Habitats Regulations Assessment document: LINSPA-tLSE 023

European Marine Site:	**Lindisfarne SPA**
Generic sub-feature(s):	**Infralittoral rock, Subtidal coarse sediment, Subtidal mixed sediments, Subtidal sand, Water column, Intertidal bedrock reef**
Gear type(s):	**Pots/creels**
NIFCA tLSE type:	**Detailed**
Gear/feature interaction reference(s):	**LINSPA-397** **LINSPA-400** **LINSPA-401** **LINSPA-403** **LINSPA-404** **LINSPA-618**

Revision history		
Date	***Revision***	***Editor***
23/11/2015	Document created	SM
03/02/2016	Document revised following consultation with Natural England (26/01/16)	SM
14/06/2016	Document revised following consultation with Natural England (10/06/16)	VR

Has Natural England been formally consulted on this tLSE (and do they agree)?	Yes

Date of document completion/'sign-off':	14/06/2016

Test for Likely Significant Effect (LSE)

LINSPA-397: Infralittoral rock

LINSPA-618: Intertidal bedrock reef

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 as listed are based on DRAFT Interim conservation advice. Reference to Regulation 33 advice for the Lindisfarne SPA and best judgement has been used to determine which of these pressures are truly exerted by the gear type(s).	Abrasion/disturbance of the substrate on the surface of the seabed (Sensitive)[1] Introduction or spread of non-indigenous species (Sensitive)[2] Penetration and/or disturbance of the substrate below the surface of the seabed, including abrasion (Sensitive)[3] Removal of non-target species (Sensitive)[4] Removal of target species
3. Is the feature potentially exposed to the pressure(s)?	Yes
4. What are the conservation objectives for the feature? *DRAFT interim conservation advice does not give definitive conservation objectives. However, completing an HRA without COs is difficult. The CO as listed in this document is based on current knowledge of the status, and the pressures, affecting designated features (see sections 4 &5). Expert judgement has been used to determine which features may be exposed to the pressure(s) resulting in inferred COs. These COs are assigned a degree of uncertainty i.e. a subjective confidence level based on evidence 'High', 'Medium,' 'Low', and 'Unknown'.	**The conservation objectives for 'Reefs' are to Maintain*:** - The total extent and spatial distribution of intertidal rock - <u>The presence and spatial distribution of intertidal rock communities</u> - <u>The surface and structural complexity of the reef</u> - <u>The abundance of listed typical species</u> - <u>The species composition of component communities</u> - The natural physical energy resulting from waves, tides and other water flows - The natural physic-chemical properties of the water - The natural rate of sediment deposition - Natural levels of turbidity - **Restrict or Reduce**: <u>The introduction and spread of non-native species and pathogens</u> Those conservation objectives that might be affected by potting activity are underlined. *Confidence level for interim, inferred Conservation Objective: **MEDIUM** (see section 6 for detail).

5. What are the potential effects/impacts of the pressure(s) on the feature, taking into account the exposure level? ***(reference to conservation objectives)***	Potting for European lobster *Homarus gammarus* and brown crab *Cancer pagurus* is the principle fishery within the Northumberland IFCA district, with 91 registered commercial permits in 2016 and approximately ~45,000 pots (maximum reported number of pots for any one month by each permit holder) fished within the district in 2015. Potting occurs predominantly on subtidal hard substrates, although some activity may occur on intertidal rocky reef particularly during neap tides where the greatest impact may occur as a result of 'Abrasion/disturbance of the substrate on the surface of the seabed (Sensitive)[1] and removal of target species. Potting within the intertidal or infralittoral zone is more typical of recreational fishing activity and pots are more likely to be set individually and are only permitted up to 5 pots (as opposed to in fleets of 10-30 pots typical of potting in subtidal areas prosecuted by commercial vessels). Recreational potting activity is at a low level throughout the district, with more recreational fishers targeting lobsters and crab from the shore using a 'cleek' (a long pole modified for removing shellfish from rock crevices) and is highly seasonal, concentrated during the summer months. Currently NIFCA are not aware of any recreational activity within this area, neither is the senior reserve manager for Lindisfarne NNR (pers. Comms Andrew Craggs 2016). No potting fishing activity occurs within the Lindisfarne SPA, due to extant NNR byelaws. As of January 2016, NIFCA have introduced an annual permit scheme for recreational potting, for which each applicate must pay £10. This will enable recreational effort to be monitored on an annual basis. Exposure levels from potting on infralittoral rock and intertidal bedrock reef within the Lindisfarne SPA are therefore low. Additionally, "this feature is subject to naturally high levels of physical disturbance and recovery is predicted to be medium[5]".
6. Condition and Conservation Objective Inferences	No definitive conservation objective for 'Infralittoral rock' or 'Intertidal bedrock reef' is given in the draft interim Regulation 33 advice (July 2015). Lindisfarne SPA sits entirely within the BNNC SAC and its intertidal rocky reef supporting habitats is shared with the BNNC SAC. In the absence of a conservation objective for intertidal rocky reef specifically for Lindisfarne SPA, the advice provided for BNNC SAC from the Regulation 33 advice to 'maintain' for reefs is inferred with a medium level of confidence.

7. Is the potential scale or magnitude of any effect likely to be significant?	**Alone:** **No**	**OR In-combination** **No**
8. Have NE been consulted on this LSE test? If yes, what was NE's advice?	**Yes** Synthesis of evidence and local knowledge informing this decision occurred between January 2014 and the date of this document's creation with stakeholders (where appropriate) and other statutory authorities. Natural England (CS) was involved with this formal process.	

Conclusion

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

No.

Test for Likely Significant Effect (LSE)

LINSPA-400: Subtidal coarse sediments

LINSPA-401: Subtidal mixed sediments

LINSPA-403: Subtidal sand

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 as listed are based on DRAFT Interim conservation advice. Reference to Regulation 33 advice for the Lindisfarne SPA and best judgement has been used to determine which of these pressures are truly exerted by the gear type(s).	Abrasion/disturbance of the substrate on the surface of the seabed (Sensitive)[1] Introduction or spread of non-indigenous species (Sensitive)[2] Penetration and/or disturbance of the substrate below the surface of the seabed, including abrasion (Sensitive)[3] Removal of non-target species (Sensitive)[4]
3. Is the feature potentially exposed to the pressure(s)?	Yes
4. What are the conservation objectives for the feature? *DRAFT interim conservation advice does not give definitive conservation objectives. However, completing an HRA without COs is difficult. The CO as listed in this document is based on current knowledge of the status, and the pressures, affecting designated features (see sections 4 &5). Expert judgement has been used to determine which features may be exposed to the pressure(s) resulting in inferred COs. These COs are assigned a degree of uncertainty i.e. a subjective confidence level based on evidence 'High', 'Medium,' 'Low', and 'Unknown'.	Conservation objective(s) for Subtidal mixed sediments: **Maintain*:** - The total extent and spatial distribution of subtidal mixed sediments - <u>The presence and spatial distribution of subtidal mixed sediment communities</u> - <u>The abundance of listed typical species</u> - <u>The distribution of sediment composition type across the feature</u> - <u>The species composition of component communities</u> - The natural physical energy resulting from waves, tides and other water flows - The natural physico-chemical properties of the water - <u>Natural levels of turbidity</u> - All hydro-dynamic and physical conditions such that natural water flow and sediment movement are not altared - **Restrict or reduce**: <u>Surface sediment contaminant levels</u> - **Restrict or Reduce**: <u>The introduction and spread of non-native species and pathogens</u> Those conservation objectives that might be affected by potting are underlined. *Confidence level for interim, inferred Conservation Objective: **LOW** (see section 6 for detail).

5. What are the potential effects/impacts of the pressure(s) on the feature, taking into account the exposure level? ***(reference to conservation objectives)***	No activity occurs within the Lindisfarne SPA, due to extant NNR byelaws. Potting for European lobster *Homarus gammarus* and brown crab *Cancer pagurus* is the principle fishery within the Northumberland IFCA district, with 91 registered commercial permits in 2016 and approximately ~45,000 pots (maximum reported number of pots for any one month by each permit holder) fished within the district in 2015. Potting however occurs predominantly in and around subtidal stony reef habitats, with limited activity occurring on subtidal sand / mixed sediments within the district, (potting on soft ground targeting brown crab predominantly occurs further offshore). The distribution of subtidal sand and mixed sediments within the Lindisfarne SPA is limited to the landward side of the island where there is currently no potting activity. Furthermore, "although resistance to surface damage is low as some elements of the biological assemblage occur at the surface, recovery is predicted to be rapid <2 years and hence sensitivity is low"[5]. Potting impact studies have found that benthic communities associated with coarse sediments are relatively unaffected by static fishing gears[7,8]. Finally, stable species in rich mixed sediments habitats have been assessed as having medium sensitivity to heavy levels of potting and low sensitivity to all other levels of potting activity[8,9].	
6. Condition and Conservation Objective Inferences	No evidence for the current condition of 'Subtidal coarse sediments', 'Subtidal mixed sediments' and 'Subtidal sand' within the Lindisfarne SPA is available. In lieu of evidence or any conservation objective for this feature, the CO of maintain is inferred with a low level of confidence.	
7. Is the potential scale or magnitude of any effect likely to be significant?	**Alone:** **No**	**OR In-combination** **No**

8. Have NE been consulted on this LSE test? If yes, what was NE's advice?	**Yes** Synthesis of evidence and local knowledge informing this decision occurred between January 2014 and the date of this document's creation with stakeholders (where appropriate) and other statutory authorities. Natural England (CS) was involved with this formal process.

Conclusion

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

No

Test for Likely Significant Effect (LSE)

LINSPA-404: 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 as listed are based on DRAFT Interim conservation advice. Reference to Regulation 33 advice for the Lindisfarne SPA and best judgement has been used to determine which of these pressures are truly exerted by the gear type(s).	Barrier to species movement[6] Genetic modification & translocation of indigenous species[10] Hydrocarbon & PAH contamination[11] Introduction of light[12] Introduction of other substances (solid, liquid or gas)[11] Introduction or spread of non-indigenous species[2] Litter Removal of non-target species[4] Synthetic compound contamination[13] Transition elements & organo-metal (e.g. TBT) contamination[13]. Underwater noise changes[14] Visual disturbance[15] Removal of target species Removal of non-target species Abrasion/disturbance of the substrate on the surface of the seabed
3. Is the feature potentially exposed to the pressure(s)?	Yes

4. What are the conservation objectives for the feature? *DRAFT interim conservation advice does not give definitive conservation objectives. However, completing an HRA without COs is difficult. The CO as listed in this document is based on current knowledge of the status, and the pressures, affecting designated features (see sections 4 &5). Expert judgement has been used to determine which features may be exposed to the pressure(s) resulting in inferred COs. These COs are assigned a degree of uncertainty i.e. a subjective confidence level based on evidence 'High', 'Medium,' 'Low', and 'Unknown'.	Conservation objectives for supporting habitat 'Coastal and offshore waters' for <u>all</u> designated SPA bird features are to **Maintain*:** - The availability of water of 2-4 m deep (Eider) - <u>The distribution, abundance and availability of key prey items (e.g. *Mytilus, Carcinus* and gastropods) at preferred prey sizes (e.g. *Mytilus* of <30 mm, gastropods 12-15 mm). Average biomass >25 gm/m3 (Eider)</u> - The availability of water of 3-20 m deep (Eider) - <u>The frequency, duration and/or intensity of disturbance affecting roosting and/or feeding birds should not reach levels that substantially affects the feature (Long tailed duck)</u> - The distribution, abundance and availability of key prey items (e.g. *Mytilus, Cardium, Spisula, Mya, Hydrobia*, and gobies, sticklebacks, flatfish) at preferred prey sizes (e.g. *Mytilus* of <20 mm) (Long tailed duck) - The distribution, abundance and availability of key prey items (e.g. *Macoma, Mytilus, Cardium*) at preferred prey sizes (<4 cm) (Long tailed duck) - The depth of inshore waters currently used as feeding or moulting sites at <20 m (Common scoter) - <u>The frequency, duration and/or intensity of disturbance within 2 km of foraging and/or roosting birds should not reach levels that substantially affects the feature (Common scoter)</u> - The distribution, abundance and availability of key prey items (e.g. stickleback, gobies, flatfish, herring, shrimps, Nereis) at preferred prey sizes (e.g. herring of <11 cm) (Red breasted merganser) - The availability of key prey species (e.g. sandeel, sprat) at preferred prey sizes (Roseate tern) - The availability of key prey species (e.g. crustacea, annelids, sandeel, herring, clupeidae) at preferred prey sizes (Little tern) Those conservation objectives that might be affected by potting are underlined. *Confidence level for interim, inferred Conservation Objective: **LOW**(see section 6 for detail).

5. What are the potential effects/impacts of the pressure(s) on the feature, taking into account the exposure level? ***(reference to conservation objectives)***	No activity occurs within the Lindisfarne SPA, due to extant NNR byelaws. Potting for European lobster *Homarus gammarus* and brown crab *Cancer pagurus* is the principle fishery within the Northumberland IFCA district, with 91 registered commercial permits in 2016 and approximately ~45,000 pots (maximum reported number of pots for any one month by each permit holder) fished within the district in 2015. Potting however occurs predominantly in and around subtidal stony reef habitats, with limited activity occurring on subtidal sand / mixed sediments within the district and very little/no activity within the Lindisfarne SPA itself (potting on soft ground targeting brown crab predominantly occurs further offshore). The greatest risk from potting in the Lindisfarne SPA is deemed to come from Physical abrasion of the seabed and the subsequent impacts for key prey species (as listed above), as well as removal of target and non-target species. *Mytilus edulis*, a key prey species for several of the designated bird species, is patchily distributed throughout the site in both intertidal and subtidal areas, with extensive beds present at Fenham Flats. The Fenham Flats mussel beds are located within a private oyster fishery with restricted access rights and therefore not subject to exploitation. NIFCA conduct yearly surveys of the mussel beds to assess their health and the results of these surveys indicate that the mussel beds are currently stable, with sufficient levels of recruitment[16].	
6. Condition and Conservation Objective Inferences	No evidence is available for the current condition of the water column feature within the Lindisfarne 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**	**OR In-combination** **No**
8. Have NE been consulted on this LSE test? If yes, what was NE's advice?	**Yes** Synthesis of evidence and local knowledge informing this decision occurred between January 2014 and the date of this document's creation with stakeholders (where appropriate) and other statutory authorities. Natural England (CS) was involved with this formal process.	

Conclusion

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

No

References

1. Gubbay and Knapman, 1999; Kaiser et al., 2001; Polet and Depestele, 2010; Roberts et al., 2010; Sewell et al., 2007; Sewell and Hiscock, 2005; Wildfowl and Wetlands Trust (WWT) Consulting, 2012. AP_Justification ref. **560 (UK9006011_Lindisfarne_SPA_Advice_on_Operations)**

2. ICES (International Council for Exploration of the Sea), 2009. AP_Justification ref. **619 (UK9006011_Lindisfarne_SPA_Advice_on_Operations)**

3. Gubbay and Knapman, 1999; Polet and Depestele, 2010; Sewell et al., 2007; Sewell and Hiscock, 2005. AP_Justification ref. **549 (UK9006011_Lindisfarne_SPA_Advice_on_Operations)**

4. Gubbay and Knapman, 1999; ICES (International Council for Exploration of the Sea), 2013; Kaiser et al., 2001; Sewell et al., 2007; Sewell and Hiscock, 2005; Wildfowl and Wetlands Trust (WWT) Consulting, 2012. AP_Justification ref. **548 (UK9006011_Lindisfarne_SPA_Advice_on_Operations)**

5. Tilin, H.M., Hull, S.C., Tyler-Walters, H. 21. Development of a sensitivity Matrix (pressures-MCZ/MPA features). Report to the Department of Environment, Food and Rural Affairs from ABPMer, Southampton and the Marine Life Information Network (MarLIN) Plymouth:Marine Biological Association of the UK. Defra Contract No. MB12 Task 3A, Report No. 22

6. No reference. “While unlikely this could occur as a result of setting nets in confined water bodies/estuaries, or behavioural effects from the use of ‘pingers’ on nets – the impacts from the latter may be better covered under ‘under water noise’ pressures.” **704 (UK9006011_Lindisfarne_SPA_Advice_on_Operations)**

7. Roberts, C., Smith, C., Tillin, H. Tyler-Walters, H. 2010. Review of existing approaches to evaluate marine habitat vulnerability to commercial fishing activities.

8. Department for Environment Food & Rural Affairs (Defra), 2015. Evidence for Management of Potting Impacts on Designated Features. Contract reference: MMO1086.

9. Eno, N.C., Frid, C.L.J., Hall, K., Ramsay, K., Sharp, R.A.M., Brazier, D.P., Hearn, S., Dernie, K.M., Robinson, K.A., Paramor, O.A.L. and Robinson, L.A. 2013. Assessing the sensitivity of habitats to fishing: from seabed maps to sensitivity maps. Journal of Fish Biology

10. Gubbay and Knapman, 1999; Kaiser et al., 2001; Sewell et al., 2007; Sewell and Hiscock, 2005. AP_Justification ref. **256 (UK9006011_Lindisfarne_SPA_Advice_on_Operations)**

11. Ware 2009. AP_Justification ref. **258,684 (UK9006011_Lindisfarne_SPA_Advice_on_Operations)**

12. Birdlife International, 2012b. AP_Justification ref. **323 (UK9006011_Lindisfarne_SPA_Advice_on_Operations)**

13. Ospar Commission, 2012. AP_Justification ref. **166 (UK9006011_Lindisfarne_SPA_Advice_on_Operations)**

14. Thomsen and Intersessional correspondence group on underwater noise (2007 - 2009), 2009. AP_Justification ref. **533 (UK9006011_Lindisfarne_SPA_Advice_on_Operations)**

15. Stillman et al., 2007; Wildfowl and Wetlands Trust (WWT) Consulting, 2012. AP_Justification ref. **362 (UK9006011_Lindisfarne_SPA_Advice_on_Operations)**

16. Green, J. 2016. NIFCA Fenham Flats mussel survey results 2015. Available online: www.nifca.gov.uk