THE WASH EAST COASTAL MANAGEMENT STRATEGY – STAKEHOLDERS FORUM

Thursday, 2nd March, 2023 at 2.00 pm in the Offices at Valentines Road and Microsoft Teams

AGENDA

1. **WELCOME AND INTRODUCTIONS**

2. **MINUTES FROM THE STAKEHOLDERS FORUM HELD ON 18TH OCTOBER 2022** (Pages 2 - 62)

3. **MATTERS ARISING**

4. **HUNSTANTON COASTAL MANAGEMENT PLAN**

5. **FUNDING GROUP UPDATE**

6. **ANY OTHER BUSINESS**

7. **DATE OF THE NEXT MEETING**

BOROUGH COUNCIL OF KING'S LYNN & WEST NORFOLK

THE WASH EAST COASTAL MANAGEMENT STRATEGY STAKEHOLDERS FORUM

Minutes of the Meeting of the above held on Tuesday, 18th October, 2022 at 1.00 pm in the Offices at Valentine Road, Hunstanton and also as a Microsoft Teams Meeting

PRESENT:

In Person

Councillor Paul Kunes (Chair) – Borough Council
Paul Bland – Heacham North Beach Owners Association
Councillor David Bocking – Snettisham Parish Council
Kevin Burgess – Jacobs
Councillor Ian Devereux – Borough Council
Catherine Harries – Environment Agency
Jade Kite – Borough Council
Andrew Murray – Hunstanton Civic Society
Dave Robson – Borough Council
Mike Ruston – Hunstanton Chamber of Trade
Councillor Adrian Winnington – Hunstanton Town Council

On Teams

Michael Burton – Borough Council
Vanessa Gouldsmith – Natural England
Councillor Andrew Jamieson – Norfolk County Council
Councillor Terry Parish – Borough Council
Adele Powell – Wash and North Norfolk Marine Partnership
Rob Wise – NFU

APOLOGIES:

David Norma – Heacham South Beach Owners Association
Michael Williamson – Heacham Parish Council
Matthew Philpot – WLMA
Claire May – Borough Council
Will Fletcher – Historic England.

		ACTION
1	**WELCOME AND INTRODUCTIONS** The Chair welcomed everyone to the meeting. Those present in the room and remotely introduced themselves.	

2	**MINUTES FROM THE PREVIOUS STAKEHOLDERS FORUM HELD ON 10 MAY 2022** The minutes from the previous meeting were agreed as a correct record.	
3	**MATTERS ARISING** There was none.	
4	**HUNSTANTON COASTAL MANAGEMENT PLAN** (Pages 6 - 13) Officers provided those present with a presentation that covered Units A, B and C and other works, as attached. With regard to Unit A it was explained that the annual cliff monitoring reports would assist to update trigger levels for future management implementation and the results of the surveys would be published on the website once available. In response to a question regarding Unit B coastal defence repair budgets, it was explained that there was an annual budget of £76k alongside a reserves fund if needed. With regard to the Unit C beach recharge it was explained that the cost would be approximately £2.4 million, but this was still in the planning stage. The Recharge work would be funded from a mix of GIA (Grant in Aid), Partnership Funding, the CIC, Anglian Water and Local Levy. The beach recharge works were currently scheduled to take place in 2024/25. Annual beach recycling would take place in February/March next year. With regard to grass cutting at Snettisham, concerns were raised that the South side of the bank was not being cut and Catherine Harries from the EA agreed to find out more information and report back to the group. Councillor Devereux raised concerns that the jet ski owners were driving a pathway across the shingle ridge at Snettisham and that it was also being compromised by property owners. He explained that he was currently researching the byelaws that existed for the area to see if any action could be taken to protect the important sea defence. He also highlighted the importance of vegetation to help hold the defences. Catherine Harries explained that engagement work was needed with the property owners to explain the importance of the sea defences as they were the primary defence system.	CH

	In response to a question relating to Lidar surveys, it was explained that topographic surveys were carried out each year and the data from the surveys was available at https://coastalmonitoring.org/cco/	
5	**SHORELINE MANAGEMENT PLAN REFRESH UPDATE (ENVIRONMENT AGENCY)** (Pages 14 - 16) Catherine Harries from the EA provided information on the Shoreline Management Plan (SMP) Refresh. A copy of the presentation is attached. The SMP, in its current form, was available to view at https://www.eastangliacoastalgroup.org/shoreline-management All SMP's across the Country had been subject to a refresh exercise, and once complete, would be made available via the gov.uk website as the SMP Explorer Tool which would show short, medium and long term actions for each area. This was expected to go live in 2023. The SMP Refresh was not a re-write of the SMP document. It was intended to be a health check to update areas of the documents to reflect works which had taken place since they were published in 2010 (i.e WECMS and HCMP). To undertake this, two working groups had been established to cover the Wash area (one for the Lincolnshire side and one for the Norfolk side of The Wash). Both groups were working closely together and had asked that the views of the Stakeholders be fed back to them. Any Members of this Group who had any feedback were to contact Catherine Harries at the EA. The two working groups would feed into an Elected Member Forum. The draft policies and actions were available at https://www.eastangliacoastalgroup.org/shoreline-management and Catherine Harries agreed to keep the Stakeholder Group updated on the refreshed documents once they had been through the Elected Members Forum. Councillor Devereux commented that, with regards to governance, the Wash fell under two different RFCC's and co-ordination and co-operation was required to ensure consistent policies.	
6	**FUNDING GROUP UPDATE** It was noted that annual recycling work was continuing and the cost of the work this year had been slightly higher due to additional monitoring work which was legally required to take place every five	

	years. The Recharge work was currently in the planning stage and scheduled to take place in 2024/25.	
7	**<u>COASTAL TRENDS REPORTS</u>** (Pages 17 - 61) Officers provided those present with a presentation that covered the outputs of three coastal trends reports completed, as attached. (a) Wash Trends Report Presentation. Outcomes of The Wash Trends report for Unit B was presented to the Group. A copy of the presentation is attached which included information on the outcomes of the report. In response to questions it was explained that erosion of the Hunstanton Cliffs resulted in blockfall events which occurred approximately every 5 to 10 years. This material then sat at the base of the cliffs. The report identified that material from the Cliffs only reaches the northern end of beaches in Hunstanton and it did not travel further south. Material from the cliffs which reached the beaches in Hunstanton was large pieces of chalk or Carrstone and not sand. Movement of sand from further around the North Norfolk Coast via longshore drift to Hunstanton was now being blocked by a large sandbank which had developed offshore from Holme and Old Hunstanton. This meant that Hunstanton is no longer receiving a fresh supply of sand sediment. It was explained that pieces of chalk and Carrstone which could be found on the beach in Hunstanton, alongside pieces of shingle and flint, were not contemporary and were classed as relic deposits. The Wash Trends report for Unit C was presented to the Group. A copy of the presentation is attached. Catherine Harries explained that volumes were quite stable and there was enough accretion at the Scalp to use for the annual recycling. The Group discussed the impact that inland tide sediment and silting up could have on sea defences. (b) Jacobs Groyne Effectiveness Report Presentation. The Group was informed that this was joint EA and Borough Council project and the results of the effectiveness report were shared with the Group by Kevin Burgess from Jacobs who authored the report, as attached.	

	In summary the concrete and timber groynes along the Borough Council and EA frontages were ineffective due to a change in coastal processes meaning fresh beach material no longer reached the frontage for the groynes to trap. It was also noted that leaving the groyne structures in place would not cause harm and would not cause further erosion of beach material. Repairs to ensure that the groynes did not cause any health and safety issues would continue along both the Borough Council and EA frontages going forward. If alternative options were implemented the cost would be very high and a comprehensive assessment of their impact on the wider area would be needed. There would also be no guarantee of success at retaining a sandy beach due to changes in coastal processes which had occurred. The Group discussed the groynes and the history of the beach and potential options for the future. (c) 4D Radar Report Presentation. Officers presented the findings of the 4D Radar reports, as attached. It was explained that all of the reports presented to the Group today would be made available on the Borough Councils website which could be accessed at: Coastal trend reports | Coastal trend reports | Borough Council of King's Lynn & West Norfolk (west-norfolk.gov.uk) Councillor Devereux commented that the reports and data had been used to present information to the RFCC which had resulted in them becoming more engaged in coastal processes in the area and a forward programme was being developed.	
8	**ANY OTHER BUSINESS** There was none.	
9	**DATE OF THE NEXT MEETING** To be scheduled for March 2023.	

The meeting closed at 3.02 pm


Unit A – Hunstanton Cliffs
Borough Council of
King's Lynn &
West Norfolk

Terrestrial LiDAR Monitoring

- Annual LiDAR survey competed in April 2022.
- Data now with BGS for processing and report production.
- Report expected by the end of October 2022.
- Report will be made available on website once received.

Unit B – Hunstanton Town

Borough Council of
King's Lynn &
West Norfolk

2022-2023 Works

- Inspection of floodgates in October.
- Asset inspection survey of all Hunstanton coastal defences in November / December 2022.
- These are preventative maintenance measures which will inform any area which may require further maintenance over the coming months.

2022-2023 Repairs

Date	Defence Element	Repair Summary	Cost
April 2022	Ramp	Concrete repair	£10,657
April 2022	Navigation Marker 6	Replacement of supporting element	£2,254
July 2022	Navigation Marker 14	Replacement of supporting element	£1,240
September / October 2022	Blockwork Seawall (Section E)	Replacement of mortar joints	£28,605.68
October 2022	Outfalls	Clearance of outfalls	£1,095
October 2022	Navigation Markers	Replacement of x5 numbered discs	£1,780
October 2022	Floodgate	Inspection	£2,064
October 2022	Outfall	Grate replacement	£486
October 2022	Promenade	Concrete repair	£862.34
Total spend on coastal defence repairs as of October 2022			**£49,044.02**

Unit C – South Hunstanton to Wolferton Creek

Borough Council of
King's Lynn &
West Norfolk

Beach Recycling / Recharge

- The beach recycling works will take place as normal in Feb / Mar 2023 but costs will be higher.
- More environmental monitoring (legally required) has taken place this financial year.
- Looking to improve our beach level monitoring methods.
- The beach recharge is in the programme for 2024/25.
- Specialists have been employed to undertake detailed planning.

Other Works

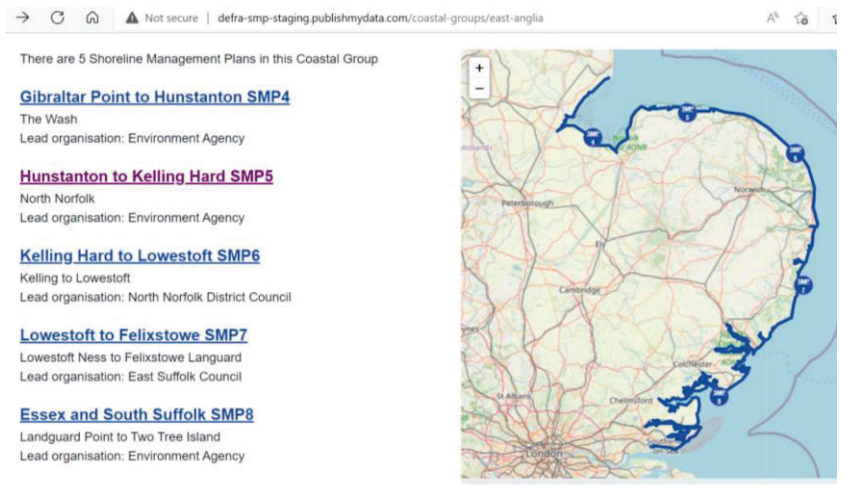
- Repairs at Snettisham Hard.
- Grass cutting but broadleaf vegetation is a problem.
- Superficial cracks to the embankments between N&S beach.
- H&S works including:
  - Repairs / replacement of navigation markers.
  - Removal of exposed sharp metal.
  - Concrete repairs.

Shoreline Management Plan Refresh

Borough Council of
King's Lynn &
West Norfolk

SMP Refresh Update

- All Shoreline Management Plans are being reviewed.
- Aims:
  - Clarify the policy intent.
  - Be more accessible through SMP Explorer.
  - Update with the latest information



Borough Council of
King's Lynn &
West Norfolk

SMP Refresh Update

- Our Health Check recommended:
  - To update the Action Plan and the SMP documents.
  - Reignite the governance structure.
  - Refine the trigger points for management actions
  - Determine whether the conditional policies can be firmed up.
- It is a priority of the SMP Group that this Stakeholder Group is represented.

Coastal Trends Reports

Borough Council of
King's Lynn &
West Norfolk

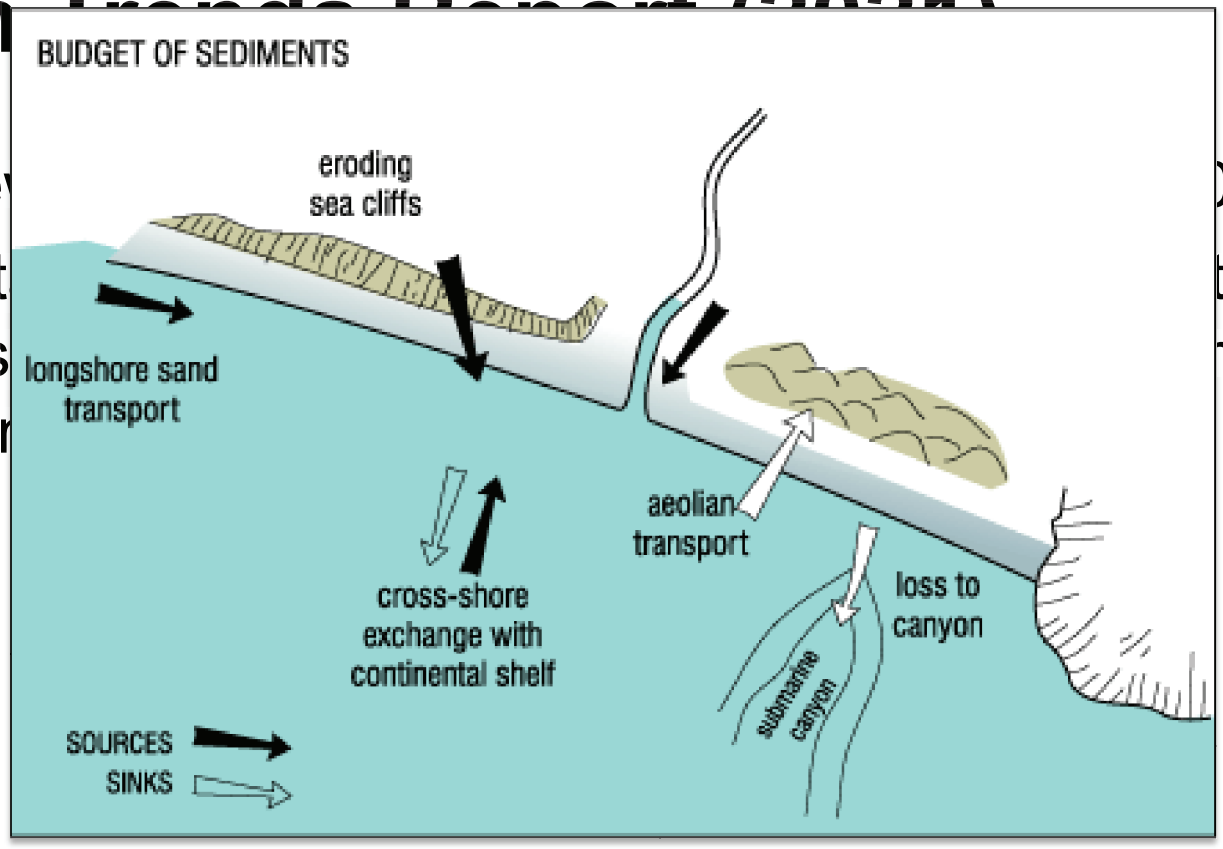
Wash Trends Report (2021)

Unit B - Hunstanton

Borough Council of
King's Lynn &
West Norfolk

Wash

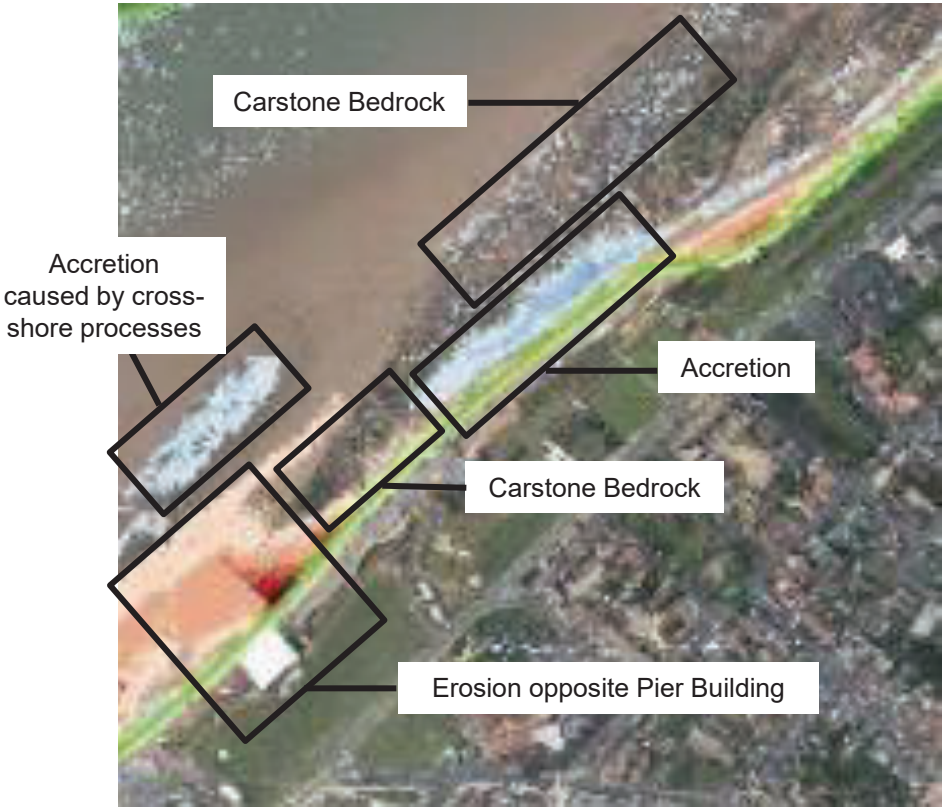
- Revie
- Hunst
  expos
  mover



Borough Council of
King's Lynn &
West Norfolk

Wash Trends Report (2021)

- Reviewed coastal trend data between 1992-2020.
- Hunstanton experiencing long-term erosion due to its exposure to strong waves and cross-shore sediment movement.
- Beach levels in Hunstanton are falling while offshore sandbanks are growing.
- Input of beach material to Hunstanton from erosion of Hunstanton cliffs is limited and will not build beach levels.

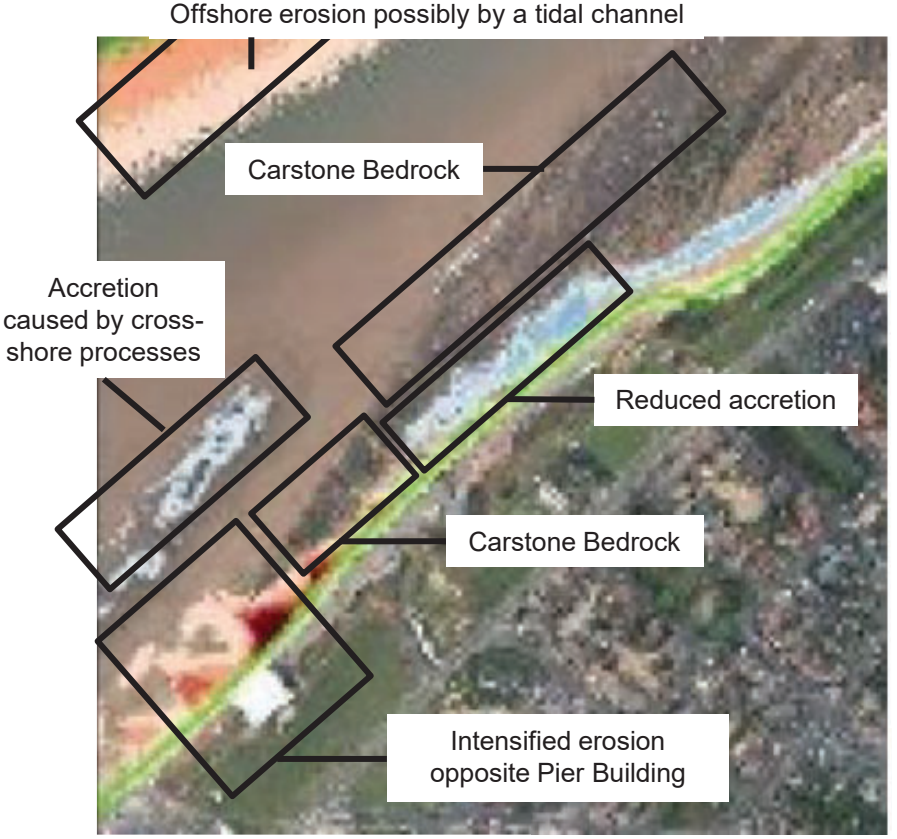


Aerial LiDAR 2012/13 to 2019/20

Legend

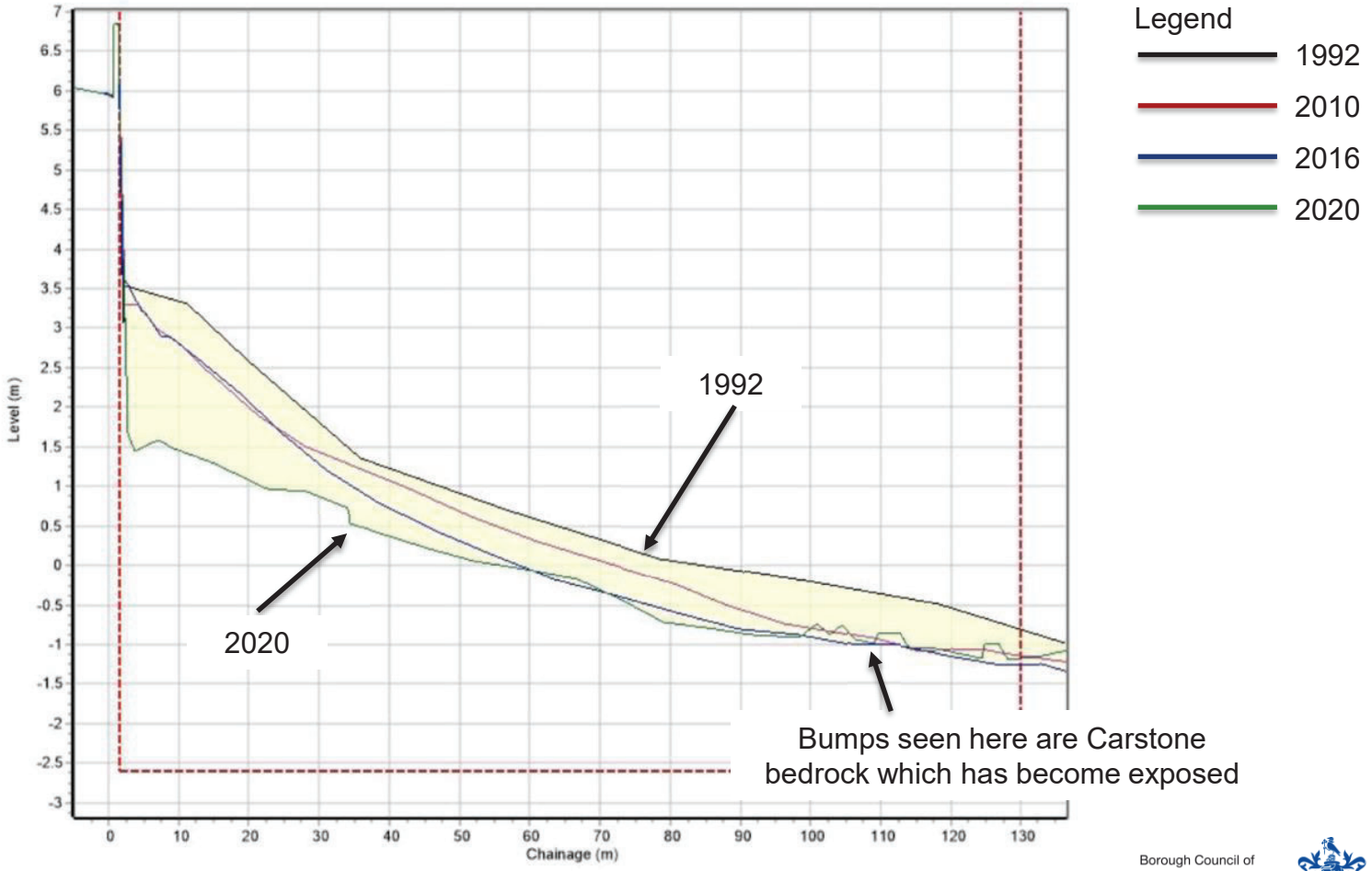
- 0.2 - 0.4m Accretion
- 0.4 - 0.6m Accretion
- 0.6 - 0.8m Accretion
- 0.8 - 1m Accretion
- >1m Accretion
- >1m Erosion
- 0.8 - 1m Erosion
- 0.6 - 0.8m Erosion
- 0.4 - 0.6m Erosion
- 0.2 - 0.4m Erosion

Offshore erosion possibly by a tidal channel



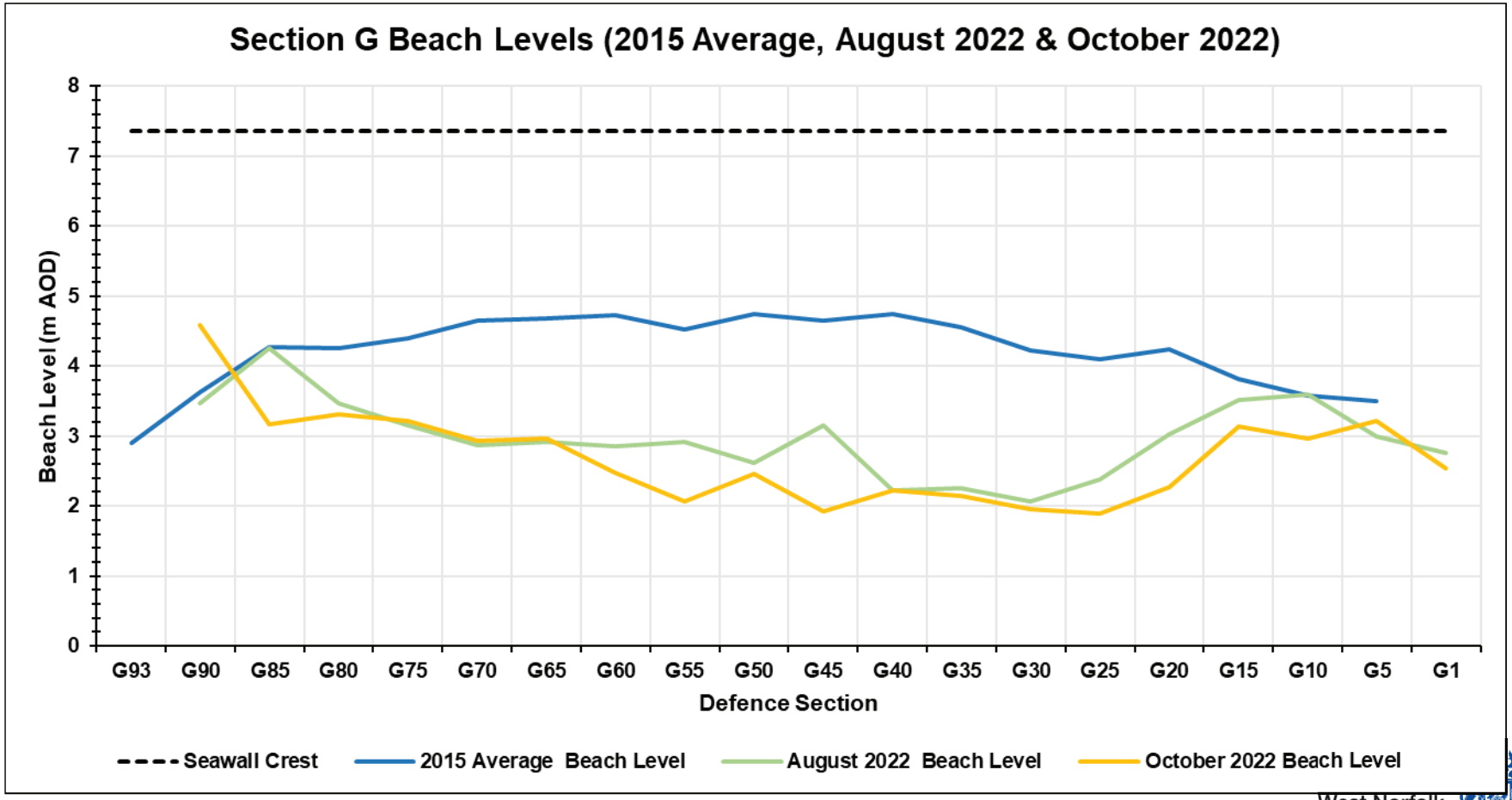
Aerial LiDAR 2016/17 – 2019/20

Borough Council of King's Lynn & West Norfolk



Beach profile opposite Pier Building from 1992 (black line) to 2020 (green line)

Borough Council of King's Lynn & West Norfolk


Section G Beach Levels (2015 Average, August 2022 & October 2022)
Beach Level (m AOD)
0
1
2
3
4
5
6
7
8
G93
G90
G85
G80
G75
G70
G65
G60
G55
G50
G45
G40
G35
G30
G25
G20
G15
G10
G5
G1
Defence Section
Seawall Crest
2015 Average Beach Level
August 2022 Beach Level
October 2022 Beach Level

Section E (2017 vs 2022)

March 2017

September 2022

Section D (2017 vs 2022)

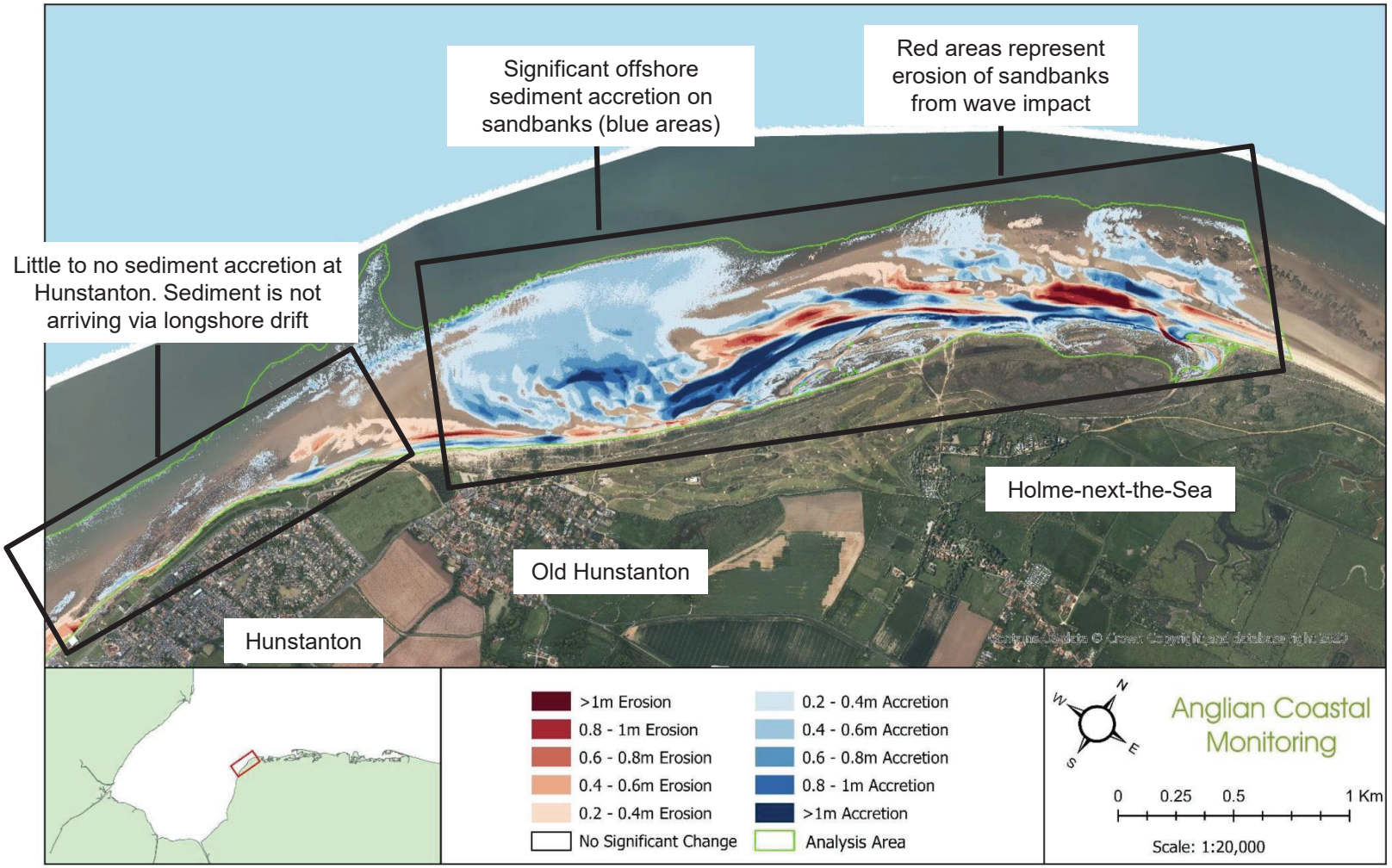
March 2017

September 2022

Section C (2017 vs 2022)

March 2017

September 2022



Aerial LiDAR from 2012/13 to 2019/20

Wash Trends Report (2021)

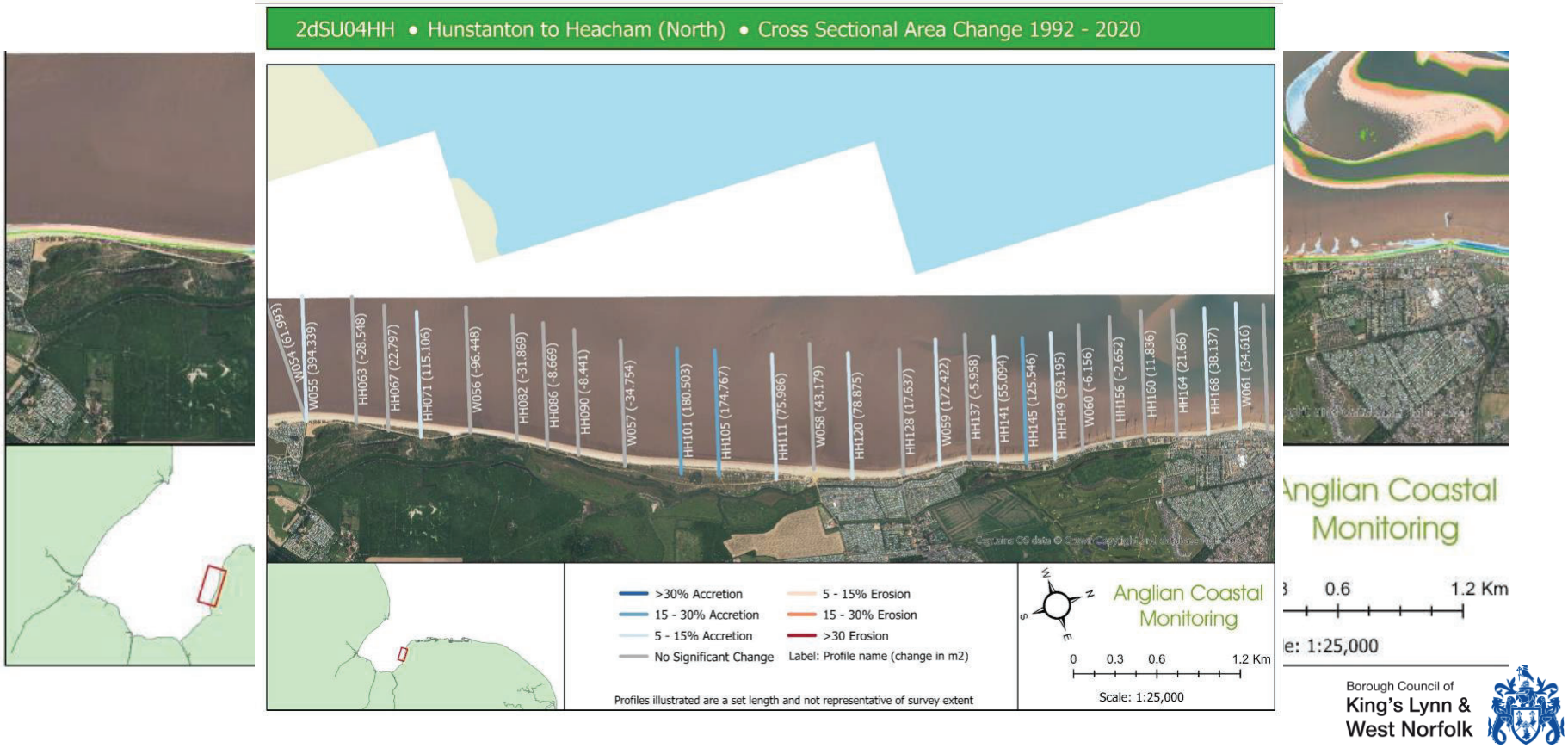
Unit C – South Hunstanton to Wolferton Creek

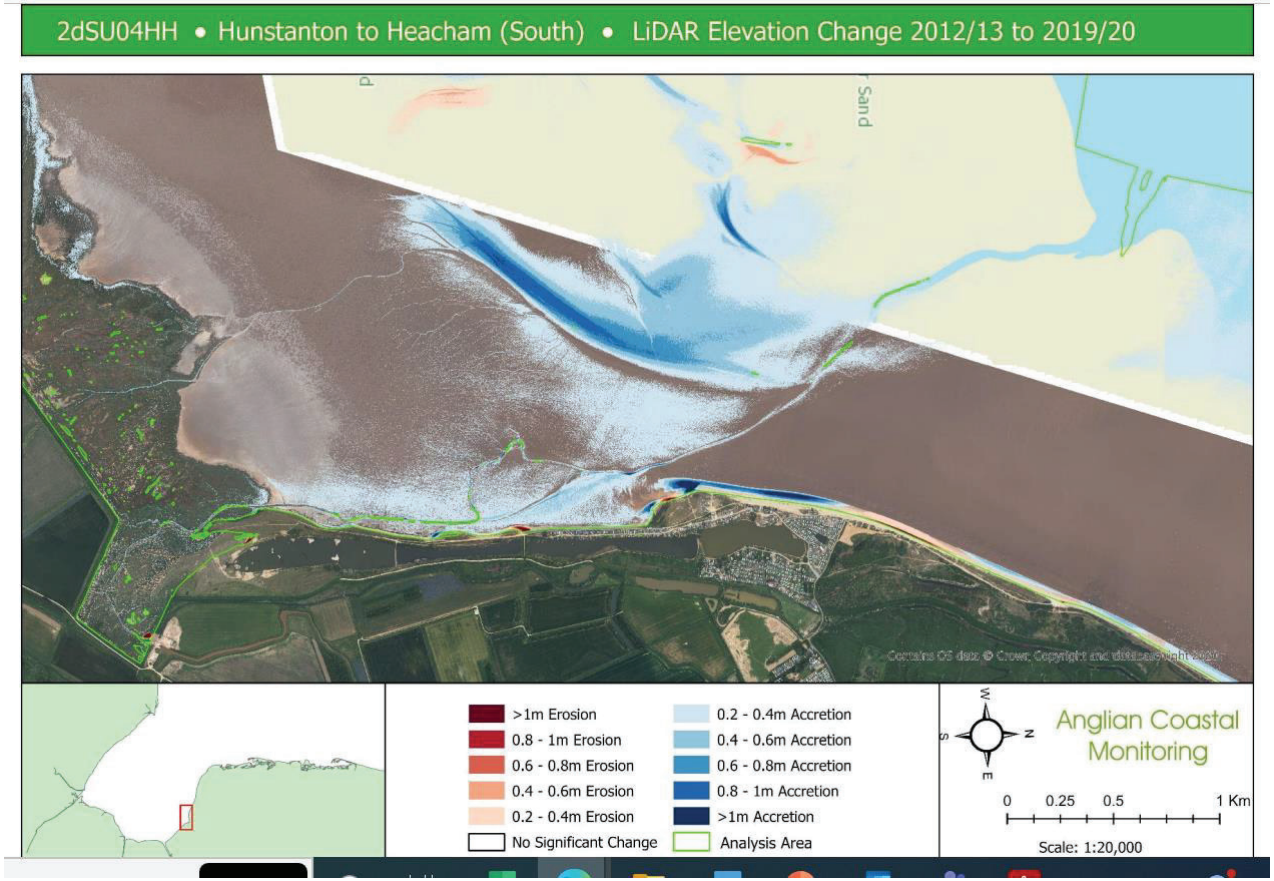
Borough Council of
King's Lynn &
West Norfolk

Wash Trends Report (Unit C)

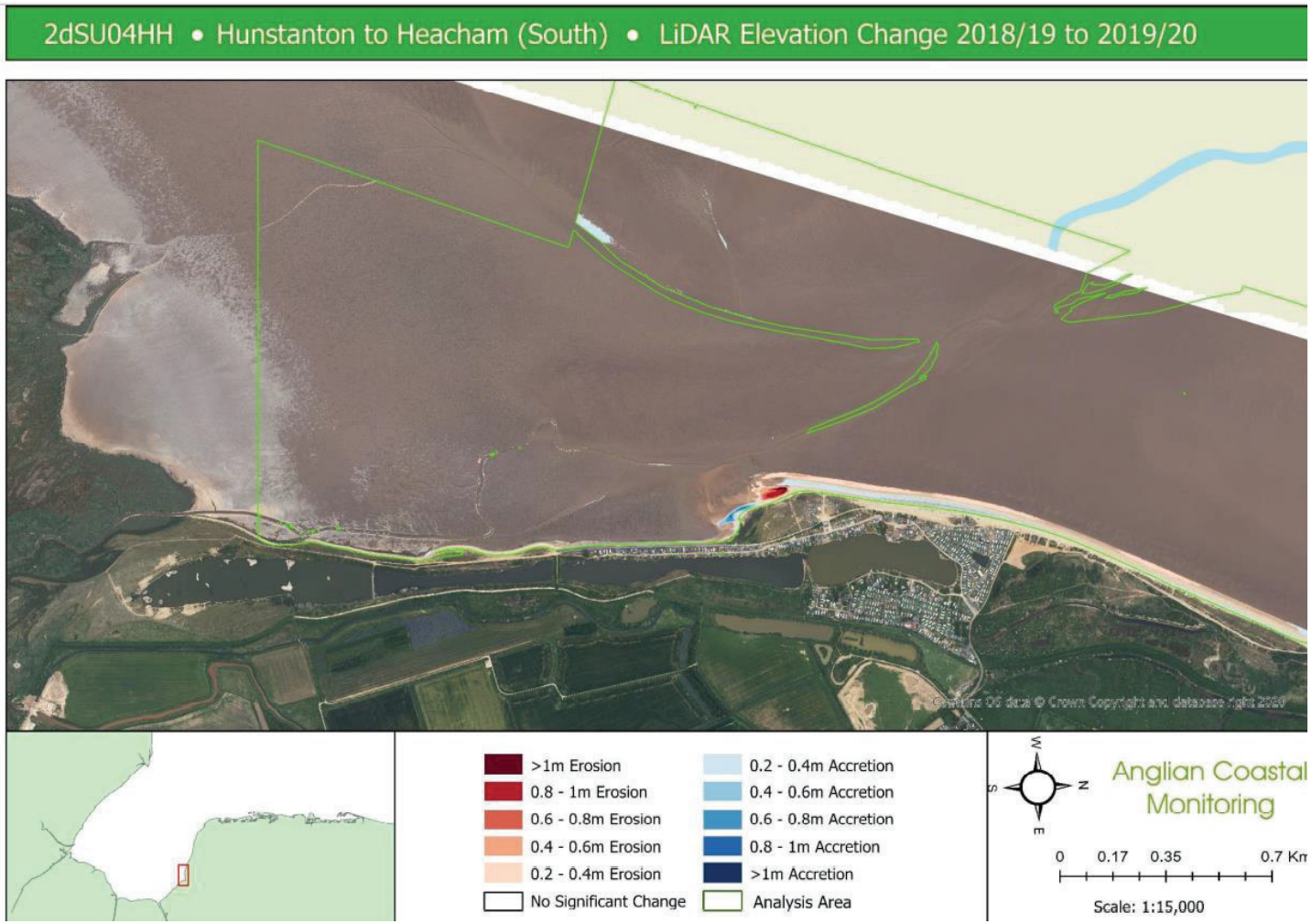
- The trend since 1992 shows that beach volumes have been stable but there has been some changes in profile.
- The largest areas of accretion are at the Scalp with a increase since 1992.
- The most recent trends (2016-2020) shows a small loss of material.

LiDAR Data 2016-2020





Borough Council of
King's Lynn &
West Norfolk



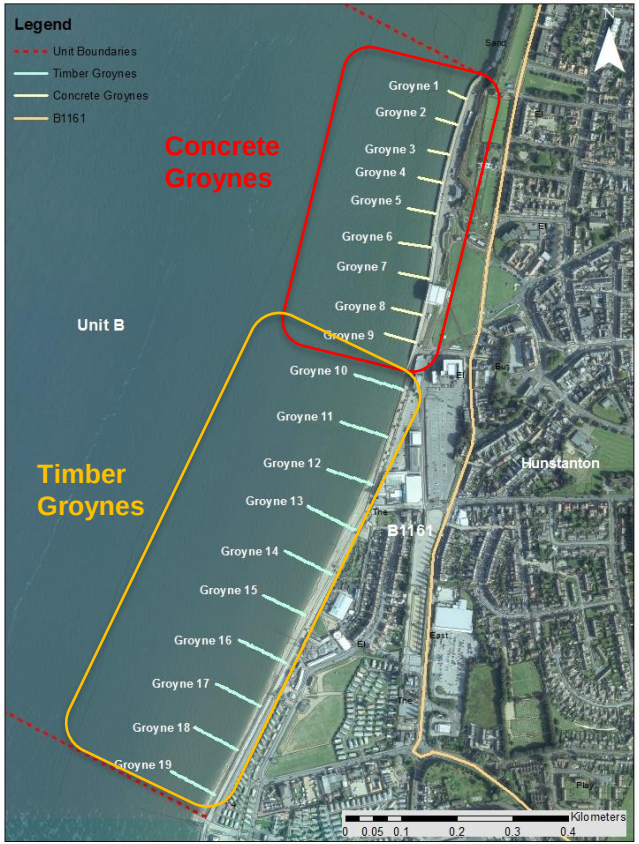
Borough Council of
King's Lynn &
West Norfolk

Jacobs Groyne Effectiveness Report

Kevin Burgess - Jacobs

Borough Council of King's Lynn & West Norfolk

BCKLWN Frontage



Borough Council of King's Lynn & West Norfolk

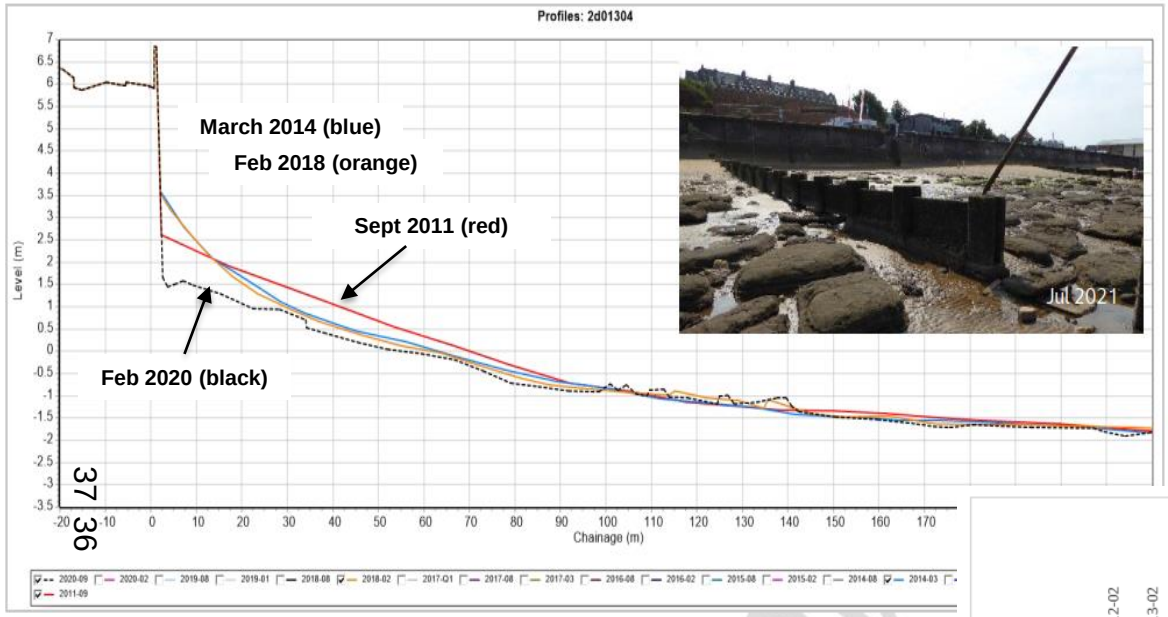
Concrete Groyne Frontage

- Concrete – unusual material choice
- Condition ‘Poor’ to ‘Very Poor’ throughout
- Missing planks etc but main structural issue is due to beach lowering below design levels, and abrasion

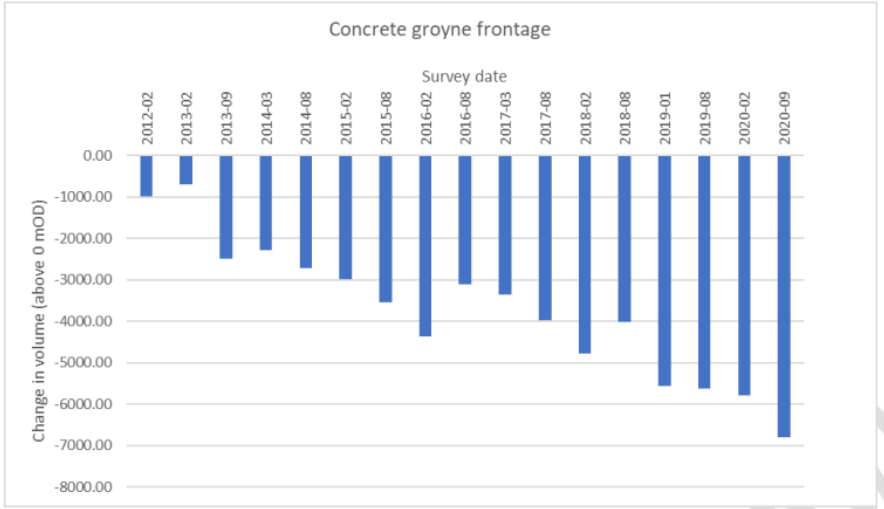
35 36

Concrete groyne frontage

Typical changes in beach profile



Change in beach volume above level 0mOD – relative to Sept 2011



Concrete Groyne Frontage

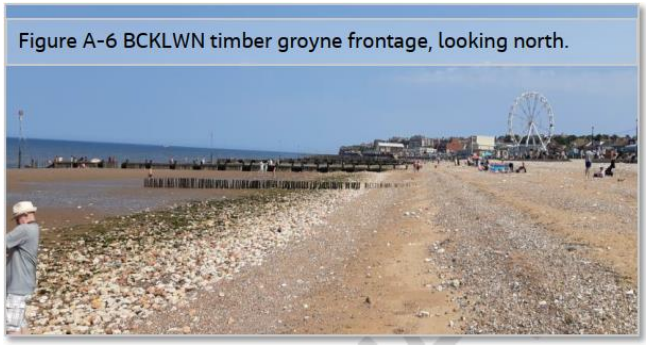
- Sand is almost non-existent – little evidence that substantial volumes of sediment have ever regularly moved onto this shoreline
- Promontory & high exposure to waves – unlikely for sediment to be retained for very long, even if a reasonable input of sediment
- Little differential in level of any beach material across the groynes
- Elevation of the groynes is too low to be effective in front of a reflective seawall

Borough Council of
King's Lynn &
West Norfolk

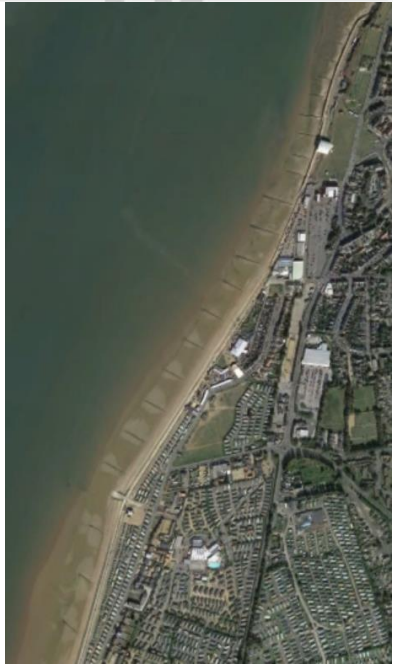
Timber Groyne Frontage (BCKLWN)

- Permeable timber structures
- Condition ‘Poor’ to ‘Very Poor’ throughout
- Main structural issue is due to beach lowering and abrasion
- Rock has been added in places

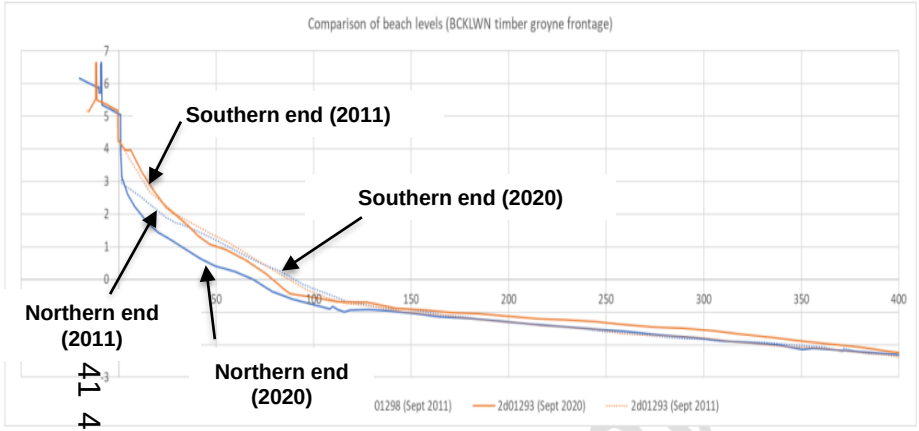
Timber Groyne Frontage



- Steeper coarse upper beach – little sign of substantial contemporary supply
- Sandy lower intertidal beach.
- Seaward of the groynes lies a low tide sandflat.
- Little to no differential in beach levels across the groynes.
- Beach width increases from north to south, but more a function of the planform shape created by seawall alignments.



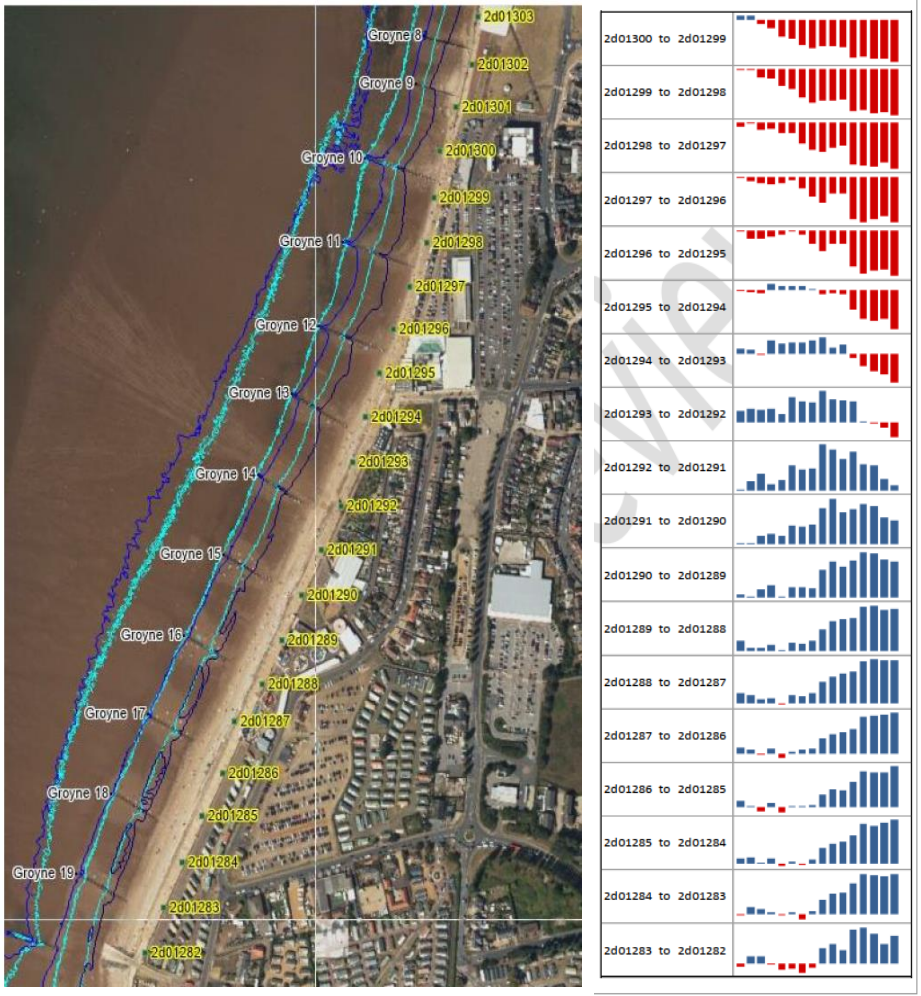
Timber groyne frontage



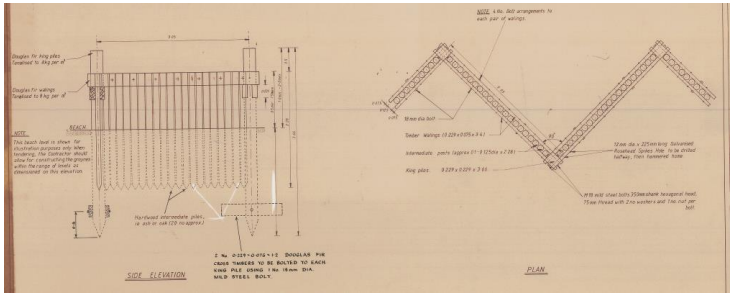
Contrast in beach response

Position of -1mOD, 0mOD and +1mOD contours in 2012 (light blue) and 2020 (dark blue)

Sparklines show changes over time north to south for upper beach (above MSL)



Timber Groyne Design



- Very unusual design – highly permeable
- Unlikely they were built with expectation of retaining sediments moved alongshore by waves!

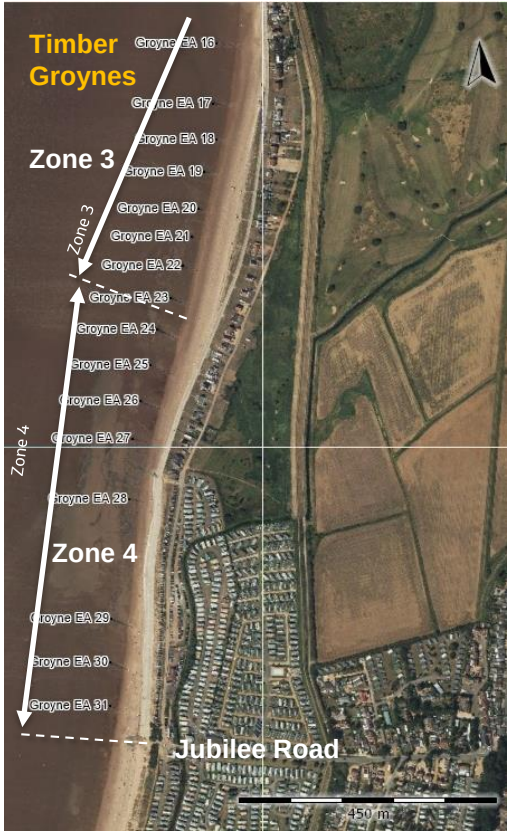
- Lesser known but significant original objective for introducing groynes was to deal with tidal currents
- Function of permeable groynes
  - Also to help reduce the effects of alongshore currents and to act as a filter rather than as a blockade to longshore transport
  - They allow sediment to be transported through the groyne so to not create downdrift erosion.
- *SCOPAC 2010: "are permeable groynes an oxymoron?"*

Borough Council of King's Lynn & West Norfolk

Timber Groyne Frontage (BCKLWN)

- By design, these groynes will not prevent wave-driven transport of sands
- But they may influence current flows across the lower beach, enabling deposition and retention of some finer sediment there
- Some possible evidence of this in the vicinity of the Power Boat Ramp
- But no evidence of any influence on the alongshore movement of the upper beach

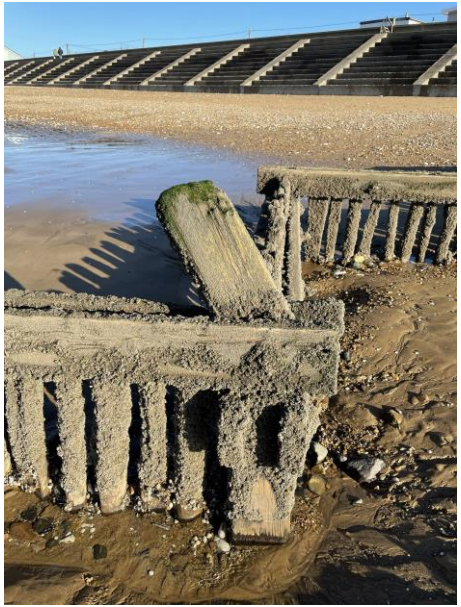
Environment Agency Frontage



Borough Council of King's Lynn & West Norfolk

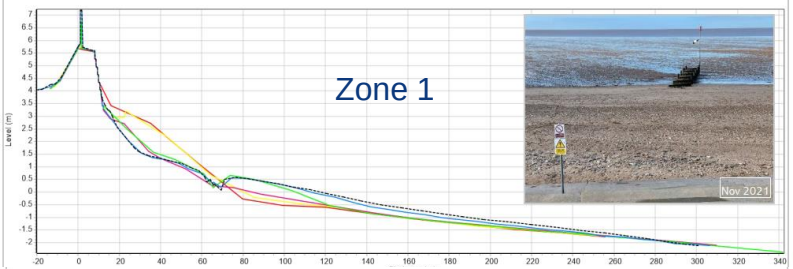
Timber Groyne Frontage (Env Agency)

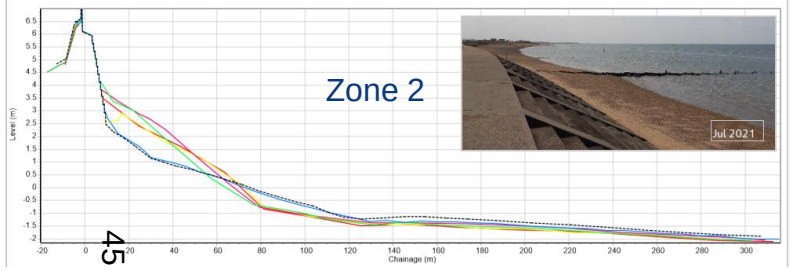
- Same design as those on Hunstanton town frontage
- Condition similarly ‘Poor’ to ‘Very Poor’ throughout
- More sand (in places) – but this frontage is also recharged annually

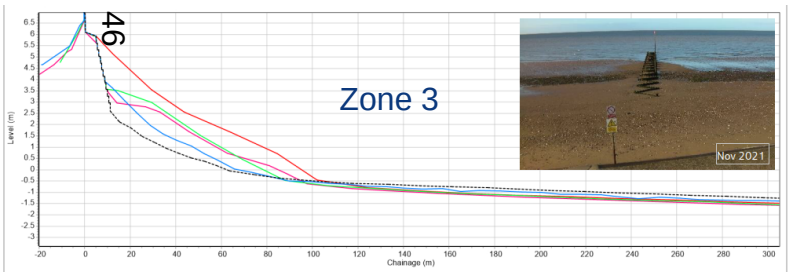


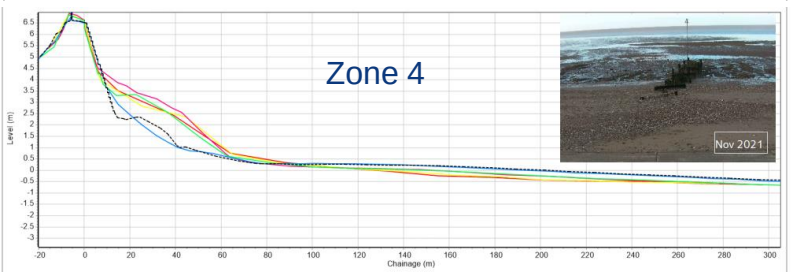
EA timber groyne frontage

Typical changes in beach profile









Key to lines:
Blue = Feb 2014
Yellow = June 1992
Black = Sept 2020
Green = April 1997
Red = March 1992

	2010-2011	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016	2016-2017	2017-2018	2018-2019	2019-2020	Net change
zone 1	1,490	-4,254	1,443	-4,925	-58	-3,684	2,708	2,513	396	-68	-4,439
zone 2	-2,205	-484	-1,513	-2,059	638	-561	-759	-1,022	-1,968	33	-9,900
zone 3	-224	2,484	-498	-4,108	1,825	-1,717	371	-4,162	-1,162	-1,771	-8,962
zone 4	-2,095	-430	1,467	-1,623	1,689	-1,851	1,727	2,609	343	-547	1,289
Sum zones 1 to 4	-3,034	-2,684	899	-12,715	4,094	-7,813	4,047	-62	-2,391	-2,353	

Total overall ‘natural’ gain/loss of volume above 0mOD

Borough Council of
King’s Lynn &
West Norfolk

45

46

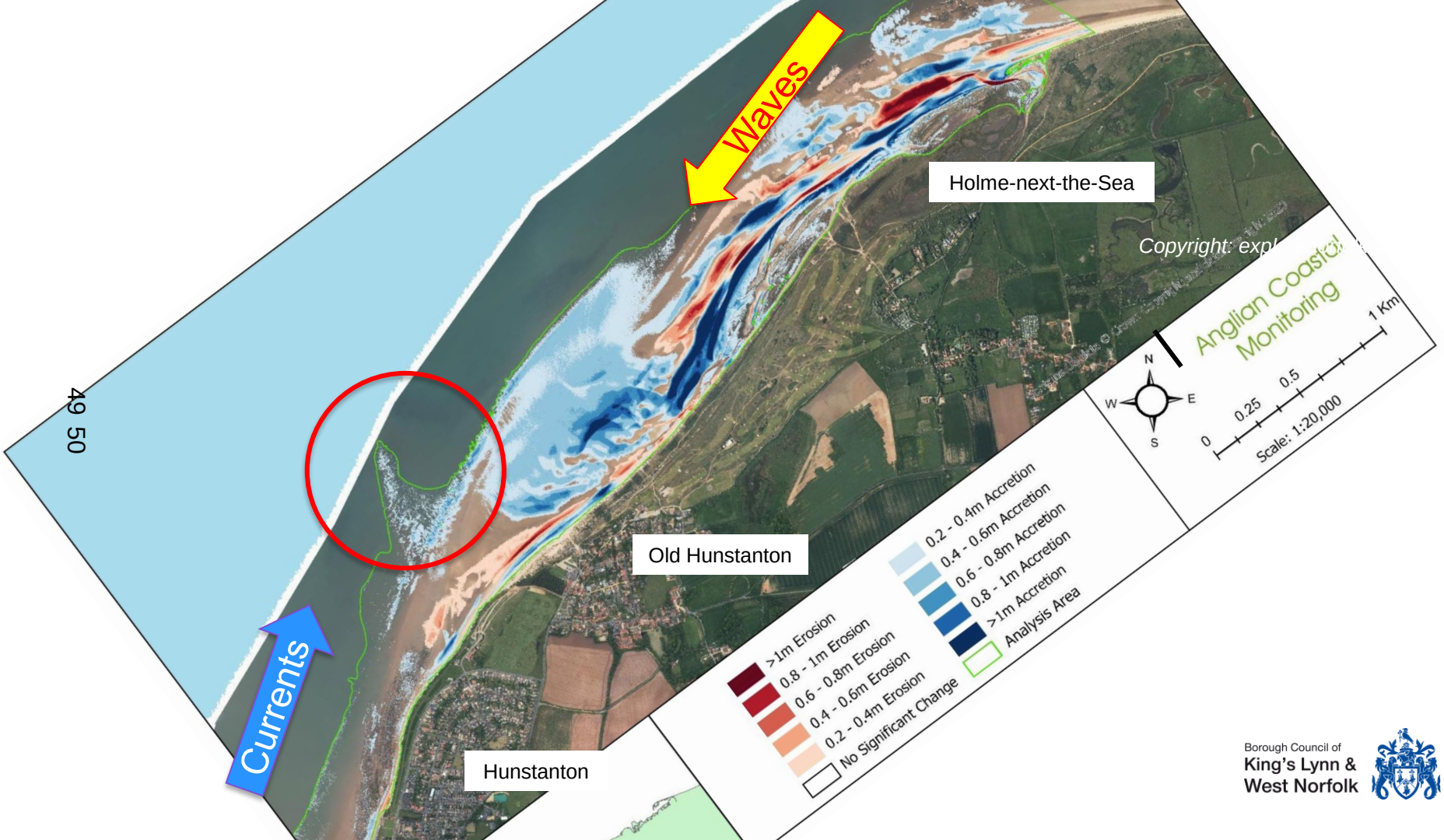
Timber Groyne Frontage (Env Agency)

- No differential in levels – groynes seem to be largely ineffective in respect of alongshore movement
- But again may be influencing current flows on lower beach, in particular in Zone 1.
- Zone 2 – promontory, toe of wall exposed and it clear that elevation of groynes is too low (if effective)
- Zone 3 – better beach – but groynes appear to have no discernible influence – due to alignment of seawall creating embayment
- Zone 4 – groynes clearly redundant

Why does sand not reach Hunstanton beaches?

Borough Council of
King's Lynn &
West Norfolk


Copyright: coastalmonitoring.org
Being pushed back north
Evidence of sand being moved southwards
End of Seawall
Ringstead
Power Boat Ramp
Jubilee Road
Sedgeford


Waves
Holme-next-the-Sea
Copyright: exp
Anglian Coastal Monitoring
1 Km
N
W
E
S
0
0.25
0.5
Scale: 1:20,000
Old Hunstanton
Currents
Hunstanton
>1m Erosion
0.8 - 1m Erosion
0.6 - 0.8m Erosion
0.4 - 0.6m Erosion
0.2 - 0.4m Erosion
No Significant Change
0.2 - 0.4m Accretion
0.4 - 0.6m Accretion
0.6 - 0.8m Accretion
0.8 - 1m Accretion
>1m Accretion
Analysis Area
49 50
Borough Council of
King's Lynn &
West Norfolk


Copyright: coastalmonitoring.org
Being pushed back north
Evidence of sand being moved southwards
Channel close to shore
End of Seawall
Ringstead
Plenty of sand on banks with some potential for onshore movement
Power Boat Ramp
Jubilee Road
Sedgeford

Summary

- Coastal processes limit the amount of sand that can reach the frontage
- What sand does reach the frontage gets moved away again – cross shore and alongshore


Discharge further seaward tending northwards
Discharge further up beach tending southwards

Summary

- Coastal processes limit the amount of sand that can reach the frontage
- What sand does reach the frontage gets moved away again – cross shore and alongshore

- A groyned beach needs a regular feed of sediment to collect within the bays they form – without that any groynes are effectively redundant.

Concrete Groyne Frontage

- A lack of beach sediment supply
- Cross-shore movement of material is evident – this will not be prevented by the current groyne structures
- Low water channel inshore of Sunk Sand sandbank close to shore – sand drawn down the beach can be moved away by tidal currents

Therefore:

- Even if the groynes were made higher and longer it is still unlikely that these would have much effect
- At the very least need a different form of groyne design and recharging, but effectiveness would still be questionable

Timber Groyne Frontage (BCKLWN)

- Lack of sediment supply
- Sand-sized sediment will simply pass through these groynes.
- Limited effect on wave-driven alongshore transport
- By disrupting tidal flows across the beaches at mid to high water levels, may encourage less erosion/some limited deposition of sand (e.g. the four or five bays directly north of the Power Boat Ramp)

Therefore:

- With exception of southern end, reinstatement of these is unlikely to have significant effect – but they are not doing any harm either.
- Permeable groynes would still have the issue of insufficient sediment supply

Timber Groyne Frontage (EA)

- Limited effect on wave-driven alongshore transport
- Groyne lengths do not appear to have a significant effect
  - Beach level comparison within Zone 2, between shorter groynes and longer groynes did not reveal any notable increase in beach width or level
- Possible influence of some groynes on tidal currents and transport
  - sand may be being retained between the groynes nearer the Power Boat Ramp.

Therefore:

- With exception of Zone 1, reinstatement of these is unlikely to have significant effect – but they are not doing any harm either.
- Sand recycling provides sediment supply to upper beach – retention against seawall might be improved if the landward sections were replaced with higher impermeable structures

Conclusions

1) The groynes present along this frontage are largely ineffective in their current state.
2) Although groyne condition is a factor, their design, combined with an absence of sediment supply, means that effectiveness would remain limited even if rebuilt to an improved standard.

3) To have larger sandier beaches along Hunstanton frontage will require a different approach.

Other options for a beach

If beaches required, then different and more effective options will be needed – for example:

- Larger and different structures to control the waves and currents that affect stability of the beach, e.g. to create more stable 'embayments'
- But lack of natural sediment supply will almost certainly also require beach nourishment
- Also ways to recharge without structures, e.g. mega-nourishment schemes

Note that these would required comprehensive assessments to determine likely effectiveness, costs, and potential implications of the redistribution of the sediment across the sensitive environmentally sites within The Wash

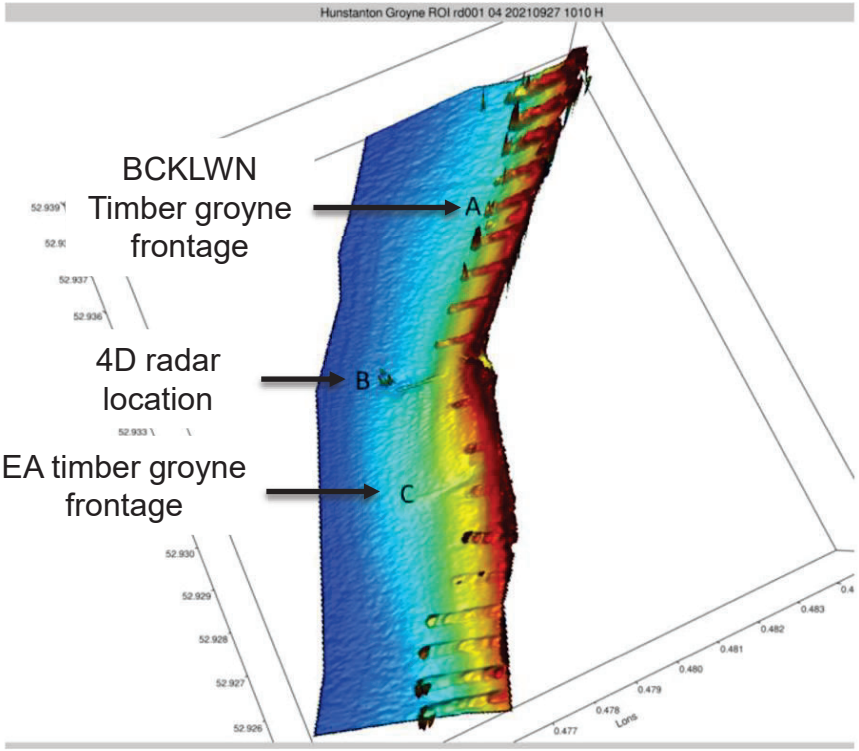
4D Radar

Borough Council of
King's Lynn &
West Norfolk

4D Radar Deployment

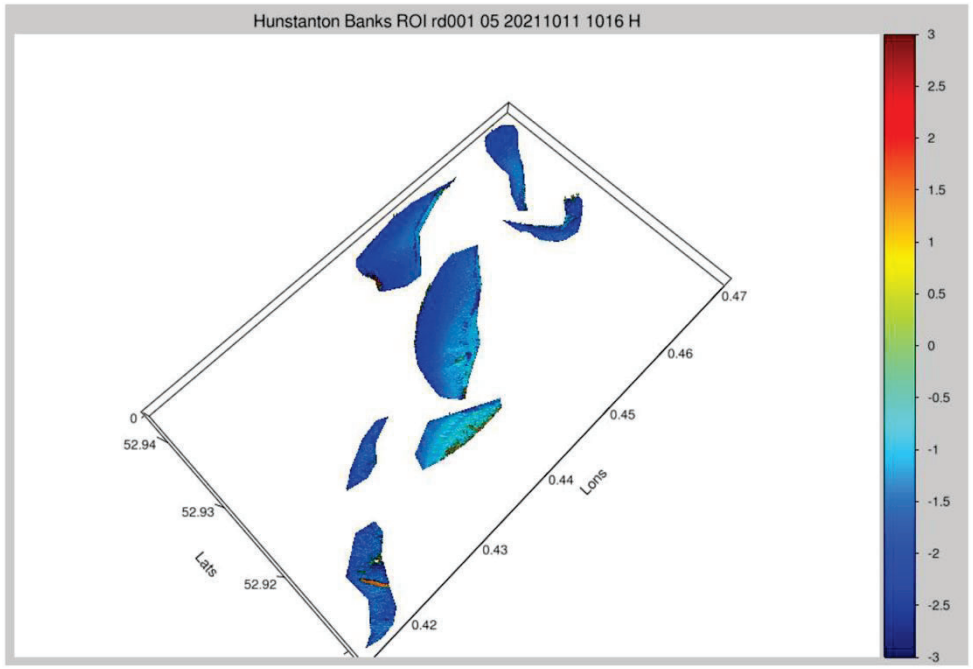
- 4D radar deployed between August – December 2021.
- 4D radar can penetrate water and map the seabed to a distance of 4km offshore.
- Confirmed findings of the Wash Trends and Jacobs reports.

Borough Council of
King's Lynn &
West Norfolk



4D radar model of groyne field frontage

Erosion = red
Accretion = blue



Sandbanks offshore from Hunstanton

Borough Council of
King's Lynn &
West Norfolk