

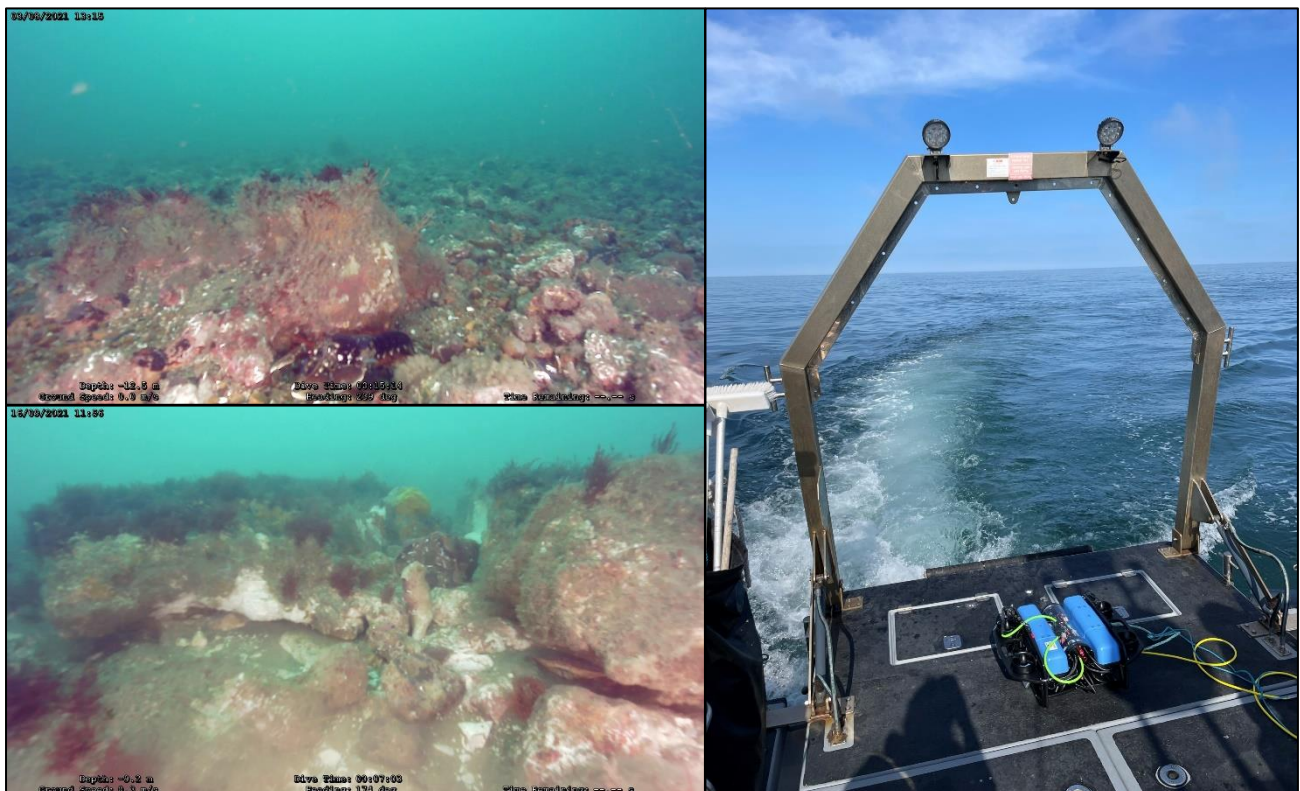
# Eastern Inshore Fisheries and Conservation Authority



## Cromer Shoal Chalk Beds Marine Conservation Zone

### 2022 Review of habitat data

April 2023  
Version 1.1 (Final)



## Document Control

Revision History				
Date	Version	Edits	Status	Author
12/2022	v.1.0	Draft completed and shared with RWJ for comment	Draft	SH
01/2023	v.1.0	Edits made, draft updated and shared with the Research and Development Task and Finish Group and Evidence Review Group	Draft	SH
04/04/2023	v.1.1	Feedback taken into account and draft finalised	Final	SH

*N.B. This review builds on from a desk-based review completed in 2020*

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## 1 Background

Eastern IFCA completed an assessment of potting activities in Cromer Shoal Chalk Beds Marine Conservation Zone (MCZ) in April 2022. The authority concluded that it could not rule out a risk of the activity hindering the conservation objectives for the site in the long term due to interactions with *Subtidal Chalk* features considered rugged in nature, hereafter referred to as rugged chalk and defined as outcropping, raised and structurally complex chalk features visible on the surface of the seabed.

To mitigate this risk Eastern IFCA are taking an Adaptive Risk Management (ARM) approach to the management of potting activities in the MCZ. This is an iterative process whereby management and research will inform each other in a feedback loop over the coming years.

One of the key research objectives of ARM is to:

- Determine the locations of chalk features which are sensitive to damage from potting

In 2020 a desk-based study was completed to identify all available evidence sources which could provide information on the extent of rugged chalk features within the MCZ. After analysing available data, officers were able to identify a preliminary and precautionary area to be considered as rugged chalk (Figure 1).

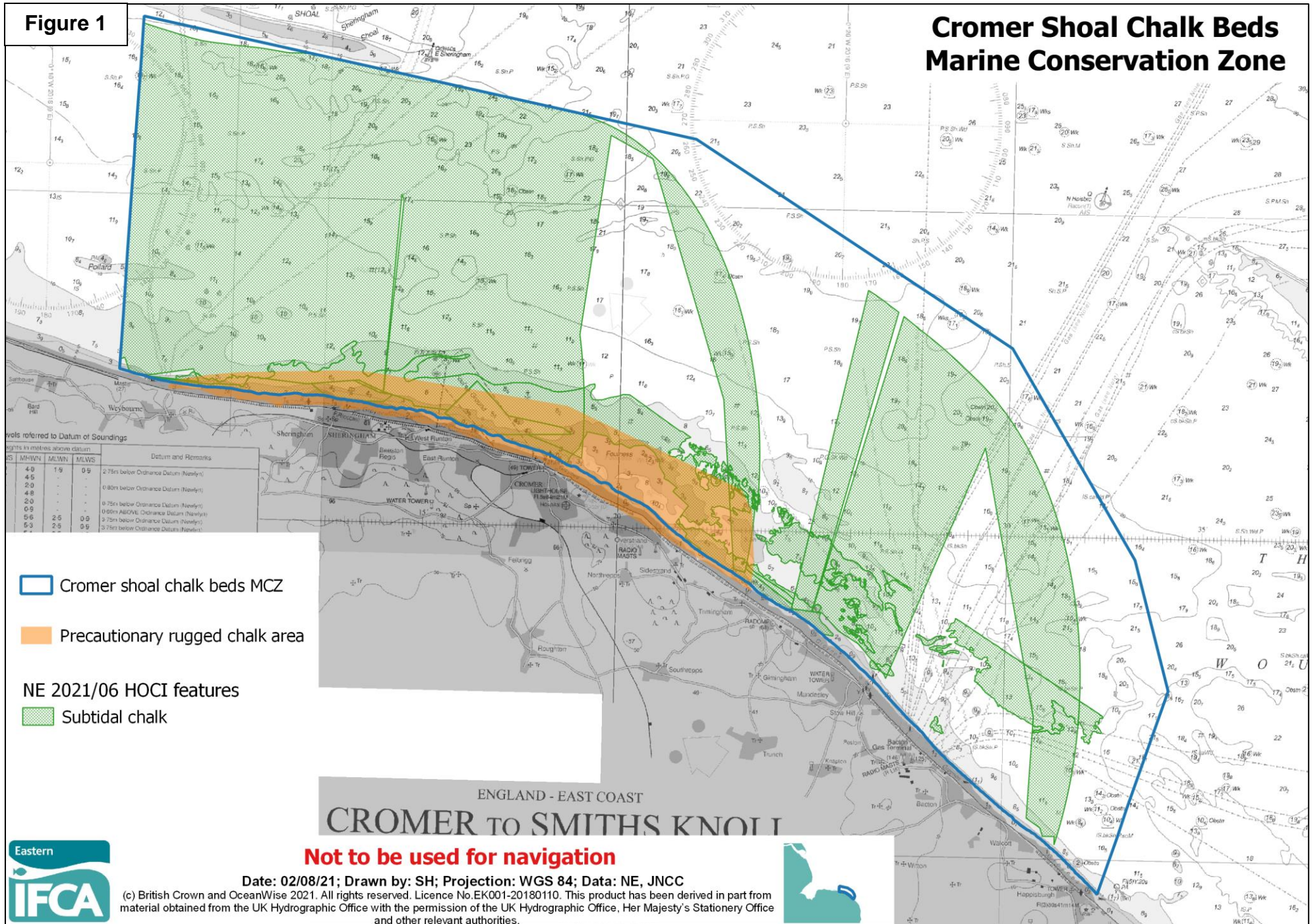
Since completing the review in December 2020, several additional evidence sources have become available that can be used to improve our understanding as to the extent of the rugged chalk features. It is considered appropriate, therefore, to review the preliminary rugged chalk area, taking into account this new evidence. However, it is important to note that this review will not provide a final rugged chalk extent, but will form part of an ongoing process. As we continue with ARM and collect, or obtain, further data and evidence we will continue to review and update the rugged chalk extent to reflect best available evidence.

## 2 Data sources and methods

Table 1 provides a list of data sources used in this review and summarises the processing and analysis undertaken by Eastern IFCA. Chalk categories used during analysis are detailed in Table 2. Data used in this review is presented in Figure 2.

Figure 1

# Cromer Shoal Chalk Beds Marine Conservation Zone



- Cromer shoal chalk beds MCZ
- Precautionary rugged chalk area
- NE 2021/06 HOCI features
- Subtidal chalk

ENGLAND - EAST COAST  
**CROMER TO SMITHS KNOLL**

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Date: 02/08/21; Drawn by: SH; Projection: WGS 84; Data: NE, JNCC

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**Table 1:** Data sources used to review rugged chalk area

Source	Date	Processing, analysis and incorporation of data	Link/reference to data
<b>Sources used in 2020 review</b>			
Cefas Cromer Shoal Chalk Beds rMCZ survey	August 2014	<ol style="list-style-type: none"> <li>1) Identified stations identified as A3 or A4 rock features in area of interest using NE Broad Scale Habitat feature point data (2020_04 data release). This came to a total of 18 stations<sup>1</sup>.</li> <li>2) For each of these stations the raw data was obtained. Stills for each station were analysed and assigned a chalk category (Table 2) with an associated confidence level (where confidence was low a precautionary assessment was made) and a station assessment sheet was completed detailing the observations and assessment made (Appendix 1).</li> <li>3) Start and end positions for each station tow were mapped and colour coded according to chalk category.</li> </ol>	<a href="https://data.cefas.co.uk/view/3823">https://data.cefas.co.uk/view/3823</a>  Station assessment sheets provided in Appendix 1 <sup>2</sup>
Eastern IFCA Cromer Shoal Chalk Beds MCZ drop down camera survey	May 2019	<ol style="list-style-type: none"> <li>1) Drop down video camera surveys completed within the MCZ across a total of 17 stations.</li> <li>2) For each of these stations video footage was analysed and assigned a chalk category (Table 2) with an associated confidence level (where confidence was low a precautionary assessment was made) and a station assessment sheet completed (Appendix 2).</li> </ol>	Not yet published  Station assessment sheets provided in Appendix 2 <sup>3</sup>

<sup>1</sup> Station numbers: 11, 12, 38, 39, 30, 32, 56, 60, 43, 44, 6, 10, 64, 4, 5, 16, 28, 17

<sup>2</sup> Available at: T:\D\_Research\WSXX\_Habitat\_Mapping\2020\_Habitat\_Mapping\2014\_Cefas\_CSCB\_MCZ\_survey\Station sheets

<sup>3</sup> Available at: T:\D\_Research\WSXX\_Habitat\_Mapping\2019\_Habitat\_Mapping\2019\_05\_31\_GT\Station sample data sheets

		3) Positions for each drop were mapped and colour coded according to chalk category.	
EA Cromer Shoal Chalk Beds MCZ survey	October 2019	<p>1) A total of 30 stations <sup>4</sup>were surveyed by the EA. Identified 20 stations of interest based on whether they overlapped or were adjacent to the NE A4 Circalittoral rock extent (2020_04 data release).</p> <p>2) For each of these stations, identified and analysed video and stills and completed a station assessment sheet and assigned a chalk category (Table 2) and confidence level (where confidence was low a precautionary assessment was made).</p> <p>3) Start and end positions for each tow were mapped and colour coded according to chalk category.</p>	<p>Not yet published</p> <p>Station assessment sheets provided in Appendix 3<sup>5</sup></p>
Bathymetry data (Cefas)	2012	No further analysis by Eastern IFCA, tiff. files imported and used to inform rugged chalk extent review. Data not presented here.	<a href="https://data.cefas.co.uk/view/3330">https://data.cefas.co.uk/view/3330</a>
Bathymetry data (EA)	2011 and 2017	No further analysis by Eastern IFCA, tiff. files imported and used to inform rugged chalk extent review.	<a href="https://environment.data.gov.uk/DefraDataDownload/?Mode=survey&amp;fbclid=IwAR2Xlk-tFvjwzh3dVP7ZL8lfaaMccSI5uW8q9mumGoXqs27KQfp9pWaOaw">https://environment.data.gov.uk/DefraDataDownload/?Mode=survey&amp;fbclid=IwAR2Xlk-tFvjwzh3dVP7ZL8lfaaMccSI5uW8q9mumGoXqs27KQfp9pWaOaw</a>





<sup>4</sup> Station numbers: 27, 11, 10, 8, 9, 7, 28, 6, 29, 12, 13, 14, 5, 30, 4, 15, 16, 21, 3, 26.

<sup>5</sup> Available at: T:\D\_Research\WSXX\_Habitat\_Mapping\2020\_Habitat\_Mapping\2019\_EA\_CSCB\_MCZ\_survey\Station sheets

Additional sources used in this review (2022)			
Cefas reanalysis of multibeam data Cromer Shoal Chalk Beds Marine Conservation Zone (MCZ) Bathymetric Re-gridding and Rugosity Assessment.	2011, 2012, 2014 and 2017  (Reanalysis completed in 2021)	<ol style="list-style-type: none"> <li>1) Four bathymetric datasets re-gridded to 0.5m resolution by Cefas and assessed by rugosity</li> <li>2) Tiff. files imported and used to inform rugged chalk extent review.</li> </ol>	Hawes and Pettafor (2021)
NE Cromer Shoal Chalk Beds Marine Conservation Zone (MCZ) Dive survey	2020	<ol style="list-style-type: none"> <li>1) Positional data mapped and colour coded according to chalk category based on description provided in report.</li> <li>2) Data not presented here for sensitivity reasons</li> </ol>	Tibbitt <i>et al.</i> (2020) - Available on our website: <a href="https://www.eastern-ifca.gov.uk/wp-content/uploads/2020/10/D2020-00111615-NERR-Human-Impacts-on-the-Cromer-Shoal-Chalk-Beds-MCZ.pdf">https://www.eastern-ifca.gov.uk/wp-content/uploads/2020/10/D2020-00111615-NERR-Human-Impacts-on-the-Cromer-Shoal-Chalk-Beds-MCZ.pdf</a>
Eastern IFCA Cromer Shoal Chalk Beds MCZ ROV surveys	August/September 2021	<ol style="list-style-type: none"> <li>1) A total of 87 ROV surveys completed within the MCZ whilst trialling the ROV to look at habitats and interaction with potting gears.</li> <li>2) Analysis contracted out and completed by Seastar Survey Ltd.</li> <li>3) Positional data for each drop were mapped and colour coded according to chalk category (Table 2).</li> </ol>	O'Dell and Dewey (2022) - Available on our website: <a href="https://www.eastern-ifca.gov.uk/wp-content/uploads/2022/07/2022-Cromer-Shoal-Chalk-Beds-MCZ-Imagery-Analysis.pdf">https://www.eastern-ifca.gov.uk/wp-content/uploads/2022/07/2022-Cromer-Shoal-Chalk-Beds-MCZ-Imagery-Analysis.pdf</a>  Videos available on Biigle.
Seasearch dive (2022)	2022	<ol style="list-style-type: none"> <li>1) Georeferenced data assigned chalk category and mapped.</li> </ol>	Not published or publicly available at the time of writing.



**Table 2:** Chalk categories assigned to seabed imagery

Category	Description	Examples	
<b>Absent</b>	Chalk not observed/mobile sediment		
<b>Pebble/cobble</b>	Seabed predominantly made up of pebble/cobble (likely chalk or flint)		





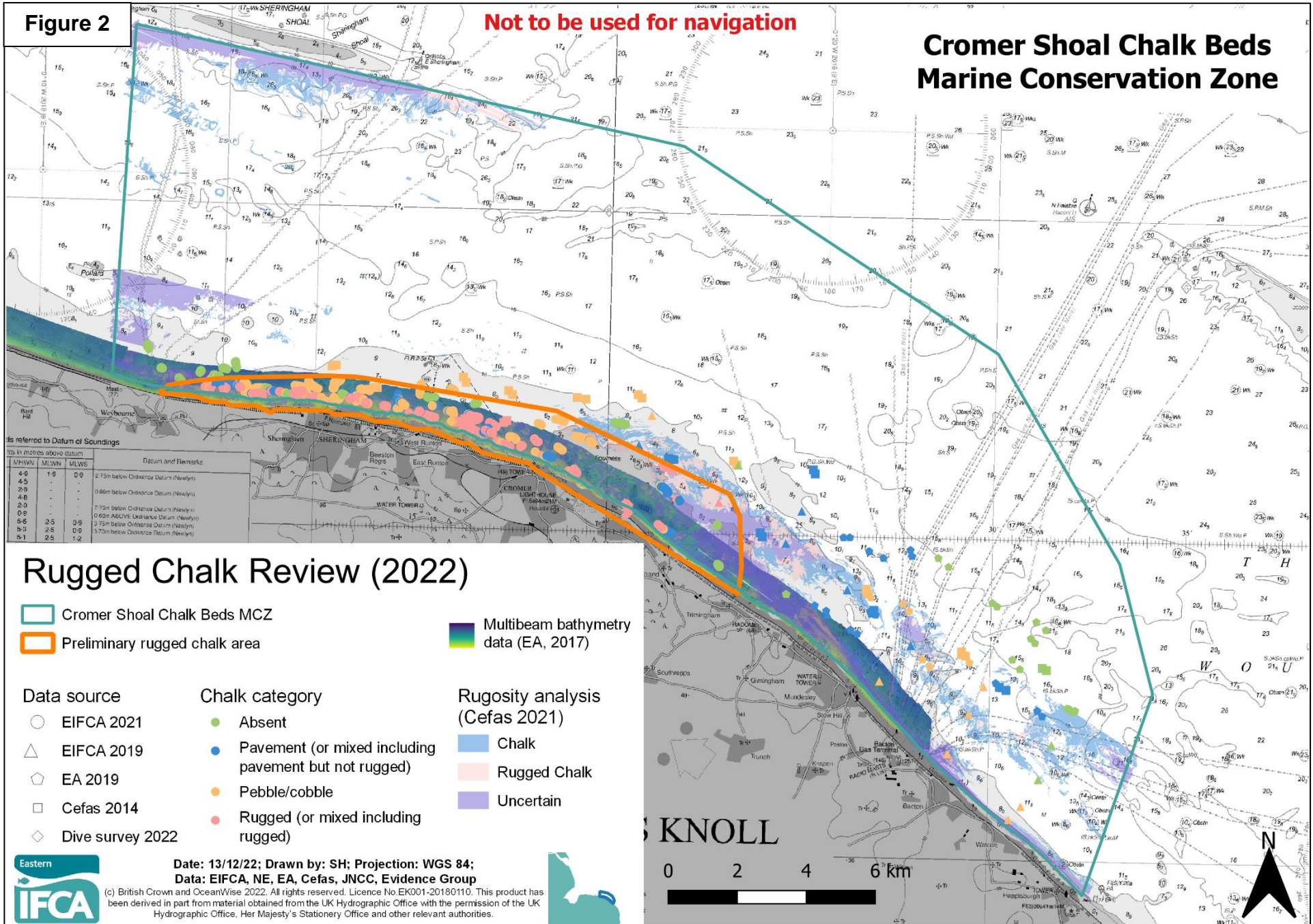
<p><b>Chalk pavement</b></p>	<p>Flat chalk pavement/ veneered chalk observed</p>		
<p><b>Rugged chalk</b></p>	<p>Elevated and complex chalk features observed</p>		

Figure 2

Not to be used for navigation

# Cromer Shoal Chalk Beds Marine Conservation Zone



### 3 Data review

All additional and existing data sources have been plotted in QGIS 3.16.4, reviewed and a proposed rugged chalk area drawn based on these data along with expert judgement (Figure 3; Appendix 4: Figures 1-5). Precautionarily, areas have remained in the proposed rugged area where their data is limited, causing uncertainty in determining the ruggedness of the seabed.

The evidence suggests that the structure of the seabed is not uniform throughout and that patches of flatter seabed do exist within rugged features, forming a mosaic of chalk habitat types in places. Managing rugged chalk at a feature level would not be possible, so mapping individual rugged chalk features is not considered necessary for fishery management purposes. As mapping the extent of the rugged chalk is considered more appropriate to inform any spatial management required for the potting fishery, this review focuses on identifying the extent of the rugged chalk.

The most rugged areas of seabed appear to occur very close inshore between Weybourne and Cromer (up to 500m from shore), particularly around Sheringham and West and East Runton. Here, raised chalk outcrops typically form ridges interspersed with gullies running north-south, composed of coarse sediment, flat chalk pavement with a sediment veneer, or pebbles and cobbles. These rugged features can be seen clearly on EIFCA's ROV footage (2021) (O'Dell and Dewey, 2022), dive footage (Tibbitt *et al.*, 2020) and are also visible on the available multibeam data (EA, 2017). Beyond this inshore strip of rugged chalk, the seabed appears to reduce in rugosity and instead forms a relatively flat, and mostly flint, pebble and cobble plain, with the occasional boulder. Again, these observations made from ROV footage (O'Dell and Dewey, 2022) support the multibeam imagery where data are available. These observations are also consistent with the anecdotal information provided by local fishermen and divers.

East of Cromer, the inshore strip of rugged chalk appears to narrow, disappearing altogether just past Overstrand as a deeper channel runs parallel to shore, visible from the available multibeam data (EA, 2017). However, seabed imagery data is limited in this area, and as we only have multibeam data out to 1km from shore the available habitat data beyond this is very limited overall. Cefas's rugosity analysis (Hawes and Pettafor, 2021), using a variety of multibeam data sets, indicates there is another area of rugged ground roughly between Cromer and Trimmingham, between 1 to 2 km offshore, however this does appear to be patchy and largely interspersed with flatter areas. This area has been included in the 2022 proposed rugged chalk area on a precautionary basis, as we cannot yet be confident that this area is not rugged chalk. Eastern IFCA's 2022 habitat surveys have targeted this area to fill in these data gaps and preliminary observations of footage suggest that raised outcropping features do occur in this area but that they are typically of relatively low relief and frequency, forming a less rugged habitat than that observed inshore. This data is currently undergoing analysis and will be considered in the next review.

Outside of these areas, an area off Overstrand and an area off Trimmingham has also been included in the 2022 proposed rugged chalk area. This is because both ROV

footage, multibeam data and rugosity analysis indicate raised rugged chalk outcrops. Other areas identified as rugged chalk by the rugosity analysis, however, have not been included in the proposed rugged chalk areas as other evidence suggests that whilst they may indicate a rugose seabed this is not rugged chalk. For example, rugged areas identified off Bacton appear to lie along pipelines and areas north of the MCZ boundary have subsequently been identified as sand waves.

Whilst all of the datasets have been used when reviewing this proposed 2022 rugged chalk area, they each have their limitations and have been reviewed considering these. Limitations for each of the data sources are set out in Table 3.

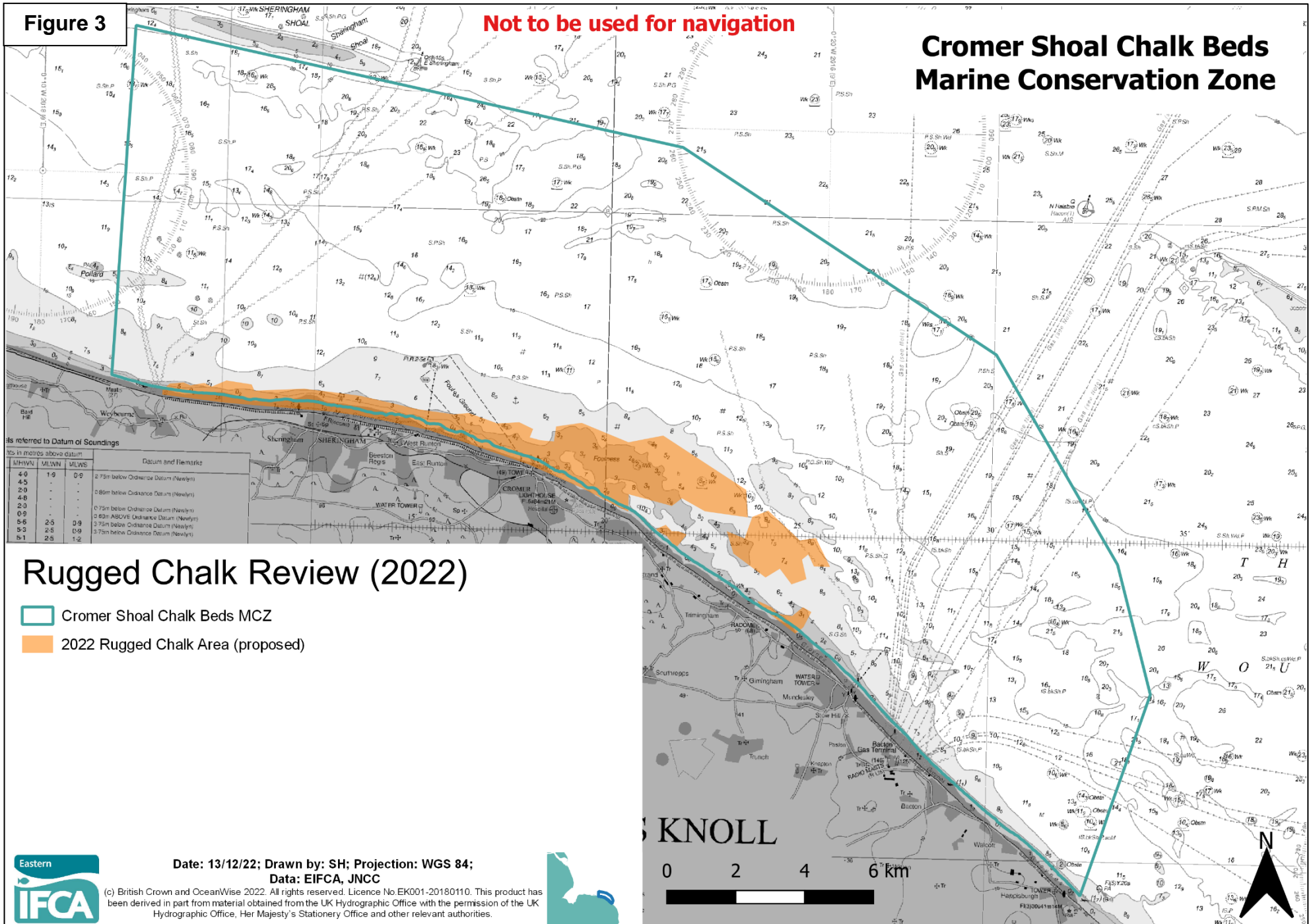
**Table 3:** Limitations of data sources used to review rugged chalk area

Data source	Limitations
Cefas Cromer Shoal Chalk Beds rMCZ survey	<ul style="list-style-type: none"> <li>• Assessment made using stills which makes it hard to determine the overall structure of the seabed if taken too close to seabed.</li> <li>• Size of rock features cannot be quantified and can only be estimated.</li> <li>• Data collected in 2014</li> </ul>
Eastern IFCA Cromer Shoal Chalk Beds MCZ drop down camera survey	<ul style="list-style-type: none"> <li>• Size of rock features cannot be quantified and can only be estimated.</li> <li>• Data collected in 2019</li> </ul>
EA Cromer Shoal Chalk Beds MCZ survey	<ul style="list-style-type: none"> <li>• Assessment made using stills which make it hard to determine the overall structure of the seabed if taken close to seabed.</li> <li>• Size of rock features cannot be quantified and can only be estimated.</li> <li>• Data collected in 2019</li> </ul>
Bathymetry (multibeam) data (Cefas)	<ul style="list-style-type: none"> <li>• Data is limited in area.</li> <li>• Data collected in 2014</li> </ul>
Bathymetry (multibeam) data (EA)	<ul style="list-style-type: none"> <li>• Data is limited to within 1km from the shore. Data collected in 2017</li> </ul>
Cefas reanalysis of multibeam data Cromer Shoal Chalk Beds Marine Conservation Zone (MCZ) Bathymetric Re-gridding and Rugosity Assessment.	<ul style="list-style-type: none"> <li>• Rugosity analysis has not been ground truthed and so must be considered with caution.</li> <li>• Areas identified as rugged could indicate areas of seabed with lots of small changes in relief such as a pebble/cobble dominated seabed as well as areas with fewer large changes in relief likely to reflect rugged chalk outcrops.</li> </ul>
NE Cromer Shoal Chalk Beds Marine Conservation Zone (MCZ) Dive survey	<ul style="list-style-type: none"> <li>• Positional data mapped at the start and end of dives (not shown in this report for sensitivity reasons)</li> </ul>
Eastern IFCA Cromer Shoal Chalk Beds MCZ ROV surveys	<ul style="list-style-type: none"> <li>• Size of rock features cannot be quantified and can only be estimated.</li> <li>• Accuracy of positional data is low and up to <math>\pm 100\text{m}</math> at times</li> </ul>
Seasearch dive (2022)	<ul style="list-style-type: none"> <li>• Positional data collected using a floating GPS</li> </ul>

Figure 3

Not to be used for navigation

# Cromer Shoal Chalk Beds Marine Conservation Zone



Units referred to Datum of Soundings

MHW	MLWN	MLWS	Datum and Remarks
4.0	1.9	0.5	2.75m below Ordnance Datum (Newlyn)
4.5	-	-	0.80m below Ordnance Datum (Newlyn)
2.9	-	-	0.75m below Ordnance Datum (Newlyn)
4.8	-	-	0.62m ABOVE Ordnance Datum (Newlyn)
2.0	-	-	3.75m below Ordnance Datum (Newlyn)
0.9	-	-	3.75m below Ordnance Datum (Newlyn)
5.6	2.5	0.9	3.75m below Ordnance Datum (Newlyn)
5.3	2.5	0.9	3.75m below Ordnance Datum (Newlyn)
5.1	2.5	1.2	3.75m below Ordnance Datum (Newlyn)

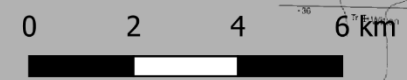
## Rugged Chalk Review (2022)

- Cromer Shoal Chalk Beds MCZ
- 2022 Rugged Chalk Area (proposed)



Date: 13/12/22; Drawn by: SH; Projection: WGS 84;  
Data: EIFCA, JNCC

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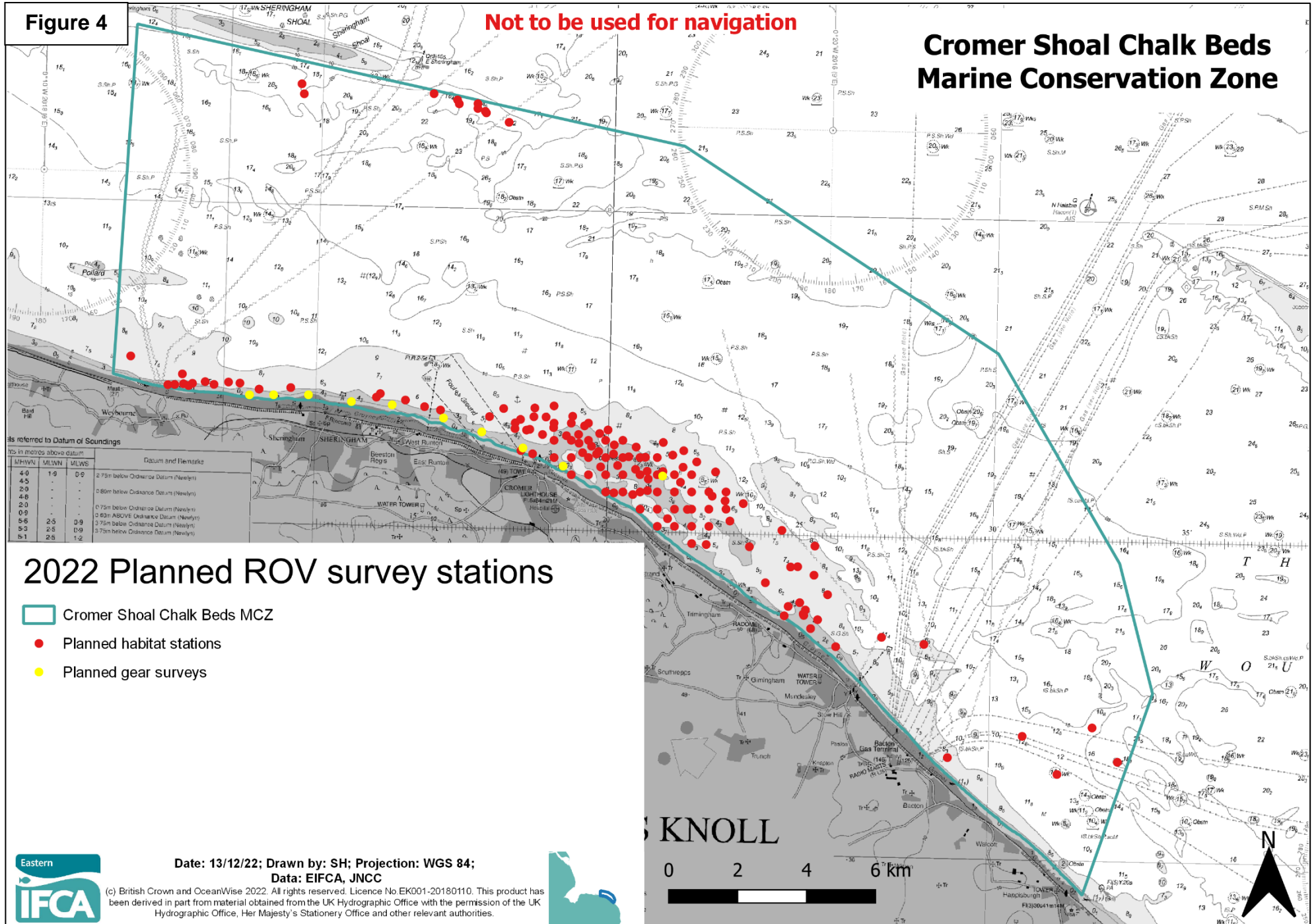
## 4 Future work

Eastern IFCA have completed a further 177 ROV dives in the MCZ in 2022 which provide further habitat data (2022 planned stations are shown in Figure 4.). These dives have been targeted to fill in data gaps and to ground truth rugosity data. As the ROV footage from these stations are currently being analysed by external contractors, they have not been considered in this review but will be used to inform future reviews. ROV dives completed in 2022 collected altimetry data in addition to seabed video footage. This will allow high-resolution seabed rugosity profiles to be created and provide quantitative data to support visual imagery and multibeam data.

Figure 4

Not to be used for navigation

# Cromer Shoal Chalk Beds Marine Conservation Zone



Its referred to Datum of Soundings

MHW	MLWN	MLWS	Datum and Remarks
4.0	1.9	D.6	2.75m below Ordnance Datum (Newlyn)
4.5	-	-	0.80m below Ordnance Datum (Newlyn)
2.0	-	-	0.75m below Ordnance Datum (Newlyn)
4.6	-	-	0.83m below Ordnance Datum (Newlyn)
2.0	-	-	2.75m below Ordnance Datum (Newlyn)
0.9	-	-	2.75m below Ordnance Datum (Newlyn)
5.6	2.5	D.9	3.75m below Ordnance Datum (Newlyn)
5.3	2.6	D.9	3.75m below Ordnance Datum (Newlyn)
5.1	2.6	1.2	

## 2022 Planned ROV survey stations

- Cromer Shoal Chalk Beds MCZ
- Planned habitat stations
- Planned gear surveys



Date: 13/12/22; Drawn by: SH; Projection: WGS 84;  
Data: EIFCA, JNCC

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## 5 References

Hawes, J. & Pettafor, A. (2021). Cromer Shoal Chalk Beds Marine Conservation Zone (MCZ) Bathymetric Re-gridding and rugosity assessment. Natural England

O'Dell, J. and Dewey, S. (2022). Cromer Shoal Chalk Beds MCZ Imagery Analysis Final report. A report to Natural England by Seastar Survey Ltd. 63 pages

Tibbitt, F., Love, J., Wright, J., Chamberlain, J. 2020. Human Impacts on Cromer Shoal Chalk Beds MCZ: Chalk complexity and population dynamics of commercial crustaceans. Natural England Research Report number 04412





## Appendix 1: Cefas (2014) Station data sheets <sup>6</sup>

<b>Area/MPA</b>		Cromer Shoal Chalk Beds MCZ	
<b>Cruise ID</b>		2ENC30814	
<b>Date</b>		6 <sup>th</sup> August 2014	
<b>Station number</b>		4	
<b>Tow Location (Degrees.DecimalDegrees WGS1984)</b>			
<b>Start</b>		<b>End</b>	
<b>Lat. N</b>	52.9559	<b>Lat. N</b>	52.95455
<b>Long. E</b>	1.27028	<b>Long. E</b>	1.27155
<b>Distance from start to end (m)</b>		170	
<b>Example seabed stills</b>			
			
			
<b>EIFCA Description of habitat from imagery</b>			
Coarse sediment, pebbles and cobbles. Mobile (edible crab, sunstars, pipe fish, shrimp) and attached fauna (sea anemones, hydroid/bryozoa turf). No attached algae observed. Potential for cobbles/pebbles to be chalk/flint but unclear from imagery. Habitat generally consistent throughout stills.			
<b>Initial habitat assessment<sup>7</sup></b>	<b>EUNIS</b>	A4.2 Moderate energy circalittoral rock (generally first half) A5.1 Coarse sediment (generally second half)	

<sup>6</sup> Images show example stills of the typical seabed observed across the whole tow, as well as the different types of habitats observed





<sup>7</sup> Taken from NE feature extent point data (April 2020)

	<b>FOCI</b>	Not classified
<b>EIFCA chalk assessment</b>	Chalk cobble and pebble	
<b>Notes</b>	Stills obtained from seabed video tow. Good quality imagery. Precautionary chalk assessment as unclear from imagery if cobble and pebbles are chalk/flint.	
<b>Confidence assessment</b>		
<b>Image quality</b>	High	
<b>Seabed structure</b>	High	
<b>Seabed composition</b>	Low	
<b>Initial assessment of sensitivity to potting (speculative)</b>		
<b>Not sensitive</b> - absence of complex, elevated chalk structure and absence of evidence of abrasion or breakage of physical features		

<b>Area/MPA</b>		Cromer Shoal Chalk Beds MCZ	
<b>Cruise ID</b>		2ENC30814	
<b>Date</b>		6 <sup>th</sup> August 2014	
<b>Station number</b>		5	
<b>Tow Location (Degrees.DecimalDegrees WGS1984)</b>			
<b>Start</b>		<b>End</b>	
<b>Lat. N</b>	52.9513	<b>Lat. N</b>	52.95093
<b>Long. E</b>	1.31958	<b>Long. E</b>	1.32341
<b>Distance from tow start to end (m)</b>		260	
<b>Example seabed stills</b>			
			
			
<b>EIFCA Description of habitat from imagery</b>			
Coarse sediment, pebbles and cobbles. Mobile (edible crab, starfish, sun star, shrimp) and attached fauna (sea anemones, hydroid/bryozoa turf). No attached algae observed. Some cobbles/pebbles appear to be chalk/flint. Habitat generally consistent throughout stills, although pebbles/cobbles appear smaller at the beginning and larger towards the end.			
<b>Initial habitat assessment<sup>8</sup></b>	<b>EUNIS</b>	A5.1 Coarse sediment (generally first half) A4.2 Moderate energy circalittoral rock (generally second half)	
	<b>FOCI</b>	Not classified	

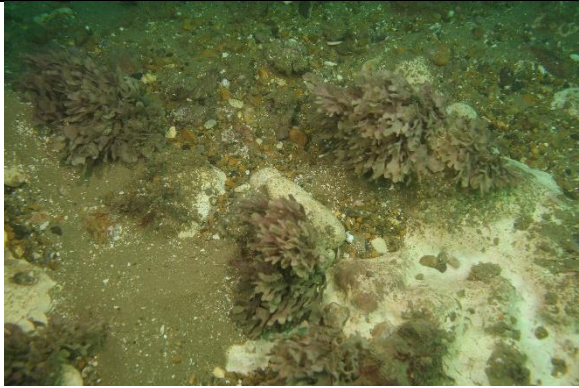

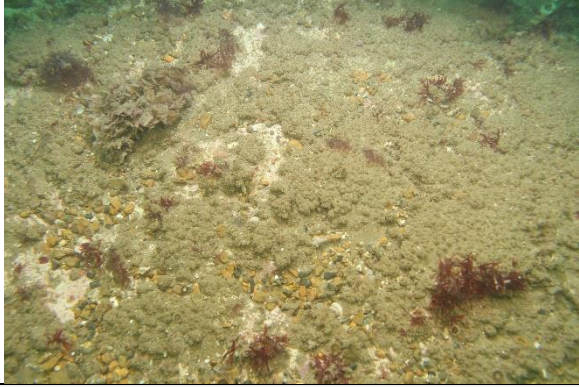

<sup>8</sup> Taken from NE feature extent point data (April 2020)

<b>EIFCA chalk assessment</b>	Chalk cobble and pebble	
<b>Notes</b>	Stills obtained from seabed video tow. Good quality imagery.	
<b>Confidence assessment</b>		
<b>Image quality</b>	High	
<b>Seabed structure</b>	High	
<b>Seabed composition</b>	Low	
<b>Initial assessment of sensitivity to potting (speculative)</b>		
<b>Not sensitive</b> - absence of complex, elevated chalk structure and absence of evidence of abrasion or breakage of physical features		

<b>Area/MPA</b>		Cromer Shoal Chalk Beds MCZ	
<b>Cruise ID</b>		2ENC30814	
<b>Date</b>		7 <sup>th</sup> August 2014	
<b>Station number</b>		16	
<b>Tow Location (Degrees.DecimalDegrees WGS1984)</b>			
<b>Start</b>		<b>End</b>	
<b>Lat. N</b>	52.93572	<b>Lat. N</b>	52.93597
<b>Long. E</b>	1.36185	<b>Long. E</b>	1.35956
<b>Distance from tow start to end (m)</b>		155	
<b>Example seabed stills</b>			
			
			
<b>EIFCA Description of habitat from imagery</b>			
Seabed dominated by pebbles, cobbles, boulders and bedrock, possibly chalk, and some coarse/mobile sediment. Mobile (starfish, edible crab, lobster, sunstar, spider crab, fish) and some attached fauna (sea anemones) observed. Attached algae observed. Some pebble/cobble appears to be chalk/flint, for others it is unclear from imagery. Habitat consistent throughout stills.			
<b>Initial habitat assessment<sup>9</sup></b>	<b>EUNIS</b>	A4.2 Moderate energy circalittoral rock (initially) A5.1 Coarse sediment (majority of tow)	
	<b>FOCI</b>	Not classified	
<b>EIFCA chalk assessment</b>	Chalk pavement		

<sup>9</sup> Taken from NE feature extent point data (April 2020)





<b>Notes</b>	Stills obtained from seabed video tow. Precautionary chalk assessment, whilst areas of bedrock are observed it is not completely clear if it is chalk/flint. Good quality imagery. Cefas note that there was static gear in the vicinity.
<b>Confidence assessment</b>	
<b>Image quality</b>	High
<b>Seabed structure</b>	High
<b>Seabed composition</b>	Low
<b>Initial assessment of sensitivity to potting (speculative)</b>	
<b>Not sensitive</b> - absence of complex, elevated chalk structures and absence of evidence of abrasion or breakage of physical features	

<b>Area/MPA</b>		Cromer Shoal Chalk Beds MCZ	
<b>Cruise ID</b>		2ENC30814	
<b>Date</b>		7 <sup>th</sup> August 2014	
<b>Station number</b>		12	
<b>Tow Location (Degrees.DecimalDegrees WGS1984)</b>			
<b>Start</b>		<b>End</b>	
<b>Lat. N</b>	52.89761	<b>Lat. N</b>	52.89683
<b>Long. E</b>	1.44947	<b>Long. E</b>	1.4489
<b>Distance from tow start to end (m)</b>		95	
<b>Example seabed stills</b>			
			
			
<b>EIFCA Description of habitat from imagery</b>			
<p>Coarse sediment, pebbles and cobbles and exposed chalk bedrock. Mobile (starfish, hermit crab) and attached fauna (sea anemones, hydroid/bryozoa turf, sponge?) observed. Attached algae observed. Habitat consistent throughout stills.</p>			
<b>Initial habitat assessment<sup>10</sup></b>	<b>EUNIS</b>	A4.1 High energy circalittoral rock	
	<b>FOCI</b>	Not classified	
<b>EIFCA chalk assessment</b>	Chalk pavement		

<sup>10</sup> Taken from NE feature extent point data (April 2020)







<b>Notes</b>	Stills obtained from seabed video tow. Good quality imagery.
<b>Confidence assessment</b>	
<b>Image quality</b>	High
<b>Seabed structure</b>	High
<b>Seabed composition</b>	Medium
<b>Initial assessment of sensitivity to potting (speculative)</b>	
<b>Not sensitive</b> - absence of complex, elevated chalk structure and absence of evidence of abrasion or breakage of physical features	

<b>Area/MPA</b>		Cromer Shoal Chalk Beds MCZ	
<b>Cruise ID</b>		2ENC30814	
<b>Date</b>		7 <sup>th</sup> August 2014	
<b>Station number</b>		9	
<b>Tow Location (Degrees.DecimalDegrees WGS1984)</b>			
<b>Start</b>		<b>End</b>	
<b>Lat. N</b>	52.85821	<b>Lat. N</b>	52.85807
<b>Long. E</b>	1.49686	<b>Long. E</b>	1.49525
<b>Distance from tow start to end (m)</b>		140	
<b>Example seabed stills</b>			
			
			
<b>EIFCA Description of habitat from imagery</b>			
<p>Silt, sand, gravel, shell and pebble – mixed sediment. Fauna rich with mobile (hermit crabs, <i>Hyas</i> spp.) and attached fauna observed (slipper limpet, encrusting worms? hydroid/bryozoan turf, sea anemones, sponge and possibly tunicates?). Attached algae observed. Habitat consistent across stills. Potential for pebbles to be chalk/flint.</p>			
<b>Initial habitat assessment<sup>11</sup></b>	<b>EUNIS</b>	A5.4 Sublittoral mixed sediment	
	<b>FOCI</b>	Not classified	





<sup>11</sup> Taken from NE feature extent point data (April 2020)

<b>EIFCA chalk assessment</b>	Pebble and cobble	
<b>Notes</b>	Stills obtained from seabed video tow. Good quality imagery. Precautionary chalk assessment as potential for pebbles to be chalk/flint.	
<b>Confidence assessment</b>		
<b>Image quality</b>	High	
<b>Seabed structure</b>	High	
<b>Seabed composition</b>	Low	
<b>Initial assessment of sensitivity to potting (speculative)</b>		
<b>Not sensitive</b> – absence of complex, elevated chalk structures and absence of evidence of abrasion or breakage of physical features		

<b>Area/MPA</b>		Cromer Shoal Chalk Beds MCZ	
<b>Cruise ID</b>		2ENC30814	
<b>Date</b>		7 <sup>th</sup> August 2014	
<b>Station number</b>		11	
<b>Tow Location (Degrees.DecimalDegrees WGS1984)</b>			
<b>Start</b>		<b>End</b>	
<b>Lat. N</b>	52.88618	<b>Lat. N</b>	52.88728
<b>Long. E</b>	1.48939	<b>Long. E</b>	1.48767
<b>Distance from tow start to end (m)</b>		170	
<b>Example seabed stills</b>			
			
			
<b>EIFCA Description of habitat from imagery</b>			
<p>Coarse sediment with pebbles, potentially a few cobbles and silt. Mobile (sea spider, starfish, edible crab, hermit crab) and attached fauna (sea anemones, hydroid/bryozoa turf, sponge?) observed. No attached algae observed. Potential for pebbles/cobbles to be chalk/flint but unclear from imagery. Habitat consistent throughout stills.</p>			
<b>Initial habitat assessment<sup>12</sup></b>	<b>EUNIS</b>	A4.1 High energy circalittoral rock	
	<b>FOCI</b>	Not classified	
<b>EIFCA chalk assessment</b>	Chalk cobble and pebble		





<sup>12</sup> Taken from NE feature extent point data (April 2020)

<b>Notes</b>	Stills obtained from seabed video tow. Good quality imagery. Precautionary chalk assessment as it is unclear from imagery if pebbles are chalk/flint.
<b>Confidence assessment</b>	
<b>Image quality</b>	High
<b>Seabed structure</b>	High
<b>Seabed composition</b>	Low
<b>Initial assessment of sensitivity to potting (speculative)</b>	
<b>Not sensitive</b> - absence of complex, elevated chalk structure and absence of evidence of abrasion or breakage of physical features	

<b>Area/MPA</b>		Cromer Shoal Chalk Beds MCZ	
<b>Cruise ID</b>		2ENC30814	
<b>Date</b>		7 <sup>th</sup> August 2014	
<b>Station number</b>		10	
<b>Tow Location (Degrees.DecimalDegrees WGS1984)</b>			
<b>Start</b>		<b>End</b>	
<b>Lat. N</b>	52.87745	<b>Lat. N</b>	52.87824
<b>Long. E</b>	1.50716	<b>Long. E</b>	1.50426
<b>Distance from tow start to end (m)</b>		210	
<b>Example seabed stills</b>			
			
			
<b>EIFCA Description of habitat from imagery</b>			
Coarse sediment with pebbles, potentially a few cobbles and silt. Mobile (spider crab, starfish) and attached fauna (sea anemones, hydroid/bryozoa turf, sponge?) observed. No attached algae observed. Some patches of exposed chalk bedrock observed. Potential for pebbles/cobbles to be chalk/flint but unclear from imagery. Habitat consistent throughout stills.			
<b>Initial habitat assessment</b>	<b>EUNIS</b>	A4.1 High energy circalittoral rock	
	<b>FOCI</b>	Not classified	
<b>EIFCA chalk assessment<sup>13</sup></b>	Chalk pavement		

<sup>13</sup> Taken from NE feature extent point data (April 2020)





<b>Notes</b>	Stills obtained from seabed video tow. Good quality imagery. Precautionary chalk assessment as some chalk pavement is observed.
<b>Confidence assessment</b>	
<b>Image quality</b>	High
<b>Seabed structure</b>	High
<b>Seabed composition</b>	Low
<b>Initial assessment of sensitivity to potting (speculative)</b>	
<b>Not sensitive</b> - absence of complex, elevated chalk structure and absence of evidence of abrasion or breakage of physical features	

<b>Area/MPA</b>		Cromer Shoal Chalk Beds MCZ	
<b>Cruise ID</b>		2ENC30814	
<b>Date</b>		7 <sup>th</sup> August 2014	
<b>Station number</b>		7	
<b>Tow Location (Degrees.DecimalDegrees WGS1984)</b>			
<b>Start</b>		<b>End</b>	
<b>Lat. N</b>	52.83798	<b>Lat. N</b>	52.83915
<b>Long. E</b>	1.53703	<b>Long. E</b>	1.53498
<b>Distance from tow start to end (m)</b>		190	
<b>Example seabed stills</b>			
			
			
<b>EIFCA Description of habitat from imagery</b>			
<p>Silt, sand, gravel, shell and pebble – mixed sediment. Mobile (starfish, sunstar, brittlestar) and attached fauna observed (<i>flustra</i>, hydroid/bryozoan turf, sea anemones, sponges?). Attached algae observed. Habitat consistent across stills. Potential for pebbles to be chalk/flint.</p>			
<b>Initial habitat assessment<sup>14</sup></b>	<b>EUNIS</b>	A5.4 Sublittoral mixed sediment	
	<b>FOCI</b>	Not classified	

<sup>14</sup> Taken from NE feature extent point data (April 2020)







<b>EIFCA chalk assessment</b>	Pebble and cobble	
<b>Notes</b>	Stills obtained from seabed video tow. Good quality imagery. Precautionary chalk assessment as potential for pebbles to be chalk/flint.	
<b>Confidence assessment</b>		
<b>Image quality</b>	High	
<b>Seabed structure</b>	High	
<b>Seabed composition</b>	Low	
<b>Initial assessment of sensitivity to potting (speculative)</b>		
<b>Not sensitive</b> – absence of complex, elevated chalk structures and absence of evidence of abrasion or breakage of physical features		

<b>Area/MPA</b>		Cromer Shoal Chalk Beds MCZ	
<b>Cruise ID</b>		2ENC30814	
<b>Date</b>		7 <sup>th</sup> August 2014	
<b>Station number</b>		17	
<b>Tow Location (Degrees.DecimalDegrees WGS1984)</b>			
<b>Start</b>		<b>End</b>	
<b>Lat. N</b>	52.95155	<b>Lat. N</b>	52.95242
<b>Long. E</b>	1.34747	<b>Long. E</b>	1.34582
<b>Distance from tow start to end (m)</b>		150	
<b>Example seabed stills</b>			
			
			
<b>EIFCA Description of habitat from imagery</b>			
<p>Seabed dominated by cobble and pebble with some coarse/mobile sediment. Mobile (starfish, edible crab, sunstar) and attached fauna (sea anemones, hydroid/bryozoan turf) observed. Some attached algae observed. Potential for pebble/cobble to be chalk/flint but unclear from imagery. Habitat consistent throughout stills.</p>			
<b>Initial habitat assessment<sup>15</sup></b>	<b>EUNIS</b>	A4.2 Moderate energy circalittoral rock	
	<b>FOCI</b>	Not classified	
<b>EIFCA chalk assessment</b>	Chalk cobble and pebble		





<sup>15</sup> Taken from NE feature extent point data (April 2020)

<b>Notes</b>	Stills obtained from seabed video tow. Good quality imagery. Precautionary chalk assessment as unclear from imagery if cobble and pebbles are chalk/flint.
<b>Confidence assessment</b>	
<b>Image quality</b>	High
<b>Seabed structure</b>	High
<b>Seabed composition</b>	Low
<b>Initial assessment of sensitivity to potting (speculative)</b>	
<b>Not sensitive</b> - absence of complex, elevated chalk structures and absence of evidence of abrasion or breakage of physical features	

<b>Area/MPA</b>	Cromer Shoal Chalk Beds MCZ		
<b>Cruise ID</b>	2ENC30814		
<b>Date</b>	6 <sup>th</sup> August 2014		
<b>Station number</b>	6		
<b>Tow Location (Degrees.DecimalDegrees WGS1984)</b>			
<b>Start</b>		<b>End</b>	
<b>Lat. N</b>	52.93565	<b>Lat. N</b>	52.93473
<b>Long. E</b>	1.38765	<b>Long. E</b>	1.38909
<b>Distance from tow start to end (m)</b>	140		
<b>Example seabed stills</b>			
			
			
<b>EIFCA Description of habitat from imagery</b>			
Coarse sediment with pebbles, potentially a few cobbles. Mobile (hermit crab, edible crabs, sun stars) and attached fauna (sea anemones, hydroid/bryozoa turf). No attached algae observed. Potential for pebbles/cobbles to be chalk/flint but unclear from imagery. Habitat consistent throughout stills.			
<b>Initial habitat assessment<sup>16</sup></b>	<b>EUNIS</b>	A4.1 High energy circalittoral rock	
	<b>FOCI</b>	Not classified	
<b>EIFCA chalk assessment</b>	Chalk cobble and pebble		





<sup>16</sup> Taken from NE feature extent point data (April 2020)

<b>Notes</b>	Stills obtained from seabed video tow. Good quality imagery. Precautionary chalk assessment as unclear from imagery if cobble and pebbles are chalk/flint.
<b>Confidence assessment</b>	
<b>Image quality</b>	High
<b>Seabed structure</b>	High
<b>Seabed composition</b>	Low
<b>Initial assessment of sensitivity to potting (speculative)</b>	
<b>Not sensitive</b> - absence of complex, elevated chalk structure and absence of evidence of abrasion or breakage of physical features	

<b>Area/MPA</b>		Cromer Shoal Chalk Beds MCZ	
<b>Cruise ID</b>		2EXY70814	
<b>Date</b>		21 <sup>st</sup> August 2014	
<b>Station number</b>		44	
<b>Tow Location (Degrees.DecimalDegrees WGS1984)</b>			
<b>Start</b>		<b>End</b>	
<b>Lat. N</b>	52.95796	<b>Lat. N</b>	52.95824
<b>Long. E</b>	1.21353	<b>Long. E</b>	1.21535
<b>Distance from tow start to end (m)</b>		125	
<b>Example seabed stills</b>			
			
			
<b>EIFCA Description of habitat from imagery</b>			
<p>Sand/silt, gravel, pebbles and cobbles, possible boulders. Mobile (edible crabs, sunstar, starfish) and attached fauna observed (hydroid/bryozoan turf, sea anemones). Some attached algae observed. Potential for cobbles/pebbles to be chalk but not clear from imagery. Habitat consistent across stills.</p>			
<b>Initial habitat assessment<sup>17</sup></b>	<b>EUNIS</b>	A4.2 Moderate energy circalittoral rock	
	<b>FOCI</b>	Not classified	

<sup>17</sup> Taken from NE feature extent point data (April 2020)





<b>EIFCA chalk assessment</b>	Chalk pebble and cobble	
<b>Notes</b>	Stills obtained from seabed video tow. Stills generally of reasonable quality, some dark or unclear. Precautionary chalk assessment as unclear from imagery if pebbles/cobbles are chalk/flint.	
<b>Confidence assessment</b>		
<b>Image quality</b>	Medium	
<b>Seabed structure</b>	High	
<b>Seabed composition</b>	Low	
<b>Initial assessment of sensitivity to potting (speculative)</b>		
<b>Not sensitive</b> - absence of complex, elevated chalk structures and absence of evidence of abrasion or breakage of physical features.		

<b>Area/MPA</b>		Cromer Shoal Chalk Beds MCZ	
<b>Cruise ID</b>		2EXY70814	
<b>Date</b>		21 <sup>st</sup> August 2014	
<b>Station number</b>		38	
<b>Tow Location (Degrees.DecimalDegrees WGS1984)</b>			
<b>Start</b>		<b>End</b>	
<b>Lat. N</b>	52.95167	<b>Lat. N</b>	52.95267
<b>Long. E</b>	1.29165	<b>Long. E</b>	1.28990
<b>Distance from tow start to end (m)</b>		160	
<b>Example seabed stills</b>			
			
			
<b>EIFCA Description of habitat from imagery</b>			
<p>Mobile sediment (sand/silt), pebbles, cobbles, few boulders. Mobile (edible crabs, spider crab) and attached fauna observed (hydroid/bryozoan turf, sea anemones). Some attached algae observed. Some cobbles/pebbles appear to be chalk. Habitat consistent across stills.</p>			
<b>Initial habitat assessment<sup>18</sup></b>	<b>EUNIS</b>	A4.1 High energy circalittoral rock (some at tow start and tow end) A5.1 Sublittoral coarse sediment (majority of bed)	
	<b>FOCI</b>	Not classified	

<sup>18</sup> Taken from NE feature extent point data (April 2020)







<b>EIFCA chalk assessment</b>	Chalk pebble and cobble	
<b>Notes</b>	Stills obtained from seabed video tow. Generally good quality imagery.	
<b>Confidence assessment</b>		
<b>Image quality</b>	Medium - High	
<b>Seabed structure</b>	High	
<b>Seabed composition</b>	Low	
<b>Initial assessment of sensitivity to potting (speculative)</b>		
<b>Not sensitive</b> - absence of complex, elevated chalk structures and absence of evidence of abrasion or breakage of physical features		

<b>Area/MPA</b>		Cromer Shoal Chalk Beds MCZ	
<b>Cruise ID</b>		2EXY70814	
<b>Date</b>		21 <sup>st</sup> August 2014	
<b>Station number</b>		39	
<b>Tow Location (Degrees.DecimalDegrees WGS1984)</b>			
<b>Start</b>		<b>End</b>	
<b>Lat. N</b>	52.95167	<b>Lat. N</b>	52.95267
<b>Long. E</b>	1.29165	<b>Long. E</b>	1.28990
<b>Distance from tow start to end (m)</b>		100	
<b>Example seabed stills</b>			
			
			
<b>EIFCA Description of habitat from imagery</b>			
Chalk bedrock, pebbles, cobbles and some boulders. Mobile (edible crabs, starfish) and attached fauna observed (hydroid/bryozoan turf). Some attached algae observed. Some cobbles/pebbles appear to be chalk. Areas of bright white chalk which appear natural and not resultant of anthropogenic activities. Habitat generally consistent across stills but with pebbles and cobbles appearing smaller in size towards the end of the tow.			
<b>Initial habitat assessment<sup>19</sup></b>	<b>EUNIS</b>	A4.2 Moderate energy circalittoral rock (first two thirds of tow) A5.1 Sublittoral coarse sediment (last third of tow)	
	<b>FOCI</b>	Not classified	





<sup>19</sup> Taken from NE feature extent point data (April 2020)

<b>EIFCA chalk assessment</b>	Rugged chalk
<b>Notes</b>	Stills obtained from seabed video tow. Stills generally of reasonable quality. Precautionary assessment – evidence of large boulders, bedrock and elevated structures, however hard to assess level of elevation and complexity due to angle of imagery.
<b>Confidence assessment</b>	
<b>Image quality</b>	Medium
<b>Seabed structure</b>	Medium
<b>Seabed composition</b>	Medium
<b>Initial assessment of sensitivity to potting (speculative)</b>	
<b>Potentially sensitive</b> - presence of some complex, elevated chalk structures, however, no evidence of anthropogenic abrasion or breakage of physical features. Sensitivity hard to assess as the level of complexity and elevation of chalk features is unclear.	

<b>Area/MPA</b>		Cromer Shoal Chalk Beds MCZ	
<b>Cruise ID</b>		2EXY70814	
<b>Date</b>		21 <sup>st</sup> August 2014	
<b>Station number</b>		28	
<b>Tow Location (Degrees.DecimalDegrees WGS1984)</b>			
<b>Start</b>		<b>End</b>	
<b>Lat. N</b>	52.90181	<b>Lat. N</b>	52.90304
<b>Long. E</b>	1.44707	<b>Long. E</b>	1.44601
<b>Distance from tow start to end (m)</b>		155	
<b>Example seabed stills</b>			
			
			
<b>EIFCA Description of habitat from imagery</b>			
<p>Fine sediment, gravel and cobble. Mobile (fish, hermit crab) and attached fauna (sea anemones, hydroid/bryozoan turf) observed. No attached algae observed. Potential for pebble/cobble to be chalk/flint but unclear from imagery. Habitat consistent throughout stills.</p>			
<b>Initial habitat assessment<sup>20</sup></b>	<b>EUNIS</b>	A4.1 High energy circalittoral rock	
	<b>FOCI</b>	Not classified	
<b>EIFCA chalk assessment</b>	Chalk cobble and pebble		





<sup>20</sup> Taken from NE feature extent point data (April 2020)

<b>Notes</b>	Stills obtained from seabed video tow. Good quality imagery. Precautionary chalk assessment as unclear from imagery if cobble and pebbles are chalk/flint. Cefas notes that pots nearby at time of survey.
<b>Confidence assessment</b>	
<b>Image quality</b>	High
<b>Seabed structure</b>	High
<b>Seabed composition</b>	Low
<b>Initial assessment of sensitivity to potting (speculative)</b>	
<b>Not sensitive</b> - absence of complex, elevated chalk structures and absence of evidence of abrasion or breakage of physical features	

<b>Area/MPA</b>		Cromer Shoal Chalk Beds MCZ	
<b>Cruise ID</b>		2EXY70814	
<b>Date</b>		22 <sup>nd</sup> August 2014	
<b>Station number</b>		64	
<b>Tow Location (Degrees.DecimalDegrees WGS1984)</b>			
<b>Start</b>		<b>End</b>	
<b>Lat. N</b>	52.95311	<b>Lat. N</b>	52.9534
<b>Long. E</b>	1.16359	<b>Long. E</b>	1.16529
<b>Distance from tow start to end (m)</b>		120	
<b>Example seabed stills</b>			
			
			
<b>EIFCA Description of habitat from imagery</b>			
<p>Sand, pebble and cobble, some exposed chalk and some areas of mobile sand/sand waves. Mobile (edible, crab, starfish) and attached fauna observed (hydroid/bryozoan turf, <i>Sabella</i>, sea anemones). No attached algae observed. Potential for pebbles/ cobbles to be chalk/flint but unclear from imagery. Habitat generally consistent across stills, but changes between areas of sand, pebble and cobble and patches of sand waves.</p>			
<b>Initial habitat assessment<sup>21</sup></b>	<b>EUNIS</b>	A4.2 Moderate energy circalittoral rock	
	<b>FOCI</b>	Not classified	

<sup>21</sup> Taken from NE feature extent point data (April 2020)





<b>EIFCA chalk assessment</b>	Chalk pavement	
<b>Notes</b>	Stills obtained from seabed video tow. Good quality imagery.	
<b>Confidence assessment</b>		
<b>Image quality</b>	High	
<b>Seabed structure</b>	High	
<b>Seabed composition</b>	Low	
<b>Initial assessment of sensitivity to potting (speculative)</b>		
<b>Not sensitive</b> - absence of complex, elevated chalk structures and absence of evidence of abrasion or breakage of physical features.		

<b>Area/MPA</b>		Cromer Shoal Chalk Beds MCZ	
<b>Cruise ID</b>		2EXY70814	
<b>Date</b>		21 <sup>st</sup> August 2014	
<b>Station number</b>		43	
<b>Tow Location (Degrees.DecimalDegrees WGS1984)</b>			
<b>Start</b>		<b>End</b>	
<b>Lat. N</b>	52.95268	<b>Lat. N</b>	52.95264
<b>Long. E</b>	1.23162	<b>Long. E</b>	1.23326
<b>Distance from tow start to end (m)</b>		110	
<b>Example seabed stills</b>			
			
			
<b>EIFCA Description of habitat from imagery</b>			
<p>Sand/silt, pebbles and cobbles. Mobile (edible crabs, starfish) and attached fauna observed (hydroid/bryozoan turf, sea anemones). Some attached algae observed. Potential for cobbles/pebbles to be chalk but not clear from imagery. Habitat consistent across stills.</p>			
<b>Initial habitat assessment<sup>22</sup></b>	<b>EUNIS</b>	A4.2 Moderate energy circalittoral rock	
	<b>FOCI</b>	Not classified	

<sup>22</sup> Taken from NE feature extent point data (April 2020)







<b>EIFCA chalk assessment</b>	Chalk pebble and cobble
<b>Notes</b>	Stills obtained from seabed video tow. Stills generally of reasonable quality, some dark or unclear. Precautionary chalk assessment as unclear from imagery if pebbles/cobbles are chalk/flint.
<b>Confidence assessment</b>	
<b>Image quality</b>	Medium
<b>Seabed structure</b>	High
<b>Seabed composition</b>	Low
<b>Initial assessment of sensitivity to potting (speculative)</b>	
<b>Not sensitive</b> - absence of complex, elevated chalk structures and absence of evidence of abrasion or breakage of physical features.	

<b>Area/MPA</b>		Cromer Shoal Chalk Beds MCZ	
<b>Cruise ID</b>		2EXY70814	
<b>Date</b>		21 <sup>st</sup> August 2014	
<b>Station number</b>		30	
<b>Tow Location (Degrees.DecimalDegrees WGS1984)</b>			
<b>Start</b>		<b>End</b>	
<b>Lat. N</b>	52.91610	<b>Lat. N</b>	52.91715
<b>Long. E</b>	1.40073	<b>Long. E</b>	1.39979
<b>Distance from tow start to end (m)</b>		130	
<b>Example seabed stills</b>			
			
			
<b>EIFCA Description of habitat from imagery</b>			
<p>Sand waves/mobile sand, with some exposed chalk bedrock, cobble and pebble (3 out of 19 stills). No mobile or attached fauna observed. Some loose hydroid/bryozoa observed. No attached algae observed. Habitat consistent across majority of stills (lats and longs for stills provided at the end of sheet with details of changing habitat).</p>			
<b>Initial habitat assessment<sup>23</sup></b>	<b>EUNIS</b>	A4.2 Moderate energy circalittoral rock A5.2 Sublittoral sand	
	<b>FOCI</b>	Not classified	





<sup>23</sup> Taken from NE feature extent point data (April 2020)

<b>EIFCA chalk assessment</b>	Chalk pavement	
<b>Notes</b>	Stills obtained from seabed video tow. Good quality imagery. Precautionary chalk assessment as whilst the majority of still shows a sandy habitat, evidence of chalk bedrock beneath.	
<b>Confidence assessment</b>		
<b>Image quality</b>	High	
<b>Seabed structure</b>	High	
<b>Seabed composition</b>	Low - Medium	
<b>Initial assessment of sensitivity to potting (speculative)</b>		
<b>Not sensitive</b> - absence of complex, elevated chalk structures and absence of evidence of abrasion or breakage of physical features		

<b>Area/MPA</b>		Cromer Shoal Chalk Beds MCZ	
<b>Cruise ID</b>		2EXY70814	
<b>Date</b>		22 <sup>nd</sup> August 2014	
<b>Station number</b>		60	
<b>Tow Location (Degrees.DecimalDegrees WGS1984)</b>			
<b>Start</b>		<b>End</b>	
<b>Lat. N</b>	52.95016	<b>Lat. N</b>	52.95044
<b>Long. E</b>	1.18374	<b>Long. E</b>	1.18163
<b>Distance from tow start to end (m)</b>		145	
<b>Example seabed stills</b>			
			
			
<b>EIFCA Description of habitat from imagery</b>			
<p>Chalk bedrock, cobbles, pebbles, and some boulders. Mobile (edible crab, starfish) and attached fauna observed (hydroid/bryozoan turf). Attached algae observed. Areas of bright white chalk which appear natural and not resultant of anthropogenic activities. Habitat consistent across stills.</p>			
<b>Initial habitat assessment<sup>24</sup></b>	<b>EUNIS</b>	A4.2 Moderate energy circalittoral rock	
	<b>FOCI</b>	Not classified	



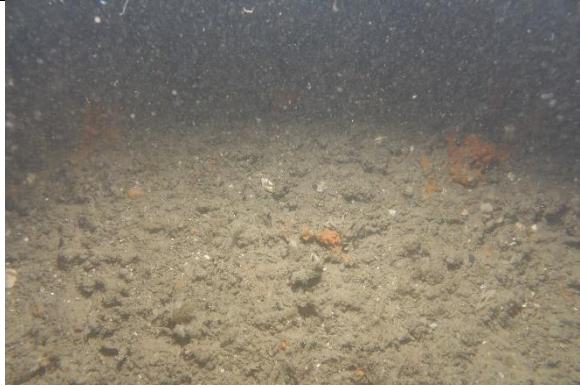

<sup>24</sup> Taken from NE feature extent point data (April 2020)

<b>EIFCA chalk assessment</b>	Rugged chalk
<b>Notes</b>	Stills obtained from seabed video tow. Stills of reasonable quality. Precautionary assessment – evidence of large boulders, bedrock and elevated structures, however hard to assess level of elevation and complexity due to angle of imagery.
<b>Confidence assessment</b>	
<b>Image quality</b>	Medium
<b>Seabed structure</b>	Medium
<b>Seabed composition</b>	Medium
<b>Initial assessment of sensitivity to potting (speculative)</b>	
<b>Potentially sensitive</b> - presence of some complex, elevated chalk structures, however, no evidence of anthropogenic abrasion or breakage of physical features. Sensitivity hard to assess as the level of complexity and elevation of chalk features is unclear.	

<b>Area/MPA</b>		Cromer Shoal Chalk Beds MCZ	
<b>Cruise ID</b>		2EXY70814	
<b>Date</b>		21 <sup>st</sup> August 2014	
<b>Station number</b>		32	
<b>Tow Location (Degrees.DecimalDegrees WGS1984)</b>			
<b>Start</b>		<b>End</b>	
<b>Lat. N</b>	52.93280	<b>Lat. N</b>	52.93387
<b>Long. E</b>	1.42296	<b>Long. E</b>	1.42213
<b>Distance from tow start to end (m)</b>		130	
<b>Example seabed stills</b>			
			
			
<b>EIFCA Description of habitat from imagery</b>			
<p>Mobile sediment (sand/silt), pebbles, cobble, some exposed chalk bedrock. Attached fauna observed (hydroid/bryozoan turf, sea anemone) but no mobile fauna. No attached algae observed. Habitat consistent across stills.</p>			
<b>Initial habitat assessment<sup>25</sup></b>	<b>EUNIS</b>	A4.1 High energy circalittoral rock	
	<b>FOCI</b>	Not classified	

<sup>25</sup> Taken from NE feature extent point data (April 2020)

<b>EIFCA chalk assessment</b>	Chalk pavement	
<b>Notes</b>	Stills obtained from seabed video tow. Generally good quality imagery.	
<b>Confidence assessment</b>		
<b>Image quality</b>	Medium - High	
<b>Seabed structure</b>	High	
<b>Seabed composition</b>	Low	
<b>Initial assessment of sensitivity to potting (speculative)</b>		
<b>Not sensitive</b> - absence of complex, elevated chalk structures and absence of evidence of abrasion or breakage of physical features		



<b>Area/MPA</b>		Cromer Shoal Chalk Beds MCZ	
<b>Cruise ID</b>		2EXY70814	
<b>Date</b>		21 <sup>st</sup> August 2014	
<b>Station number</b>		56	
<b>Tow Location (Degrees.DecimalDegrees WGS1984)</b>			
<b>Start</b>		<b>End</b>	
<b>Lat. N</b>	52.88341	<b>Lat. N</b>	52.88285
<b>Long. E</b>	1.52253	<b>Long. E</b>	1.52436
<b>Distance from tow start to end (m)</b>		140	
<b>Example seabed stills</b>			
			
			
<b>EIFCA Description of habitat from imagery</b>			
Sand/silt, gravel, pebbles and cobbles, mixed sediment? Mobile (hermit crab, sunstar, starfish, brittlestars, spider crab) and attached fauna observed (hydroid/bryozoan turf, sea anemones, sponge?). No attached algae observed. No chalk observed. Habitat consistent across stills.			
<b>Initial habitat assessment<sup>26</sup></b>	<b>EUNIS</b>	A4.1 High energy circalittoral rock	
	<b>FOCI</b>	Not classified	

<sup>26</sup> Taken from NE feature extent point data (April 2020)







<b>EIFCA chalk assessment</b>	Chalk absent
<b>Notes</b>	Stills obtained from seabed video tow. Stills generally high quality.
<b>Confidence assessment</b>	
<b>Image quality</b>	Medium High
<b>Seabed structure</b>	High
<b>Seabed composition</b>	Low
<b>Initial assessment of sensitivity to potting (speculative)</b>	
<b>Not sensitive</b> - absence of complex, elevated chalk structures and absence of evidence of abrasion or breakage of physical features.	



## Appendix 2: EIFCA (2019) Station data sheets<sup>27</sup>



Location (Degrees.DecimalDegrees WGS1984)			
Lat. N	52.8634	Long. E	1.52904
Area -	Cromer Shoal Chalk Beds MCZ	Station -	1
Date of Video survey -	31 <sup>ST</sup> May 2019	Date of Grab survey -	NA
Example seabed stills (extracted from video)			
			
Description from video assessment (Abundance scale = SACFOR)			
Sand, muddy sand and shell with patches of pebbles and some cobbles. No evidence of chalk. Faunal turf (O), including Flustra and some other bryozoan and hydroid turf. No mobile fauna observed.			
EUNIS code		FOCI	
A5.4 Mixed sediment			
Chalk assessment		Absent	
<b>Notes</b> – Assessment based on video footage, generally reasonable quality			
Confidence assessment			
Image quality		Medium	
Seabed structure		High	
Seabed composition		Low	
Initial assessment of sensitivity to potting (speculative)			
<b>Not sensitive</b> - absence of complex, elevated chalk structure and absence of evidence of abrasion or breakage of physical features			



<sup>27</sup> Images show example stills of the typical seabed observed across the whole video collected, as well as the different types of habitats observed



<b>Location (Degrees.DecimalDegrees WGS1984)</b>			
Lat. N	52.8544	Long. E	1.5236
<b>Area -</b>	Cromer Shoal Chalk Beds MCZ	<b>Station -</b>	2
<b>Date of Video survey -</b>	31 <sup>ST</sup> May 2019	<b>Date of Grab survey -</b>	NA
<b>Example seabed stills (extracted from video)</b>			
			
<b>Description from video assessment (Abundance scale = SACFOR)</b>			
Sand, muddy sand and shell mixed with pebbles. No evidence of chalk. Occasional hydroid/bryozoan, sea anemones and shore crabs observed.			
<b>EUNIS code</b>		<b>FOCI</b>	
A5.4 Mixed sediment			
<b>Chalk assessment</b>		Absent	
<b>Notes</b> – Assessment based on video footage. Video very fast at times reducing quality			
<b>Confidence assessment</b>			
<b>Image quality</b>		Medium	
<b>Seabed structure</b>		High	
<b>Seabed composition</b>		Low	
<b>Initial assessment of sensitivity to potting (speculative)</b>			
<b>Not sensitive</b> - absence of complex, elevated chalk structure and absence of evidence of abrasion or breakage of physical features			

<b>Location (Degrees.DecimalDegrees WGS1984)</b>			
Lat. N	52.8473	Long. E	1.5162
<b>Area -</b>	Cromer Shoal Chalk Beds MCZ	<b>Station -</b>	3
<b>Date of Video survey -</b>	31 <sup>ST</sup> May 2019	<b>Date of Grab survey -</b>	NA
<b>Example seabed stills (extracted from video)</b>			
			
<b>Description from video assessment (Abundance scale = SACFOR)</b>			
Seabed dominated with pebble and some cobble, evidence of softer sand silt sediments and underneath. Fauna poor - occasional hydroid/bryozoan and sea anemones observed. No mobile fauna observed. Potential for pebbles/cobbles to be chalk/flint.			
<b>EUNIS code</b>		<b>FOCI</b>	
A5.4 Mixed sediment			
<b>Chalk assessment</b>		Pebble/cobble	
<b>Notes</b> – Assessment based on video footage. Fast video - hard to observe and id fauna.			
<b>Confidence assessment</b>			
<b>Image quality</b>		Low	
<b>Seabed structure</b>		High	
<b>Seabed composition</b>		Low	
<b>Initial assessment of sensitivity to potting (speculative)</b>			
<b>Not sensitive</b> - absence of complex, elevated chalk structure and absence of evidence of abrasion or breakage of physical features			



<b>Location (Degrees.DecimalDegrees WGS1984)</b>			
Lat. N	52.8783	Long. E	1.4993
<b>Area -</b>	Cromer Shoal Chalk Beds MCZ	<b>Station -</b>	4
<b>Date of Video survey -</b>	31 <sup>ST</sup> May 2019	<b>Date of Grab survey -</b>	NA
<b>Example seabed stills (extracted from video)</b>			
			
<b>Description from video assessment (Abundance scale = SACFOR)</b>			
Sand and muddy sand with pebble covered in silty sediment. Fauna poor – occasional hydroid/bryozoan and sunstar and frequent sea anemone observed. Possible chalk cobble observed.			
<b>EUNIS code</b>		<b>FOCI</b>	
A5.4 Mixed sediment			
<b>Chalk assessment</b>		Chalk pebble and cobble	
<b>Notes</b> – Assessment based on video footage. Poor video quality, seabed not observed through whole tow.			
<b>Confidence assessment</b>			
<b>Image quality</b>		Low	
<b>Seabed structure</b>		High	
<b>Seabed composition</b>		Low	
<b>Initial assessment of sensitivity to potting (speculative)</b>			
<b>Not sensitive</b> - absence of complex, elevated chalk structure and absence of evidence of abrasion or breakage of physical features			



<b>Location (Degrees.DecimalDegrees WGS1984)</b>			
Lat. N	52.8711	Long. E	1.4931
<b>Area -</b>	Cromer Shoal Chalk Beds MCZ	<b>Station -</b>	5
<b>Date of Video survey -</b>	31 <sup>ST</sup> May 2019	<b>Date of Grab survey -</b>	NA
<b>Example seabed stills (extracted from video)</b>			
			
<b>Description from video assessment (Abundance scale = SACFOR)</b>			
Coarse sand with patches of pebble and cobble. Fauna poor – occasional hydroid/bryozoan observed. Possible chalk pebble/cobble.			
<b>EUNIS code</b>		<b>FOCI</b>	
A5.1 Coarse sediment			
<b>Chalk assessment</b>		Chalk pebble and cobble	
<b>Notes</b> – Assessment based on video footage. Seabed not observed through whole tow. Precautionary chalk assessment.			
<b>Confidence assessment</b>			
<b>Image quality</b>	Medium		
<b>Seabed structure</b>	High		
<b>Seabed composition</b>	Medium		
<b>Initial assessment of sensitivity to potting (speculative)</b>			
<b>Not sensitive</b> - absence of complex, elevated chalk structure and absence of evidence of abrasion or breakage of physical features			



Location (Degrees.DecimalDegrees WGS1984)			
Lat. N	52.8606	Long. E	1.4843
Area -	Cromer Shoal Chalk Beds MCZ	Station -	6
Date of Video survey -	31 <sup>ST</sup> May 2019	Date of Grab survey -	NA
Example seabed stills (extracted from video)			
			
Description from video assessment (Abundance scale = SACFOR)			
Coarse mobile sand with some clusters of pebble/cobble and occasional boulder. Fauna poor – occasional sea anemone observed, and some hydroid/bryozoan attached to cobbles/boulders. Some pebbles/cobbles/boulders appear to be chalk/flint.			
EUNIS code		FOCI	
A5.1 Sand and muddy sand		Subtidal chalk	
Chalk assessment		Chalk pebble and cobble	
<b>Notes</b> – Assessment based on video footage. Fast video			
Confidence assessment			
Image quality		Medium – High	
Seabed structure		High	
Seabed composition		Medium	
Initial assessment of sensitivity to potting (speculative)			
<b>Not sensitive</b> - absence of complex, elevated chalk structure and absence of evidence of abrasion or breakage of physical features			



<b>Location (Degrees.DecimalDegrees WGS1984)</b>			
Lat. N	52.8886	Long. E	1.4676
<b>Area -</b>	Cromer Shoal Chalk Beds MCZ	<b>Station -</b>	8
<b>Date of Video survey -</b>	31 <sup>ST</sup> May 2019	<b>Date of Grab survey -</b>	NA
<b>Example seabed stills (extracted from video)</b>			
			
<b>Description from video assessment</b>			
Sand and muddy sand with pebble, cobbles and occasional boulders inc. chalk and evidence of chalk pavement seabed with overlying soft sediment. Fauna rich – abundant attached faunal turf/hydroid/bryozoans, common sea anemones and occasional edible crab, <i>Asterias rubens</i> and sunstar.			
<b>EUNIS code from seabed imagery</b>		<b>FOCI</b>	
A3 Infralittoral rock		Subtidal chalk	
<b>Chalk assessment</b>		Chalk pavement	
<b>Notes</b> – Assessment based on video footage. Fast video giving poor quality imagery			
<b>Confidence assessment</b>			
<b>Image quality</b>		Medium	
<b>Seabed structure</b>		High	
<b>Seabed composition</b>		Medium	
<b>Initial assessment of sensitivity to potting (speculative)</b>			
<b>Not sensitive</b> - absence of complex, elevated chalk structure and absence of evidence of abrasion or breakage of physical features			







<b>Location (Degrees.DecimalDegrees WGS1984)</b>			
Lat. N	52.8792	Long. E	1.4543
<b>Area -</b>	Cromer Shoal Chalk Beds MCZ	<b>Station -</b>	9
<b>Date of Video survey -</b>	31 <sup>ST</sup> May 2019	<b>Date of Grab survey -</b>	NA
<b>Example seabed stills (extracted from video)</b>			
			
<b>Description from video assessment</b>			
Sand and muddy sand with some loose gravel and pebble and occasional cobble. Potential for pebble/cobble to be chalk. Fauna poor, some hydroid/bryozoan turf attached to pebbles and cobbles and frequent sea anemones.			
<b>EUNIS code from seabed imagery</b>		<b>FOCI</b>	
A5.2 Sand and muddy sand			
<b>Chalk assessment</b>		Pebble/cobble	
<b>Notes –</b> Assessment based on video footage. Fast video, hard to observe fauna			
<b>Confidence assessment</b>			
<b>Image quality</b>	Medium		
<b>Seabed structure</b>	High		
<b>Seabed composition</b>	Medium		
<b>Initial assessment of sensitivity to potting (speculative)</b>			
<b>Not sensitive</b> - absence of complex, elevated chalk structure and absence of evidence of abrasion or breakage of physical features			



<b>Location (Degrees.DecimalDegrees WGS1984)</b>			
Lat. N	52.9028	Long. E	1.4397
<b>Area -</b>	Cromer Shoal Chalk Beds MCZ	<b>Station -</b>	11
<b>Date of Video survey -</b>	31 <sup>ST</sup> May 2019	<b>Date of Grab survey -</b>	NA
<b>Example seabed stills (extracted from video)</b>			
			
<b>Description from video assessment</b>			
Seabed dominated by cobbles and pebbles, and possibly some boulders. Chalk pavement and chalk pebbles and cobbles present. Lots of attached fauna and frequent sea anemones. Weed observed suggesting infralittoral.			
<b>EUNIS code from seabed imagery</b>		<b>FOCI</b>	
A3 Infralittoral rock		Subtidal chalk	
<b>Chalk assessment</b>		Chalk pavement	
<b>Notes</b> – Assessment based on video footage. Video very fast providing poor quality imagery and making it hard to observe fauna. Camera frame on its side for majority of video.			
<b>Confidence assessment</b>			
<b>Image quality</b>		Low	
<b>Seabed structure</b>		Medium	
<b>Seabed composition</b>		Medium	
<b>Initial assessment of sensitivity to potting (speculative)</b>			
<b>Not sensitive</b> - absence of complex, elevated chalk structure and absence of evidence of abrasion or breakage of physical features			



<b>Location (Degrees.DecimalDegrees WGS1984)</b>			
Lat. N	52.8963	Long. E	1.4314
<b>Area -</b>	Cromer Shoal Chalk Beds MCZ	<b>Station -</b>	12
<b>Date of Video survey -</b>	31 <sup>ST</sup> May 2019	<b>Date of Grab survey -</b>	NA
<b>Example seabed stills (extracted from video)</b>			
			
<b>Description from video assessment</b>			
Seabed dominated by cobbles and pebbles. Chalk pavement and chalk pebbles and cobbles present. Frequent attached fauna and sea anemones, occasional sunstar. Weed observed suggesting infralittoral.			
<b>EUNIS code from seabed imagery</b>		<b>FOCI</b>	
A3 Infralittoral rock		Subtidal chalk	
<b>Chalk assessment</b>		Chalk pavement	
<b>Notes</b> – Assessment based on video footage. Video very fast providing poor quality imagery and making it hard to observe fauna.			
<b>Confidence assessment</b>			
<b>Image quality</b>		Medium	
<b>Seabed structure</b>		High	
<b>Seabed composition</b>		Low	
<b>Initial assessment of sensitivity to potting (speculative)</b>			
<b>Not sensitive</b> - absence of complex, elevated chalk structure and absence of evidence of abrasion or breakage of physical features.			

<b>Location (Degrees.DecimalDegrees WGS1984)</b>			
Lat. N	52.9230	Long. E	1.4194
<b>Area -</b>	Cromer Shoal Chalk Beds MCZ	<b>Station -</b>	13
<b>Date of Video survey -</b>	31 <sup>ST</sup> May 2019	<b>Date of Grab survey -</b>	NA
<b>Example seabed stills (extracted from video)</b>			
			
<b>Description from video assessment</b>			
Coarse sand over chalk pavement with pebble and cobble. Frequent attached faunal turf and sea anemones. Weed observed suggesting infralittoral.			
<b>EUNIS code from seabed imagery</b>		<b>FOCI</b>	
A3 Infralittoral rock		Subtidal chalk	
<b>Chalk assessment</b>		Chalk pavement	
<b>Notes –</b> Assessment based on video footage. Video very fast providing poor quality imagery and making it hard to observe fauna.			
<b>Confidence assessment</b>			
<b>Image quality</b>		Medium	
<b>Seabed structure</b>		High	
<b>Seabed composition</b>		Medium	
<b>Initial assessment of sensitivity to potting (speculative)</b>			
<b>Not sensitive</b> - absence of complex, elevated chalk structure and absence of evidence of abrasion or breakage of physical features			



<b>Location (Degrees.DecimalDegrees WGS1984)</b>			
Lat. N	52.9146	Long. E	1.4128
<b>Area -</b>	Cromer Shoal Chalk Beds MCZ	<b>Station -</b>	14
<b>Date of Video survey -</b>	31 <sup>ST</sup> May 2019	<b>Date of Grab survey -</b>	NA
<b>Example seabed stills (extracted from video)</b>			
			
<b>Description from video assessment</b>			
Coarse sand with cobbles, pebbles and occasional boulders (including chalk) over chalk pavement. Frequent attached faunal turf and sea anemones. Weed observed suggesting infralittoral.			
<b>EUNIS code from seabed imagery</b>		<b>FOCI</b>	
A3 Infralittoral rock		Subtidal chalk	
<b>Chalk assessment</b>		Chalk pavement	
<b>Notes</b> – Assessment based on video footage. Video very fast providing poor quality imagery and making it hard to observe fauna.			
<b>Confidence assessment</b>			
<b>Image quality</b>		Medium	
<b>Seabed structure</b>		High	
<b>Seabed composition</b>		Medium	
<b>Initial assessment of sensitivity to potting (speculative)</b>			
<b>Not sensitive</b> - absence of complex, elevated chalk structure and absence of evidence of abrasion or breakage of physical features			



Location (Degrees.DecimalDegrees WGS1984)			
Lat. N	52.9346	Long. E	1.3917
Area -	Cromer Shoal Chalk Beds MCZ	Station -	16
Date of Video survey -	31 <sup>ST</sup> May 2019	Date of Grab survey -	NA
Example seabed stills (extracted from video)			
			
Description from video assessment			
Sand and muddy sand seabed dominated with pebble and cobble. No evidence of chalk. Occasional attached faunal turf, occasional <i>Asterias rubens</i> and frequent sea anemones.			
EUNIS code from seabed imagery		FOCI	
A5.4 Mixed sediment			
Chalk assessment		Absent	
<b>Notes</b> – Assessment based on video footage.			
Confidence assessment			
Image quality		High	
Seabed structure		High	
Seabed composition		Low	
Initial assessment of sensitivity to potting (speculative)			
<b>Not sensitive</b> - absence of complex, elevated chalk structure and absence of evidence of abrasion or breakage of physical features			

<b>Location (Degrees.DecimalDegrees WGS1984)</b>			
Lat. N	52.9248	Long. E	1.3835
<b>Area -</b>	Cromer Shoal Chalk Beds MCZ	<b>Station -</b>	17
<b>Date of Video survey -</b>	31 <sup>ST</sup> May 2019	<b>Date of Grab survey -</b>	NA
<b>Example seabed stills (extracted from video)</b>			
			
<b>Description from video assessment</b>			
Chalk pavement with overlying sand and muddy sand, pebbles, cobbles and large chalk boulders. Frequent attached faunal turf and occasional sea anemones. Weed present suggesting infralittoral.			
<b>EUNIS code from seabed imagery</b>		<b>FOCI</b>	
A3 Infralittoral rock		Subtidal chalk	
<b>Chalk assessment</b>		Rugged chalk	
<b>Notes</b> – Assessment based on video footage. Video very fast providing poor quality imagery and making it hard to observe fauna.			
<b>Confidence assessment</b>			
<b>Image quality</b>		Medium	
<b>Seabed structure</b>		Medium	
<b>Seabed composition</b>		Medium	
<b>Initial assessment of sensitivity to potting (speculative)</b>			
<b>Potentially sensitive</b> – evidence of some complex, elevated chalk structure. No evidence abrasion or breakage of physical features.			





Location (Degrees.DecimalDegrees WGS1984)			
Lat. N	52.9471	Long. E	1.3539
Area -	Cromer Shoal Chalk Beds MCZ	Station -	19
Date of Video survey -	31 <sup>ST</sup> May 2019	Date of Grab survey -	NA
Example seabed stills (extracted from video)			
			
Description from video assessment			
Pebble and cobble dominated seabed. Attached faunal turf, frequent <i>Asterias rubens</i> and sea anemones, and occasional sunstars and crabs. Possible rocky reef. Potential for pebble and cobble to be chalk.			
EUNIS code from seabed imagery		FOCI	
A5.1 Coarse sediment			
Chalk assessment		Chalk pebble and cobble	
<b>Notes</b> – Assessment based on video footage. Video very fast providing poor quality imagery and making it hard to observe fauna. Precautionary chalk assessment.			
Confidence assessment			
Image quality		Medium	
Seabed structure		High	
Seabed composition		Low	
Initial assessment of sensitivity to potting (speculative)			
<b>Not sensitive</b> - absence of complex, elevated chalk structure and absence of evidence of abrasion or breakage of physical features.			



Location (Degrees.DecimalDegrees WGS1984)			
Lat. N	52.9392	Long. E	1.3486
Area -	Cromer Shoal Chalk Beds MCZ	Station -	20
Date of Video survey -	31 <sup>ST</sup> May 2019	Date of Grab survey -	NA
Example seabed stills (extracted from video)			
			
Description from video assessment			
Chalk pavement seabed with pebble and cobble. Abundant attached faunal turf, occasional <i>Asterias rubens</i> and sea anemones. Weed present suggesting infralittoral.			
EUNIS code from seabed imagery		FOCI	
A3 Infralittoral rock		Subtidal chalk	
Chalk assessment		Chalk pavement	
<b>Notes</b> – Assessment based on video footage. Video very fast providing poor quality imagery and making it hard to observe fauna.			
Confidence assessment			
Image quality		Medium	
Seabed structure		High	
Seabed composition		Medium	
Initial assessment of sensitivity to potting (speculative)			
<b>Potentially sensitive</b> - absence of complex, elevated chalk structure but some evidence of breakage of chalk features – angular clean white rubble			

<b>Location (Degrees.DecimalDegrees WGS1984)</b>			
Lat. N	52.8438	Long. E	1.5111
<b>Area -</b>	Cromer Shoal Chalk Beds MCZ	<b>Station -</b>	E1
<b>Date of Video survey -</b>	31 <sup>st</sup> May 2019	<b>Date of Grab survey -</b>	NA
<b>Example seabed stills (extracted from video)</b>			
			
<b>Description from video assessment (Abundance scale = SACFOR)</b>			
Sandy seabed dominated with gravel and pebble, possibly mixed. Fauna poor – occasional sea anemone observed. Potential for pebbles to be chalk/flint.			
<b>EUNIS code</b>		<b>FOCI</b>	
A5.4 Mixed sediment			
<b>Chalk assessment</b>		Pebble/cobble	
<b>Notes</b> – Assessment based on video footage. Seabed not observed through whole tow.			
<b>Confidence assessment</b>			
<b>Image quality</b>		Medium	
<b>Seabed structure</b>		High	
<b>Seabed composition</b>		Medium	
<b>Initial assessment of sensitivity to potting (speculative)</b>			
<b>Not sensitive</b> - absence of complex, elevated chalk structure and absence of evidence of abrasion or breakage of physical features			

## Appendix 3: EA (2019) Station data sheets<sup>28</sup>





<b>Area/MPA</b>		Cromer Shoal Chalk Beds MCZ	
<b>Cruise ID</b>		2ENC31019	
<b>Date</b>		23 <sup>rd</sup> October 2019	
<b>Station number</b>	11	<b>Replicate</b>	A1
<b>Tow Location (Degrees.DecimalDegrees WGS1984)</b>			
<b>Start</b>		<b>End</b>	
<b>Lat. N</b>	52.8985	<b>Lat. N</b>	52.89716
<b>Long. E</b>	1.42398	<b>Long. E</b>	1.42895
<b>Distance from start to end (m)</b>		370	
<b>Example seabed stills</b>			
			
			
<b>EIFCA Description of habitat from imagery</b>			
<p>Sand, mud, pebble and cobble, some chalk pavement. Mobile (starfish) and attached fauna (sea anemones, hydroid/bryozoa turf) observed. Some attached algae observed. Potential for cobbles/pebbles to be chalk/flint but unclear from imagery. Habitat generally consistent throughout stills.</p>			
<b>EIFCA assessment of habitats present</b>	<b>EUNIS</b>	A5.4 Sublittoral mixed sediment (first two thirds of tow) A4 Circalittoral rock (last third of tow)	

<sup>28</sup> Images show example stills of the typical seabed observed across the whole tow, as well as the different types of habitats observed

	<b>FOCI</b>	Subtidal chalk
<b>EIFCA chalk assessment<sup>29</sup></b>	Chalk pavement	
<b>Notes</b>	Stills obtained from seabed video tow. Good quality imagery.	
<b>Confidence assessment</b>		
<b>Image quality</b>	High	
<b>Seabed structure</b>	High	
<b>Seabed composition</b>	Medium	
<b>Initial assessment of sensitivity to potting (speculative)</b>		
<b>Not sensitive</b> - absence of complex, elevated chalk structure and absence of evidence of abrasion or breakage of physical features from anthropogenic activities		

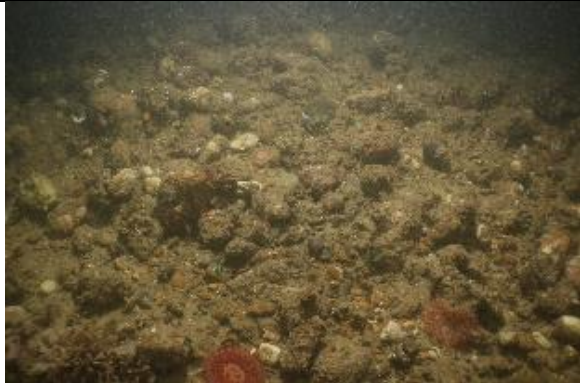



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<sup>29</sup> Highest level of chalk observed across stills

<b>Area/MPA</b>		Cromer Shoal Chalk Beds MCZ	
<b>Cruise ID</b>		2ENC31019	
<b>Date</b>		23 <sup>rd</sup> October 2019	
<b>Station number</b>	7	<b>Replicate</b>	A2
<b>Tow Location (Degrees.DecimalDegrees WGS1984)</b>			
<b>Start</b>		<b>End</b>	
<b>Lat. N</b>	52.91636	<b>Lat. N</b>	52.91641
<b>Long. E</b>	1.43574	<b>Long. E</b>	1.43843
<b>Distance from start to end (m)</b>		180	
<b>Example seabed stills</b>			
			
			
<b>EIFCA Description of habitat from imagery</b>			
Coarse mobile sand, sand waves, some pebble and cobble, chalk pavement. Mobile (edible crab, fish) and attached fauna (hydroid/bryozoa turf) observed. Some attached algae observed. Some cobbles/pebbles appear to be chalk/flint. Habitat generally consistent throughout stills.			
<b>EIFCA assessment of habitats present</b>	<b>EUNIS</b>	A5.2 Sublittoral sand and muddy sand	
	<b>FOCI</b>	Subtidal chalk	
<b>EIFCA chalk assessment<sup>30</sup></b>	Chalk pavement		

<sup>30</sup> Highest level of chalk observed across stills

<b>Notes</b>	Stills obtained from seabed video tow. Good quality imagery.	
<b>Confidence assessment</b>		
<b>Image quality</b>	High	
<b>Seabed structure</b>	High	
<b>Seabed composition</b>	Medium	
<b>Initial assessment of sensitivity to potting (speculative)</b>		
<b>Not sensitive</b> - absence of complex, elevated chalk structure and absence of evidence of abrasion or breakage of physical features from anthropogenic activities.		





<b>Area/MPA</b>		Cromer Shoal Chalk Beds MCZ	
<b>Cruise ID</b>		2ENC31019	
<b>Date</b>		23 <sup>rd</sup> October 2019	
<b>Station number</b>	10	<b>Replicate</b>	A1
<b>Tow Location (Degrees.DecimalDegrees WGS1984)</b>			
<b>Start</b>		<b>End</b>	
<b>Lat. N</b>	52.89235	<b>Lat. N</b>	52.89135
<b>Long. E</b>	1.43965	<b>Long. E</b>	1.44249
<b>Distance from start to end (m)</b>		220	
<b>Example seabed stills</b>			
			
			
<b>EIFCA Description of habitat from imagery</b>			
Sand, silt, pebble and cobble, occasional boulder, chalk pavement. Mobile (sun star, edible crab, spider crab) and attached fauna (sea anemones, hydroid/bryozoa turf) observed. Some attached algae observed. Some cobbles/pebbles appear to be chalk/flint. Habitat generally consistent throughout stills, more chalk pavement observed towards ends of tow.			
<b>EIFCA assessment of habitats present</b>	<b>EUNIS</b>	A5.4 Sublittoral mixed sediment (generally first half of tow) A4 Circalittoral rock (generally last half of tow)	
	<b>FOCI</b>	Subtidal chalk	

<b>EIFCA chalk assessment<sup>31</sup></b>	Chalk pavement
<b>Notes</b>	Stills obtained from seabed video tow. Good quality imagery.
<b>Confidence assessment</b>	
<b>Image quality</b>	High
<b>Seabed structure</b>	High
<b>Seabed composition</b>	Medium
<b>Initial assessment of sensitivity to potting (speculative)</b>	
<b>Not sensitive</b> - absence of complex, elevated chalk structure and absence of evidence of abrasion or breakage of physical features from anthropogenic activities.	

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<sup>31</sup> Highest level of chalk observed across stills



<b>Area/MPA</b>		Cromer Shoal Chalk Beds MCZ	
<b>Cruise ID</b>		2ENC31019	
<b>Date</b>		23 <sup>rd</sup> October 2019	
<b>Station number</b>	8	<b>Replicate</b>	A1
<b>Tow Location (Degrees.DecimalDegrees WGS1984)</b>			
<b>Start</b>		<b>End</b>	
<b>Lat. N</b>	52.90224	<b>Lat. N</b>	52.90091
<b>Long. E</b>	1.44568	<b>Long. E</b>	1.44800
<b>Distance from start to end (m)</b>		215	
<b>Example seabed stills</b>			
			
			
<b>EIFCA Description of habitat from imagery</b>			
Sand, silt, pebble and cobble. Mobile (starfish, edible crab) and attached fauna (sea anemones, hydroid/bryozoa turf) observed. Some attached algae observed. Some cobbles/pebbles appear to be chalk/flint. Habitat generally consistent throughout stills.			
<b>EIFCA assessment of habitats present</b>	<b>EUNIS</b>	A5.4 Sublittoral mixed sediment	
	<b>FOCI</b>		
<b>EIFCA chalk assessment<sup>32</sup></b>	Chalk pebble and cobble		





<sup>32</sup> Highest level of chalk observed across stills

<b>Notes</b>	Stills obtained from seabed video tow. Good quality imagery.	
<b>Confidence assessment</b>		
<b>Image quality</b>		High
<b>Seabed structure</b>		High
<b>Seabed composition</b>		Low
<b>Initial assessment of sensitivity to potting (speculative)</b>		
<b>Not sensitive</b> - absence of complex, elevated chalk structure and absence of evidence of abrasion or breakage of physical features from anthropogenic activities.		

<b>Area/MPA</b>		Cromer Shoal Chalk Beds MCZ	
<b>Cruise ID</b>		2ENC31019	
<b>Date</b>		23 <sup>rd</sup> October 2019	
<b>Station number</b>	9	<b>Replicate</b>	A1
<b>Tow Location (Degrees.DecimalDegrees WGS1984)</b>			
<b>Start</b>		<b>End</b>	
<b>Lat. N</b>	52.89729	<b>Lat. N</b>	52.89640
<b>Long. E</b>	1.44785	<b>Long. E</b>	1.45030
<b>Distance from start to end (m)</b>		190	
<b>Example seabed stills</b>			
			
			
<b>EIFCA Description of habitat from imagery</b>			
Sand, gravel, pebble and cobble, some exposed chalk bedrock. Mobile (sun star, goby, velvet swimming crab) and attached fauna (sea anemones, hydroid/bryozoa turf) observed. Some attached algae observed. Some cobbles/pebbles appear to be chalk/flint. Habitat generally consistent throughout stills, with more gravel/coarse sediment observed at the first half, patches of exposed chalk bedrock in the middle and larger pebbles and cobbles in the second half.			
<b>EIFCA assessment of habitats present</b>	<b>EUNIS</b>	A5.1 Sublittoral coarse sediment A4 Circalittoral rock	
	<b>FOCI</b>	Subtidal chalk	
<b>EIFCA chalk assessment<sup>33</sup></b>	Chalk pavement		





<sup>33</sup> Highest level of chalk observed across stills

<b>Notes</b>	Stills obtained from seabed video tow. Good quality imagery.
<b>Confidence assessment</b>	
<b>Image quality</b>	High
<b>Seabed structure</b>	High
<b>Seabed composition</b>	Low
<b>Initial assessment of sensitivity to potting (speculative)</b>	
<b>Not sensitive</b> - absence of complex, elevated chalk structure and absence of evidence of abrasion or breakage of physical features from anthropogenic activities.	

<b>Area/MPA</b>		Cromer Shoal Chalk Beds MCZ	
<b>Cruise ID</b>		2ENC31019	
<b>Date</b>		23 <sup>rd</sup> October 2019	
<b>Station number</b>	12	<b>Replicate</b>	A1
<b>Tow Location (Degrees.DecimalDegrees WGS1984)</b>			
<b>Start</b>		<b>End</b>	
<b>Lat. N</b>	52.89941	<b>Lat. N</b>	52.89755
<b>Long. E</b>	1.46209	<b>Long. E</b>	1.46467
<b>Distance from start to end (m)</b>		420	
<b>Example seabed stills</b>			
			
			
<b>EIFCA Description of habitat from imagery</b>			
Sand waves of coarse mobile sand, gravel, patches of pebble and cobble. Mobile (goby) and attached fauna (sea anemones, hydroid/bryozoa turf) observed. Some attached algae observed. Some cobbles/pebbles appear to be chalk/flint. Habitat generally consistent throughout stills.			
<b>EIFCA assessment of habitats present</b>	<b>EUNIS</b>	A5.2 Sublittoral sand and muddy sand	
	<b>FOCI</b>		
<b>EIFCA chalk assessment<sup>34</sup></b>	Chalk pebble and cobble		

<sup>34</sup> Highest level of chalk observed across stills





<b>Notes</b>	Stills obtained from seabed video tow. Good quality imagery.
<b>Confidence assessment</b>	
<b>Image quality</b>	High
<b>Seabed structure</b>	High
<b>Seabed composition</b>	Medium
<b>Initial assessment of sensitivity to potting (speculative)</b>	
<b>Not sensitive</b> - absence of complex, elevated chalk structure and absence of evidence of abrasion or breakage of physical features from anthropogenic activities.	

<b>Area/MPA</b>		Cromer Shoal Chalk Beds MCZ	
<b>Cruise ID</b>		2ENC31019	
<b>Date</b>		23 <sup>rd</sup> October 2019	
<b>Station number</b>	6	<b>Replicate</b>	A1
<b>Tow Location (Degrees.DecimalDegrees WGS1984)</b>			
<b>Start</b>		<b>End</b>	
<b>Lat. N</b>	52.91186	<b>Lat. N</b>	52.91346
<b>Long. E</b>	1.46546	<b>Long. E</b>	1.46473
<b>Distance from start to end (m)</b>		185	
<b>Example seabed stills</b>			
			
			
<b>EIFCA Description of habitat from imagery</b>			
Coarse sand, gravel, pebble and cobble, some exposed chalk bedrock and occasional boulder. Mobile (starfish) and attached fauna (sea anemones, hydroid/bryozoa turf, sponge/ascidian) observed. Some attached algae observed. Some cobbles/pebbles appear to be chalk/flint. Habitat generally consistent throughout stills.			
<b>EIFCA assessment of habitats present</b>	<b>EUNIS</b>	A5.2 Sublittoral sand and muddy sand A4. Circalittoral rock	
	<b>FOCI</b>	Subtidal chalk	
<b>EIFCA chalk assessment<sup>35</sup></b>	Chalk pavement		

<sup>35</sup> Highest level of chalk observed across stills





<b>Notes</b>	Stills obtained from seabed video tow. Good quality imagery.
<b>Confidence assessment</b>	
<b>Image quality</b>	High
<b>Seabed structure</b>	High
<b>Seabed composition</b>	Medium
<b>Initial assessment of sensitivity to potting (speculative)</b>	
<b>Not sensitive</b> - absence of complex, elevated chalk structure and absence of evidence of abrasion or breakage of physical features from anthropogenic activities.	



<b>Area/MPA</b>		Cromer Shoal Chalk Beds MCZ	
<b>Cruise ID</b>		2ENC31019	
<b>Date</b>		23 <sup>rd</sup> October 2019	
<b>Station number</b>	13	<b>Replicate</b>	A1
<b>Tow Location (Degrees.DecimalDegrees WGS1984)</b>			
<b>Start</b>		<b>End</b>	
<b>Lat. N</b>	52.88499	<b>Lat. N</b>	52.88316
<b>Long. E</b>	1.47088	<b>Long. E</b>	1.47406
<b>Distance from start to end (m)</b>		295	
<b>Example seabed stills</b>			
			
			
<b>EIFCA Description of habitat from imagery</b>			
Silt, sand, gravel, pebble, cobble, one chalk boulder. Mobile (edible crab, starfish) and attached fauna (sea anemones, hydroid/bryozoa turf) observed. Some attached algae observed. Some cobbles/pebbles appear to be chalk/flint. Habitat generally consistent throughout stills.			
<b>EIFCA assessment of habitats present</b>	<b>EUNIS</b>	A5.4 Sublittoral mixed sediment	
	<b>FOCI</b>	Subtidal chalk	
<b>EIFCA chalk assessment<sup>36</sup></b>	Chalk cobble and pebble		

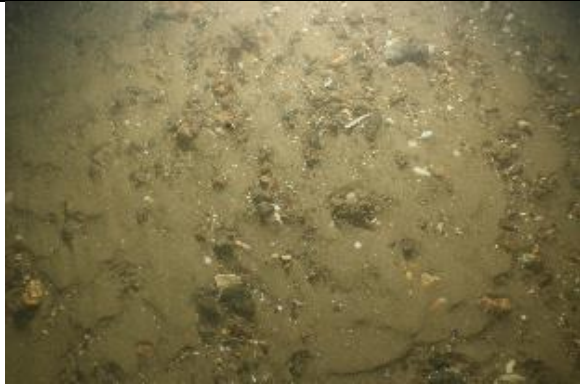



<sup>36</sup> Highest level of chalk observed across stills

<b>Notes</b>	Stills obtained from seabed video tow. Good quality imagery.	
<b>Confidence assessment</b>		
<b>Image quality</b>	High	
<b>Seabed structure</b>	High	
<b>Seabed composition</b>	Low	
<b>Initial assessment of sensitivity to potting (speculative)</b>		
<b>Not sensitive</b> - absence of complex, elevated chalk structure and absence of evidence of abrasion or breakage of physical features from anthropogenic activities.		

<b>Area/MPA</b>		Cromer Shoal Chalk Beds MCZ	
<b>Cruise ID</b>		2ENC31019	
<b>Date</b>		23 <sup>rd</sup> October 2019	
<b>Station number</b>	14	<b>Replicate</b>	A1
<b>Tow Location (Degrees.DecimalDegrees WGS1984)</b>			
<b>Start</b>		<b>End</b>	
<b>Lat. N</b>	52.88637	<b>Lat. N</b>	52.88442
<b>Long. E</b>	1.48741	<b>Long. E</b>	1.49116
<b>Distance from start to end (m)</b>		330	
<b>Example seabed stills</b>			
			
			
<b>EIFCA Description of habitat from imagery</b>			
Silt, sand, gravel, pebble and some cobble. Mobile (hermit crab, harbour crab, starfish) and attached fauna (sea anemones, hydroid/bryozoa turf, ascidian) observed. Some attached algae observed. Some cobbles/pebbles appear to be chalk/flint. Habitat generally consistent throughout stills.			
<b>EIFCA assessment of habitats present</b>	<b>EUNIS</b>	A5.4 Sublittoral mixed sediment	
	<b>FOCI</b>		
<b>EIFCA chalk assessment<sup>37</sup></b>	Chalk cobble and pebble		





<sup>37</sup> Highest level of chalk observed across stills

<b>Notes</b>	Stills obtained from seabed video tow. Good quality imagery.	
<b>Confidence assessment</b>		
<b>Image quality</b>	High	
<b>Seabed structure</b>	High	
<b>Seabed composition</b>	Low	
<b>Initial assessment of sensitivity to potting (speculative)</b>		
<b>Not sensitive</b> - absence of complex, elevated chalk structures and absence of evidence of abrasion or breakage of physical features from anthropogenic activities.		

<b>Area/MPA</b>		Cromer Shoal Chalk Beds MCZ	
<b>Cruise ID</b>		2ENC31019	
<b>Date</b>		23 <sup>rd</sup> October 2019	
<b>Station number</b>	17	<b>Replicate</b>	A1
<b>Tow Location (Degrees.DecimalDegrees WGS1984)</b>			
<b>Start</b>		<b>End</b>	
<b>Lat. N</b>	52.85794	<b>Lat. N</b>	52.85963
<b>Long. E</b>	1.49641	<b>Long. E</b>	1.49629
<b>Distance from start to end (m)</b>		190	
<b>Example seabed stills</b>			
			
			
<b>EIFCA Description of habitat from imagery</b>			
<p>Predominantly mobile sand, gravel, pebble and cobble, some exposed chalk pavement. Fauna poor, occasional mobile (shore crab, hermit crab) and attached (sea anemone, hydroid/bryozoan turf, possible <i>sabellaria</i>) fauna observed. No attached algae observed. Habitat generally consistent throughout stills, predominantly sand, gravel and pebble with some areas of mobile sand and some exposed chalk pavement.</p>			
<b>EIFCA assessment of habitats present</b>	<b>EUNIS</b>	A5.4 mixed sediment	
	<b>FOCI</b>	Subtidal chalk	
<b>EIFCA chalk assessment<sup>38</sup></b>	Chalk pavement		

<sup>38</sup> Highest level of chalk observed across stills





<b>Notes</b>	Stills obtained from seabed video tow. Good quality imagery. Potential for pebble/cobble to be chalk/flint.	
<b>Confidence assessment</b>		
<b>Image quality</b>	High	
<b>Seabed structure</b>	High	
<b>Seabed composition</b>	Medium	
<b>Initial assessment of sensitivity to potting (speculative)</b>		
<b>Not sensitive</b> - absence of complex, elevated chalk structures and absence of evidence of abrasion or breakage of physical features from anthropogenic activities.		

<b>Area/MPA</b>		Cromer Shoal Chalk Beds MCZ	
<b>Cruise ID</b>		2ENC31019	
<b>Date</b>		23 <sup>rd</sup> October 2019	
<b>Station number</b>	5	<b>Replicate</b>	A1
<b>Tow Location (Degrees.DecimalDegrees WGS1984)</b>			
<b>Start</b>		<b>End</b>	
<b>Lat. N</b>	52.89921	<b>Lat. N</b>	52.9001
<b>Long. E</b>	1.50253	<b>Long. E</b>	1.50046
<b>Distance from start to end (m)</b>		170	
<b>Example seabed stills</b>			
			
			
<b>EIFCA Description of habitat from imagery</b>			
Silt, sand, gravel and pebble. Mobile (crab, shrimp, squat lobster?, hermit crab, edible crab, painted topshells) and attached fauna (sea anemones, hydroid/bryozoa turf) observed. Some attached algae observed. No clear indication that chalk/flint is present. Habitat consistent across stills.			
<b>EIFCA assessment of habitats present</b>	<b>EUNIS</b>	A5.4 Sublittoral mixed sediment	
	<b>FOCI</b>		
<b>EIFCA chalk assessment<sup>39</sup></b>	Chalk absent		

<sup>39</sup> Highest level of chalk observed across stills





<b>Notes</b>	Stills obtained from seabed video tow. Good quality imagery.	
<b>Confidence assessment</b>		
<b>Image quality</b>	High	
<b>Seabed structure</b>	High	
<b>Seabed composition</b>	Low	
<b>Initial assessment of sensitivity to potting (speculative)</b>		
<b>Not sensitive</b> - absence of complex, elevated chalk structures and absence of evidence of abrasion or breakage of physical features from anthropogenic activities.		



<b>Area/MPA</b>		Cromer Shoal Chalk Beds MCZ	
<b>Cruise ID</b>		2ENC31019	
<b>Date</b>		23 <sup>rd</sup> October 2019	
<b>Station number</b>	16	<b>Replicate</b>	A1
<b>Tow Location (Degrees.DecimalDegrees WGS1984)</b>			
<b>Start</b>		<b>End</b>	
<b>Lat. N</b>	52.87789	<b>Lat. N</b>	52.87925
<b>Long. E</b>	1.50474	<b>Long. E</b>	1.50265
<b>Distance from start to end (m)</b>		220	
<b>Example seabed stills</b>			
			
			
<b>EIFCA Description of habitat from imagery</b>			
Silt, sand, gravel, pebble and cobble, exposed chalk pavement. Mobile (star fish, crab, goby, painted topshells) and attached fauna (sea anemones, hydroid/bryozoa turf, sabellaria) observed. Some cobbles and pebbles appear to be chalk flint. Some attached algae observed. First half of tow appears to be mixed sediment and second half chalk pavement overlaid with mobile sediments, pebble and some cobble.			
<b>EIFCA assessment of habitats present</b>	<b>EUNIS</b>	A5.4 Sublittoral mixed sediment A4 Circalittoral rock	
	<b>FOCI</b>	Subtidal chalk	
<b>EIFCA chalk assessment<sup>40</sup></b>	Chalk pavement		





<sup>40</sup> Highest level of chalk observed across stills

<b>Notes</b>	Stills obtained from seabed video tow. Good quality imagery.	
<b>Confidence assessment</b>		
<b>Image quality</b>	High	
<b>Seabed structure</b>	High	
<b>Seabed composition</b>	Medium	
<b>Initial assessment of sensitivity to potting (speculative)</b>		
<b>Not sensitive</b> - absence of complex, elevated chalk structures and absence of evidence of abrasion or breakage of physical features from anthropogenic activities.		

<b>Area/MPA</b>		Cromer Shoal Chalk Beds MCZ	
<b>Cruise ID</b>		2ENC31019	
<b>Date</b>		24 <sup>th</sup> October 2019	
<b>Station number</b>	22	<b>Replicate</b>	A1
<b>Tow Location (Degrees.DecimalDegrees WGS1984)</b>			
<b>Start</b>		<b>End</b>	
<b>Lat. N</b>	52.84792	<b>Lat. N</b>	52.84887
<b>Long. E</b>	1.50713	<b>Long. E</b>	1.504975
<b>Distance from start to end (m)</b>		180	
<b>Example seabed stills</b>			
			
			
<b>EIFCA Description of habitat from imagery</b>			
Sand, gravel and pebble, possibly mixed sediment. Fauna poor, occasional mobile (starfish) and attached (sea anemone, hydroid/bryozoan turf) fauna observed. Some attached algae observed. Habitat consistent throughout stills. Some pebbles appear to be chalk/flint.			
<b>EIFCA assessment of habitats present</b>	<b>EUNIS</b>	A5.4 sublittoral mixed sediment	
	<b>FOCI</b>		
<b>EIFCA chalk assessment<sup>41</sup></b>	Chalk pebble/cobble		



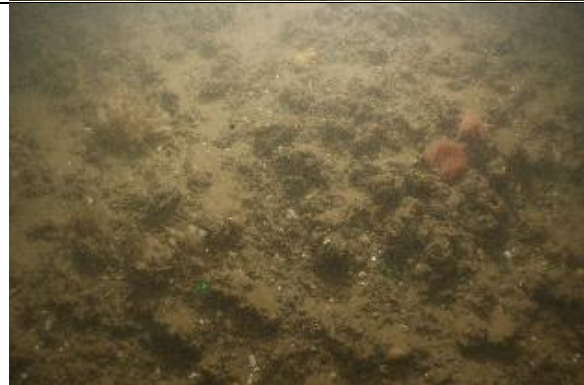

<sup>41</sup> Highest level of chalk observed across stills

<b>Notes</b>	Stills obtained from seabed video tow. Good quality imagery. Potential for pebble to be chalk/flint – precautionary chalk assessment.	
<b>Confidence assessment</b>		
<b>Image quality</b>	High	
<b>Seabed structure</b>	High	
<b>Seabed composition</b>	Low	
<b>Initial assessment of sensitivity to potting (speculative)</b>		
<b>Not sensitive</b> - absence of complex, elevated chalk structures and absence of evidence of abrasion or breakage of physical features from anthropogenic activities.		

<b>Area/MPA</b>		Cromer Shoal Chalk Beds MCZ	
<b>Cruise ID</b>		2ENC31019	
<b>Date</b>		23 <sup>rd</sup> October 2019	
<b>Station number</b>	15	<b>Replicate</b>	A1
<b>Tow Location (Degrees.DecimalDegrees WGS1984)</b>			
<b>Start</b>		<b>End</b>	
<b>Lat. N</b>	52.88544	<b>Lat. N</b>	52.88298
<b>Long. E</b>	1.50960	<b>Long. E</b>	1.51287
<b>Distance from start to end (m)</b>		350	
<b>Example seabed stills</b>			
			
			
<b>EIFCA Description of habitat from imagery</b>			
Silt, sand, gravel, shell, and pebble. Mobile (pink shrimp, edible crab, sunstar, crab, painted topshells) and attached fauna (hydroid/bryozoa turf, sabellaria) observed. No obvious chalk observed. Some attached algae observed. Habitat generally consistent across stills.			
<b>EIFCA assessment of habitats present</b>	<b>EUNIS</b>	A5.4 Sublittoral mixed sediment	
	<b>FOCI</b>		
<b>EIFCA chalk assessment<sup>42</sup></b>	Chalk absent		

<sup>42</sup> Highest level of chalk observed across stills



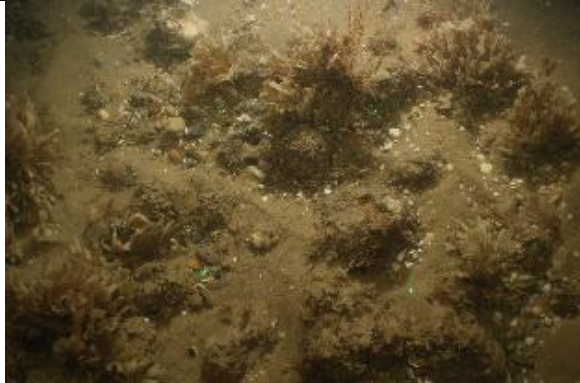

<b>Notes</b>	Stills obtained from seabed video tow. Good quality imagery.	
<b>Confidence assessment</b>		
<b>Image quality</b>	High	
<b>Seabed structure</b>	High	
<b>Seabed composition</b>	Low	
<b>Initial assessment of sensitivity to potting (speculative)</b>		
<b>Not sensitive</b> - absence of complex, elevated chalk structures and absence of evidence of abrasion or breakage of physical features from anthropogenic activities.		

<b>Area/MPA</b>		Cromer Shoal Chalk Beds MCZ	
<b>Cruise ID</b>		2ENC31019	
<b>Date</b>		23 <sup>rd</sup> October 2019	
<b>Station number</b>	4	<b>Replicate</b>	A1
<b>Tow Location (Degrees.DecimalDegrees WGS1984)</b>			
<b>Start</b>		<b>End</b>	
<b>Lat. N</b>	52.88988	<b>Lat. N</b>	52.89104
<b>Long. E</b>	1.51916	<b>Long. E</b>	1.51739
<b>Distance from start to end (m)</b>		175	
<b>Example seabed stills</b>			
			
			
<b>EIFCA Description of habitat from imagery</b>			
Silt, sand, gravel, shell, and pebble. Mobile (starfish, pink shrimp, edible crab, sunstar, crab, painted topshells, squat lobster) and attached fauna (sea anemone, hydroid/bryozoa turf, <i>sabellaria</i> ) observed. No obvious chalk observed. Some attached algae observed. Habitat generally consistent across stills.			
<b>EIFCA assessment of habitats present</b>	<b>EUNIS</b>	A5.4 Sublittoral mixed sediment	
	<b>FOCI</b>		
<b>EIFCA chalk assessment<sup>43</sup></b>	Chalk absent		

<sup>43</sup> Highest level of chalk observed across stills

<b>Notes</b>	Stills obtained from seabed video tow. Good quality imagery.	
<b>Confidence assessment</b>		
<b>Image quality</b>	High	
<b>Seabed structure</b>	High	
<b>Seabed composition</b>	Low	
<b>Initial assessment of sensitivity to potting (speculative)</b>		
<b>Not sensitive</b> - absence of complex, elevated chalk structures and absence of evidence of abrasion or breakage of physical features from anthropogenic activities.		







<b>Area/MPA</b>		Cromer Shoal Chalk Beds MCZ	
<b>Cruise ID</b>		2ENC31019	
<b>Date</b>		24 <sup>th</sup> October 2019	
<b>Station number</b>		21	<b>Replicate</b> A1
<b>Tow Location (Degrees.DecimalDegrees WGS1984)</b>			
<b>Start</b>		<b>End</b>	
<b>Lat. N</b>	52.87083	<b>Lat. N</b>	52.87224
<b>Long. E</b>	1.52294	<b>Long. E</b>	1.52078
<b>Distance from start to end (m)</b>		213	
<b>Example seabed stills</b>			
			
			
<b>EIFCA Description of habitat from imagery</b>			
Coarse sand, gravel and shell, patches of exposed chalk bedrock, clay exposures and deposits. Mobile (sunstar, crab, painted topshells) and attached fauna (sea anemone, hydroid/bryozoa turf, sabellaria) observed. Some attached algae observed. Varying habitats observed throughout stills, initially coarse sediment with areas of exposed bedrock, followed by a stretch of mixed sediment and an area of clay exposures and deposits.			
<b>EIFCA assessment of habitats present</b>	<b>EUNIS</b>	A5.1 Sublittoral coarse sediment A5.4 Sublittoral mixed sediment A4 Circalittoral rock	
	<b>FOCI</b>	Subtidal chalk Peat and clay exposures	

<b>EIFCA chalk assessment<sup>44</sup></b>	Chalk pavement
<b>Notes</b>	Stills obtained from seabed video tow. Good quality imagery.
<b>Confidence assessment</b>	
<b>Image quality</b>	High
<b>Seabed structure</b>	High
<b>Seabed composition</b>	Medium
<b>Initial assessment of sensitivity to potting (speculative)</b>	
<b>Not sensitive</b> - absence of complex, elevated chalk structures and absence of evidence of abrasion or breakage of physical features from anthropogenic activities.	





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<sup>44</sup> Highest level of chalk observed across stills

<b>Area/MPA</b>		Cromer Shoal Chalk Beds MCZ	
<b>Cruise ID</b>		2ENC31019	
<b>Date</b>		24 <sup>th</sup> October 2019	
<b>Station number</b>	18	<b>Replicate</b>	A1
<b>Tow Location (Degrees.DecimalDegrees WGS1984)</b>			
<b>Start</b>		<b>End</b>	
<b>Lat. N</b>	52.83631	<b>Lat. N</b>	52.83775
<b>Long. E</b>	1.52782	<b>Long. E</b>	1.52474
<b>Distance from start to end (m)</b>		260	
<b>Example seabed stills</b>			
			
			
<b>EIFCA Description of habitat from imagery</b>			
Silt, sand, gravel and pebble, possibly mixed sediment. Occasional mobile (fish) and attached (hydroid/bryozoan turf) fauna observed, <i>sabellaria</i> observed throughout. Some attached algae observed. Habitat consistent throughout stills.			
<b>EIFCA assessment of habitats present</b>	<b>EUNIS</b>	A5.4 sublittoral mixed sediment	
	<b>FOCI</b>		
<b>EIFCA chalk assessment<sup>45</sup></b>	Chalk pebble/cobble		





<sup>45</sup> Highest level of chalk observed across stills

<b>Notes</b>	Stills obtained from seabed video tow. Good quality imagery but very silty. Potential for pebble to be chalk/flint – precautionary chalk assessment.	
<b>Confidence assessment</b>		
<b>Image quality</b>	High	
<b>Seabed structure</b>	High	
<b>Seabed composition</b>	Low	
<b>Initial assessment of sensitivity to potting (speculative)</b>		
<b>Not sensitive</b> - absence of complex, elevated chalk structures and absence of evidence of abrasion or breakage of physical features from anthropogenic activities.		

<b>Area/MPA</b>		Cromer Shoal Chalk Beds MCZ	
<b>Cruise ID</b>		2ENC31019	
<b>Date</b>		23 <sup>rd</sup> October 2019	
<b>Station number</b>	3	<b>Replicate</b>	A1
<b>Tow Location (Degrees.DecimalDegrees WGS1984)</b>			
<b>Start</b>		<b>End</b>	
<b>Lat. N</b>	52.87209	<b>Lat. N</b>	52.87299
<b>Long. E</b>	1.5357	<b>Long. E</b>	1.53351
<b>Distance from start to end (m)</b>		180	
<b>Example seabed stills</b>			
			
			
<b>EIFCA Description of habitat from imagery</b>			
Silt, sand, gravel, shell and pebble. Mobile (squat lobster) and attached fauna (sea anemone, hydroid/bryozoa turf, <i>sabellaria</i> ) observed. Some attached algae observed. Habitat consistent throughout stills. No clear observation of chalk.			
<b>EIFCA assessment of habitats present</b>	<b>EUNIS</b>	A5.4 Sublittoral mixed sediment	
	<b>FOCI</b>		
<b>EIFCA chalk assessment<sup>46</sup></b>	Chalk absent		

<sup>46</sup> Highest level of chalk observed across stills

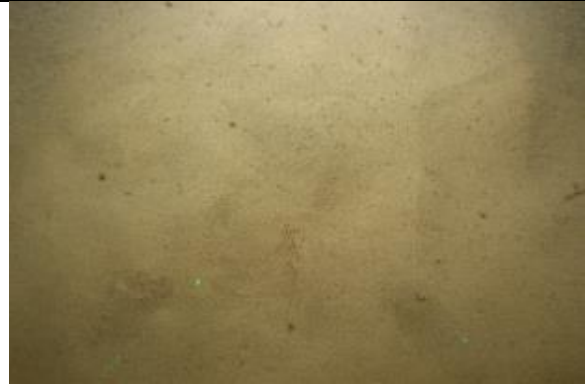

<b>Notes</b>	Stills obtained from seabed video tow. Reasonable quality imagery, slightly blurred.	
<b>Confidence assessment</b>		
<b>Image quality</b>	Medium - High	
<b>Seabed structure</b>	High	
<b>Seabed composition</b>	Low	
<b>Initial assessment of sensitivity to potting (speculative)</b>		
<b>Not sensitive</b> - absence of complex, elevated chalk structures and absence of evidence of abrasion or breakage of physical features from anthropogenic activities.		

<b>Area/MPA</b>		Cromer Shoal Chalk Beds MCZ	
<b>Cruise ID</b>		2ENC31019	
<b>Date</b>		24 <sup>th</sup> October 2019	
<b>Station number</b>	26	<b>Replicate</b>	A1
<b>Tow Location (Degrees.DecimalDegrees WGS1984)</b>			
<b>Start</b>		<b>End</b>	
<b>Lat. N</b>	52.87244	<b>Lat. N</b>	52.87289
<b>Long. E</b>	1.53705	<b>Long. E</b>	1.53451
<b>Distance from start to end (m)</b>		180	
<b>Example seabed stills</b>			
			
			
<b>EIFCA Description of habitat from imagery</b>			
Silt, sand, gravel, shell and pebble. Mobile (crab, pink shrimp, squat lobster, top shell) and attached fauna (sea anemone, hydroid/bryozoa turf, <i>sabellaria</i> ) observed. Some attached algae observed. Habitat consistent throughout stills. No clear observation of chalk.			
<b>EIFCA assessment of habitats present</b>	<b>EUNIS</b>	A5.4 Sublittoral mixed sediment	
	<b>FOCI</b>		
<b>EIFCA chalk assessment<sup>47</sup></b>	Chalk absent		

<sup>47</sup> Highest level of chalk observed across stills

<b>Notes</b>	Stills obtained from seabed video tow. Good quality imagery.	
<b>Confidence assessment</b>		
<b>Image quality</b>	High	
<b>Seabed structure</b>	High	
<b>Seabed composition</b>	Low	
<b>Initial assessment of sensitivity to potting (speculative)</b>		
<b>Not sensitive</b> - absence of complex, elevated chalk structures and absence of evidence of abrasion or breakage of physical features from anthropogenic activities.		







<b>Area/MPA</b>		Cromer Shoal Chalk Beds MCZ	
<b>Cruise ID</b>		2ENC31019	
<b>Date</b>		24 <sup>th</sup> October 2019	
<b>Station number</b>		27	<b>Replicate</b> A1
<b>Tow Location (Degrees.DecimalDegrees WGS1984)</b>			
<b>Start</b>		<b>End</b>	
<b>Lat. N</b>	52.90131	<b>Lat. N</b>	52.90124
<b>Long. E</b>	1.41144	<b>Long. E</b>	1.41169
<b>Distance from start to end (m)</b>		20	
<b>Example seabed stills</b>			
			
<b>EIFCA Description of habitat from imagery</b>			
Mobile sand. No mobile or attached fauna observed. No attached algae observed. Habitat consistent throughout stills. No clear observation of chalk.			
<b>EIFCA assessment of habitats present</b>	<b>EUNIS</b>	A5.2 Sublittoral sand and muddy sand	
	<b>FOCI</b>		
<b>EIFCA chalk assessment<sup>48</sup></b>	Chalk absent		

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<sup>48</sup> Highest level of chalk observed across stills

<b>Notes</b>	Stills obtained from seabed video tow. Good quality imagery. Only two stills provided.	
<b>Confidence assessment</b>		
<b>Image quality</b>	High	
<b>Seabed structure</b>	High	
<b>Seabed composition</b>	High	
<b>Initial assessment of sensitivity to potting (speculative)</b>		
<b>Not sensitive</b> - absence of complex, elevated chalk structures and absence of evidence of abrasion or breakage of physical features from anthropogenic activities.		

<b>Area/MPA</b>		Cromer Shoal Chalk Beds MCZ	
<b>Cruise ID</b>		2ENC31019	
<b>Date</b>		24 <sup>th</sup> October 2019	
<b>Station number</b>	28	<b>Replicate</b>	A1
<b>Tow Location (Degrees.DecimalDegrees WGS1984)</b>			
<b>Start</b>		<b>End</b>	
<b>Lat. N</b>	52.91292	<b>Lat. N</b>	52.91121
<b>Long. E</b>	1.44695	<b>Long. E</b>	1.45319
<b>Distance from start to end (m)</b>		460	
<b>Example seabed stills</b>			
			
			
<b>EIFCA Description of habitat from imagery</b>			
Mobile sand, gravel, pebble, and cobble, occasional boulder, patches of exposed chalk bedrock. No mobile fauna, but attached (sea anemone, hydroid/bryozoan turf) fauna observed. Some attached algae observed. Habitat generally consistent throughout stills.			
<b>EIFCA assessment of habitats present</b>	<b>EUNIS</b>	A5.2 Sublittoral sand and muddy sand A4 Circalittoral rock	
	<b>FOCI</b>	Subtidal chalk	
<b>EIFCA chalk assessment<sup>49</sup></b>	Chalk pavement		





<sup>49</sup> Highest level of chalk observed across stills

<b>Notes</b>	Stills obtained from seabed video tow. Good quality imagery.	
<b>Confidence assessment</b>		
<b>Image quality</b>	High	
<b>Seabed structure</b>	High	
<b>Seabed composition</b>	Medium	
<b>Initial assessment of sensitivity to potting (speculative)</b>		
<b>Not sensitive</b> - absence of complex, elevated chalk structures and absence of evidence of abrasion or breakage of physical features from anthropogenic activities.		

<b>Area/MPA</b>		Cromer Shoal Chalk Beds MCZ	
<b>Cruise ID</b>		2ENC31019	
<b>Date</b>		24 <sup>th</sup> October 2019	
<b>Station number</b>		29	<b>Replicate</b> A1
<b>Tow Location (Degrees.DecimalDegrees WGS1984)</b>			
<b>Start</b>		<b>End</b>	
<b>Lat. N</b>	52.91150	<b>Lat. N</b>	52.90927
<b>Long. E</b>	1.4768	<b>Long. E</b>	1.48128
<b>Distance from start to end (m)</b>		390	
<b>Example seabed stills</b>			
			
			
<b>EIFCA Description of habitat from imagery</b>			
Silt, sand, shell, pebble. No mobile fauna, but attached (sea anemone, hydroid/bryozoan turf, <i>sabellaria</i> ) fauna observed. No attached algae observed. Habitat generally consistent throughout stills.			
<b>EIFCA assessment of habitats present</b>	<b>EUNIS</b>	A5.4 Sublittoral mixed sediment	
	<b>FOCI</b>		
<b>EIFCA chalk assessment<sup>50</sup></b>	Chalk absent		

<sup>50</sup> Highest level of chalk observed across stills

<b>Notes</b>	Stills obtained from seabed video tow. Good quality imagery.	
<b>Confidence assessment</b>		
<b>Image quality</b>	High	
<b>Seabed structure</b>	High	
<b>Seabed composition</b>	Low	
<b>Initial assessment of sensitivity to potting (speculative)</b>		
<b>Not sensitive</b> - absence of complex, elevated chalk structures and absence of evidence of abrasion or breakage of physical features from anthropogenic activities.		

<b>Area/MPA</b>		Cromer Shoal Chalk Beds MCZ	
<b>Cruise ID</b>		2ENC31019	
<b>Date</b>		24 <sup>th</sup> October 2019	
<b>Station number</b>	30	<b>Replicate</b>	A1
<b>Tow Location (Degrees.DecimalDegrees WGS1984)</b>			
<b>Start</b>		<b>End</b>	
<b>Lat. N</b>	52.89538	<b>Lat. N</b>	52.89330
<b>Long. E</b>	1.5196	<b>Long. E</b>	1.52379
<b>Distance from start to end (m)</b>		365	
<b>Example seabed stills</b>			
			
			
<b>EIFCA Description of habitat from imagery</b>			
Silt, sand, shell, pebble. Mobile and (edible crab, pink shrimp, star fish, top shells) attached (sea anemone, hydroid/bryozoan turf, <i>sabellaria</i> ) fauna observed. Some attached algae observed. Habitat generally consistent throughout stills.			
<b>EIFCA assessment of habitats present</b>	<b>EUNIS</b>	A5.4 Sublittoral mixed sediment	
	<b>FOCI</b>		
<b>EIFCA chalk assessment<sup>51</sup></b>	Chalk absent		

<sup>51</sup> Highest level of chalk observed across stills

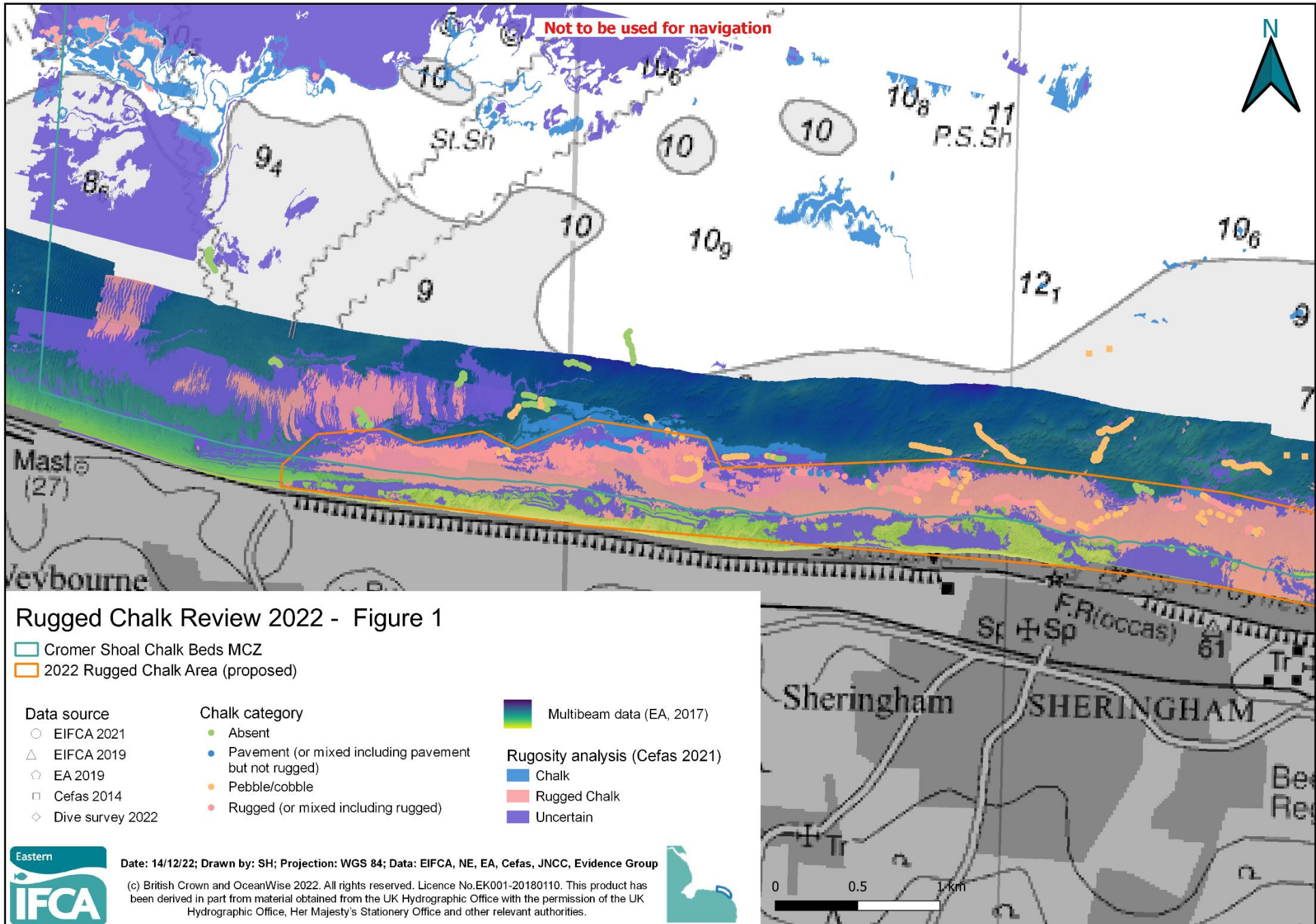
<b>Notes</b>	Stills obtained from seabed video tow. Good quality imagery.	
<b>Confidence assessment</b>		
<b>Image quality</b>	High	
<b>Seabed structure</b>	High	
<b>Seabed composition</b>	Low	
<b>Initial assessment of sensitivity to potting (speculative)</b>		
<b>Not sensitive</b> - absence of complex, elevated chalk structures and absence of evidence of abrasion or breakage of physical features from anthropogenic activities.		



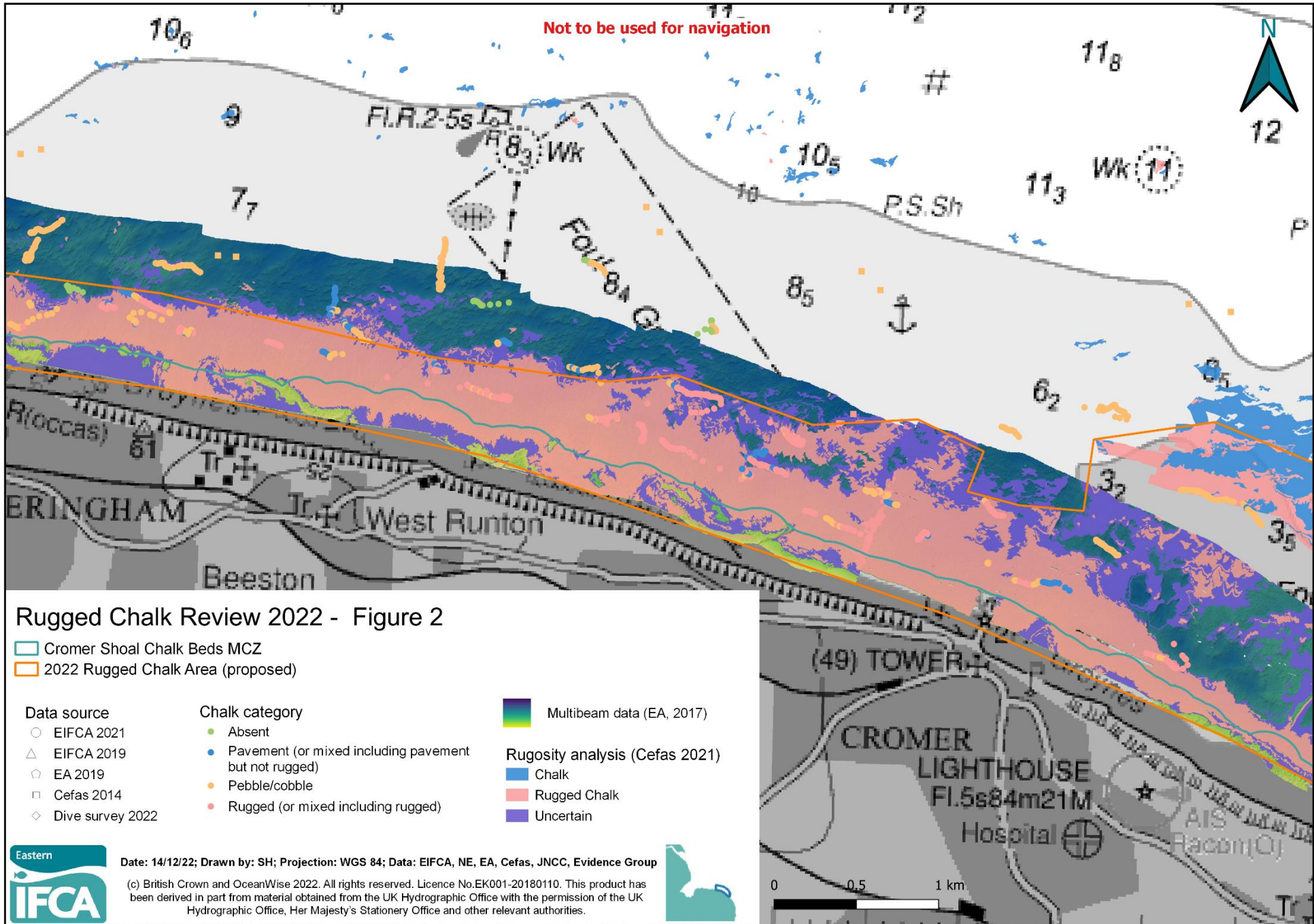
## Appendix 4: Proposed 2022 Rugged Chalk Area

See charts overleaf detailing proposed rugged chalk area (2022) with data sources overlaid.

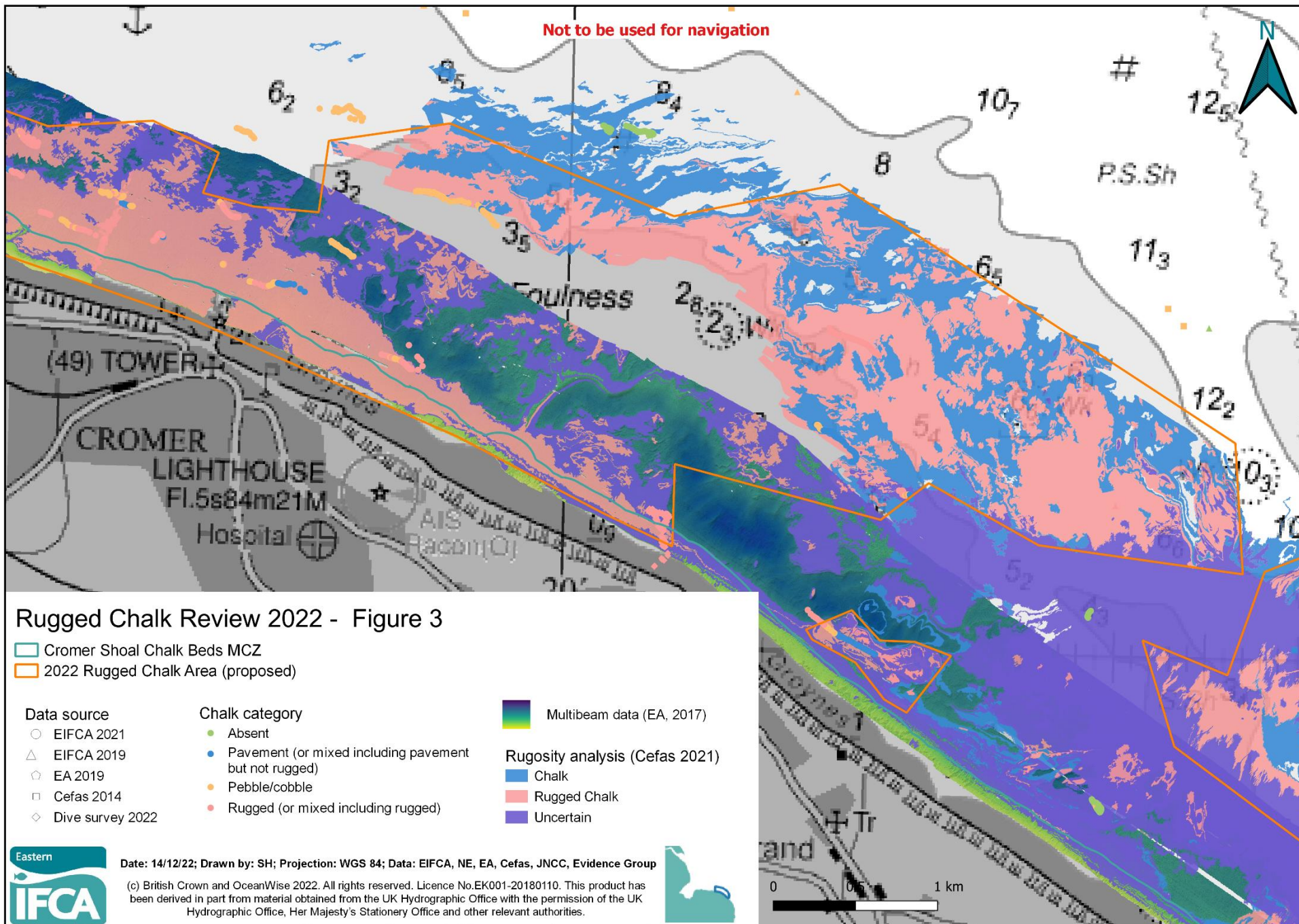
2022 Rugged Chalk Area (proposed)



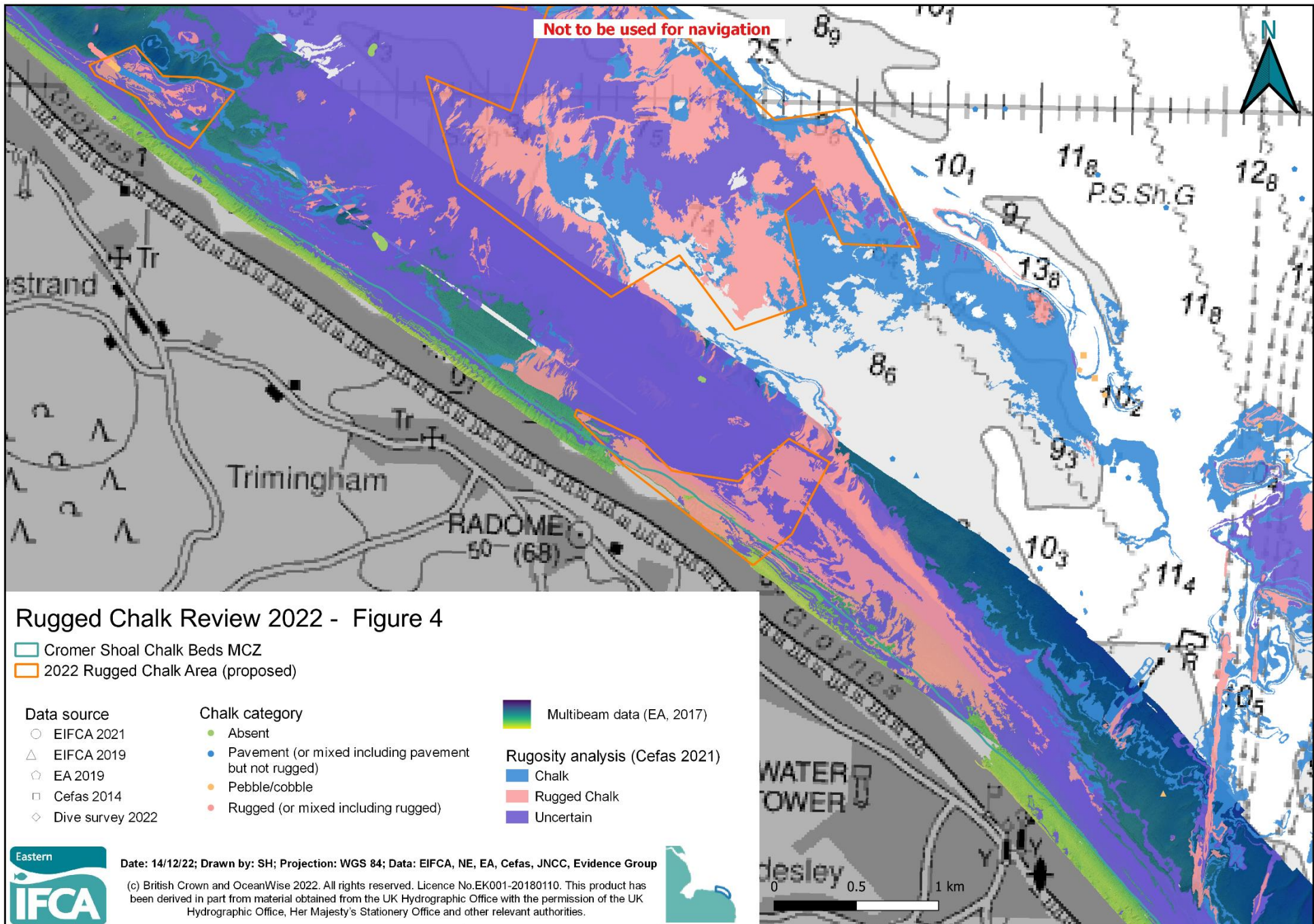
2022 Rugged Chalk Area (proposed)



2022 Rugged Chalk Area (proposed)



2022 Rugged Chalk Area (proposed)



Date: 14/12/22; Drawn by: SH; Projection: WGS 84; Data: EIFCA, NE, EA, Cefas, JNCC, Evidence Group

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2022 Rugged Chalk Area (proposed)

