# Northeast Coastal Monitoring Programme: Cell 1 Terrestrial Ecological Mapping 2019/20

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Version 1.0

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Table of Contents

1   Introduction

1.1   Project background

This report was commissioned by Scarborough Borough Council, on behalf of the North-east Regional Coastal Monitoring Programme. Through conducting a range of surveys including aerial, bathymetric, wave and tidal surveys, and ecological mapping, the programme aims to promote and implement a repeatable, standard, and cost-effective method of monitoring the coastal environment.

The overall objectives of the programme are to provide data that meet the operational monitoring requirements of shoreline management plans, coastal strategies and individual schemes, between the limits of the Flamborough Head, Yorkshire to Cockburnspath, Scottish Borders. This report focusses on the ecological mapping component of the programme. It is intended that this in turn will inform action plans and strategies for coastal management in the future.

Spatial ecological mapping data is used to assess the impacts on European designated sites of Shoreline Management Plans (SMP), Flood and Coastal Defence Strategy Studies and Flood and Coastal Defence schemes. If any such scheme exerts a significant effect on a Europa Natura 2000 site, a Habitats Regulations Assessment (HRA) will then need to be undertaken by a competent authority. Habitat extent data and changes over time are crucial for undertaking a thorough HRA.

The principal objectives are to provide priority habitat extent data for:
- Identification and quantification of regional coastal change
- Providing contextual information to support HRA for Shoreline Management Plans, Flood and Coastal Defence Strategies and Flood and Coastal Defence Schemes
- Assessing losses and gains for the Environment Agency's Regional Habitat Creation Programme
- Identification and strategic consideration of coastal flood and erosion risks
- Assisting development of nature conservation programmes and projects

Spatial ecological mapping was carried out in two separate phases between 2019 and 2021 and across a number of distinct tasks to capture habitat extent and change over a range of years within the study area:

Phase 1: Cell 1 Terrestrial Ecological Mapping 2017

- **Task 1:** Map the extent of all coastal and terrestrial Priority Habitats within the study region, using 2017 aerial photography
- **Task 2:** Analyse the extent of habitat change between the 2017 habitat data, and the previous 2012/13 habitat data
- **Task 3:** Map the extent of all coastal and terrestrial Priority Habitats within the study region, using 1940's aerial photography
- **Task 4:** Analyse the extent of habitat change between the 1940's habitat data, and the 2017 habitat data

Phase 2: Cell 1 Terrestrial Ecological Mapping 2019/20

- **Task 1:** Map the extent of all coastal and terrestrial Priority Habitats within the study region, using 2019/20 aerial photography
- **Task 2:** Analyse the extent of habitat change between the 2019/20 habitat data, and the previous 2017 habitat data created in Phase 1 of this project.

This report comprises a summary and analysis of Phase 2: Cell 1 Terrestrial Ecological Mapping 2019/20.

Phase 1 was further accompanied by an extensive report (Pike et al. 2019) that contains detailed descriptions of mapping methodology, ground surveys undertaken as well as mapping accuracy and considerations for future iterations of the mapping programme that also apply to this subsequent phase of the mapping unless otherwise indicated below.

1.2 Study area

Habitat mapping was carried out for the north-east England and south-east Scotland coast extending from Flamborough, Yorkshire to Cockburnspath, Scottish Borders, including any major estuaries; a total area of 28,946.90ha.

The ecological mapping requirement for the ANE01 region is divided into three sub-regions with areas ranging from ~5,900 ha to ~13,200 ha as described in Table 1.1 and displayed in Figure 1.1.

Table 1.1: Sub-regions of the North-east Coastal Monitoring Programme and their areas

Sub-region	Area (ha)
ANE01-01	5,880.33
ANE01-02	9,885.38
ANE01-03	13,185.17

1.3 Habitats included in the study

The study made use of the Integrated Habitat System (IHS). Habitats used in the study are listed in

Table 1.2, Table 1.3 and Table 1.4. The list contains priority habitats (excluding hedgerows) plus supporting and additional habitats. The selection of additional habitats was guided by analysis of existing habitat data for the region, and visual analysis of the aerial photography to determine habitats present.
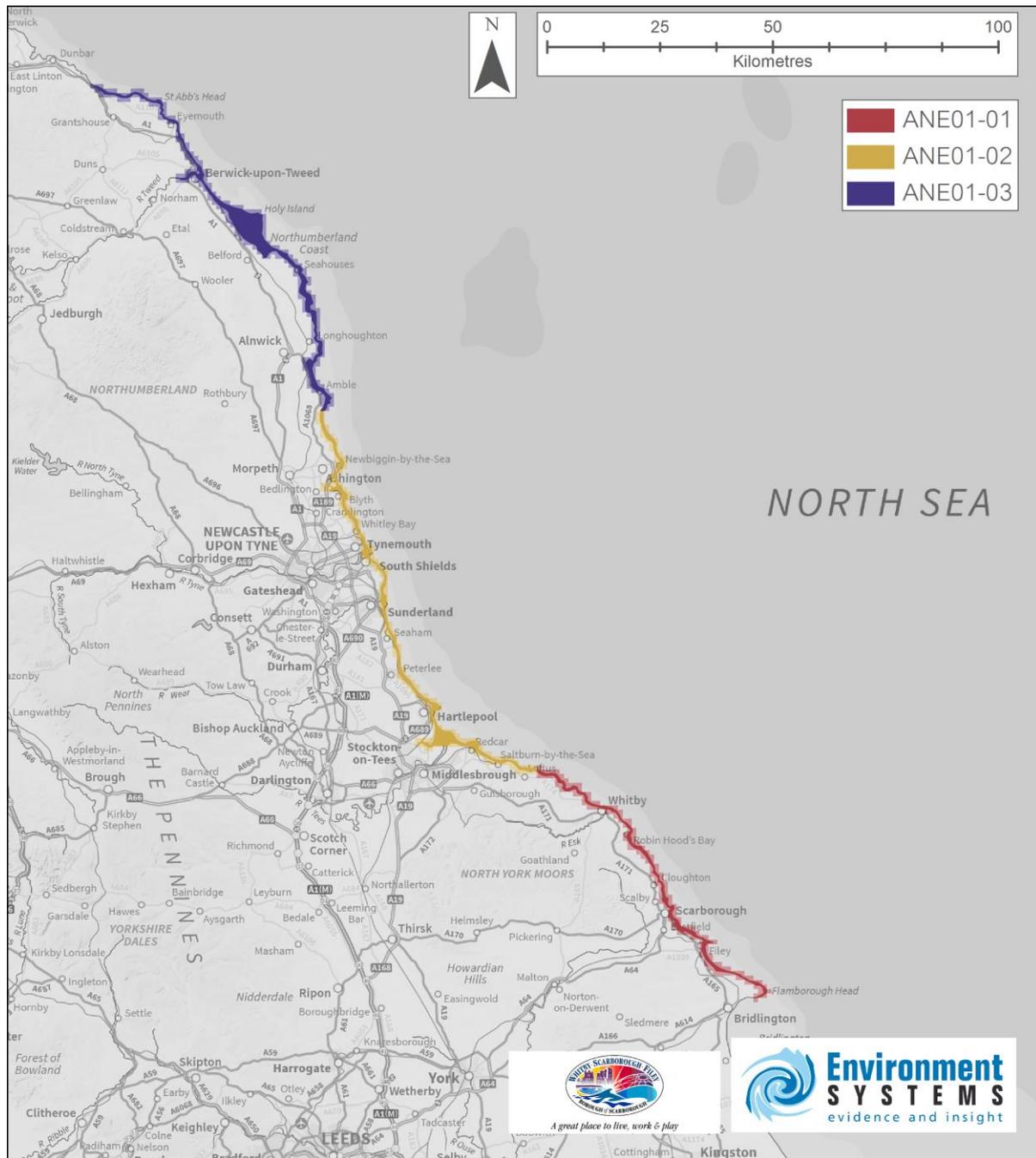
Figure 1.1: ANE01 coastal habitat mapping area Flamborough, Yorkshire to Cockburnspath, Scottish Borders divided into sub-regions

Table 1.2: IHS priority, supporting and additional habitats selected for classification

Broad priority habitat	Priority habitat	Supporting habitat
Broadleaved, mixed and yew woodland	WB31 Upland oakland WB32 Upland mixed ashwood WB331 Lowland beech and yew woodland WB34 Wet woodland WB35 Upland birch woodland WB36 Lowland mixed deciduous woodland FT1 Traditional orchard	WB3 Broadleaved woodland WB3Z Other broadleaved woodland

Broad priority habitat	Priority habitat	Supporting habitat
Coniferous woodland	WC1 Native pine woodland	
Acid grassland	GA1 Lowlands dry acid grassland	
Calcareous grassland	GC1 Lowland calcareous grassland GC2 Upland calcareous grassland	
Neutral grassland	GN1 Lowland meadow GN2 Upland hay meadow GN4 Grazing marsh pasture	GN3 Coarse neutral grassland GNZ Other neutral grassland
Bog	EO1 Blanket bog [Blanket bog] EO2 Lowland raised bog	
Fen, marsh and swamp	EM11 Reedbed EM31 Fen [lowland] EM32 Fen [upland] EM4 Purple moor grass and rush pasture	AS0 Standing open water and canal
Standing open water and canal	AS11 Natural dystrophic lakes and pond AS21 Oligotrophic lake AS31 Mesotrophic lake AS4 Eutrophic standing water AS7 Aquifer fed naturally fluctuating water bodie AP1 Pond	
River and stream	AR0 River and stream	
Arable and horticulture	CR61 Arable field margin	
Supralittoral rock	SR1 Maritime cliff and slope	
Supralittoral sediment	SS1 Coastal sand dune SS2 Machair SS31 Coastal vegetated shingle	SS19 Unvegetated sand and dunes above the high tide mark SS1Z Other sand dune SS3Z Unvegetated shingle above the high tide mark
Littoral rock	LR1 Intertidal chalk LR3 Sabellaria alveolata reef LR4 Intertidal underboulder communitie	LRZ Other littoral rock
Littoral sediment	LS2 Seagrass bed - Zostera noltii adjacent to saltmarsh LS3 Coastal saltmarsh LS4 Intertidal mudflat LS5 Sheltered muddy gravel	LS6 Intertidal shingle LSZ Other littoral sediment
Sublittoral sediment	LS7 Blue Mussel Beds on sediment IR7 Horse mussel bed IS2 Subtidal sand and gravel [inshore] IS3 Seagrass bed - Zoostera marina & Z. angustifolia located on mid to lower foreshore and sub littoral zone IS4 Maerl bed IS5 Saline Lagoons with restricted sea connection AS61 Saline Lagoons with no sea connection IS6 Serpulid reef	
Sublittoral rock	CS1 Cold-water coral reef (Lophelia pertusa reef)	

Broad priority habitat	Priority habitat	Supporting habitat
	IR2 Sabellaria spinulosa reef IR5 Tide-swept channel IR6 Subtidal chalk	
Inland rock	PI1 Calaminarian grasslands of the Violetalia Calaminariae	
Built-up area and garden		UR0 Built-up area and garden
Scrub		SC0 Scrub
Arable		CR0 Arable and horticulture
Improved grassland		GI0 Improved grassland
Dwarf shrub heath		HE0 Dwarf shrub heath

Table 1.3: Additional IHS habitats identified for classification

Broad additional habitat	IHS code
River and stream	AR5 Estuarine saline water and sea ARZ Other river and stream
Standing open water	AS6 Brackish standing water with no sea connection AS62 Brackish AS63 Very brackish
Bracken	BR0 Bracken BRZ Other continuous bracken
Arable	CR3 Non-cereal crop including woody crop CR5 Whole field fallow CR6 Arable headland or cultivated strip
Fen, marsh and swamp	EM1 Swamp EM13 Bolboscheoenus maritimus dominant community EM18 Tussocky swamp vegetation EM1Z Other swamp vegetation EM2 Marginal and inundation vegetation EM21 Marginal vegetation EM22 Inundation vegetation EM3 Fen
	FT0 Orchard
Calcareous grassland	GC0 Calcareous grassland
Maritime grassland	GM1 Festuca rubra maritime grassland GMZ Other maritime grassland
Neutral grassland	GN0 Neutral grassland GN5 Inundation grassland GN6 Sea wall grassland
Heathland	HE1 European dry heath HE2 Wet heath
Inshore rock	IRZ Other sublittoral rocks
Inshore sediment	IS0 Inshore sublittoral sediment
Boundary and linear features	LF11 Hedges/line of trees LF12 Line of trees LF2 Other boundary and linear feature LF24 Dry ditch
Littoral rock	LR42 Intertidal communities on natural boulder formation with algal cover LR5 Littoral built structure

Broad additional habitat	IHS code
	LR6 Littoral rock pool community
	LR7 Littoral rock exposure
Littoral sediment	LS0 Littoral sediment
Unknown terrestrial vegetation	OV3 Undetermined young woodland
Inland rock	RE0 Inland rock
	RE1 Natural rock exposure feature
	RE2 Natural rock exposure and waste
Supralittoral rock	SR0 Supralittoral rock
	SR2 Maritime cliff and slope
Supralittoral sediment	SS12 Shifting dune along the shoreline
	SS3 Shingle above high tide mark
	SS4 Strandline vegetation
	SSZ Other supralittoral sediment
Broadleaved woodland	WB1 Mixed woodland
	WB2 Scrub woodland
Conifer woodland	WCZ Other coniferous woodland

Table 1.4: IHS habitat complex codes used in the mapping.

Habitat complex	Habitat complex code
Coastal and floodplain grazing marsh	CF1 Coastal and floodplain grazing marsh
Maritime cliff and slopes	MC1 Maritime cliff and slopes
Lowland heathland	HL1 Lowland heathland
Upland heathland	HU1 Upland heathland
Tidal	TD1 Tidal

2   Method

2.1   Data and data processing

A suite of aerial photography (AP) was made available to the project to facilitate habitat mapping by aerial photograph interpretation (API). The AP imagery consisted of red/green/blue (RGB) and near infra-red (NIR) photography captured in 2019 and 2020, supplied in Enhanced Compression Wavelet (ECW) format at 0.1 m pixel size, and delivered as individual 10*10 km tiles, following the Ordnance Survey (OS) reference grids. Figure 2.1 illustrates the range of capture dates for each of the region.
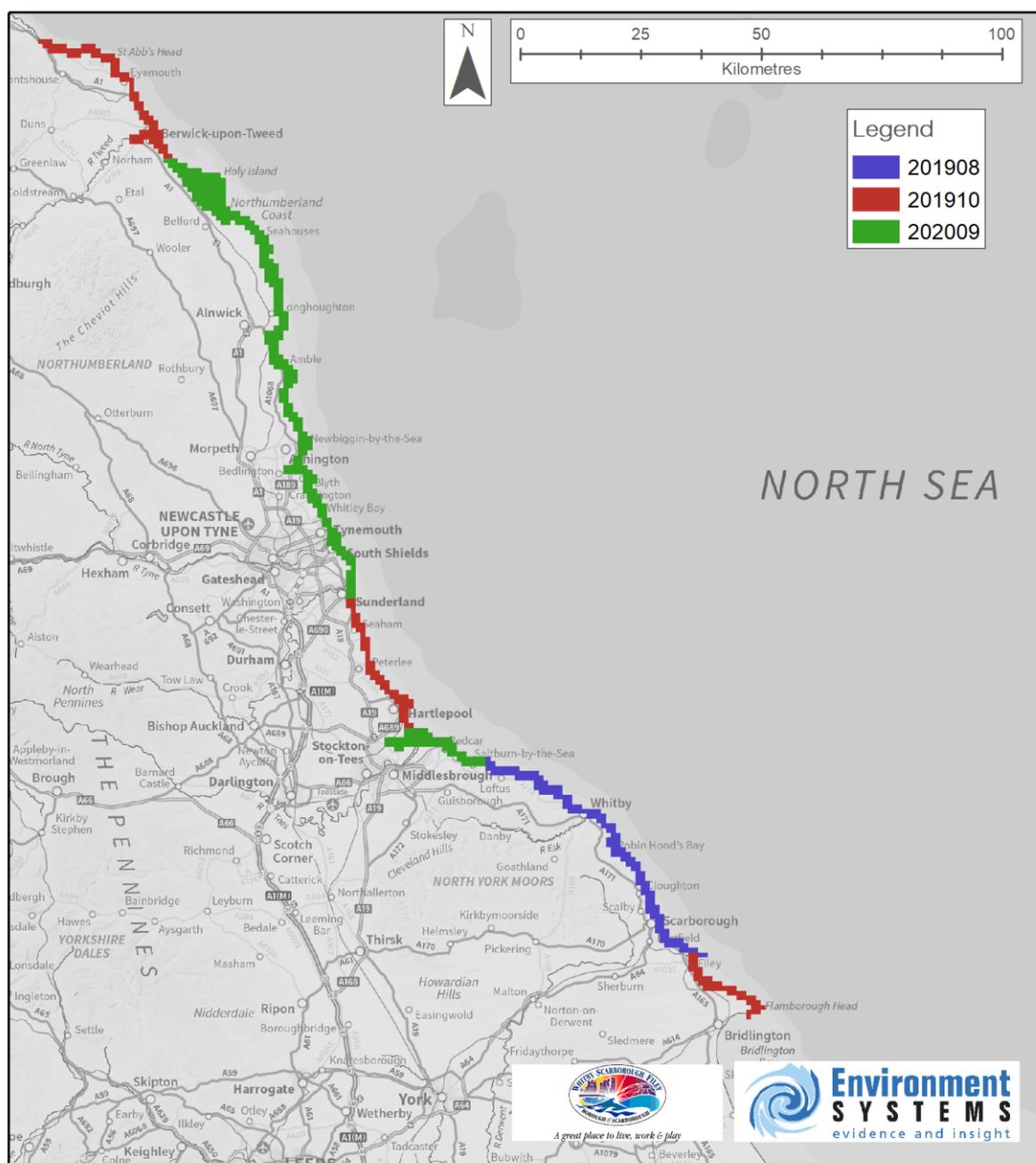


Figure 2.1: Dates (in YYYMM) of aerial photography capture within ANE01

Each ECW RGB and NIR tile was converted from its original data format to GeoTiff, an Open Geospatial Consortium (OGC) recognised data format. The two datasets for each

corresponding datetime (i.e., the RGB and CIR datasets for the same capture date) were combined into a single four-band dataset (i.e., blue, green, red and near infra-red) and mosaicked into a single spatial dataset, for ease of analysis and interpretation

2.2   Aerial photographic interpretation

Polygons for habitat mapping from the 2017 imagery were produced by automatic image segmentation and IHS habitat attribution was carried out through manual API within QGIS software. To ensure maximum consistency between the 2017 and 2019/20 mapping, the fully attributed 2017 polygons were retained for this second phase of the project and checked through manual API for both changes in extent and type of habitat present. Where differences to the 2017 mapping were identified, these were implemented through manual attribute changes or manual editing of habitat boundaries.

Generally, the 2019/20 imagery was captured at a lower tide than the 2017 photography (Figure 2.2) and this resulted in extended mapping for 2019/20 to capture the increased amount of exposed intertidal habitat. New polygons created through this increase in mapping extent were digitised manually.

An overview of the 2019/20 habitat mapping process is shown in Figure 2.3.
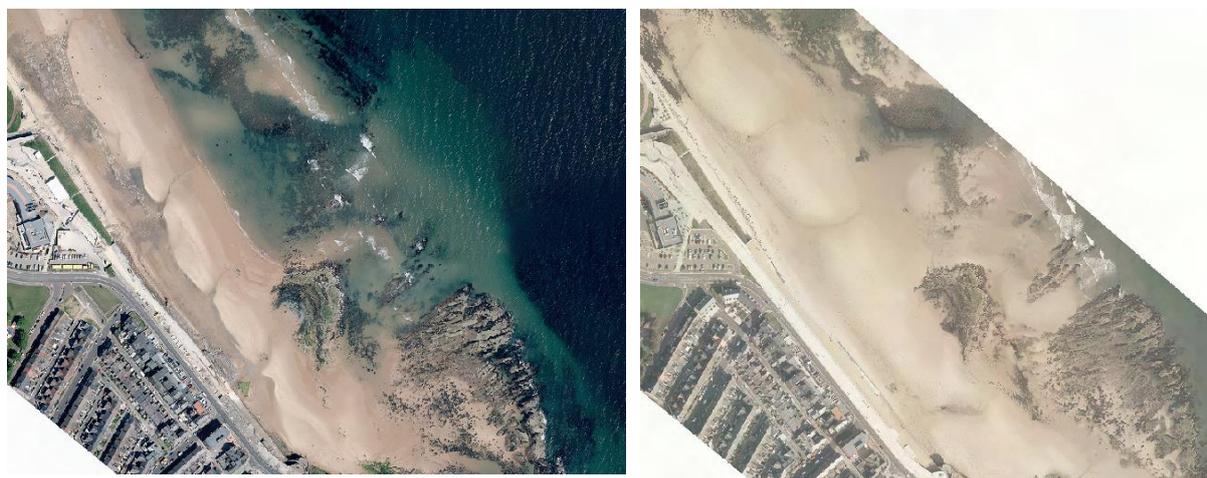
Figure 2.2: Differences in tidal range between the 2017 (left) and 2019/20 (right) Aerial Photography
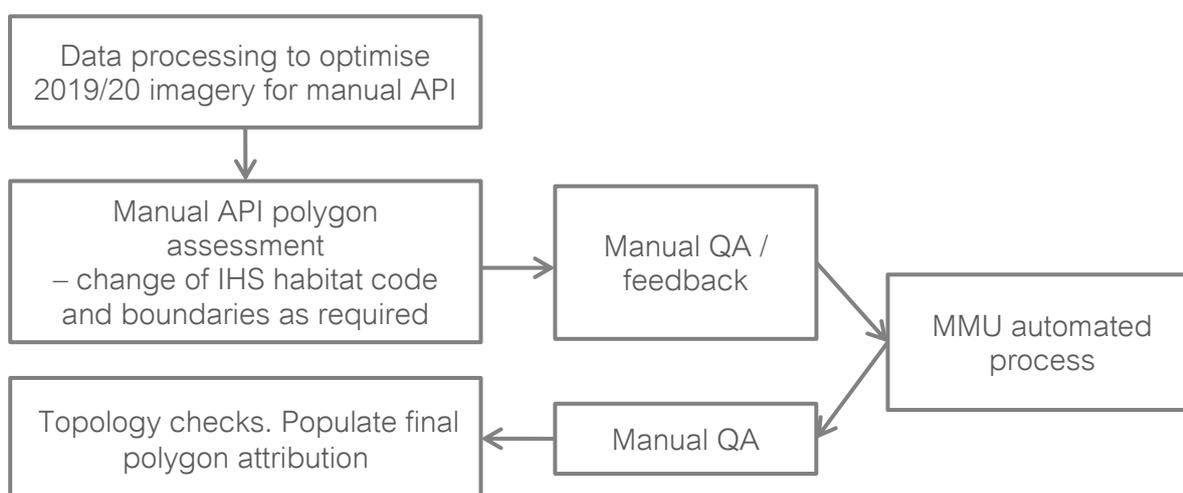
Figure 2.3: Overview of 2019/20 habitat mapping methodology

2.3   Feedback and map revision

Completed sections of mapping were submitted to Scarborough Borough Council and Royal Haskoning DHV for review, allowing a correctional period to incorporate feedback into the final dataset, before the minimum mapping unit (MMU) and final topology checks were undertaken (Figure 2.3).

3   Habitat spatial configuration

3.1   2019/20 habitat extent

This section graphically presents the total extent of each priority, supporting and additional habitat recorded in the region for the 2019/20 mapping. Figure 3.1 provides a summary of current priority habitat extents across the entire region of study, with Figure 3.2 and Figure 3.3 describing the extent of supporting and additional habitats, respectively.

These figures represent the habitat extents within the counties analysed for the ANE01 region. The combined totals of these counties represent the total habitat extents across the entire ANE01 region.

The total extents of all habitats across the region are further available in tabular form in the project analysis spreadsheets provided together with the final mapping deliverables of the project.
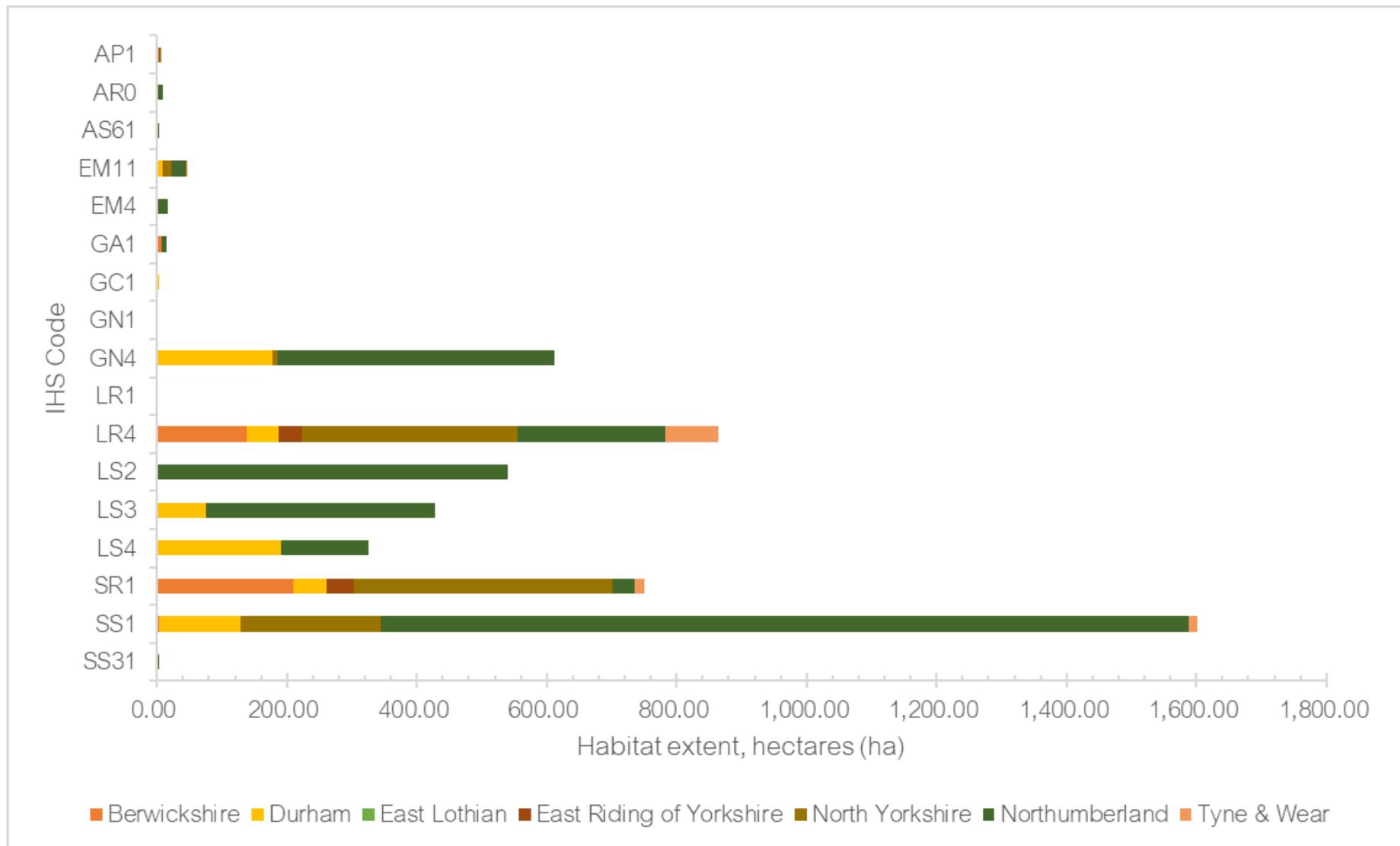
*Figure 3.1: IHS priority habitat extents in ANE01, 2019/20*
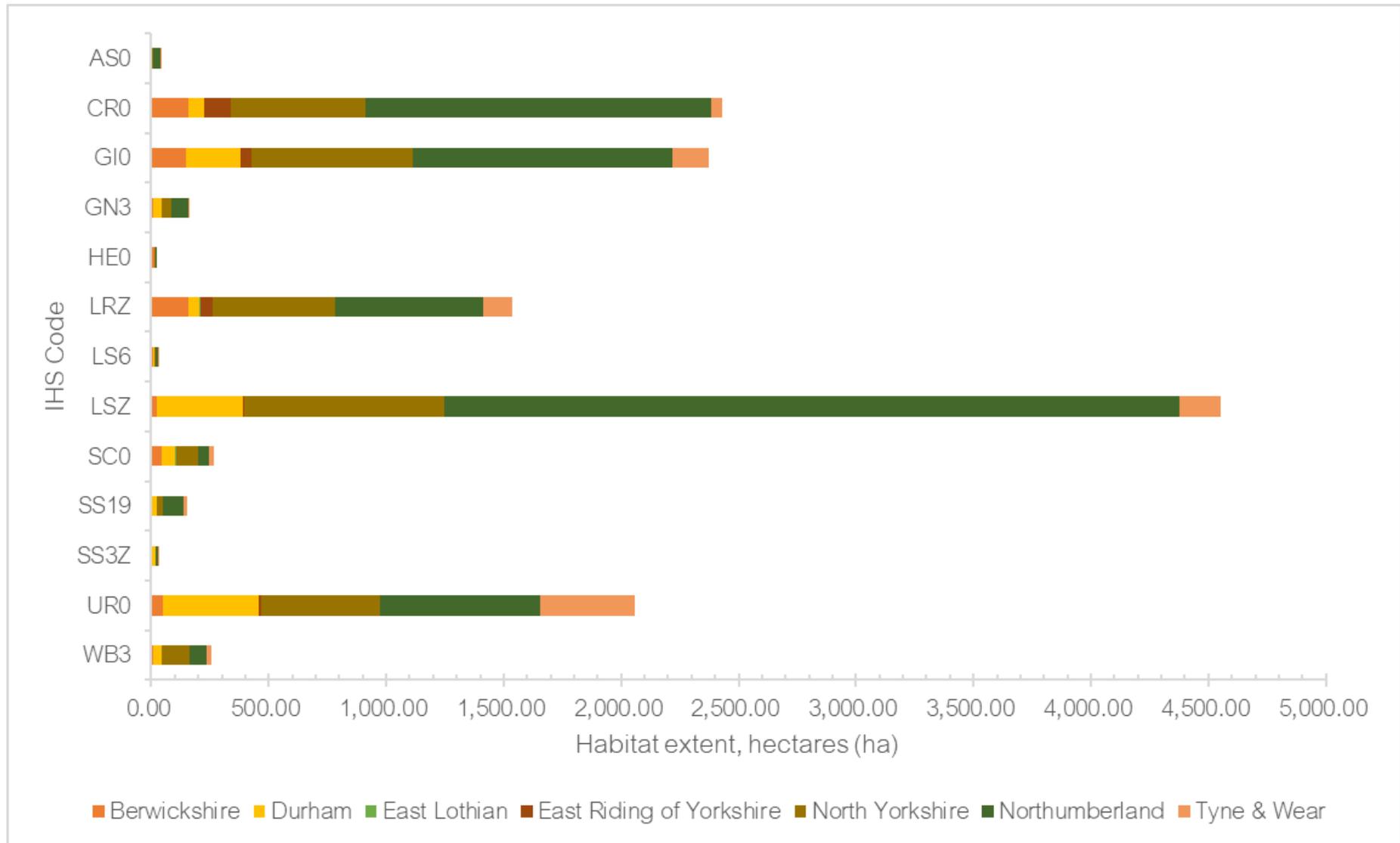
Figure 3.2: IHS supporting habitat extents in ANE01, 2019/20
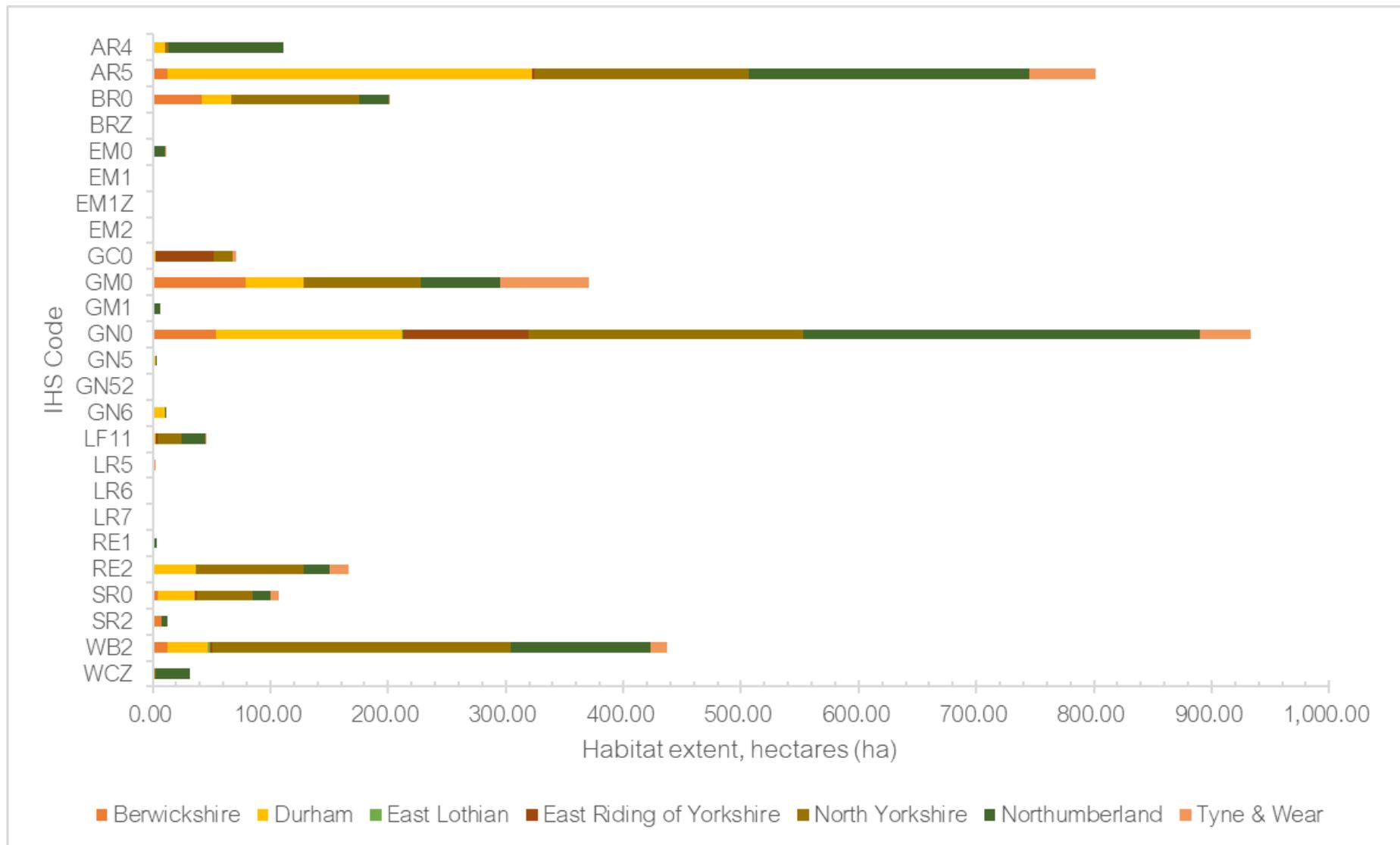
Figure 3.3: IHS additional habitat extents in ANE01, 2019/20

4   Habitat change

4.1   2017—2019/20 habitat change

This section graphically presents the change in total extent of each priority, supporting and additional habitat recorded in the region for the 2019/20 mapping, compared to 2017 habitat extents. Figure 4.1 provides a summary of current priority habitat extents across the entire region of study, with Figure 4.2 and Figure 4.3: Change in IHS additional habitat extent, ANE01 region and counties, 2017Figure 4.3 describing the change in extent of supporting and additional habitats, respectively. These figures represent the change in habitat extents found within the counties of this study region. The total change observed across the entire ANE01 region has been incorporated into the same graphical outputs.

Aerial Photography capture in 2017 and 2019/20 was frequently undertaken at different points of the tidal range (Figure 2.2) and mapped habitat extent hence varied, as mapping was undertaken up to the waterline at each date. To ensure consistent change comparisons between the 2017 and 2019/20 imagery, a common Area of Interest (AOI) was created from the non-sea classes of the 2017 mapping, excluding those areas that have been exposed by lower tides in the later imagery and only change within this AOI was taken into account.

The majority of observed changes were due to increased development in urban adjacent environments, as well as sediment movements within the intertidal zone that have led to greater exposure of rocky substrates and boulder communities.

The total habitat extent change of all habitats across the region between 2017 and 2019/20 are further available in tabular form in the project analysis spreadsheets provided as part of the final project deliverables.
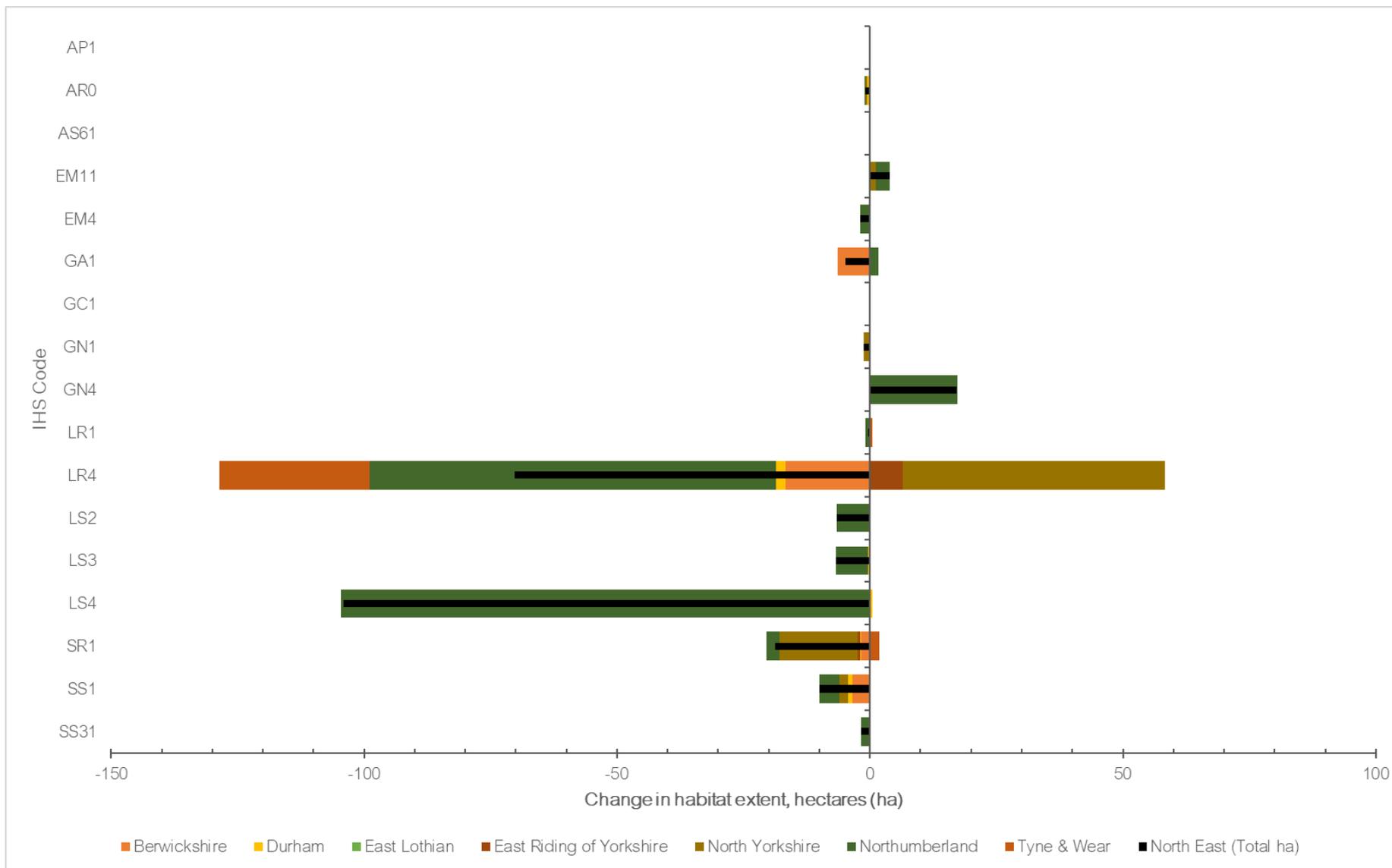
Figure 4.1: Change in IHS priority habitat extent, ANE01 region and counties, 2017—2019/20
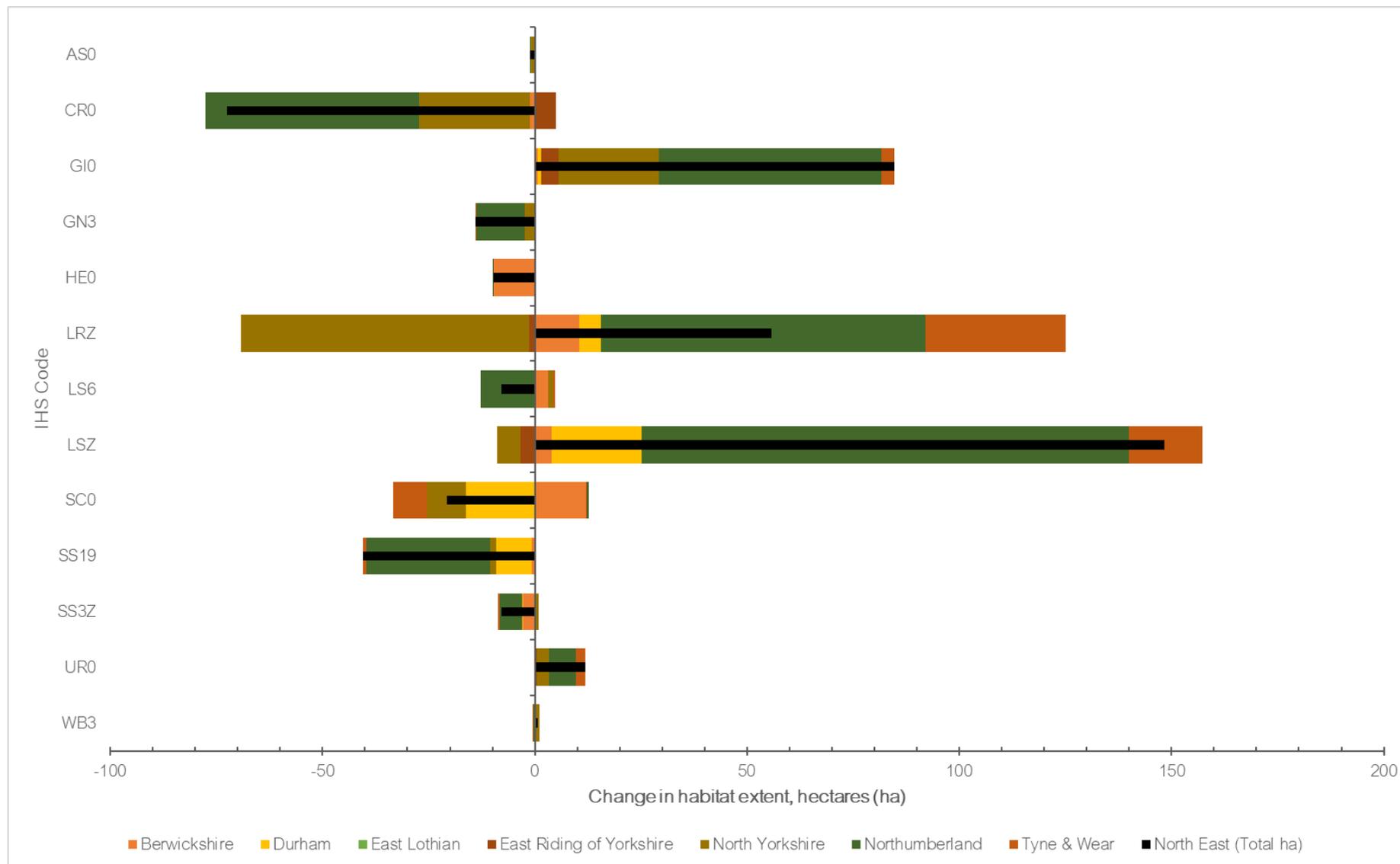
Figure 4.2: Change in IHS supporting habitat extent, ANE01 region and counties, 2017—2019/20
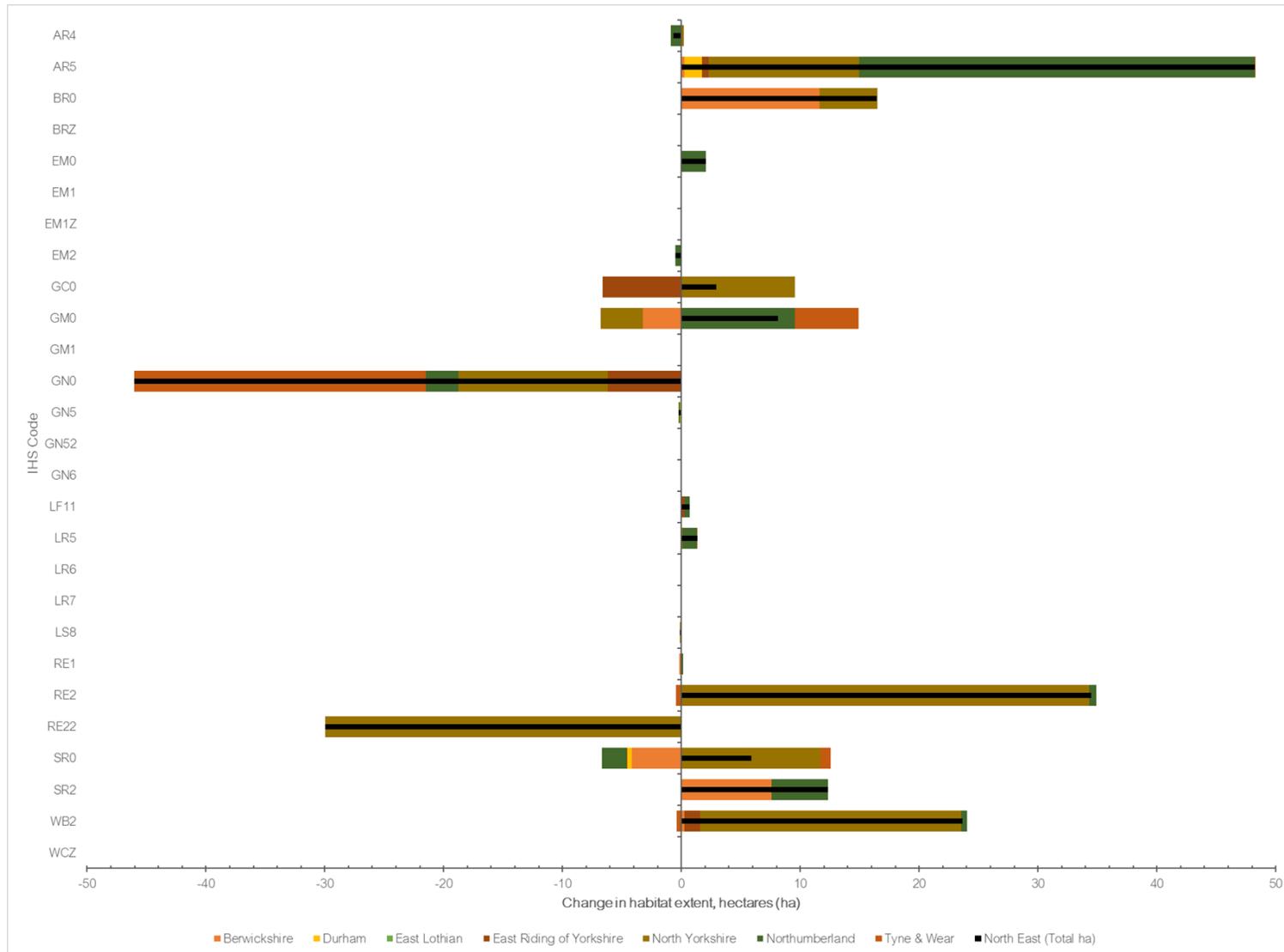
Figure 4.3: Change in IHS additional habitat extent, ANE01 region and counties, 2017-2019/20

5   Bibliography

Pike, S., Yandell-Thomas, M., Cottrell, L. and Breyer, J. (2019) *Northeast Coastal Monitoring Programme: Cell 1 Terrestrial Ecological Mapping 2017*. Aberystwyth: Environment Systems Ltd.

Appendix A – 2019/20 IHS habitat extents

Table D.1: Total extent of IHS priority habitats mapped for the ANE01 region and each constituent county, 2019/20

IHS code	2019/20 habitat extent, hectares (ha)							
	Berwickshire	Durham	East Lothian	East Riding of Yorkshire	North Yorkshire	Northumberland	Tyne & Wear	ANE01 (Total)
SS31						3.66		3.66
SS1	3.64	124.17			216.18	1,243.38	14.23	1,601.60
SR1	209.51	51.33		42.21	397.52	33.92	14.95	749.45
LS4		191.21			0.43	133.83		325.47
LS3		74.62				353.25		427.87
LS2						540.27		540.27
LR4	137.29	50.52	0.07	35.28	332.15	226.52	81.43	863.25
LR1	0.19						0.33	0.52
GN4		177.27			8.24	426.18		611.69
GN1					0.19			0.19
GC1		3.43						3.43
GA1	6.57					7.29		13.86
EM4	0.64				0.31	15.97		16.92
EM11	0.61	7.84		1.62	12.26	22.50	0.37	45.21
AS61		1.38				0.59		1.97
AR0	0.05	1.13	0.02		0.41	7.14		8.75
AP1	2.42	0.22	0.03	0.17	0.58	2.21	1.12	6.75

Table D.2: Total extent of IHS supporting habitats mapped for the ANE01 region and each constituent county, 2019/20

IHS code	2019/20 habitat extent, hectares (ha)							
	Berwickshire	Durham	East Lothian	East Riding of Yorkshire	North Yorkshire	Northumberland	Tyne & Wear	ANE01 (Total)
WB3	5.66	38.86	0.23		117.01	74.93	19.30	255.98
UR0	47.04	411.06	0.91	10.82	504.69	679.95	405.20	2,059.67
SS3Z	3.19	13.37			2.39	7.50	1.16	27.60
SS19	1.32	20.87		0.30	28.03	86.43	16.57	153.53
SC0	42.37	61.01	0.44	3.17	93.71	43.19	24.91	268.80
LSZ	26.04	365.53		3.20	852.29	3,131.31	173.96	4,552.34
LS6	7.11	8.50	0.06		1.44	12.75	3.22	33.08
LRZ	158.71	47.13	1.24	55.57	518.40	632.75	121.00	1,534.79
HE0	14.35	0.15			5.58	2.84		22.92
GN3	6.80	36.09			40.92	72.96	2.76	159.52
GI0	147.42	234.46		42.70	689.86	1,104.39	154.43	2,373.25
CR0	157.77	68.68	1.08	111.54	572.22	1,471.34	45.57	2,428.20
AS0		2.97		0.05	2.94	30.85	0.79	37.61

Table D.3: Total extent of IHS additional habitats mapped for the ANE01 region and each constituent county, 2019/20

IHS code	2019/20 habitat extent, hectares (ha)							
	Berwickshire	Durham	East Lothian	East Riding of Yorkshire	North Yorkshire	Northumberland	Tyne & Wear	ANE01 (Total)
WCZ	0.33	1.20			0.73	29.86		32.12
WB2	12.58	34.31	1.90	1.54	253.80	119.23	13.53	436.90
SR2	7.58					4.78		12.36
SR0	4.47	31.70		1.12	47.78	15.22	6.35	106.64
RE2		36.36			92.00	21.67	16.19	166.22
RE1	1.40				0.52	1.53		3.45
LR7				0.00	0.32			0.32
LR6					0.88			0.88
LR5		0.01			0.19	1.30	0.12	1.62
LF11	0.41	1.59	0.02	2.26	20.54	19.42	0.28	44.53
GN6		10.07				0.10		10.17
GN52		1.56						1.56
GN5		2.09				0.89		2.99
GN0	54.09	158.09	0.64	106.58	233.43	337.15	43.44	933.42
GM1						6.44		6.44
GM0	78.81	49.91			99.60	67.45	75.47	371.23
GC0		2.92		49.02	16.21		2.68	70.82
EM2		0.40				0.98		1.38
EM1Z						0.99		0.99
EM1						0.86		0.86
EM0						10.70	0.41	11.11
BRZ						0.52		0.52
BR0	42.21	24.22			109.51	25.01	0.26	201.21
AR5	12.96	309.76	0.23	1.70	181.97	238.34	56.05	801.01
AR4	0.12	10.77			2.38	97.95		111.23

Appendix B – IHS habitat change 2017—2019/20

Table F.1: Change in extent of IHS priority habitats mapped for the ANE01 region and each constituent county, 2017—2019/20

IHS code	Change in habitat extent 2017—2019/20, hectares (ha)							
	Berwickshire	Durham	East Lothian	East Riding of Yorkshire	North Yorkshire	Northumberland	Tyne & Wear	ANE01 (Total)
SS31						-1.70		-1.70
SS1	-3.49	-0.88			-1.62	-3.94		-9.93
SR1	-1.80	-0.07		-0.48	-15.45	-2.72	1.83	-18.69
LS4		0.50				-104.50		-104.00
LS3		-0.36				-6.37		-6.72
LS2						-6.62		-6.62
LR4	-16.62	-1.96	-0.04	6.51	51.90	-80.31	-29.69	-70.21
LR1	0.19					-0.82	0.33	-0.30
GN4		-0.12			-0.11	17.37		17.14
GN1					-1.21			-1.21
GC1								
GA1	-6.46					1.66		-4.80
EM4						-1.89		-1.89
EM11					1.17	2.83		4.00
AS61								
AR0		-0.58			-0.28	-0.03		-0.89
AP1			0.03	0.02	0.13			0.18

Table F.2: Change in extent of IHS supporting habitats mapped for the ANE01 region and each constituent county, 2017—2019/20

IHS code	Change in habitat extent 2017—2019/20, hectares (ha)							
	Berwickshire	Durham	East Lothian	East Riding of Yorkshire	North Yorkshire	Northumberland	Tyne & Wear	ANE01 (Total)
WB3	0.10				0.94	-0.29	-0.07	0.68
UR0	0.15	0.04		0.33	2.91	6.21	2.23	11.87
SS3Z	-2.86	-0.06			0.86	-5.27	-0.45	-7.78
SS19	-0.66	-8.35		-0.02	-1.43	-29.29	-0.74	-40.48
SC0	12.05	-16.19		0.23	-9.16	0.53	-8.08	-20.62
LSZ	4.04	21.03		-3.47	-5.48	114.90	17.23	148.25
LS6	3.14	-0.09	0.04		1.23	-12.61	0.46	-7.84
LRZ	10.38	5.27	-0.03	-1.39	-67.84	76.42	32.94	55.75
HE0	-9.72					-0.05		-9.77
GN3					-2.40	-11.47	-0.16	-14.03
GI0	0.68	0.81		4.04	23.75	52.28	3.23	84.79
CR0	-1.24			4.93	-26.08	-50.20		-72.59
AS0					-1.00	-0.13	0.05	-1.08

Table F.3: Change in extent of IHS additional habitats mapped for the ANE01 region and each constituent county, 2017—2019/20

Habitat	Change in habitat extent 2017—2019/20, hectares (ha)							
	Berwickshire	Durham	East Lothian	East Riding of Yorkshire	North Yorkshire	Northumberland	Tyne & Wear	ANE01 (Total)
WCZ						-0.07		-0.07
WB2	0.27			1.30	21.94	0.53	-0.41	23.63
SR2	7.58					4.78		12.36
SR0	-4.15	-0.42		-0.04	11.67	-2.07	0.89	5.89
RE22					-29.94			-29.94
RE2					34.32	0.61	-0.45	34.49
RE1	-0.18				0.02	0.14		-0.03
LS8					-0.14			-0.14
LR7								
LR6								
LR5					0.12	1.18	0.04	1.33
LF11				0.29	-0.02	0.41		0.68
GN6								
GN52		-0.02						-0.02
GN5		-0.11				-0.14		-0.25
GN0		0.01		-6.17	-12.57	-2.75	-24.56	-46.03
GM1								
GM0	-3.23	0.01			-3.56	9.51	5.38	8.12
GC0				-6.61	9.57			2.96
EM2						-0.52		-0.52
EM1Z								
EM1								
EM0						2.06		2.06
BRZ								
BR0	11.61				4.87	-0.03		16.43

AR5	0.24	1.52	0.55	12.66	33.26	48.23
AR4			0.22	-0.88		-0.67

Appendix C – Data attribution

Attribute Name	Description
FID	Unique, non-static polygon number. Virtual attribute generated by ArcMap; only visible when viewing file in ESRI software (i.e. not visible in MapInfo)
Shape	GIS file type (polygon)
OBJECT_ID	Unique polygon number assigned to polygons prior to dataset splitting. Where a polygon was split to create a data subset (e.g. split by OS tile), polygons on both side of the split boundary will have the same OBJECT_ID
OS_GRID	OS grid reference taken from polygon centroid (centroid of polygon prior to splitting e.g. by OS tile)
MASTERMAP_	Original OS MasterMap TOID unique ID
OSM_	Original OpenStreetMap TOID unique ID
CMP_FRAGID	A number unique for each fragment of an original OS MasterMap TOID, set to zero if the polygon has not been split.
SEA_LIMIT	Denoting data derived from aerial photography
HAB_CD_08	IHS habitat code from 2008 mapping
HABITAT_CD	IHS habitat code from updated mapping
MATRIX1_CD	Column to provide optional IHS habitat matrix codes
MATRIX2_CD	Column to provide optional IHS habitat matrix codes
MATRIX3_CD	Column to provide optional IHS habitat matrix codes
FORMATION_	Column to provide optional IHS habitat details
MANAGEMENT	Column to provide optional code for management and use of habitat
COMPLEX_CD	IHS habitat complexes. (e.g. CF1)
SUMMARY	Concatenation of HABITAT_CD, MATRIX1_CD, MATRIX2_CD, MATRIX3_CD, FORMATION_, MANAGEMENT and COMPLEX_CD
PROCESS	Code denoting the source of the data: O (Ordnance Survey); A (aerial photography); F (field survey); R (habitat records); FCIR (False Colour Infra-red)
MODIFIED_D	Date file modified
MODIFIED_U	User who modified file
KEYWORDS	Column to provide optional additional description to describe management or features (e.g. caravan, watersports, flood embankments)
COMMENT	This column provides a comment relating to the polygon including where a change was made to the data but can also contain additional information. The code GS followed by a date denotes that a ground survey has taken place and when it took place
GRNDSURVEY	Date of the ground survey (YYYY-MM-DD)
SHAPE_LENG	Perimeter of original polygon (m)
SHAPE_AREA	Area of original polygon (m2)
SOURCE	Joined from supplied lookup table lookup.mdb. "PHT" = Priority Habitat, "AN1" = Annex I, "TT" = Tidal Thames, "IC" = Inverse Category, "PH1" = Phase 1, "BHT" = Biodiversity Broad Habitat Type, "SC" = SERC categories, "NEHMP" = Northeast Habitat Monitoring Programme
NVC_CODE	Corresponding NVC codes
EUNIS_CODE	Corresponding EUNIS code
CORINE_BIO	Corresponding Corine biotype code