Habitats Regulations Assessment document: NMSPA – tLSE 025

European Marine Site:	**Northumberland Marine SPA**
Generic sub-feature(s):	**Surface feeding birds, Pursuit and plunge diving birds, Benthic feeding birds, Water column**
Gear type(s):	**Static - fixed nets: Trammels**
NIFCA tLSE type:	**Detailed**
Gear/feature interaction reference(s):	**NMSPA – 097** **NMSPA – 098** **NMSPA – 099** **NMSPA - 100**

Revision history		
Date	***Revision***	***Editor***
05/06/2018	Document created	NW
28/09/2023	Document updated to be finalised	KO
09/11/2023	Document ready for final QA before going to MMO	KO
23/11/23	Document reviewed and ready for MMO	AA
05/12/2023	Few final amendments	KO
15/01/2024	Corrected the NIFCA intertidal info	KO
23/02/2024	Addressed specific comments from the MMO, still need to add some info in about nursery and spawning grounds	KO
09/07/2024	NE comments addressed	SR
08/08/2024	MMO nursery/spawning grounds section added	SR
01/10/2024	Approved by MMO (Charlie Wiseman)	SR
28/10/2024	Approved by NE (Pete Welby & Catherine Scott)	SR
04/11/2024	Document finalised	SR

Circulation		
Date	***Sent to***	***Comments received***
06/12/2023	Marine Management Organisation	22/02/2024
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15/08/2024	Marine Management Organisation	01/10/2024
01/10/2024	Natural England	28/10/2024

Test for Likely Significant Effect (LSE)

NMSPA-097 – Surface feeding birds

(Arctic terns, common terns, little terns, roseate terns, sandwich terns, black-headed gulls, kittiwakes, greater black-backed gulls, lesser black-backed gulls and herring gulls)

1. Is the activity/activities directly connected with or necessary to the management of the site for nature conservation?	No
2. What pressures (such as abrasion, disturbance) are potentially exerted by the gear type(s)? *Sensitivities have been categorised as medium-high risk These sensitivities have been taken from the listed tern features of Northumberland Marine SPA.	Removal of non-target species (Sensitive)* Above water noise (Sensitive) Barrier to species movement (Sensitive) Collision ABOVE water with static or moving objects not naturally found in the marine environment (e.g., boats, machinery, and structures) (Sensitive) Collision BELOW water with static or moving objects not naturally found in the marine environment (Sensitive) Hydrocarbon and PAH contamination (Not-assessed) Introduction of light (Insufficient evidence) Introduction or spread of invasive non-indigenous species (INIS) (Sensitive) Litter (Sensitive) Synthetic compound contamination (incl. pesticides, antifoulants, pharmaceuticals) (Not-assessed) Transition elements & organo-metal (e.g. TBT) contamination (Not-assessed) Underwater noise changes (Insufficient evidence) Visual disturbance (Sensitive)
3. Is the feature potentially exposed to the pressure(s)?	Yes

4. What are the conservation objectives for the feature? These conservation objectives have been taken from the listed tern features of the SPA.	**Conservation objectives for surface feeding birds:** Conservation objectives are taken from the individual seabird features of the SPA. **Maintain:** - the size of the breeding population - safe passage of birds moving between nesting and feeding areas - [Maintain or recover] productivity so that breeding success is maximised within the constraints of the site. - concentrations and deposition of air pollutants to below the site-relevant Critical Load or Level values given for this feature of the site on the Air Pollution Information System (www.apis.ac.uk) - the structure, function and supporting processes associated with the feature and its supporting habitat through management or other measures (whether within and/or outside the site boundary as appropriate) and ensure these measures are not being undermined or compromised. - the extent, distribution and availability of suitable habitat (either within or outside the site boundary) which supports the feature for all necessary stages of its breeding cycle (courtship, nesting, feeding): baseline is not known at present - the distribution, abundance and availability of key food and prey items (e.g. sandeel, sprat, coarse fish, crustacea, annelids, clupeidae) at preferred prey sizes - the dissolved oxygen (DO) concentration to levels equating to High Ecological Status - water quality at mean winter dissolved inorganic nitrogen levels where biological indicators of eutrophication (opportunistic macroalgal and phytoplankton blooms) do not affect the integrity of the site and features, avoiding deterioration from existing levels - natural levels of turbidity (e.g. concentrations of suspended sediment, plankton and other material) across the habitat. - **Restrict:** the frequency, duration and / or intensity of disturbance affecting roosting, nesting, foraging, feeding, moulting and/or loafing birds so that they are not significantly disturbed - **Reduce:** aqueous contaminants to levels equating to High Status

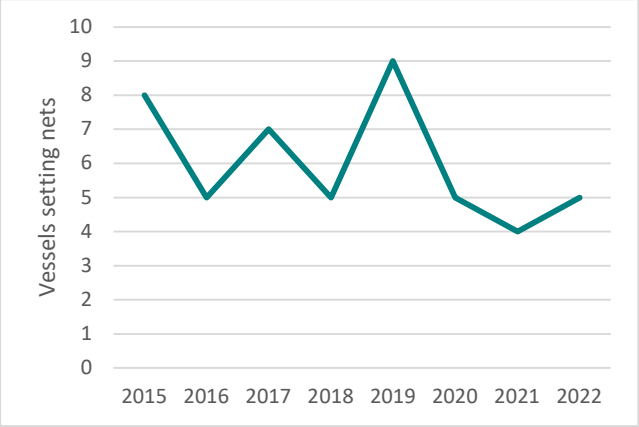
5. What are the potential effects/impacts of the pressure(s) on the feature, taking into account the exposure level? ***(reference to conservation objectives)***	Levels of netting activity within the Northumberland IFCA District have declined considerably in recent years and are currently very low. Netting is primarily for migratory fish using 'T' or 'J' nets (managed and assessed by the Environment Agency). There is a very limited amount of gill netting and trammel netting for white sea fish and flatfish. The decline in netting for white fish in the NIFCA District has been attributed by local fishers to the introduction of TACs and quotas in 1983, cessation of dumping sewage sludge off the Tyne and Blyth (which cod fed from) and grey seal predation of fixed nets (per comms. with NIFCA, 2023). Currently there is not a regular fixed net fishery in the NIFCA District. NIFCA have information on netting in the district from IFCO knowledge, shellfish permit returns data and the 2022 'Call for information on netting management.' NIFCA Officers are aware of one vessel in the south of the District which sets some gill nets for cod and turbot, alongside their main fishing activity, as well as a vessel mid-way up the District which may very occasionally set gill nets. In the south of the District (outside the SPA) there have been attempts by approximately five fishers over the last five years to target white fish off the north side of St Mary's Island into Hartley Bay, and attempts at the south end of Whitley Bay for cod in the winter. None of these have resulted in a regular fishery. Whilst netting does not require a permit from NIFCA, the majority of vessels in the NIFCA district do have commercial shellfish permits. The number of vessels reporting using nets on shellfish permit returns is therefore likely to be a good proxy for netting in the District, although it cannot be considered complete. In 2022 this was five vessels, in 2021 four vessels and in 2020 five vessels (Figure 1).  ***Figure 1*** *Number of vessels reporting setting nets in the NIFCA District on shellfish permit returns* The seasonality of vessels reporting setting nets in Sectors 2-7 (which overlap with Northumberland Marine SPA – map in Annex) is shown in Table 1 (Data from NIFCA permit returns). Vessel D is thought to be setting tangle nets and gill nets.

Table 1 Seasonality of nets reported set on NIFCA shellfish permit returns data

Vessel	2020											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
A						■						
B										■		
C		■	■									
D					■	■	■	■	■			
E												
F												
G												
H												
	2021											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
A												
B												
C												
D						■						
E			■									
F									■			
G										■		
H												
	2022											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
A												
B							■					
C												
D							■					
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F												
G												
H				■								
I								■				
J	■						■					

Of the six respondents to NIFCA's 'Call for Information on netting management' in 2022, four fishers reported commercially using nets in the District. This was alongside their main method of fishing, with three of these fishers reporting that they pot commercially and the fourth reporting that they trawl. All fishers reported using a mixture of fixed net types (gill/trammel/tangle).

NIFCA are currently in the process of updating the Fixed Engines Byelaw, which stipulates conditions on fixed nets in the District. Proposals for updates to the Fixed Engines byelaw include a monthly permit returns system and a requirement to report bycatch. In the future NIFCA should therefore have accurate information on fixed

	netting in the District and any bycatch which will feed into the netting monitoring and control plan. There are two areas of the SPA that extend outside of the NIFCA District and the Marine Management Organisation (MMO) has provided activity data related to fixed netting in these areas. Estimated landings data from the UK under 12m fleet does not show any landings from these areas in 2021 and 2020. Average annual landing from these areas from UK under 12m vessels (2012-21) is 0.06 tonnes (MMO data, pers comms). Trammel netting has the potential to interact with seabirds directly, which could affect the **size of the breeding population,** or by acting as a barrier to movement/collision risk, preventing the **safe passage of birds moving between nesting and feeding areas.** The NIFCA Fixed Engines Byelaw stipulates that between 26th March and 31st October all fixed nets must be set in at least 7m water depth or the headline must be more than 4m below the surface of the water. This assessment is considering surface feeding birds, which will not interact with nets set on the seabed, with at least 4m of water depth above them. Trammel netters could also cause displacement/disturbance of birds on the surface. The seasonality information above shows that netting occurs in the site at a low level and can occur throughout the year, including the summer when breeding birds are present in the site. However, due to the very low levels of fixed netting in the District, this would be very limited in time and frequency and would not significantly impact the protected seabirds. Another potential impact of netting on seabirds is through the catch of their prey species altering the **availability of key prey species (e.g. sandeel, herring, sprat, crustacea, annelids, clupeidae and coarse fish) at preferred prey sizes.** However, trammel netting is targeted at larger white fish and flatfish. This very small scale fishery is unlikely to have any significant impact on the preferred prey species of the listed seabirds, with mesh sizes too large to catch the bird's preferred prey. Northumberland Marine SPA encompasses large shallow inlets and bays in addition to the Aln, Coquet, Wansbeck and Blyth estuaries. These areas are thought to support the nursery and spawning grounds of sandeel, herring, sprat and whiting, the target prey of the qualifying seabird features in the SPA (Natural England, 2023). NIFCA studies have identified juvenile fish using The Aln Estuary, Long Nanny River and Druridge Bay as potential nursery grounds based upon the size classes of each species found in the studies (Smart & Rae, 2023. Wallace, N, 2015). These key prey species are not targeted commercially within the SPA, however, around 13 tons of whiting is landed per annum as

	bycatch from nephrops trawling. Sandeel is broadly the preferred prey of the bird features within the SPA (Eglington & Perrow, 2018). The closure of the UK sandeel fishery on April 1st, 2024 in UK waters may provide potential increases in prey availability for the protected bird features within the site. However, prior to the closure in 2024 there were no records of a fishery targeting sandeel within the district. Netting is unlikely to have any significant impact on the spawning and nursery grounds of the preferred prey species of the listed seabirds. Netting levels in the SPA are very low and fishers attempt to avoid losing nets (which would cause marine litter and potentially ghost fish) as it is expensive. In 2015 a 39m length of net was reported lost to NIFCA. In 2018 a 240m gill net was recovered by NIFCA after the 'Beast from the East' storm. Between 2018 and 2023 no lost nets have been reported to NIFCA, including on shellfish permit returns. Therefore, litter from netting currently is not considered to pose a significant risk to features of the SPA. Fishing vessels below 45m are required to have permanent ballast, which reduces the risk of non-native species introduction from potting. In addition, within the NIFCA section of the MPA most boats are local to the north-east, so the introduction of new non-native species on vessels is unlikely. The introduction of light from netting vessels operating in the MPA is not considered to pose a risk to the seabird features of the MPA. These boats have small deck lights and are operating in a coastal environment where light pollution from the shore may already present. Likewise, netting will not cause any significant and prolonged underwater noise. Netting in the MPA will not alter features of the water column through deoxygenation, the introduction of contaminants or organic enrichment. The water column in Northumberland Marine SPA is a highly dynamic marine environment, with strong wave and tidal movements, making it less susceptible to any small-scale changes.

6. Condition and Conservation Objective Inferences	Five of the seabird features of the SPA are surface feeding birds; arctic tern, common tern, little tern, roseate tern and sandwich tern. In addition, there are species of surface feeding birds listed as part of the breeding seabird assemblage; black-headed gull, kittiwake, greater black-backed gull, lesser black-backed gull and herring gulls. All of these species are designated as breeding features in the SPA, which means birds will be present in high numbers during the breeding season (February to August) before dispersing more widely. Population numbers are referenced from 2015 (Natural England, 2015). ▪ Arctic terns – 9,564 breeding adults ▪ Common terns – 2,572 breeding adults ▪ Little terns – 90 breeding adults ▪ Roseate terns – 160 breeding adults ▪ Sandwich terns - 4,324 breeding adults ▪ Black-headed gull – 8,745 breeding adults ▪ Black-legged kittiwake –8,667 breeding adults ▪ Greater black-backed gull – 27 breeding adults ▪ Leser black-backed gull – 1,452 breeding adults ▪ Herring gull – 1,672 breeding adults The Conservation Advice package does not give feature condition for these species. However, seabird species have been badly hit by Avian Influenza during the last two breeding seasons (2022 and 2023). The Farne Islands are home to approximately 200,000 seabirds. In the most recent breeding season (2023) the National Trust have collected 3,647 dead birds, but estimate this may only be 10% of the total number of dead birds. In 2022 National Trust rangers on the island collected over 6,000 dead birds. Cliff nesting birds were hit particularly badly on the Farne Islands in 2022 and kittiwakes and large gulls in 2023 (National Trust, 2023). Terns were also hit by bird flu on Coquet Island in the SPA. Bird flu will have had impacted both population number and breeding success of multiple species in the SPA, as there has been a high mortality of adult birds. Data is not yet available to show the full impact at the four main breeding sites that make up the SPA.

7. Is the potential scale or magnitude of any effect likely to be significant?	**Alone:** **No.** NIFCA considers that at the current very low levels of activity and benthic nature of the fishery, trammel netting will not have a significant impact on the bird features of the SPA. This will be monitored through the monitoring and control plan process and any significant increase in netting levels will trigger a reassessment in the SPA	**OR In-combination** **No.** See 'in-combination' assessment below.
8. Have NE been consulted on this LSE test? If yes, what was NE's advice?	Yes, NE were consulted throughout the process and have approved this LSE.	

NMSPA-098 - Pursuit and Plunge diving birds (guillemots, puffins, Northern fulmars and razorbills)

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

2. What pressures (such as abrasion, disturbance) are potentially exerted by the gear type(s)? *Sensitivities have been categorised as medium-high risk These sensitivities have been taken from the guillemot and puffin features of the SPA to 'anchored nets/lines'.	Removal of non-target species (Sensitive)* Above water noise (Sensitive) Barrier to species movement (Sensitive) Collision ABOVE water with static or moving objects not naturally found in the marine environment (e.g., boats, machinery, and structures) (Sensitive) Collision BELOW water with static or moving objects not naturally found in the marine environment (Sensitive) Hydrocarbon and PAH contamination (Not-assessed) Introduction of light (Sensitive) Introduction or spread of invasive non-indigenous species (INIS) (Sensitive) Litter (Sensitive) Synthetic compound contamination (incl. pesticides, antifoulants, pharmaceuticals) (Not-assessed) Transition elements & organo-metal (e.g. TBT) contamination (Not-assessed) Underwater noise changes (Sensitive) Visual disturbance (Sensitive)
3. Is the feature potentially exposed to the pressure(s)?	Yes

4. What are the conservation objectives for the feature? The listed Conservation Objectives refer specifically to the breeding guillemot and puffin features of the SPA.	**Conservation objectives for plunge & pursuit diving birds:** **Maintain:** - the size of the breeding population - safe passage of birds moving between nesting and feeding areas - [Maintain or recover] productivity so that breeding success is maximised within the constraints of the site.concentrations and deposition of air pollutants to below the site-relevant Critical Load or Level values given for this feature of the site on the Air Pollution Information System (www.apis.ac.uk) - the structure, function and supporting processes associated with the feature and its supporting habitat through management or other measures (whether within and/or outside the site boundary as appropriate) and ensure these measures are not being undermined or compromised. - the extent, distribution and availability of suitable habitat (either within or outside the site boundary) which supports the feature for all necessary stages of its breeding cycle (courtship, nesting, feeding): baseline is not known at present - the distribution, abundance and availability of key food and prey items (e.g. sandeel, whiting, herring, sprat) at preferred prey sizes - the dissolved oxygen (DO) concentration to levels equating to High Ecological Status - water quality at mean winter dissolved inorganic nitrogen levels where biological indicators of eutrophication (opportunistic macroalgal and phytoplankton blooms) do not affect the integrity of the site and features, avoiding deterioration from existing levels - natural levels of turbidity (e.g. concentrations of suspended sediment, plankton and other material) across the habitat. - **Restrict:** the frequency, duration and / or intensity of disturbance affecting roosting, nesting, foraging, feeding, moulting and/or loafing birds so that they are not significantly disturbed - **Reduce:** aqueous contaminants to levels equating to High Status

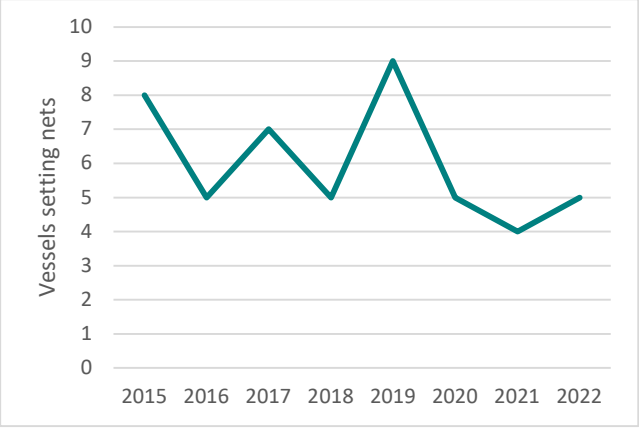
5. What are the potential effects/impacts of the pressure(s) on the feature, taking into account the exposure level?	Levels of netting activity within the Northumberland IFCA District have declined considerably in recent years and are currently very low. Netting is primarily for migratory fish using 'T' or 'J' nets (managed and assessed by the Environment Agency). There is a very limited amount of gill netting and trammel netting for white sea fish and flatfish. The decline in netting for white fish in the NIFCA District has been attributed by local fishers to the introduction of TACs and quotas in 1983, cessation of dumping sewage sludge off the Tyne and Blyth (which cod fed from) and grey seal predation of fixed nets (per comms. with NIFCA, 2023). Currently there is not a regular fixed net fishery in the NIFCA District. NIFCA have information on netting in the district from IFCO knowledge, shellfish permit returns data and the 2022 'Call for information on netting management.' NIFCA Officers are aware of one vessel in the south of the District which sets some gill nets for cod and turbot, alongside their main fishing activity, as well as a vessel mid-way up the District which may very occasionally set gill nets. In the south of the District (outside the SPA) there have been attempts by approximately five fishers over the last five years to target white fish off the north side of St Mary's Island into Hartley Bay, and attempts at the south end of Whitley Bay for cod in the winter. None of these have resulted in a regular fishery. Whilst netting does not require a permit from NIFCA, the majority of vessels in the NIFCA district do have commercial shellfish permits. The number of vessels reporting using nets on shellfish permit returns is therefore likely to be a good proxy for netting in the District, although it cannot be considered complete. In 2022 this was five vessels, in 2021 four vessels and in 2020 five vessels (Figure 1).  ***Figure 2*** *Number of vessels reporting setting nets in the NIFCA District on shellfish permit returns* The seasonality of vessels reporting setting nets in Sectors 2-7 (which overlap with Northumberland Marine SPA – map in Annex) is shown in Table 1 (Data from NIFCA permit returns). Vessel D is thought to be setting tangle nets and gill nets.

Table 2 Seasonality of nets reported set on NIFCA shellfish permit returns data

Vessel	2020											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
A						■						
B										■		
C		■	■									
D					■	■	■	■	■			
E												
F												
G												
H												
	2021											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
A												
B												
C												
D						■						
E			■									
F									■			
G										■		
H												
	2022											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
A												
B							■					
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D							■					
E												
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I								■				
J	■						■					

Of the six respondents to NIFCA's 'Call for Information on netting management' in 2022, four fishers reported commercially using nets in the District. This was alongside their main method of fishing, with three of these fishers reporting that they pot commercially and the fourth reporting that they trawl. All fishers reported using a mixture of fixed net types (gill/trammel/tangle).

NIFCA are currently in the process of updating the Fixed Engines Byelaw, which stipulates conditions on fixed nets in the District. Proposals for updates to the Fixed Engines byelaw include a monthly permit returns system and a requirement to report bycatch. In the future NIFCA should therefore have accurate information on fixed

	netting in the District and any bycatch which will feed into the netting monitoring and control plan. There are two areas of the SPA that extend outside of the NIFCA District and the Marine Management Organisation (MMO) has provided activity data related to fixed netting in these areas. Estimated landings data from the UK under 12m fleet does not show any landings from these areas in 2021 and 2020. Average annual landing from these areas from UK under 12m vessels (2012-21) is 0.06 tonnes (MMO data, pers comms). Trammel netting has the potential to interact with seabirds directly, which could affect the **size of the breeding population,** or by acting as a barrier to movement, preventing the **safe passage of birds moving between nesting and feeding areas.** Plunge feeding birds, particularly auks, can dive to great depths and could therefore potentially interact with bottom set trammel nets. Given the very low levels of activity currently and the lack of reports of significant seabird bycatch in the SPA and wider District, it is not considered that trammel netting is having a significant adverse impact on the seabird features of the SPA through bycatch. Trammel netters could also cause displacement/disturbance of birds on the surface. The seasonality information above shows that netting occurs in the site at a low level and can occur throughout the year, including the summer when breeding birds are present in the site. However, due to the very low levels of fixed netting in the District, this would be very limited in time and frequency and would not significantly impact the protected seabirds. Another potential impact of netting on seabirds is through the catch of their prey species altering the **availability of key prey species (e.g. sandeel, whiting, herring, sprat) at preferred prey sizes.** However, trammel netting is targeted at larger white fish and potentially flatfish. This very small-scale fishery is unlikely to have any significant impact on the preferred prey species of the listed seabirds, with mesh sizes too large to catch the bird's preferred prey. Northumberland Marine SPA encompasses large shallow inlets and bays in addition to the Aln, Coquet, Wansbeck and Blyth estuaries. These areas are thought to support the nursery and spawning grounds of sandeel, herring, sprat and whiting, the target prey of the qualifying seabird features in the SPA (Natural England, 2023). NIFCA studies have identified juvenile fish using The Aln Estuary, Long Nanny River and Druridge Bay as potential nursery grounds based upon the size classes of each species found in the studies (Smart & Rae, 2023. Wallace, N, 2015). These key prey species are not targeted commercially within the SPA, however, around 13 tons of whiting is landed per annum as bycatch from nephrops trawling. Sandeel is broadly the preferred prey of the bird features within the SPA (Eglington & Perrow, 2018).

	The closure of the UK sandeel fishery on April 1st, 2024 in UK waters may provide potential increases in prey availability for the protected bird features within the site. However, prior to the closure in 2024 there were no records of a fishery targeting sandeel within the district. Netting is unlikely to have any significant impact on the spawning and nursery grounds of the preferred prey species of the listed seabirds. Netting levels in the SPA are very low and fishers attempt to avoid losing nets (which would cause marine litter and potentially ghost fish) as it is expensive. In 2015 a 39m length of net was reported lost to NIFCA. In 2018 a 240m gill net was recovered by NIFCA after the 'Beast from the East' storm. Between 2018 and 2023 no lost nets have been reported to NIFCA, including on shellfish permit returns. Therefore, litter from netting currently is not considered to pose a significant risk to features of the SPA. Fishing vessels below 45m are required to have permanent ballast, which reduces the risk of non-native species introduction from potting. In addition, within the NIFCA section of the MPA most boats are local to the north-east, so the introduction of new non-native species on vessels is unlikely. The introduction of light from netting vessels operating in the MPA is not considered to pose a risk to the seabird features of the MPA. These boats have small deck lights and are operating in a coastal environment where light pollution from the shore may already present. Likewise, netting will not cause any significant and prolonged underwater noise. Netting in the MPA will not alter features of the water column through deoxygenation, the introduction of contaminants or organic enrichment. The water column in Northumberland Marine SPA is a highly dynamic marine environment, with strong wave and tidal movements, making it less susceptible to any small-scale changes.

<table>
<tr><td>6. Condition and Conservation Objective Inferences</td><td colspan="2">‘Pursuit and plunge feeding’ birds refers specifically to guillemots, puffins, northern fulmars and razorbills in the Northumberland Marine SPA. Guillemots and puffins are designated features of the SPA, whilst fulmars and razorbills make up part of the ‘Breeding seabird assemblage.’ All of these species are designated as breeding features in the SPA, which means birds will be present in high numbers during the breeding season (February to August) before dispersing more widely. Population numbers in the Conservation Advice are from 2015 (Natural England, 2015).

▪ Puffins - 108, 484 breeding adults
▪ Guillemots – 65,751 breeding adults
▪ Northern fulmar - 682 breeding adults
▪ Razorbill – 572 breeding adults

The Conservation Advice package does not give feature condition for these species. However, seabird species have been badly hit by Avian Influenza during the last two breeding seasons (2022 and 2023). The Farne Islands are home to approximately 200,000 seabirds. In the most recent breeding season (2023) the National Trust have collected 3,647 dead birds, but estimate this may only be 10% of the total number of dead birds. In 2022 National Trust rangers on the island collected over 6,000 dead birds. Cliff nesting birds were hit particularly badly on the Farne Islands in 2022 and kittiwakes and large gulls in 2023 (National Trust, 2023).

Bird flu will have had impacted both population number and breeding success of multiple species in the SPA, as there has been a high mortality of adult birds. Data is not yet available to show the full impact at the four main breeding sites that make up the SPA.nesting birds were hit particularly badly on the Farne Islands in 2022 and kittiwakes and large gulls in 2023 (National Trust, 2023). Tern species on Coquet Island were also hit very hard by bird flu in 2022, home to approximately 40,000 breeding seabirds.</td></tr>
<tr><td>7. Is the potential scale or magnitude of any effect likely to be significant?</td><td>Alone:

No. NIFCA considers that at the current very low levels of activity trammel netting will not have a significant impact on the bird features of the SPA. This will be monitored through the monitoring and control plan process and any significant increase in netting levels will trigger a reassessment in the SPA.</td><td>OR In-combination

No. See ‘in-combination’ assessment below.</td></tr>
</table>

8. Have NE been consulted on this LSE test? If yes, what was NE's advice?	Yes, NE were consulted throughout the process and have approved this LSE.

NMSPA-099 – Benthic feeding birds (European shags and Great cormorants)

1. Is the activity/activities directly connected with or necessary to the management of the site for nature conservation?	No
2. What pressures (such as abrasion, disturbance) are potentially exerted by the gear type(s)? There is no specific mention of 'benthic feeding birds' in the Advice on Operations. Therefore these sensitivities have been taken from the benthic seabird features in Lindisfarne SPA to 'anchored nets/lines'. *Sensitivities have been categorised as medium-high risk	Removal of non-target species (Sensitive) Above water noise (Sensitive) Barrier to species movement (Sensitive) Collision ABOVE water with static or moving objects not naturally found in the marine environment (e.g., boats, machinery, and structures) (Sensitive) Collision BELOW water with static or moving objects not naturally found in the marine environment (Sensitive) Hydrocarbon and PAH contamination (Not-assessed) Introduction of light (Sensitive) Litter (Sensitive) Synthetic compound contamination (incl. pesticides, antifoulants, pharmaceuticals) (Not-assessed) Transition elements & organo-metal (e.g. TBT) contamination (Not-assessed) Visual disturbance (Sensitive)
3. Is the feature potentially exposed to the pressure(s)?	Yes

4. What are the conservation objectives for the feature? There are no specific Conservation Objectives for 'benthic feeding birds' in the Conservation Advice. Therefore these Conservation Objectives have been taken from the listed seabird features of the SPA.	**Conservation objectives for benthic feeding birds:** **Maintain:** - the size of the breeding population - safe passage of birds moving between nesting and feeding areas - concentrations and deposition of air pollutants to below the site-relevant Critical Load or Level values given for this feature of the site on the Air Pollution Information System (www.apis.ac.uk) - the structure, function and supporting processes associated with the feature and its supporting habitat through management or other measures (whether within and/or outside the site boundary as appropriate) and ensure these measures are not being undermined or compromised. - the extent, distribution and availability of suitable habitat (either within or outside the site boundary) which supports the feature for all necessary stages of its breeding cycle (courtship, nesting, feeding): baseline is not known at present - the distribution, abundance and availability of key food and prey items at preferred prey sizes - the dissolved oxygen (DO) concentration to levels equating to High Ecological Status - water quality at mean winter dissolved inorganic nitrogen levels where biological indicators of eutrophication (opportunistic macroalgal and phytoplankton blooms) do not affect the integrity of the site and features, avoiding deterioration from existing levels - natural levels of turbidity (e.g. concentrations of suspended sediment, plankton and other material) across the habitat. - **Restrict:** the frequency, duration and / or intensity of disturbance affecting roosting, nesting, foraging, feeding, moulting and/or loafing birds so that they are not significantly disturbed - **Reduce:** aqueous contaminants to levels equating to High Status

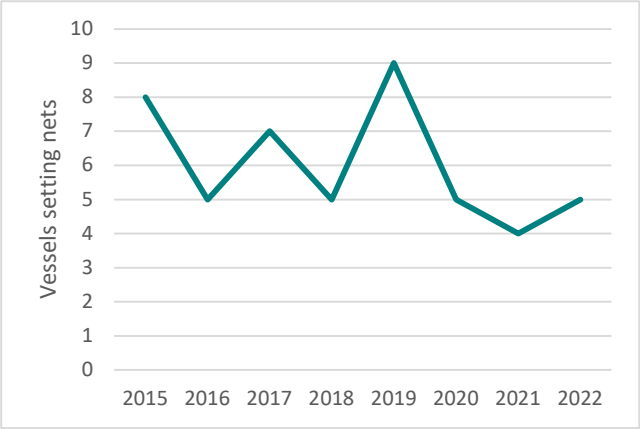
5. What are the potential effects/impacts of the pressure(s) on the feature, taking into account the exposure level? ***(reference to conservation objectives)***	Levels of netting activity within the Northumberland IFCA District have declined considerably in recent years and are currently very low. Netting is primarily for migratory fish using 'T' or 'J' nets (managed and assessed by the Environment Agency). There is a very limited amount of gill netting and trammel netting for white sea fish and flatfish. The decline in netting for white fish in the NIFCA District has been attributed by local fishers to the introduction of TACs and quotas in 1983, cessation of dumping sewage sludge off the Tyne and Blyth (which cod fed from) and grey seal predation of fixed nets (per comms. with NIFCA, 2023). Currently there is not a regular fixed net fishery in the NIFCA District. NIFCA have information on netting in the district from IFCO knowledge, shellfish permit returns data and the 2022 'Call for information on netting management.' NIFCA Officers are aware of one vessel in the south of the District which sets some gill nets for cod and turbot, alongside their main fishing activity, as well as a vessel mid-way up the District which may very occasionally set gill nets. In the south of the District (outside the SPA) there have been attempts by approximately five fishers over the last five years to target white fish off the north side of St Mary's Island into Hartley Bay, and attempts at the south end of Whitley Bay for cod in the winter. None of these have resulted in a regular fishery. Whilst netting does not require a permit from NIFCA, the majority of vessels in the NIFCA district do have commercial shellfish permits. The number of vessels reporting using nets on shellfish permit returns is therefore likely to be a good proxy for netting in the District, although it cannot be considered complete. In 2022 this was five vessels, in 2021 four vessels and in 2020 five vessels (Figure 1).  ***Figure 3*** *Number of vessels reporting setting nets in the NIFCA District on shellfish permit returns* The seasonality of vessels reporting setting nets in Sectors 2-7 (which overlap with Northumberland Marine SPA – map in Annex) is shown in Table 1 (Data from NIFCA permit returns). Vessel D is thought to be setting tangle nets and gill nets.

Table 3 Seasonality of nets reported set on NIFCA shellfish permit returns data

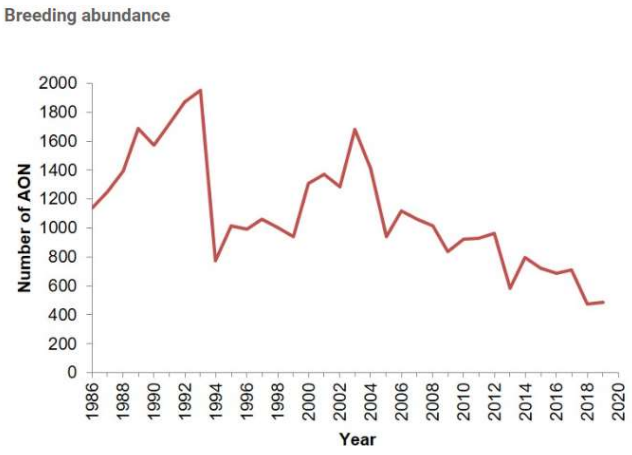
Vessel	2020											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
A						■						
B										■		
C		■	■									
D					■	■	■	■	■			
E												
F												
G												
H												
	2021											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
A												
B												
C												
D						■						
E			■									
F									■			
G										■		
H												
	2022											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
A												
B							■					
C												
D							■					
E												
F												
G												
H				■								
I								■				
J	■						■					

Of the six respondents to NIFCA's 'Call for Information on netting management' in 2022, four fishers reported commercially using nets in the District. This was alongside their main method of fishing, with three of these fishers reporting that they pot commercially and the fourth reporting that they trawl. All fishers reported using a mixture of fixed net types (gill/trammel/tangle).

NIFCA are currently in the process of updating the Fixed Engines Byelaw, which stipulates conditions on fixed nets in the District. Proposals for updates to the Fixed Engines byelaw include a monthly permit returns system and a requirement to report bycatch. In the future NIFCA should therefore have accurate information on fixed

	netting in the District and any bycatch which will feed into the netting monitoring and control plan. There are two areas of the SPA that extend outside of the NIFCA District and the Marine Management Organisation (MMO) has provided activity data related to fixed netting in these areas. Estimated landings data from the UK under 12m fleet does not show any landings from these areas in 2021 and 2020. Average annual landing from these areas from UK under 12m vessels (2012-21) is 0.06 tonnes (MMO data, pers comms). Trammel netting has the potential to interact with benthic feeding seabirds directly, as nets are set on the seabed. This could affect the **size of the breeding population,** or act as **a barrier to movement**, preventing the **safe passage of birds moving between nesting and feeding areas**. Benthic feeding birds such as cormorants and shags could potentially interact with relatively shallow bottom set gill nets. Given the very low levels of activity currently and the lack of reports of significant seabird bycatch in the SPA and wider District, it is not considered that trammel netting is having a significant adverse impact on the seabird features of the SPA through bycatch. Trammel netters could also cause displacement/disturbance of birds on the surface. The seasonality information above shows that netting occurs in the site at a low level and can occur throughout the year, including the summer when breeding birds are present in the site. However, due to the very low levels of fixed netting in the District, this would be very limited in time and frequency and would not significantly impact the protected seabirds. Another potential impact of netting on seabirds is through the catch of their prey species **altering the availability of key prey species**. Shags and cormorants both have a varied diet. Shags are considered to feed primarily on benthic, schooling and demersal fish (Natural England, 2012). Long term studies of breeding shags at Canna (west coast of Scotland) show sandeels and Gadid fish such as cod to make up the majority of the birds diet (Swann, Harris, & Aiton, 2008). Studies on the Isles of May again found sandeels to dominate adult and chick diet, with a range of finfish and fragmented remains of crustaceans (prawns and hermit crabs) also present (Harris & Wanless, 2009). Cormorants primarily feed on benthic fish species, but do also take pelagic fish and crustaceans (Natural England, 2012). European shags and great cormorants are therefore able to exploit a wide variety of prey, primarily benthic fish. Trammel netting is primarily targeted at large white fish and flatfish. This very small-scale fishery is unlikely to have any significant impact on the preferred prey species of the listed seabirds, with mesh sizes too large to catch the bird's preferred prey. Northumberland Marine SPA encompasses large shallow inlets and bays in addition to the Aln, Coquet, Wansbeck and Blyth estuaries.

	These areas are thought to support the nursery and spawning grounds of sandeel, herring, sprat and whiting, the target prey of the qualifying seabird features in the SPA (Natural England, 2023). NIFCA studies have identified juvenile fish using The Aln Estuary, Long Nanny River and Druridge Bay as potential nursery grounds based upon the size classes of each species found in the studies (Smart & Rae, 2023. Wallace, N, 2015). These key prey species are not targeted commercially within the SPA, however, around 13 tons of whiting is landed per annum as bycatch from nephrops trawling. Sandeel is broadly the preferred prey of the bird features within the SPA (Eglington & Perrow, 2018). The closure of the UK sandeel fishery on April 1st, 2024 in UK waters may provide potential increases in prey availability for the protected bird features within the site. However, prior to the closure in 2024 there were no records of a fishery targeting sandeel within the district. Netting is unlikely to have any significant impact on the spawning and nursery grounds of the preferred prey species of the listed seabirds. Netting levels in the SPA are very low and fishers attempt to avoid losing nets (which would cause marine litter and potentially ghost fish) as it is expensive. In 2015 a 39m length of net was reported lost to NIFCA. In 2018 a 240m gill net was recovered by NIFCA after the 'Beast from the East' storm. Between 2018 and 2023 no lost nets have been reported to NIFCA, including on shellfish permit returns. Therefore, litter from netting currently is not considered to pose a significant risk to features of the SPA. The introduction of light from netting vessels operating in the MPA is not considered to pose a risk to the seabird features of the MPA. These boats have small deck lights and are operating in a coastal environment where light pollution from the shore may already present. Netting in the MPA will not alter features of the water column through deoxygenation, the introduction of contaminants or organic enrichment. The water column in Northumberland Marine SPA is a highly dynamic marine environment, with strong wave and tidal movements, making it less susceptible to any small-scale changes.

6. Condition and Conservation Objective Inferences	Benthic feeding birds are not specifically designated in the SPA, they make up part of the 'breeding seabird assemblage.' The following species are listed as 'main components' in the Conservation Advice: Arctic tern, common tern, roseate tern, Sandwich tern, little tern, Atlantic puffin, common guillemot, great cormorant, European shag, black-headed gull and black-legged kittiwake. Of these species European shags and great cormorants are considered benthic feeding birds. Population numbers are from 2015 (Natural England, 2015). ▪ European shag – 1,677 ▪ Great cormorant – 230 The Farne Islands and the Isles of Scilly are the two largest shag breeding colonies in England (Natural England, 2012). The Conservation Advice package does not give feature condition for these species, but data on the number of active/apparently occupied nests on the Farne Islands is available from the Seabird Monitoring Program (British Trust for Ornithology and Joint Nature Conservation Committee). European shag nest numbers on the Farne Islands since 1986 are shown in Figure 3. The sharp declines between 1993/94, 2004/05 and 2017/18 correlate with severe bad weather events causing mass mortality.  **Figure 2** Number of European shag AONs on the Farne Islands, 1986–2019 **(JNCC, Accessed 15/01/24)** . Great cormorant numbers for the Farne Islands are not available back to 1986, but number show fluctuations over the last 8 years (British Trust for Ornithology, 2023). The UK population as a whole has shown a relatively steady trend in nest numbers since 1986, again with fluctuations (JNCC, Accessed 15/01/24).

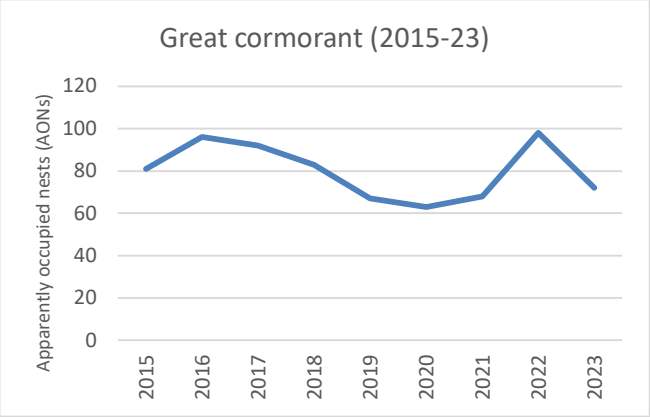
<table>
<tr><td></td><td colspan="2"> 

Figure 3 Number of 'apparently occupied nests' for great cormorants on the Farne Islands 2015-23 (British Trust for ornithology, 2023)

Seabird species have also been badly affected by Avian Influenza during the last two breeding seasons (2022 and 2023). The Farne Islands are home to approximately 200,000 seabirds. In the most recent breeding season (2023) the National Trust have collected 3,647 dead birds, but estimate this may only be 10% of the birds that have died. In 2022 National Trust rangers on the island collected over 6,000 dead birds. Cliff nesting birds were hit particularly badly on the Farne Islands in 2022 and kittiwakes and large gulls in 2023 (National Trust, 2023).

Bird flu will have had impacted both population number and breeding success of multiple species in the SPA, as there has been a relatively high mortality of adult birds.</td></tr>
<tr><td>7. Is the potential scale or magnitude of any effect likely to be significant?</td><td>Alone:

No. NIFCA considers that at the current very low levels of activity trammel netting will not have a significant impact on the bird features of the SPA. This will be monitored through the monitoring and control plan process and any significant increase in netting levels will trigger a reassessment in the SPA.</td><td>OR In-combination

No. See ‘in-combination’ assessment below.</td></tr>
<tr><td>8. Have NE been consulted on this LSE test? If yes, what was NE’s advice?</td><td colspan="2">Yes, NE were consulted throughout the process and have approved this LSE.</td></tr>
</table>

NMSPA-100 – Water column

1. Is the activity/activities directly connected with or necessary to the management of the site for nature conservation?	No
2. What pressures (such as abrasion, disturbance) are potentially exerted by the gear type(s)? *Sensitivities have been categorised as medium-high risk	Removal of non-target species (Sensitive)* Removal of target species (Sensitive)* Barrier to species movement (Sensitive) Deoxygenation (Sensitive) Hydrocarbon and PAH contamination (Not-assessed) Introduction of light (Sensitive) Introduction or spread of invasive non-indigenous species (INIS) (Sensitive) Litter (Sensitive) Organic enrichment (Sensitive) Synthetic compound contamination (incl. pesticides, antifoulants, pharmaceuticals) (Not-assessed) Transition elements & organo-metal (e.g. TBT) contamination (Not-assessed) Underwater noise changes (Sensitive) Visual disturbance (Sensitive)
3. Is the feature potentially exposed to the pressure(s)?	Yes
4. What are the conservation objectives for the feature?	**Conservation objectives for water column:** Water column is not mentioned in the supplementary advice section of the Conservation Advice, therefore cannot determine the Conservation Objectives of this feature

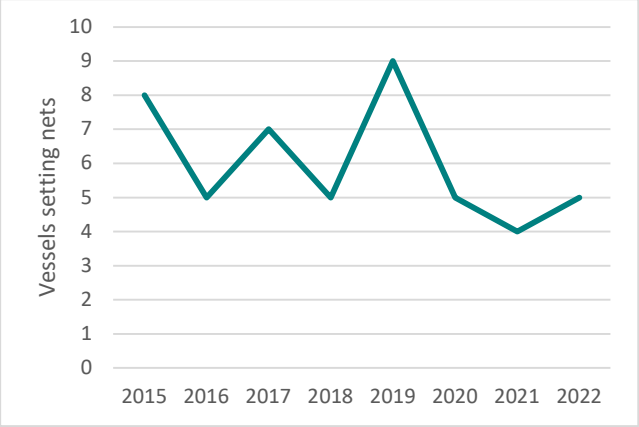
5. What are the potential effects/impacts of the pressure(s) on the feature, taking into account the exposure level? ***(reference to conservation objectives)***	Levels of netting activity within the Northumberland IFCA District have declined considerably in recent years and are currently very low. Netting is primarily for migratory fish using 'T' or 'J' nets (managed and assessed by the Environment Agency). There is a very limited amount of gill netting and trammel netting for white sea fish and flatfish. The decline in netting for white fish in the NIFCA District has been attributed by local fishers to the introduction of TACs and quotas in 1983, cessation of dumping sewage sludge off the Tyne and Blyth (which cod fed from) and grey seal predation of fixed nets (per comms. with NIFCA, 2023). Currently there is not a regular fixed net fishery in the NIFCA District. NIFCA have information on netting in the district from IFCO knowledge, shellfish permit returns data and the 2022 'Call for information on netting management.' NIFCA Officers are aware of one vessel in the south of the District which sets some gill nets for cod and turbot, alongside their main fishing activity, as well as a vessel mid-way up the District which may very occasionally set gill nets. In the south of the District (outside the SPA) there have been attempts by approximately five fishers over the last five years to target white fish off the north side of St Mary's Island into Hartley Bay, and attempts at the south end of Whitley Bay for cod in the winter. None of these have resulted in a regular fishery. Whilst netting does not require a permit from NIFCA, the majority of vessels in the NIFCA district do have commercial shellfish permits. The number of vessels reporting using nets on shellfish permit returns is therefore likely to be a good proxy for netting in the District, although it cannot be considered complete. In 2022 this was five vessels, in 2021 four vessels and in 2020 five vessels (Figure 1).  ***Figure 4*** *Number of vessels reporting setting nets in the NIFCA District on shellfish permit returns* The seasonality of vessels reporting setting nets in Sectors 2-7 (which overlap with Northumberland Marine SPA – map in Annex) is shown in Table 1 (Data from NIFCA permit returns). Vessel D is thought to be setting tangle nets and gill nets.

Table 4 Seasonality of nets reported set on NIFCA shellfish permit returns data

Vessel	2020											
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B												
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F												
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H												
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	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
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	2022											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
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Of the six respondents to NIFCA's 'Call for Information on netting management' in 2022, four fishers reported commercially using nets in the District. This was alongside their main method of fishing, with three of these fishers reporting that they pot commercially and the fourth reporting that they trawl. All fishers reported using a mixture of fixed net types (gill/trammel/tangle).

NIFCA are currently in the process of updating the Fixed Engines Byelaw, which stipulates conditions on fixed nets in the District. Proposals for updates to the Fixed Engines byelaw include a monthly permit returns system and a requirement to report bycatch. In the future NIFCA should therefore have accurate information on fixed

	netting in the District and any bycatch which will feed into the netting monitoring and control plan. There are two areas of the SPA that extend outside of the NIFCA District and the Marine Management Organisation (MMO) has provided activity data related to fixed netting in these areas. Estimated landings data from the UK under 12m fleet does not show any landings from these areas in 2021 and 2020. Average annual landing from these areas from UK under 12m vessels (2012-21) is 0.06 tonnes (MMO data, pers comms). The water column is a feature in this MPA because of its significance to seabirds for feeding and resting, although specific Conservation Objectives for this feature have not been set. The impact of nets on the seabirds themselves has been assessed separately, therefore this assessment considers whether netting will affect the prey the birds feed on or alter physical/biological properties of the water column. Netting could potentially affect seabirds through the catch of their prey species. Trammel netting is targeted at large white fish and flatfish. These species are not usually targeted by seabirds, who primarily feed on small sea fish (sand eel, sprat, herring), coarse fish, molluscs, annelids and crustaceans. This small-scale fishery is very unlikely to have any significant impact on the preferred prey species of the seabird features, with mesh sizes too large to catch the bird's preferred prey. Northumberland Marine SPA encompasses large shallow inlets and bays in addition to the Aln, Coquet, Wansbeck and Blyth estuaries. These areas are thought to support the nursery and spawning grounds of sandeel, herring, sprat and whiting, the target prey of the qualifying seabird features in the SPA (Natural England, 2023). NIFCA studies have identified juvenile fish using The Aln Estuary, Long Nanny River and Druridge Bay as potential nursery grounds based upon the size classes of each species found in the studies (Smart & Rae, 2023. Wallace, N, 2015). These key prey species are not targeted commercially within the SPA, however, around 13 tons of whiting is landed per annum as bycatch from nephrops trawling. Sandeel is broadly the preferred prey of the bird features within the SPA (Eglington & Perrow, 2018). The closure of the UK sandeel fishery on April 1st, 2024 in UK waters may provide potential increases in prey availability for the protected bird features within the site. However, prior to the closure in 2024 there were no records of a fishery targeting sandeel within the district. Netting is unlikely to have any significant impact on the spawning and nursery grounds of the preferred prey species of the listed seabirds.

	Netting levels in the SPA are very low and fishers attempt to avoid losing nets (which would cause marine litter and potentially ghost fish) as it is expensive. In 2015 a 39m length of net was reported lost to NIFCA. In 2018 a 240m gill net was recovered by NIFCA after the 'Beast from the East' storm. Since 2018 no lost net has been reported to NIFCA, including on shellfish permit returns. Therefore, litter from netting currently is not considered to pose a significant risk to features of the SPA. Fishing vessels below 45m are required to have permanent ballast, which reduces the risk of non-native species introduction from potting. In addition, within the NIFCA section of the MPA most boats are local to the north-east, so the introduction of new non-native species on vessels is unlikely. The introduction of light from netting vessels operating in the MPA is not considered to pose a risk to the seabird features of the MPA. These boats have small deck lights and are operating in a coastal environment where light pollution from the shore may already present. Likewise, netting will not cause any significant and prolonged underwater noise. Netting in the MPA will not alter features of the water column through deoxygenation, the introduction of contaminants or organic enrichment. The water column in Northumberland Marine SPA is a highly dynamic marine environment, with strong wave and tidal movements, making it less susceptible to any small-scale changes.	
6. Condition and Conservation Objective Inferences	No evidence is available for the current condition of the water column feature within the Northumberland Marine SPA. In lieu of adequate evidence or conservation objectives, a CO of 'Maintain' has been inferred with a 'low' level of confidence.	
7. Is the potential scale or magnitude of any effect likely to be significant?	**Alone:** **No.** NIFCA considers that at the current very low levels of activity trammel netting will not have a significant impact on the bird features of the SPA. This will be monitored through the monitoring and control plan process and any significant increase in netting levels will trigger a reassessment in the SPA.	**OR In-combination** **No.** See 'in-combination' assessment below.

8. Have NE been consulted on this LSE test? If yes, what was NE's advice?	Yes, NE were consulted throughout the process and have approved this LSE.

In-Combination Assessment

Potential risks of in-combination effects have been considered in Table 2 listing other fisheries, current and possible plans/projects and other activities within the site.

In summary, trammel netting within Northumberland Marine SPA is not deemed to have a likely significant effect on the protected bird features in combination with other activities.

Table 2 *In-combination assessment of trammel netting with other activities within Northumberland Marine SPA.*

Fishing Activity			
Activity	**Description**	**Potential Pressure**	**Assessment**
Bottom trawling on subtidal sediment	Trawling within the NIFCA District is subject to conditions in the byelaw 'Trawling,' which was updated in 2021. Only single trawls are permitted, vessel size is restricted to 12m (0-3nm) or 18.3m (3-6nm) in the District and permit holders must also submit monthly catch returns to NIFCA. Boats are mainly targeting prawns (*Nephrop*s), cod and whiting. Trawling will primarily be targeted on subtidal muddy ground for *Nephrop*s in the District. As only 'light' otter gear is permitted in the District, subtidal trawling does not occur on rock.	NIFCA have issued 45 permits to trawl in the District in 2023. However, many of these vessels fish further offshore, beyond the District boundary and the SPA. Trawling is banned in the BNNC SAC (except in three small areas) and requires an exemption in CSM MCZ. Trawling has the potential to impact the bird features through bycatch, or by removing their preferred prey species. There are two areas of the SPA that extend outside of the NIFCA District and the Marine Management Organisation (MMO) has provided activity data related to demersal trawling in these areas. Estimated landings data from the UK under 12m fleet from these areas was 3.21 tonnes in 2021 and 2.24 tonnes in 2020. Average annual landing from these areas from UK under 12m vessels (2012-	Trawling activity is unlikely to co-occur with fixed netting activity in the SPA. Netters avoid setting gear where mobile fishers operate, as conflict is likely to result in gear loss and financial consequences. Fishing gear in the District must be marked under Byelaw 5, which helps to reduce gear conflict. Due to the very low levels of trammel netting in the SPA NIFCA does not consider that fixed netting and trawling are likely to 'in-combination' significantly increase the pressure on bird features in the site.

		21) is 3.62 tonnes (MMO data, pers comms). These catches suggest activity in the two areas is very low.	
Potting on subtidal rocky ground, with low levels on subtidal sediment ground and intertidal rocky ground	Potting for European lobster (*Homarus gammarus)* and brown crab (*Cancer pagurus)* is the principal fishery within the NIFCA district. Most fishers in the district use parlour pots of various sizes and pots are typically worked in fleets of 10-40, dependant on the size of the vessel. Potting occurs predominantly in and around rocky habitat for lobster and brown crab, with some potting on subtidal mud for *Nephrops* and brown crab.	In 2023 NIFCA issued 85 Commercial Shellfish Permits to fishers, compared to 93 in 2022, 108 in 2021 and 98 in 2020. The total number of pot hauls in the District was 2,464,412 in 2022, compared to 2,766, 681 in 2021 and 2,750,768 in 2020. Pots are limited to 800 per shellfish permit and the fishery is governed by multiple IFCA byelaws. In the NIFCA district recreational potting also occurs and numbers are monitored through a permit system. A permit allows fishers to use 5 pots, which must be fitted with escape gaps. In 2023 273 recreational permits were issued. There are two areas of the SPA that stretch outside of the NIFCA District and the Marine Management Organisation (MMO) has provided activity data related to potting in these areas. In 2021, 5.56 tonnes was landed from pots by UK under 12m vessels, in 2020 5.9 tonnes was landed. Species are not listed so this likely includes lobster, crabs and N*ephrops*. Average annual landings from UK vessels in these areas (2012-21) is 6.78 tonnes (MMO landings data, pers comm).	Potting activity is unlikely to co-occur with fixed netting activity in the SPA. Potting is primarily targeted on subtidal rocky ground, with low levels of activity on intertidal rock and subtidal sediment ground. Fixed netting does not occur on rocky ground to avoid damage to the nets. Due to the very low levels of trammel netting in the SPA and the spatial mismatch with potting NIFCA does not consider that at current levels potting and fixed netting are likely to 'in-combination' significantly increase the pressures on bird features in the site.
Hand work (access from land) in the intertidal	Hand work encompasses a wide variety of fishing methods, including; angling, periwinkle collection, 'cleeking' for lobster and hand	Within Northumberland Marine SPA 657 patrols have been made between October 2016 and September 2023. Some areas of the District are visited more frequently by	There will be no spatial overlap between trammel netting and any shore-based fishing activity. NIFCA can therefore conclude with high confidence that

	gathering of mussels/crabs. These activities occur across the NIFCA district and since 2016 NIFCA officers have been collecting information on shore-based activity two hours either side of low tide, including 'no activity'. There are also a small number of patrols in the SPA from partner organisations during the same tidal periods (n=13).	Officers, therefore sightings per unit effort (SPUE) has been calculated for each location. Sites listed are where the activity has been seen on at least 10% of patrols and there have been at least 10 patrols to the site. ▪ **Angling**; Amble, Blyth, Beadnell, Druridge Bay, Lynemouth, Newbiggin, Cresswell, Cambois and Hauxley. ▪ **Periwinkle collection**; Boulmer south, Cambois, Holy Island, Cresswell, Beadnell, Boulmer north, Hauxley, Hadston, Lynemouth ▪ **Bait collection** has been recorded on 44 patrols in the SPA. Forty-one of these patrols were at Blyth. ▪ **Cleeking**; Boulmer south, Creswell and Newbiggin. Shore-based activity has the potential to impact the bird features through visual/noise disturbance and the removal of prey species.	fixed netting and shore-based activity will not 'in-combination' increase pressures on the bird features of the SPA.
Crab tiling	Crab tiling involves placing objects (tyres, tiles, piping) into the intertidal, which crabs will use for shelter. Collectors then check these objects at low tide and remove green shore crabs. NIFCA officers record any intertidal fishing activity observed during routine patrols whenever a site visit coincides with low water (± 2 hours), as well as 'no activity.'	Within Northumberland Marine SPA 657 patrols have been made between October 2016 and September 2023. Crab tiling has been observed on 5% of these patrols (33/657). Crab tiling has only been recorded at three sites; Blyth, Alnmouth and the Wansbeck estuary. Of these sites the activity has been recorded 30 times at Blyth, twice in the Wansbeck and once in the Aln. However, NIFCA has also conducted surveys for	There will be no spatial overlap between crab tiling and trammel netting, nor are these activities targeting the same species. NIFCA can therefore conclude with high confidence that fixed netting and crab tiling will not 'in-combination' increase pressures on the bird features of the SPA.

	There are also a small number of patrols in the SPA from partner organisations during the same tidal periods (n=13).	crab tiling equipment in the Aln, Blyth, Wansbeck and at Amble. All sites had at least 50 tyres present in 2020.	
Digging with forks in the intertidal	Digging with forks entails collecting worms from the intertidal at low tide, primarily lugworms and ragworms. This activity occurs in estuaries across the NIFCA district. NIFCA officers record any intertidal fishing activity observed during routine patrols whenever a site visit coincides with low water (± 2 hours), as well as 'no activity.' There are also a small number of patrols in the SPA from partner organisations during the same tidal periods (n=13).	Within Northumberland Marine SPA 657 patrols have been made between October 2016 and September 2023. Bait digging has been observed on 19.6% of these patrols (129/657). Some areas of the District are visited more frequently by Officers, therefore sightings per unit effort (SPUE) has been calculated for each location (no. of times activity observed/site visits). Sites where bait digging has been observed on over 10% of patrols and at least 10 patrols occurred include; Boulmer North, Hadston, Hauxley, Blyth, Newton and Boulmer South. Bait digging activity has a seasonal aspect and SPUE is highest from September-January, outside of the seabird breeding season. Digging with forks has the potential to impact the bird features through visual/noise disturbance and the removal of prey species.	There will be no spatial overlap between bait digging and trammel netting, nor are these activities targeting the same species. NIFCA can therefore conclude with high confidence that fixed netting and bait digging will not 'in-combination' increase pressures on the bird features of the SPA.
Non-fishing Activity			
Activity	**Description**		**Assessment**
Mine water discharge	Abandoned mines are one of the biggest sources of water	Sediments and invertebrate communities could be negatively	Appropriate licence conditions/monitoring

	pollution by metals. There is a mine water treatment scheme at Lynemouth and groundwater upwellings have occurred at Hauxley/Hadston as well as water pumped from a mine, discharged through an existing outfall at Hauxley.	impacted by mine water discharges. This could occur where mine water is not treated before release into the marine environment. In the majority of cases significant mine water outflow is identified and treated by the Coal Authority.	has been incorporated to mitigate any impacts.

Active Marine Licences

Project number	Brief description	Assessment
MLA/2023/00158	Hydrophone deployment for monitoring cetaceans	All marine licence applications are assessed to ensure appropriate licence conditions/monitoring are in place. These assessments must consider impacts to Marine Protected Areas, with an aim to preferably avoid, then minimise and mitigate impacts to the protected features. NIFCA are consulted on all relevant marine applications, as are other bodies such as Natural England.
MLA/2023/00017	Deployment of cetacean acoustic monitoring device off Craster	
MLA/2023/00094	Bore hole back-filling	
MLA/2020/00458	Construction of telecommunications pipeline	
MLA/2019/00109	Maintenance of Newbiggin coastal wave buoy	
MLA/2019/00319	Rock installation	
MLA/2019/00521	Maintenance and upgrade of pontoon at Amble	
Multiple licenses	Blyth windfarm (construction of 15 turbines). Work is set to continue after the installation of the initial five.	

Conclusion

Is the proposal likely to have a significant effect 'alone or in combination' on the Northumberland Marine SPA?

No. At the current very low levels of trammel netting NIFCA does not consider that this activity will have a significant effect on the protected bird species. This will be monitored through the monitoring and control plan process and any significant increase in netting levels will trigger a reassessment in the SPA

Has the MMO been formally consulted on this tLSE (and do they agree)?	**Yes, MMO been formally consulted on this tLSE and agree with the conclusions.** **Charlie Wiseman, Principal Marine Conservation Manager, MMO**

Has Natural England been formally consulted on this tLSE (and do they agree)?	Yes, NE were consulted throughout the process and have approved this LSE.

Date of document completion/ 'sign-off':	**04/11/2024**

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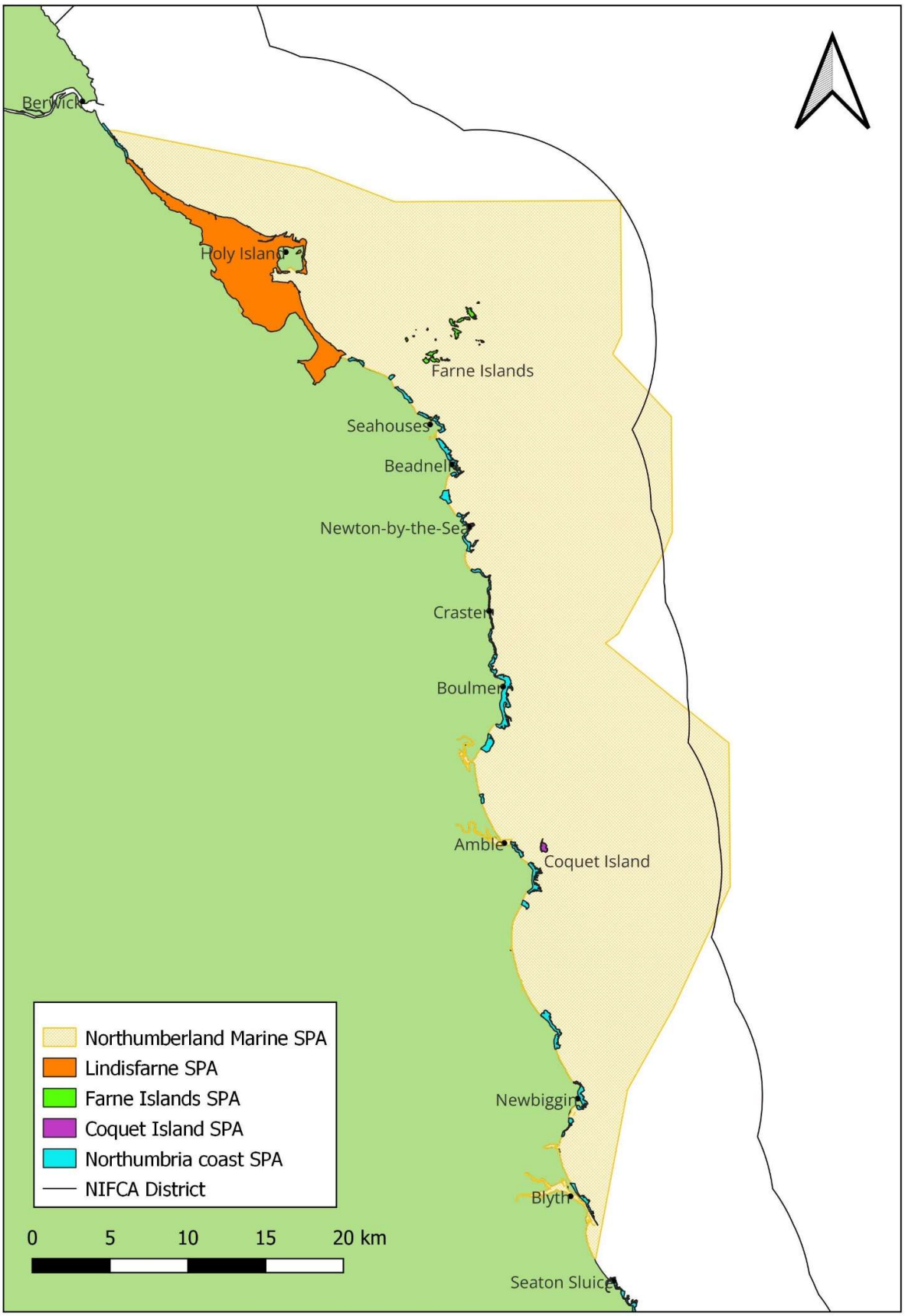
Annex 1 Location of Northumberland Marine SPA and co-located SPAs



Annex 2 Sectors of the NIFCA district used on shellfish permit returns