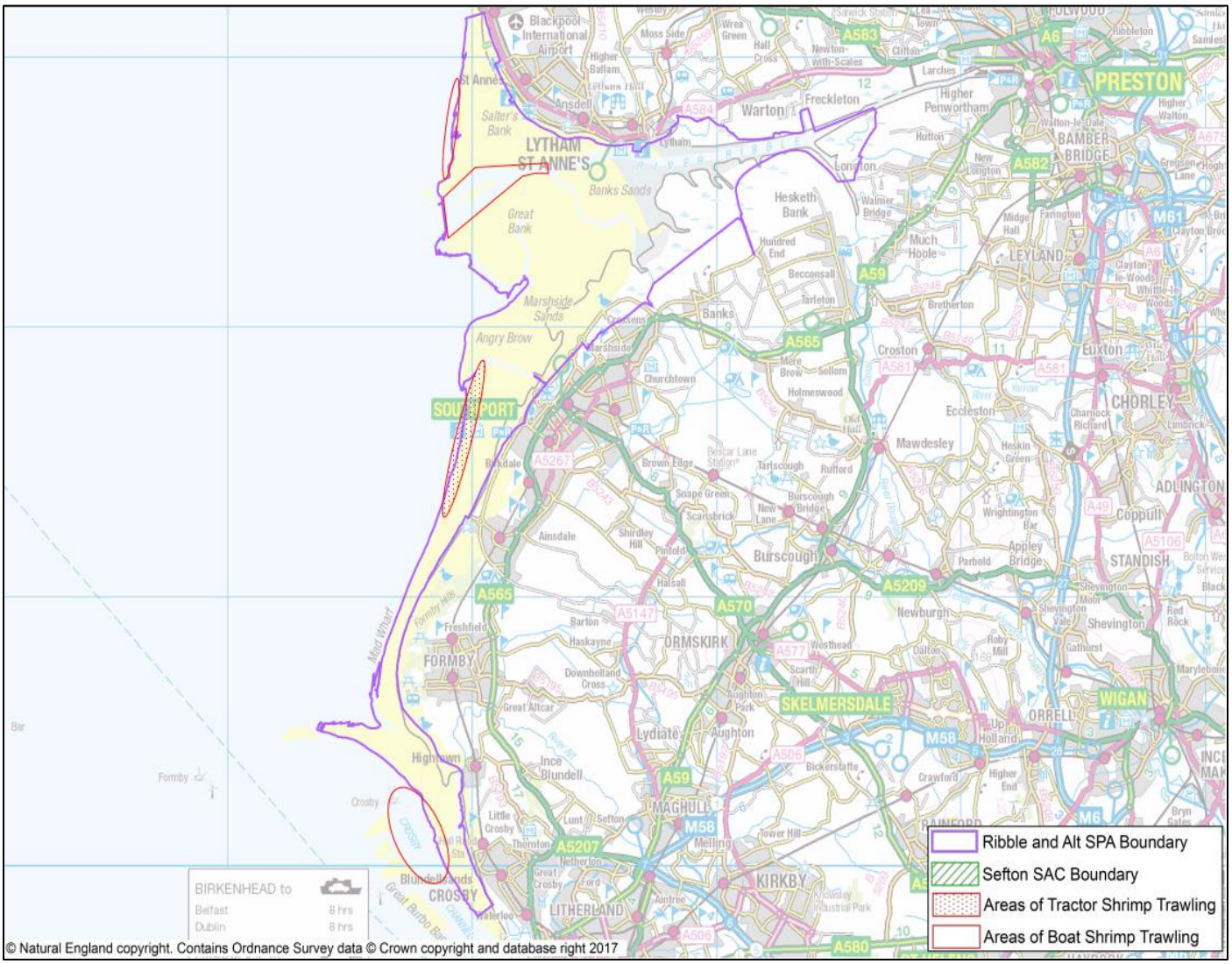
Yours sincerely

Emily Hardman
Cheshire, Greater Manchester, Merseyside and Lancashire Area Team
Email: Emily.Hardman@naturalengland.org.uk
Tel: 0300 060 4011

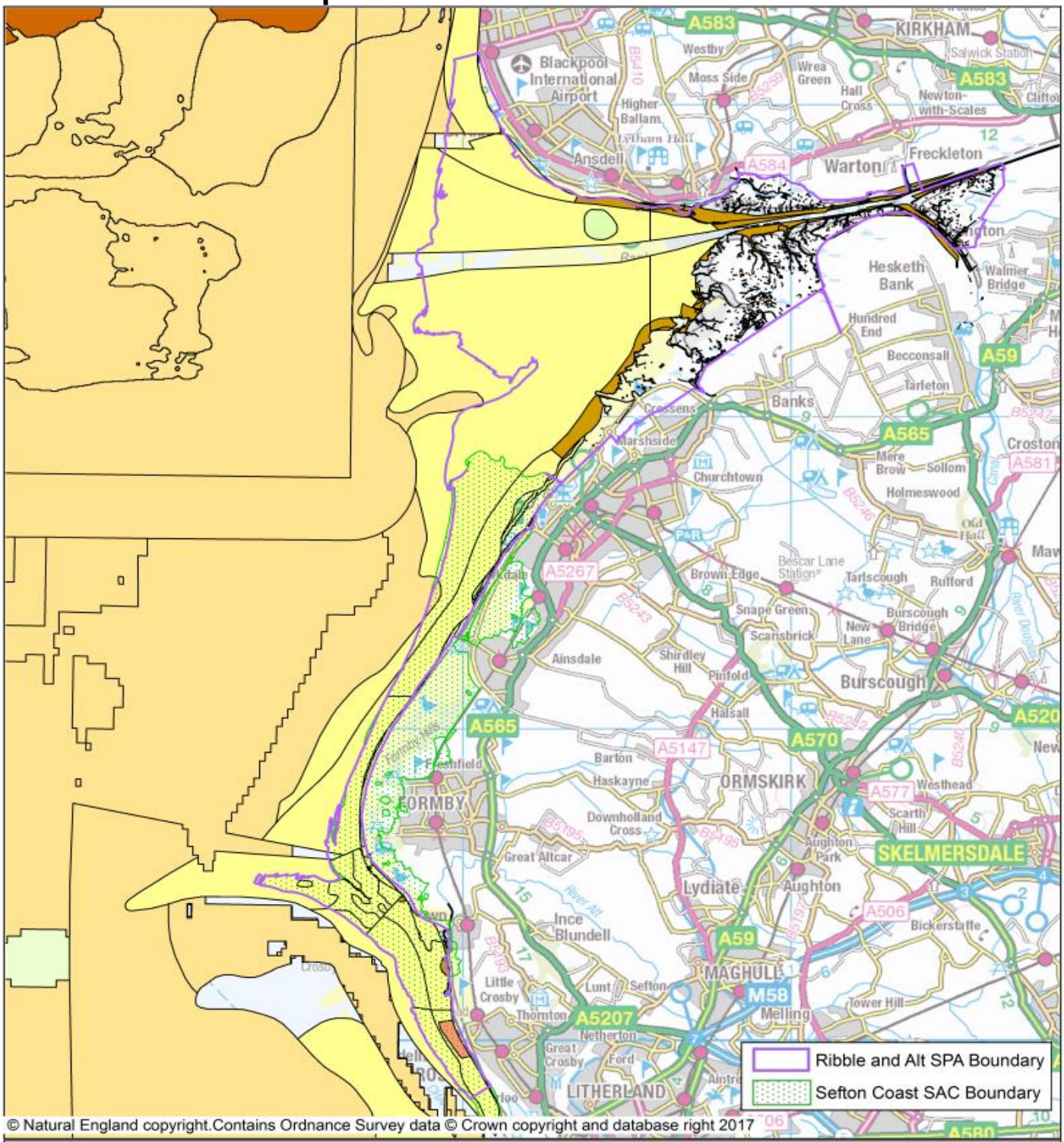
# Annex 3: Site Map



# Annex 4: Fishing activity map



# Annex 5: Feature map




Broad Scale Habitat

Broad scale habitat data from Natural England December release

| Eunis Code | EMS Subfeature Common Name | Eunis Code | EMS Subfeature Common Name |
|---|---|---|---|
| A1 | Intertidal rock | A3 | Infralittoral rock |
| A2.1 | Intertidal coarse sediment | A4 | Circalittoral rock |
| A2.2 | Intertidal sans and muddy sand | A5.1 | Subtidal coarse sediment |
| A2.3 | Intertidal mud | A5.2 | Subtidal sand |
| A2.4 | Intertidal mixed sediment | A5.3 | Subtidal mud |
| A2.5 | Saltmarsh | A5.4 | Subtidal mixed sediment |
| A2.61 | Intertidal seagrass bed | SF_SH_5 | Intertidal biogenic reef. mussel bed |
| A2.71 | Intertidal biogenic reef. Sabellaria spp. | SF_SH_6 | Subtidal biogenic reef. mussel bed |

# Annex 6: Regulations on Shrimp Fishing within the Ribble and Alt SPA

EC Council Regulation 850/98 (Commercial fishing vessels only) Article 25

**Restrictions on fishing for shrimps to protect flatfish**

1. The retention on board of any quantity of common shrimps and Aesop shrimps caught with demersal towed nets having any mesh size between 16 and 31 millimetres shall be prohibited, unless the vessel has installed on board a functioning device designed to separate flatfish from common shrimps and Aesop shrimps following capture.
2. At the latest on 1 July 2002, a separator trawl or a trawl with a sorting grid shall be used to catch common shrimps and Aesop shrimps in conformity with detailed rules which Member States shall establish in accordance with Article 46. Such rules may be applicable only to nets towed by fishing vessels.
3. However, quantities of common shrimp or Aesop shrimp may be retained on board fishing vessels that do not comply with the provisions laid down in paragraphs 1 and 2, provided these quantities do not exceed 5 % of the total live weight of the marine organisms on board.

NWSFC BYELAW 2 - ATTACHMENTS TO NETS
*Byelaw confirmed 29.09.51*

No artifice or device shall be used so as practically to diminish the size of the mesh of any net.

NWIFCA BYELAW 6 - SHRIMP AND PRAWNS -RESTRICTION ON FISHING.
*Byelaw confirmed 26.03.01.*

This byelaw applies to all the Sea Fisheries Committee District within a line drawn on the seaward side of the baselines 6 nautical miles from the baselines from which the breadth of the territorial sea adjacent to the United Kingdom is measured. For the purpose of this paragraph “the baselines” means the baselines as they existed at 25th January 1983 in accordance with the Territorial Waters Order in Council 1964 (1965 III p.6452A) as amended by the Territorial Waters (Amendment) Order in Council 1979 (1979 II p.2866).

(a) No person shall use in fishing for shrimps or prawns (*Crangonidae, Pandalidae, Palaemonidae*) any trawl, or shank or bow net or any mobile net except in accordance with the following regulations:-

The length of the beam, measured between its extremities and including all attachments, or in the case of an otter trawl the length of the headline or where more than one net is used from any vessel tractor, cart or other vehicle or unit the total length of such beams or headlines shall not exceed 10 metres.

(b) Any net mentioned in (a) above shall have in all its parts a mesh of such dimensions that when the mesh of the net is stretched diagonally lengthwise a flat gauge 20mm broad and 2mm thick shall pass through it easily and with sufficient manual pressure.

(c) With a view to limiting the destruction of immature fish every person in fishing for shrimps or prawns shall as soon as practicable after each haul thoroughly sift the catch in a riddle having a mesh such that the spaces between adjacent longitudinal wires are not less than 5 millimetres and the spaces between the adjacent lateral wires are not less than 60 millimetres.

(d) The immature fish that pass through such riddle must be returned to the sea forthwith unless the landing obligation under Article 15 of Regulation (EU) 1380/2013 requires the fish to be landed.

NWSFC BYELAW 9 - MECHANICALLY PROPELLED VESSELS - MAXIMUM LENGTH.
*Byelaw confirmed 30.09.05*

1. No mechanically propelled vessel which exceeds 12 metres overall length shall be used in fishing for or taking sea fish within that part of the District to the west of a line drawn $000^0$ (T) from The Old Lighthouse, Great Ormes Head ($53^0$ 20.53'N, $03^0$ 52.13'W, WGS 84 datum)

2. No mechanically propelled vessel which exceeds 15 metres overall length shall be used in fishing for or taking sea fish within that part of the District to the east of a line drawn 0000 (T) from The Old Lighthouse, Great Ormes Head ($53^0$ 20.53'N, $03^0$ 52.13'W, WGS 84 datum)

3. This byelaw shall not be enforceable for those vessels:

   (a) used in fishing for mussels (Mytilus edulis) using dredges; or
   (b) used in angling with rod and line; or
   (c) referred to in paragraph 4 and 5 below.

4. Vessels exceeding the length restrictions described in sections 1 and 2 above may be used provided:

   (a) the vessel fished in the District for at least 60 days within the 24 months immediately prior to this byelaw being made; and
   (b) the vessel remains in the same legal and beneficial ownership as on the date of this byelaw being made; and,
   (c) the owner(s) of the vessel obtain an authorisation permitting the use of the vessel within the NW&NWSFC District within 6 months of this byelaw coming into force.

5. Newly constructed or purchased vessels exceeding the length restrictions set out in sections 1 and 2 above may be issued with an authorisation under paragraph 4(c) above provided that:

   (a) the owner(s) can demonstrate that prior to the date of this byelaw being made they had entered into an enforceable financial commitment to construct or purchase such a vessel; and
   (b) the owner(s) can demonstrate that the date of delivery prevented compliance with paragraph 4(a) above.

6. Authorisations issued under paragraph 4(c) above shall not permit a mechanically propelled vessel to be used in fishing for or taking sea fish within 3 nautical miles of baselines if it exceeds the following limitations:

   (a) In the part of the District lying between the Northern boundary at Haverigg Point (54° 11.31'N, 03° 19.08'W, WGS 84 Datum) and Rhyl Coastguard/Lifeboat Station (53° 19.48'N, 03° 29.56'W, WGS 84 Datum), a registered length of 13.7 metres.

   (b) In that part of the District lying between Rhyl Coastguard/Lifeboat Station (53° 19.48'N, 03° 29.56'W, WGS 84 Datum) and the Southern boundary at Cemaes Head (52° 07.07'N, 04° 43.91'W, WGS 84 Datum), a registered length of 15.24 metres.

7. For the purpose of this byelaw:

   (a) the overall length shall be the overall length as shown on the Certificate of Registry of a British Fishing Vessel; and
   (b) the registered length shall be the registered length as shown on the Certificate of Registry of a British Fishing Vessel.