

**Habitats Regulations Assessment document: BNNCSAC-tLSE 019**

<b>European Marine Site:</b>	<b>Berwickshire and North Northumberland Coast SAC</b>
<b>Generic sub-feature(s):</b>	<b>Tideswept communities, Intertidal bedrock reef, Intertidal boulder and cobble reef, Subtidal bedrock reef, Subtidal boulder and cobble reef, Kelp forest communities &amp; Subtidal faunal turfs.</b>  <b><u>Subtidal coarse sediment, Subtidal mixed sediment, Subtidal sand (only within spatially discrete shallow inlets and bays)</u></b>
<b>Gear type(s):</b>	<b>Pots/creels (crustacea/gastropoda)</b>
<b>NIFCA tLSE type:</b>	<b>Detailed</b>
<b>Gear/feature interaction reference(s):</b>	<b>BNNCSAC-456 BNNCSAC-457 BNNCSAC-458 BNNCSAC-459 BNNCSAC-460 BNNCSAC-461 BNNCSAC-510 BNNCSAC-511 BNNCSAC-513</b>

<b>Revision history</b>		
<b><i>Date</i></b>	<b><i>Revision</i></b>	<b><i>Editor</i></b>
15/09/2015	Document created	SM
03/02/2016	Document revised following consultation with Natural England (26/01/16)	SM
13/06/2016	Document revised following consultation with Natural England (10/06/16)	VR

<b>Has Natural England been formally consulted on this tLSE (and do they agree)?</b>	<b>YES</b>
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<b>Date of document completion/'sign-off':</b>		
Tideswept communities	YES	21/09/2016
Intertidal bedrock reef	YES**	21/09/2016
Intertidal boulder & cobble reef	YES**	21/09/2016
Subtidal bedrock reef	YES	21/09/2016
Subtidal boulder & cobble reef	YES	21/09/2016
Kelp forest communities & Sub-tidal faunal turfs	YES	21/09/2016
Subtidal coarse sediment	YES	21/09/2016
Subtidal mixed sediment	YES	21/09/2016
Subtidal sand	YES	21/09/2016

\*\* Cleeking will be considered under the activity of 'Hand Gathering' during 2017. Intertidal recreational potting will be considered in combination with cleeking at this time. This in combination assessment cannot be completed until the bait and hand gathering data has been collected. NIFCA acknowledges that this interaction needs to be explored.

## Test for Likely Significant Effect (LSE):

### BNNCSAC-456: Tideswept communities

<p><b>1. Is the activity/activities directly connected with or necessary to the management of the site for nature conservation?</b></p>	<p>No</p>
<p><b>2. What pressures (such as abrasion, disturbance) are potentially exerted by the gear type(s)?</b></p> <p><i>*Sensitivities as listed are based on DRAFT Interim conservation advice. Reference to Regulation 33 advice for the BNNC SAC and best judgement has been used to determine which of these pressures are truly exerted by the gear type(s).</i></p>	<p>Abrasion/disturbance of the substrate on the surface of the seabed (Sensitive)<sup>1</sup></p> <p>Introduction or spread of non-indigenous species (Sensitive)<sup>2</sup></p> <p>Penetration and/or disturbance of the substrate below the surface of the seabed, including abrasion (Sensitive)<sup>3</sup></p> <p>Removal of non-target species<sup>4</sup></p> <p>Removal of target species</p>
<p><b>3. Is the feature potentially exposed to the pressure(s)?</b></p>	<p>Yes</p>
<p><b>4. What are the conservation objectives for the feature?</b></p> <p><i>*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 Regulation 33 advice (June 2000), interim Regulation 35 advice, current knowledge of the status, and the pressures affecting designated features (see sections 4 &amp;5).</i></p> <p><i>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'.</i></p>	<p>The conservation objectives for Submerged or partially submerged sea caves (of which Tideswept communities are an attribute): <b>Maintain*</b></p> <ul style="list-style-type: none"> <li>- The total extent and distribution of all sea caves</li> <li>- <u>The presence and spatial distribution of sea cave communities</u></li> <li>- The characteristic morphological regime of the cave(s)</li> <li>- The surface and structural complexity of the sea caves</li> <li>- <u>The abundance of listed typical species</u></li> <li>- <u>The species composition of component communities</u></li> <li>- The natural physical energy resulting from waves/tides and other flows of water</li> <li>- The natural light availability to the caves</li> <li>- The natural physic-chemical properties of the water</li> <li>- The natural rate of sediment deposition</li> <li>- Natural levels of turbidity</li> <li>- <b>Restrict or Reduce:</b> Surface sediment contaminant levels</li> <li>- <b>Restrict or Reduce:</b> the introduction and spread of non-native species and pathogens</li> </ul> <p><i>Those conservation objectives that might be affected by potting activity are underlined.</i></p> <p><i>*Confidence level for interim, inferred Conservation Objective: <b>MEDIUM</b> (see section 6 for detail).</i></p>

<p><b>5. What are the potential effects/impacts of the pressure(s) on the feature, taking into account the exposure level?</b></p>	<p>‘Tideswept communities’ refer to communities within narrow gullies/caves and crevices, some of which may be present within the BNNC SAC as an attribute of ‘Submerged or partially submerged sea caves’. The main impact on these communities from potting is deemed to be ‘Abrasion/disturbance of the substrate on the surface of the seabed (Sensitive)<sup>2</sup> and removal of target species.</p> <p>Potting can occur in these environments, however, this is highly space and weather dependant and therefore levels of activity/exposure are low and tideswept communities are generally considered to be subject to naturally high levels of physical disturbance, with recovery predicted to be medium and therefore having a low sensitivity to potting<sup>5</sup>. In addition ‘stable but tideswept cobbles, pebbles and gravel’ have been assessed as having low sensitivity to all levels of potting activity<sup>6</sup>.</p>	
<p><b>6. Condition and Conservation Objective Inferences</b></p>	<p>Currently there is no evidence available on the present condition of ‘Submerged sea caves’ or associated ‘Tideswept communities’ within the BNNC SAC. A commissioned report to Natural England<sup>6</sup> on partially submerged sea caves indicates that there are low or negligible pressures affecting intertidal sea caves, which infers a ‘good’ condition.</p> <p>The Conservation Objective of ‘Maintain’ is based on Regulation 33 advice (June 2000) and since no later advise is available a ‘Medium’ confidence level has been ascribed.</p>	
<p><b>7. Is the potential scale or magnitude of any effect likely to be significant?</b></p>	<p><b>Alone:</b></p> <p><b>No</b></p>	<p><b>OR In-combination</b></p> <p><b>No</b></p>
<p><b>8. Have NE been consulted on this LSE test? If yes, what was NE’s advice?</b></p>	<p><b>Yes</b></p> <p>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 informal process.</p>	

## Conclusion

**Is the proposal likely to have a significant effect 'alone or in combination' on ‘Tideswept communities’ within the Berwickshire and North Northumberland Coast SAC?**

No

## Test for Likely Significant Effect (LSE):

### BNNCSAC-457: Intertidal bedrock reef

### BNNCSAC-458: Intertidal boulder and cobble reef

<p><b>1. Is the activity/activities directly connected with or necessary to the management of the site for nature conservation?</b></p>	<p>No</p>
<p><b>2. What pressures (such as abrasion, disturbance) are potentially exerted by the gear type(s)?</b></p> <p><i>*Sensitivities as listed are based on DRAFT Interim conservation advice. Reference to Regulation 33 advice for the BNNC SAC and best judgement has been used to determine which of these pressures are truly exerted by the gear type(s).</i></p>	<p>Abrasion/disturbance of the substrate on the surface of the seabed (Sensitive)<sup>1</sup></p> <p>Introduction or spread of non-indigenous species (Sensitive)<sup>2</sup></p> <p>Penetration and/or disturbance of the substrate below the surface of the seabed, including abrasion (Sensitive)<sup>3</sup></p> <p>Removal of non-target species (Sensitive)<sup>4</sup></p> <p>Removal of target species</p>
<p><b>3. Is the feature potentially exposed to the pressure(s)?</b></p>	<p>Yes</p>
<p><b>4. What are the conservation objectives for the feature?</b></p> <p><i>*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 Regulation 33 advice (June 2000), current knowledge of the status, and the pressures affecting designated features (see sections 4 &amp;5).</i></p> <p><i>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'.</i></p>	<p>The conservation objectives for Intertidal rock are to <b>Maintain*</b>:</p> <ul style="list-style-type: none"> <li>- The total extent and spatial distribution of intertidal rock</li> <li>- <u>The presence and spatial distribution of intertidal rock communities</u></li> <li>- <u>The surface and structural complexity of the reef</u></li> <li>- <u>The abundance of listed typical species</u></li> <li>- <u>The species composition of component communities</u></li> <li>- The natural physical energy resulting from waves, tides and other water flows</li> <li>- The natural physico-chemical properties of the water</li> <li>- The natural rate of sediment deposition</li> <li>- Natural levels of turbidity</li> <li>- <b>Restrict or Reduce:</b> <u>The introduction and spread of non-native species and pathogens</u></li> </ul> <p><i>Those conservation objectives that might be affected by potting activity are underlined.</i></p> <p><i>*Confidence level for interim, inferred Conservation Objective: <b>MEDIUM</b> (see section 6 for detail).</i></p>

<p><b>5. What are the potential effects/impacts of the pressure(s) on the feature, taking into account the exposure level?</b></p>	<p>Potting for European lobster <i>Homarus gammarus</i> and brown crab <i>Cancer pagurus</i> 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)<sup>1</sup> and removal of target species.</p> <p>Potting within the intertidal 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 (Jon Green, pers. comms.). As of January 2016, NIFCA have introduced an annual permit scheme for recreational potting, which will enable recreational effort to be monitored on an annual basis.</p> <p>Exposure levels from potting on intertidal reef are low and "this feature is subject to naturally high levels of physical disturbance and recovery is predicted to be medium<sup>5</sup>".</p> <p>Cleeking will be considered under the activity of 'Hand Gathering' during 2017. Intertidal recreational potting will be considered in combination with cleeking at this time.**</p>	
<p><b>6. Condition and Conservation Objective Inferences</b></p>	<p>Commissioned report to Natural England <sup>7</sup> on intertidal rocky reef indicates that there are low or negligible pressures affecting intertidal rocky reef, which infers a 'good' condition. However, the most current Conservation Objectives available is based on Regulation 33 advice (June 2000) of 'Maintain', therefore a 'Medium' confidence level has been assigned.</p>	
<p><b>7. Is the potential scale or magnitude of any effect likely to be significant?</b></p>	<p><b>Alone:</b></p> <p><b>No</b></p>	<p><b>OR In-combination</b></p> <p><b>No**</b></p>

8. Have NE been consulted on this LSE test? If yes, what was NE's advice?	<p><b>Yes</b></p> <p>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 informal process.</p>
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## Conclusion

### Is the proposal likely to have a significant effect 'alone or in combination' on 'Intertidal bedrock reef' or 'Intertidal boulder and cobble reef' within the Berwickshire and North Northumberland Coast SAC?

No\*\* Cleeking will be considered under the activity of 'Hand Gathering' during 2017. Intertidal recreational potting will be considered in combination with cleeking at this time. This in combination assessment cannot be completed until the bait and hand gathering data has been collected. NIFCA acknowledges that this interaction needs to be explored.

## Test for Likely Significant Effect (LSE):

### BNNCSAC-459: Subtidal bedrock reef

### BNNCSAC-460: Subtidal boulder and cobble reef

1. Is the activity/activities directly connected with or necessary to the management of the site for nature conservation?	No
<p>2. What pressures (such as abrasion, disturbance) are potentially exerted by the gear type(s)?</p> <p>*Sensitivities as listed are based on DRAFT Interim conservation advice. Reference to Regulation 33 advice for the BNNC SAC and best judgement has been used to determine which of these pressures are truly exerted by the gear type(s).</p>	<p>Abrasion/disturbance of the substrate on the surface of the seabed (Sensitive)<sup>1</sup></p> <p>Introduction or spread of non-indigenous species (Sensitive)<sup>2</sup></p> <p>Penetration and/or disturbance of the substrate below the surface of the seabed, including abrasion (Sensitive)<sup>3</sup></p> <p>Removal of non-target species (Sensitive)<sup>4</sup></p> <p>Removal of target species</p>
3. Is the feature potentially exposed to the pressure(s) <sup>1</sup> ?	Yes

<p><b>4. What are the conservation objectives for the feature?</b></p> <p><i>*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 Regulation 33 advice (June 2000), current knowledge of the status, and the pressures affecting designated features (see sections 4 &amp;5).</i></p> <p><i>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'.</i></p>	<p>Conservation objective(s) for Subtidal rocky reef: <b>Maintain*</b>:</p> <ul style="list-style-type: none"> <li>- The total extent and spatial distribution of subtidal reef</li> <li>- <u>The presence and spatial distribution of subtidal reef communities</u></li> <li>- <u>The surface and structural complexity of the reef</u></li> <li>- <u>The abundance of listed typical species</u></li> <li>- <u>The species composition of component communities</u></li> <li>- The natural physical energy resulting from waves, tides and other water flows</li> <li>- The natural physico-chemical properties of the water</li> <li>- The natural rate of sediment deposition</li> <li>- Natural levels of turbidity</li> <li>- <b>Restrict or Reduce:</b> <u>The introduction and spread of non-native species and pathogens</u></li> </ul> <p><i>*Those conservation objectives that might be affected by potting activity are underlined.</i></p> <p><i>*Confidence level for interim, inferred Conservation Objective: <b>MEDIUM</b> (see section 6 for detail).</i></p>
<p><b>5. What are the potential effects/impacts of the pressure(s) on the feature, taking into account the exposure level?</b></p>	<p>Potting for European lobster <i>Homarus gammarus</i> and brown crab <i>Cancer pagurus</i> 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 in and around subtidal stony reef habitats where the greatest impacts are likely to result from 'Abrasion/disturbance of the substrate on the surface of the seabed (Sensitive)<sup>1</sup>, but at current exposure levels (high) there may also be significant impacts from 'Penetration and/or disturbance of the substrate below the surface of the seabed, including abrasion' (Sensitive)<sup>3</sup> and 'Removal of non-target species' (Sensitive)<sup>4</sup> and target species.</p> <p>Potting impact studies indicate no significant adverse impact of potting on subtidal bedrock and boulder/cobble reef<sup>8</sup>, however consideration for site-specific environmental and topographical conditions, species assemblages and fishing intensity is required via a full appropriate assessment.</p>



<b>6. Condition and Conservation Objective Inferences</b>	<p>Commissioned report to Natural England<sup>9</sup> on subtidal rocky reef looking at a small proportion of the site indicated that biotopes between 2002-2010 were consistent, pointing towards the indication that condition had not changed. Subsequently, this data has been used in a study looking at changes between 2002-2010 biotopes correlating with fishing intensity data (NIFCA sightings data), which indicates that further research was needed to ascertain if fishing affected biotopes<sup>10</sup>. Provisionally, condition is thought to be unchanged and in combination with Conservation Objective of 'Maintain' based on Regulation 33 advice (June 2000) a 'Medium' confidence level has been assigned.</p>	
<b>7. Is the potential scale or magnitude of any effect likely to be significant?</b>	<b>Alone:</b>  <b>Yes</b>  BNNCSAC- AA 002	<b>OR In-combination</b>  <b>No</b>
<b>8. Have NE been consulted on this LSE test? If yes, what was NE's advice?</b>	<b>Yes</b>  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 informal process.	

## Conclusion

**Is the proposal likely to have a significant effect 'alone or in combination' on 'Subtidal bedrock reef' or 'Subtidal boulder and cobble reef' within the Berwickshire and North Northumberland Coast SAC?**

Yes (BNNCSAC- AA 002)

## Test for Likely Significant Effect (LSE):

### BNNCSAC-461: Kelp forest communities & Sub-tidal faunal turfs

<p><b>1. Is the activity/activities directly connected with or necessary to the management of the site for nature conservation?</b></p>	<p>No</p>
<p><b>2. What pressures (such as abrasion, disturbance) are potentially exerted by the gear type(s)?</b></p> <p><i>*Sensitivities as listed are based on DRAFT Interim conservation advice. Reference to Regulation 33 advice for the BNNC SAC and best judgement has been used to determine which of these pressures are truly exerted by the gear type(s).</i></p>	<p>Abrasion/disturbance of the substrate on the surface of the seabed (Sensitive)<sup>1</sup></p> <p>Introduction or spread of non-indigenous species (Sensitive)<sup>2</sup></p> <p>Penetration and/or disturbance of the substrate below the surface of the seabed, including abrasion (Sensitive)<sup>3</sup></p> <p>Removal of non-target species (Sensitive)<sup>4</sup></p> <p>Removal of target species</p>
<p><b>3. Is the feature potentially exposed to the pressure(s)<sup>2</sup>?</b></p>	<p>Yes</p>
<p><b>4. What are the conservation objectives for the feature?</b></p> <p><i>*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 Regulation 33 advice (June 2000), current knowledge of the status, and the pressures affecting designated features (see sections 4 &amp;5).</i></p> <p><i>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'.</i></p>	<p>Conservation objective(s) for Subtidal rocky reef: <b>Maintain*</b>:</p> <ul style="list-style-type: none"> <li>- The total extent and spatial distribution of subtidal reef</li> <li>- <u>The presence and spatial distribution of subtidal reef communities</u></li> <li>- <u>The surface and structural complexity of the reef</u></li> <li>- <u>The abundance of listed typical species</u></li> <li>- <u>The species composition of component communities</u></li> <li>- The natural physical energy resulting from waves, tides and other water flows</li> <li>- The natural physico-chemical properties of the water</li> <li>- The natural rate of sediment deposition</li> <li>- Natural levels of turbidity</li> <li>- <b>Restrict or Reduce:</b> <u>The introduction and spread of non-native species and pathogens</u></li> </ul> <p><i>Those conservation objectives that might be affected by potting activity are underlined.</i></p> <p><i>*Confidence level for interim, inferred Conservation Objective: <b>MEDIUM</b> (see section 6 for detail).</i></p>

<p><b>5. What are the potential effects/impacts of the pressure(s) on the feature, taking into account the exposure level?</b></p>	<p>Potting for European lobster <i>Homarus gammarus</i> and brown crab <i>Cancer pagurus</i> 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 in and around subtidal stony reef habitats, of which Kelp forest communities and subtidal faunal turfs are an attribute. The greatest impacts of potting on these communities are likely to occur as a result of 'Abrasion/disturbance of the substrate on the surface of the seabed (Sensitive)<sup>i</sup>, but at current exposure levels (high) there may also be significant impacts from 'Penetration and/or disturbance of the substrate below the surface of the seabed, including abrasion' (Sensitive)<sup>3</sup> and 'Removal of non-target species (Sensitive)<sup>4</sup> and target species'.</p> <p>Potting impact studies indicate no significant adverse impact of potting on kelp forest communities and sub-tidal faunal turf<sup>8,12</sup>. However, consideration for site-specific environmental and topographical conditions, species assemblages and fishing intensity is required via a full appropriate assessment.</p>	
<p><b>6. Condition and Conservation Objective Inferences</b></p>	<p>A commissioned report to Natural England<sup>9</sup> on subtidal rocky reef looking at a small proportion of the site indicated that biotopes between 2002-2010 were consistent, pointing towards the indication that condition had not changed. Subsequently, this data has been used in a study looking at changes between 2002-2010 biotopes correlating with fishing intensity data (NIFCA sightings data), which indicates that further research was needed to ascertain if fishing affected biotopes<sup>10</sup>. Provisionally, condition is thought to be unchanged, and in combination of the Conservation Objective of 'Maintain' based on Regulation 33 advice (June 2000) a 'Medium' confidence level is inferred.</p>	
<p><b>7. Is the potential scale or magnitude of any effect likely to be significant?</b></p>	<p><b>Alone:</b></p> <p><b>Yes</b></p> <p>BNNCSAC- AA 002</p>	<p><b>OR In-combination</b></p> <p><b>No</b></p>
<p><b>8. Have NE been consulted on this LSE test? If yes, what was NE's advice?</b></p>	<p><b>Yes</b></p> <p>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 informal process.</p>	

## Conclusion

Is the proposal likely to have a significant effect 'alone or in combination' on 'Kelp forest communities & Sub-tidal faunal turf' within the Berwickshire and North Northumberland Coast SAC?

Yes (BNNCSAC- AA 002)

## Test for Likely Significant Effect (LSE):

**BNNCSAC-510: Subtidal coarse sediment**

**BNNCSAC-511: Subtidal mixed sediment**

**BNNCSAC-513: Subtidal sand**

(WITHIN SHALLOW INLETS AND BAYS)

<p><b>1. Is the activity/activities directly connected with or necessary to the management of the site for nature conservation?</b></p>	<p>No</p>
<p><b>2. What pressures (such as abrasion, disturbance) are potentially exerted by the gear type(s)?</b></p> <p><i>*Sensitivities as listed are based on DRAFT Interim conservation advice. Reference to Regulation 33 advice for the BNNC SAC and best judgement has been used to determine which of these pressures are truly exerted by the gear type(s).</i></p>	<p>Abrasion/disturbance of the substrate on the surface of the seabed (Sensitive)<sup>1</sup></p> <p>Introduction or spread of non-indigenous species (Sensitive)<sup>2</sup></p> <p>Penetration and/or disturbance of the substrate below the surface of the seabed, including abrasion (Sensitive)<sup>3</sup></p> <p>Removal of non-target species (Sensitive)<sup>4</sup></p>
<p><b>3. Is the feature potentially exposed to the pressure(s)?</b></p>	<p>Yes</p>

#### 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 Regulation 33 advice (June 2000), 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
- The presence and spatial distribution of subtidal mixed sediment communities
- The abundance of listed typical species
- The distribution of sediment composition type across the feature
- The species composition of component communities
- The natural physical energy resulting from waves, tides and other water flows
- The natural physico-chemical properties of the water
- Natural levels of turbidity
- All hydro-dynamic and physical conditions such that natural water flow and sediment movement are not altered
- **Restrict or reduce:** Surface sediment contaminant levels
- **Restrict or Reduce:** The introduction and spread of non-native species and pathogens

Those conservation objectives that might be affected by potting activity are underlined.

\*Confidence level for interim, inferred Conservation Objective: **MEDIUM** (see section 5 for detail).

<p><b>5. What are the potential effects/impacts of the pressure(s) on the feature, taking into account the exposure level?</b></p> <p><i>(reference to conservation objectives)</i></p>	<p>Potting for European lobster <i>Homarus gammarus</i> and brown crab <i>Cancer pagurus</i> 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 spatially discrete areas of subtidal coarse/mixed sediment or sand within 'shallow inlets and bays' within the BNNC SAC (potting on soft ground targeting brown crab predominantly occurs further offshore, outside the BNNC SAC boundaries). Within the largest shallow inlet and bay within the BNNC SAC Fenham Flats and Holy Island Sands and Budle Bay, no potting occurs (Lindisfarne byelaws). In the remaining two shallow inlets and bays, Embleton and Beadnell, potting activity is targeted on rocky reef not the subtidal sediments (Jon Green, pers. comms.).</p> <p>Potting impact studies have found that benthic communities associated with coarse sediments are relatively unaffected by static fishing gears, while the impact of pots on subtidal muddy sediment are considered to be of low concern<sup>11, 12</sup>. 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<sup>8,12</sup>.</p>	
<p><b>6. Condition and Conservation Objective Inferences</b></p>	<p>Commissioned report to Natural England<sup>13</sup> on shallow inlets and bays provided baseline information on the sediments within the shallow inlets and bays. The authors' inference was that condition was 'good'. The Conservation Objective of 'Maintain' is based on Regulation 33 advice (June 2000) with a 'Medium' confidence level has been assigned.</p>	
<p><b>7. Is the potential scale or magnitude of any effect likely to be significant?</b></p>	<p><b>Alone:</b></p> <p><b>No</b></p>	<p><b>OR In-combination</b></p> <p><b>No</b></p>
<p><b>8. Have NE been consulted on this LSE test? If yes, what was NE's advice?</b></p>	<p><b>Yes</b></p> <p>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 informal process.</p>	

## Conclusion

**Is the proposal likely to have a significant effect 'alone or in combination' on 'Subtidal coarse sediment', 'Subtidal mixed sediment' or 'Subtidal sand' within the Berwickshire and North Northumberland Coast SAC?**

No, these features are only considered within the shallow inlets and bays within the larger SAC area.

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