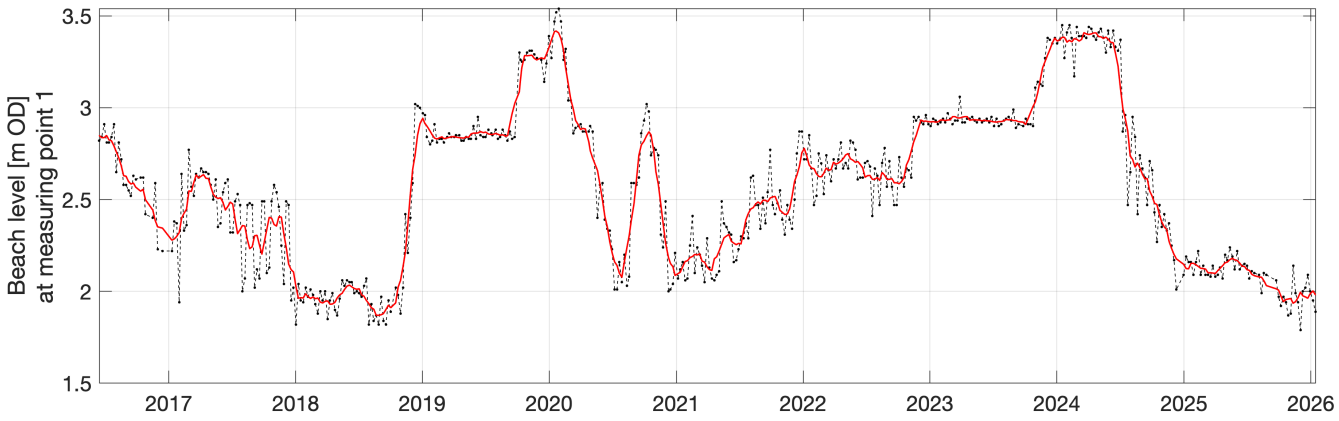

September
2023

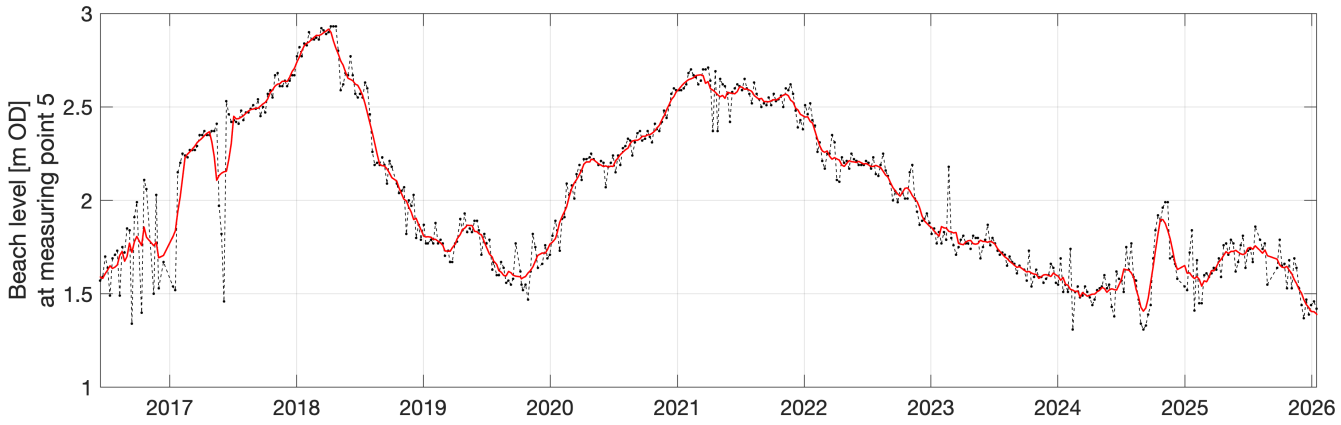

October
2025

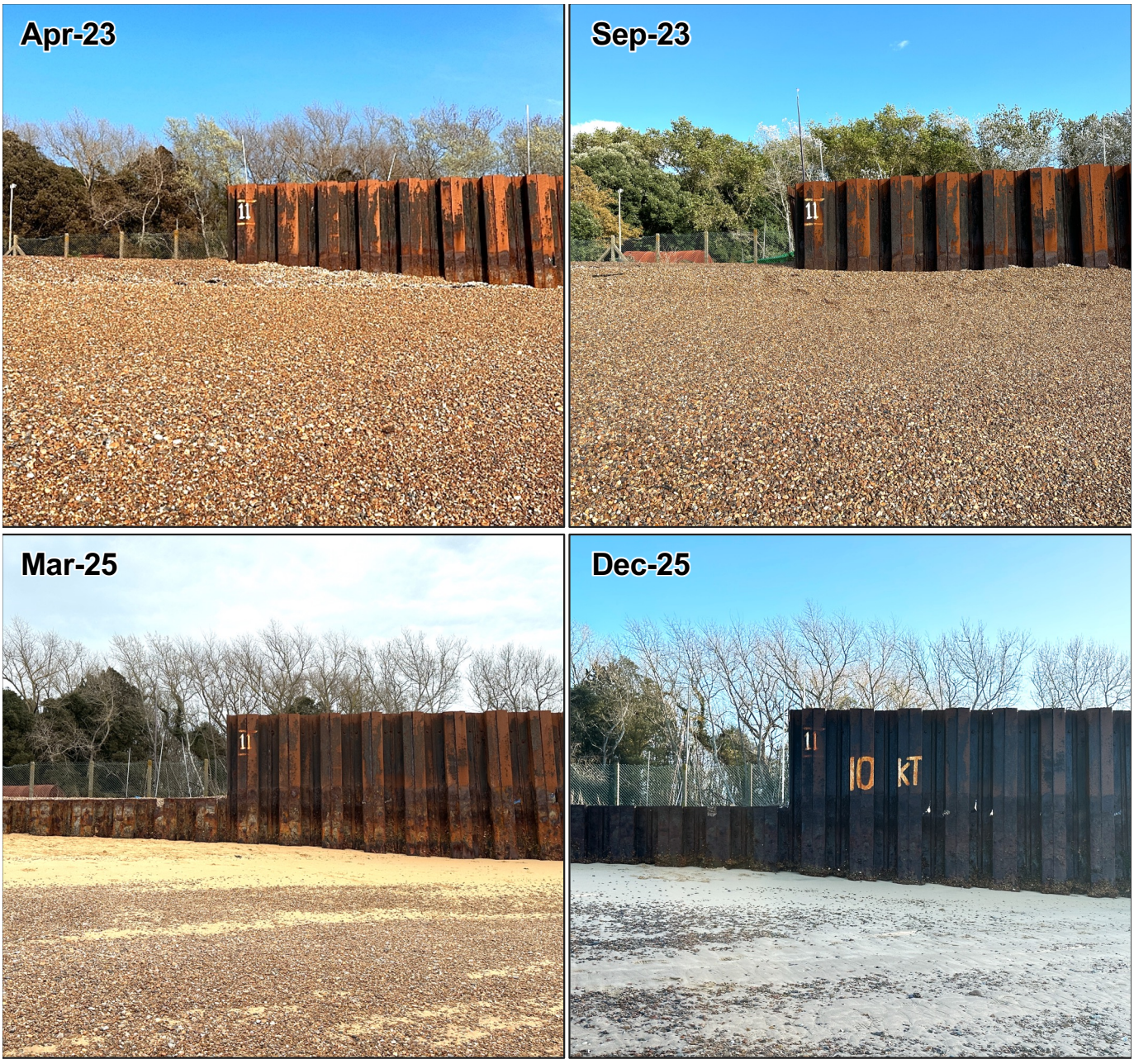

January
2026

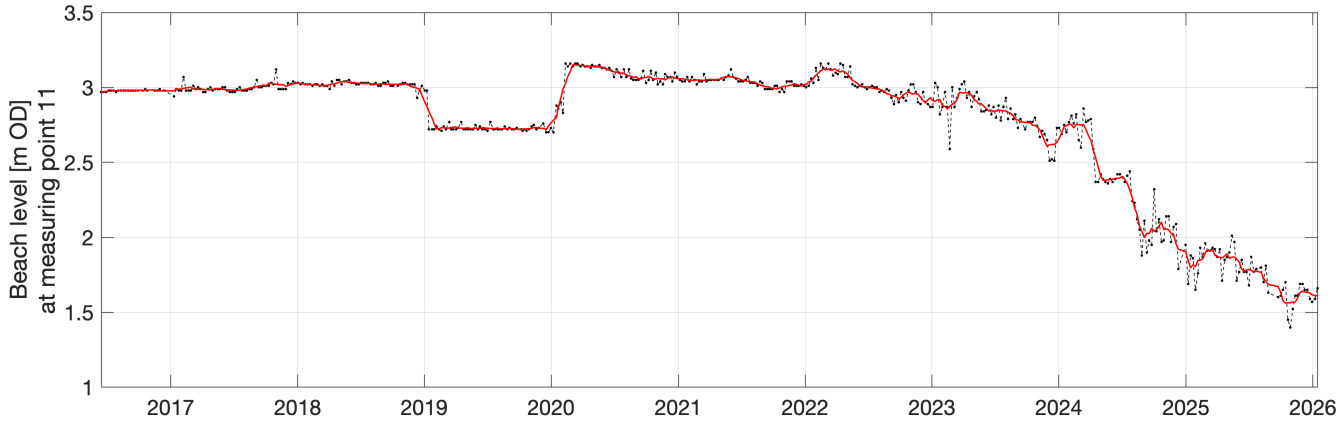

Apr-23
Sep-23
Mar-25
Jun-25
Dec-25
Jan-26

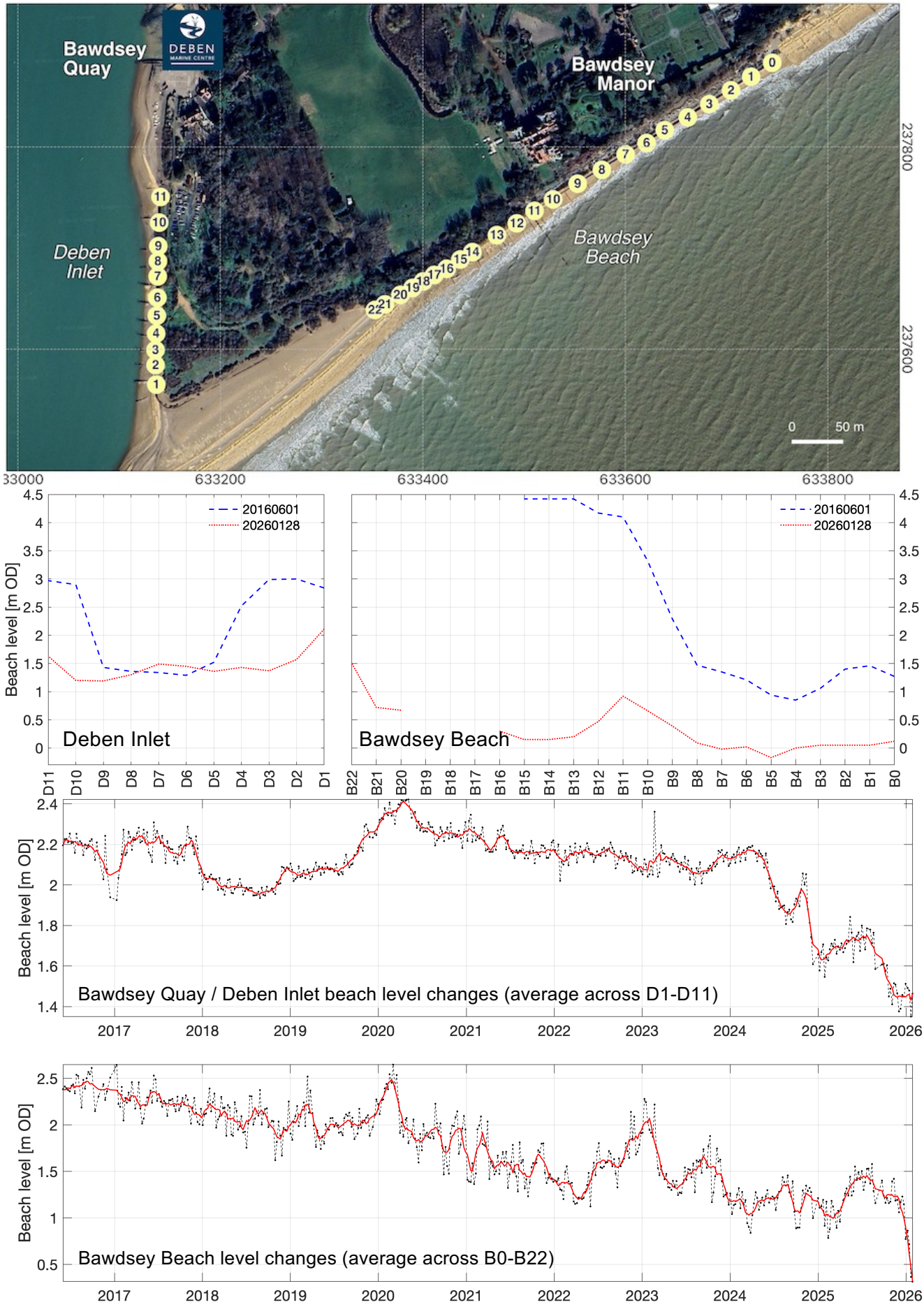

Beach level [m OD]
at measuring point 1
3.5
3
2.5
2
1.5
2017
2018
2019
2020
2021
2022
2023
2024
2025
2026


Apr-23
Mar-25
Dec-25
Jan-26


Beach level [m OD]
at measuring point 5
3
2.5
2
1.5
1
2017
2018
2019
2020
2021
2022
2023
2024
2025
2026

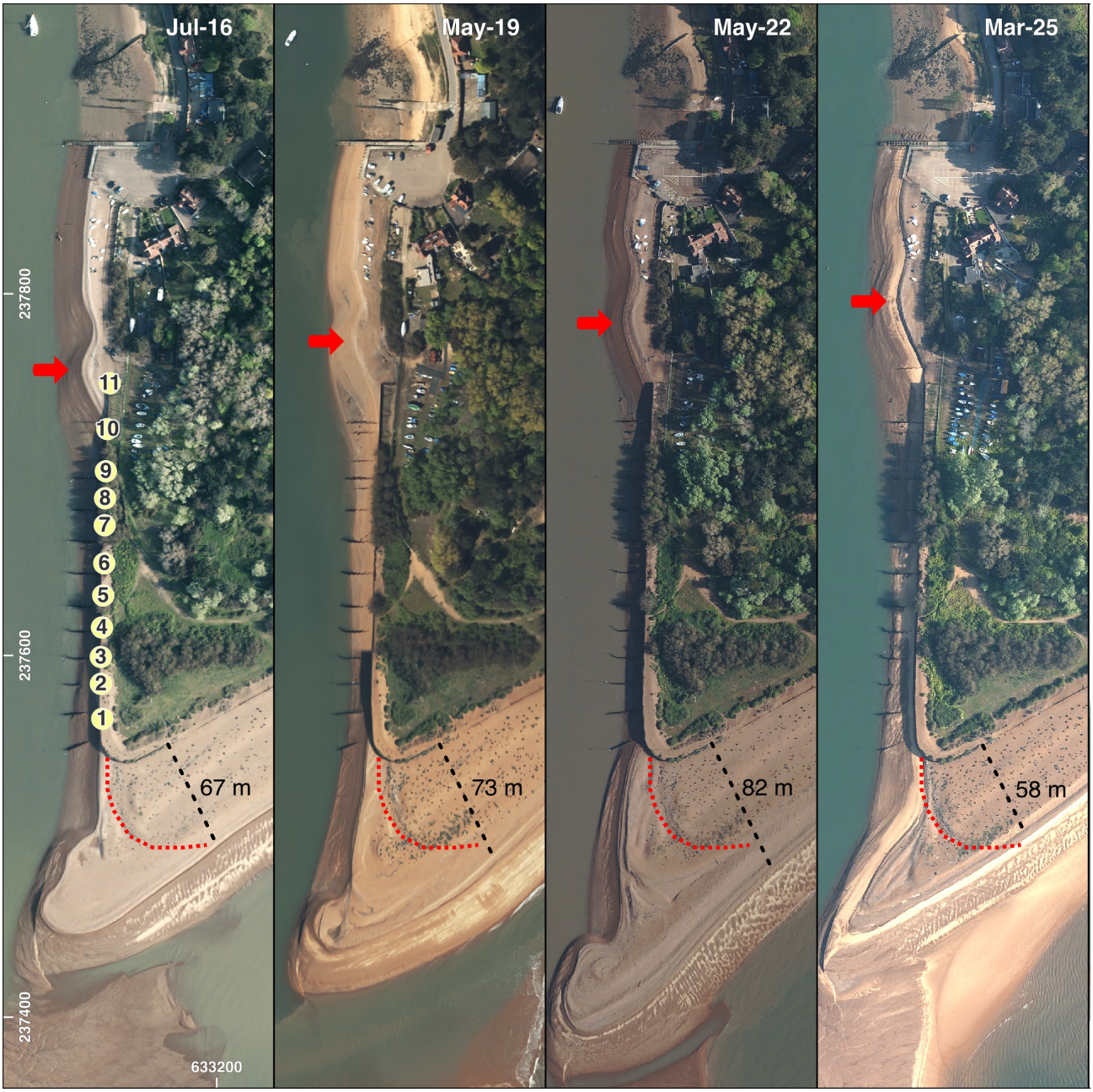

Apr-23
Sep-23
Mar-25
Dec-25
11
10 kT


Beach level [m OD]
at measuring point 11
3.5
3
2.5
2
1.5
1
2017
2018
2019
2020
2021
2022
2023
2024
2025
2026



Both the margins of Bawdsey Spit has lost sediment in the last 10 years – top graphs show the beach levels have lowered at all measuring points. When averaging beach levels, the Quay shoreline has come and gone but has been following a distinct erosional trend since early 2024. Bawdsey Beach has followed an erosional trend over the whole decade, with occasional short phases of accretion.

Helene Burningham
1 February 2026

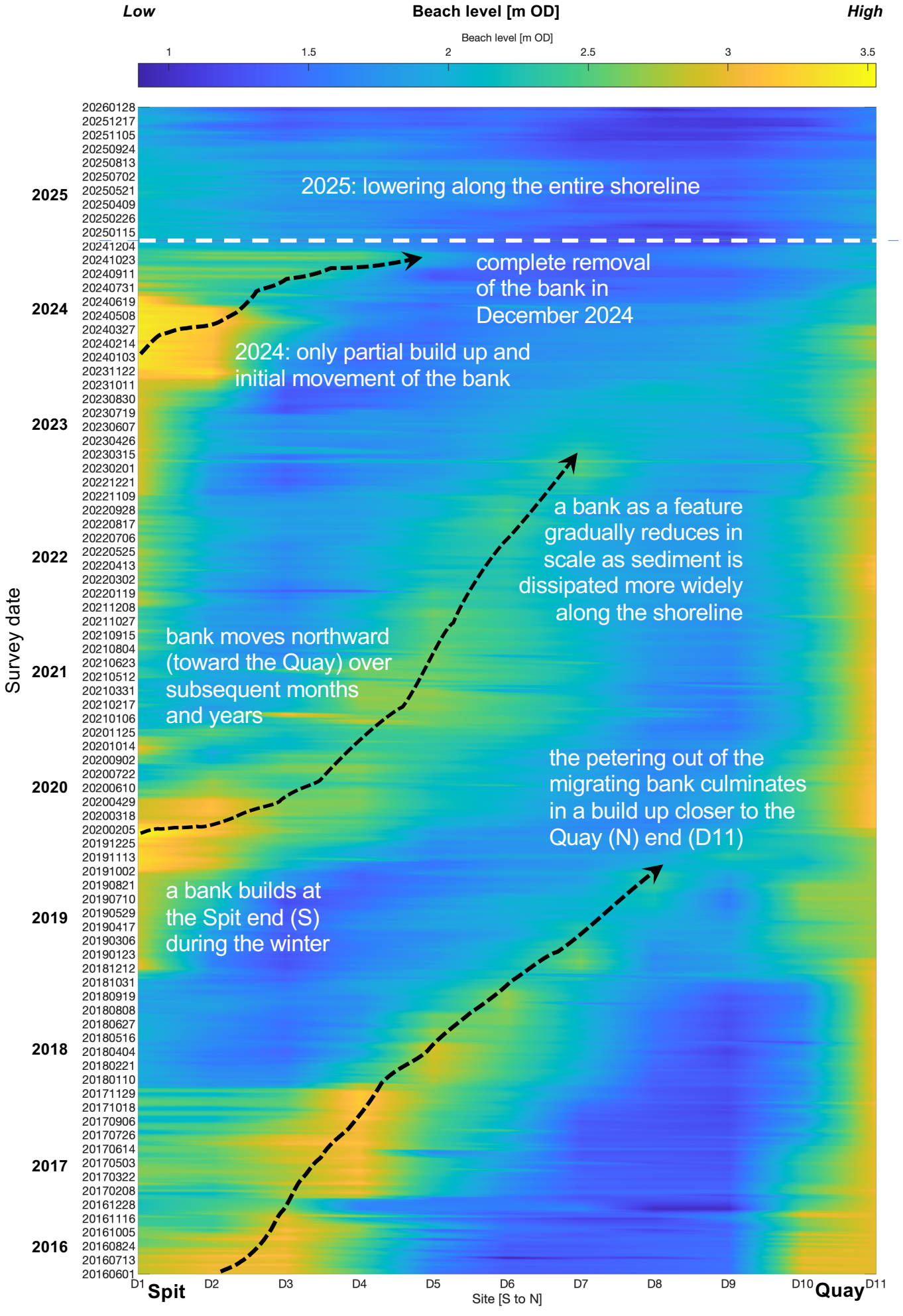


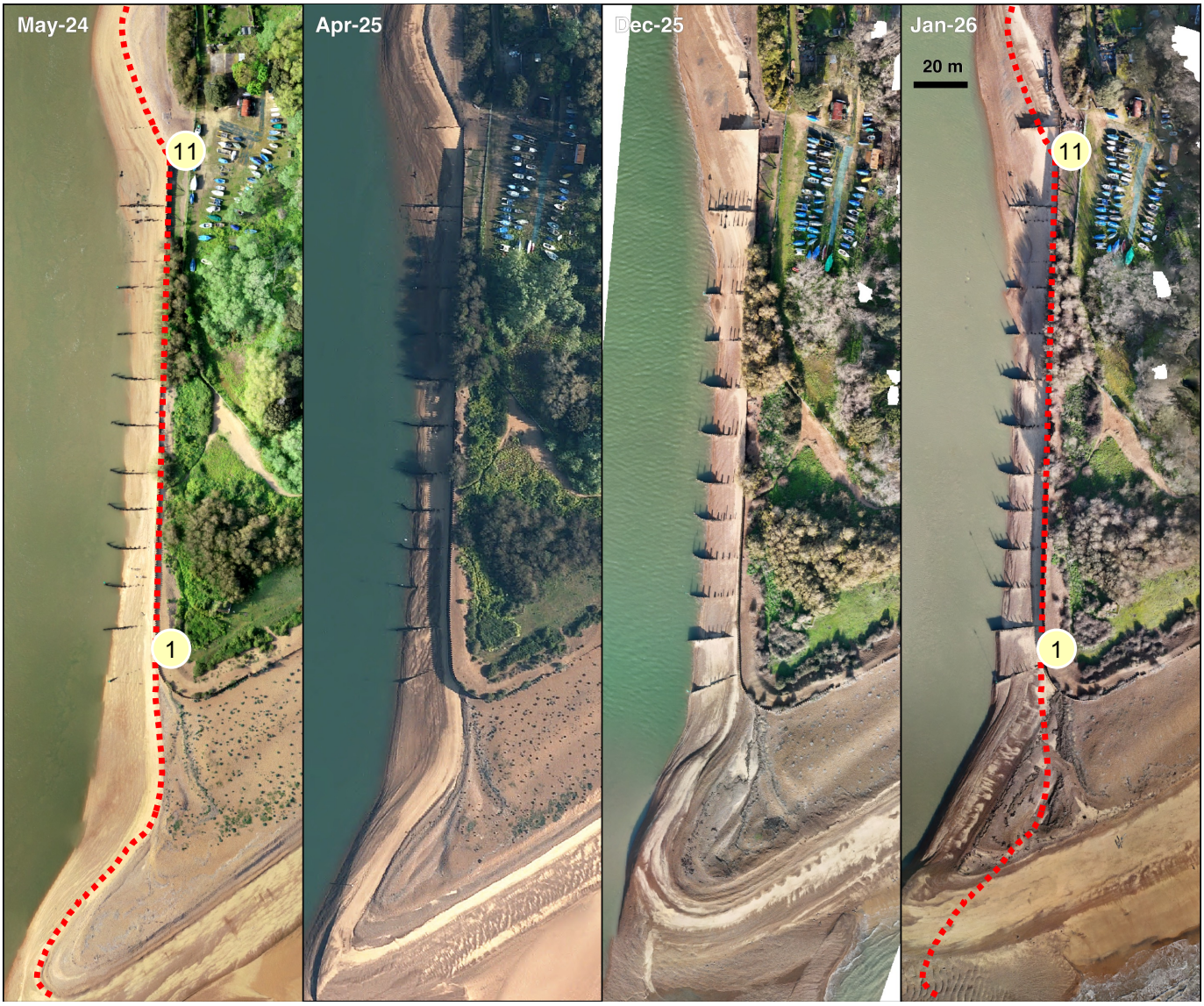
Most of the spit north/east of the red dotted line has been stable for decades. Outside the dotted line, the spit lengthens to the SW following strong northeasterlies and will get pushed round (curling into the inlet, bending to the NW) during strong southerlies or gets snubbed by tidal currents when wave energy is lower.

The spit is the primary source of sediment that is available to supply the beach toward the quay, but its extension and growth southward is often linked to a reduction in beach levels at measuring point 1. When the spit gets pushed back northwards, and the end recurves northward into the inlet, the Bawdsey Quay shoreline is usually a longer-term (many months to years) beneficiary of the spit sediment. The behaviour of supply and redistribution was evident 2016-2019 and 2020-2023, but the supply broke down during 2024 (see next page) meaning only limited amounts of new sediment (mostly sand) entered this shoreline, but transport of existing sediment continued, resulting in lowering of the beach.

Although the broader sediment budget around Bawdsey Beach and spit is negative (ie there is a long-term loss of sediment, and a longer-term reduction in new sediment entering the system due to the barrier to transport) - sediment is available - but it is a case not the right place / not the right time as the sediment is currently not supplying the Quay shoreline. But the beach here continues to lower as sediment transport doesn't just stop.

In the last decade, we have seen two cycles of supply from the spit to the Quay shoreline, evidence of which is clear in the beach monitoring data (below) and the alongshore (northward) movement of a bulge/bank of sediment into the inlet and along to the Quay. What is also very clear below is the sudden change at the end of 2024 where the entire Quay shoreline lowered and all banks disappeared. Nothing has built up since.



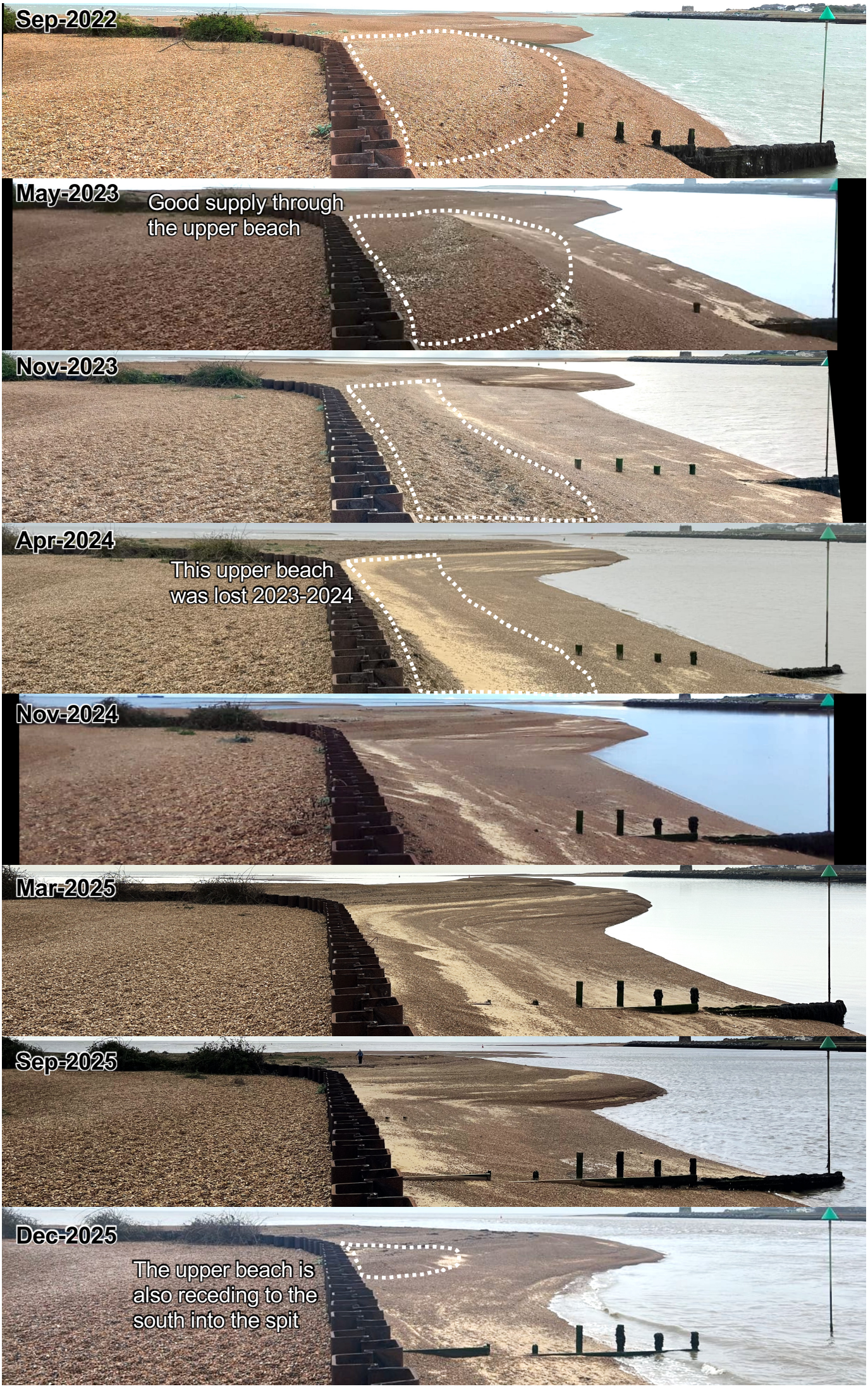


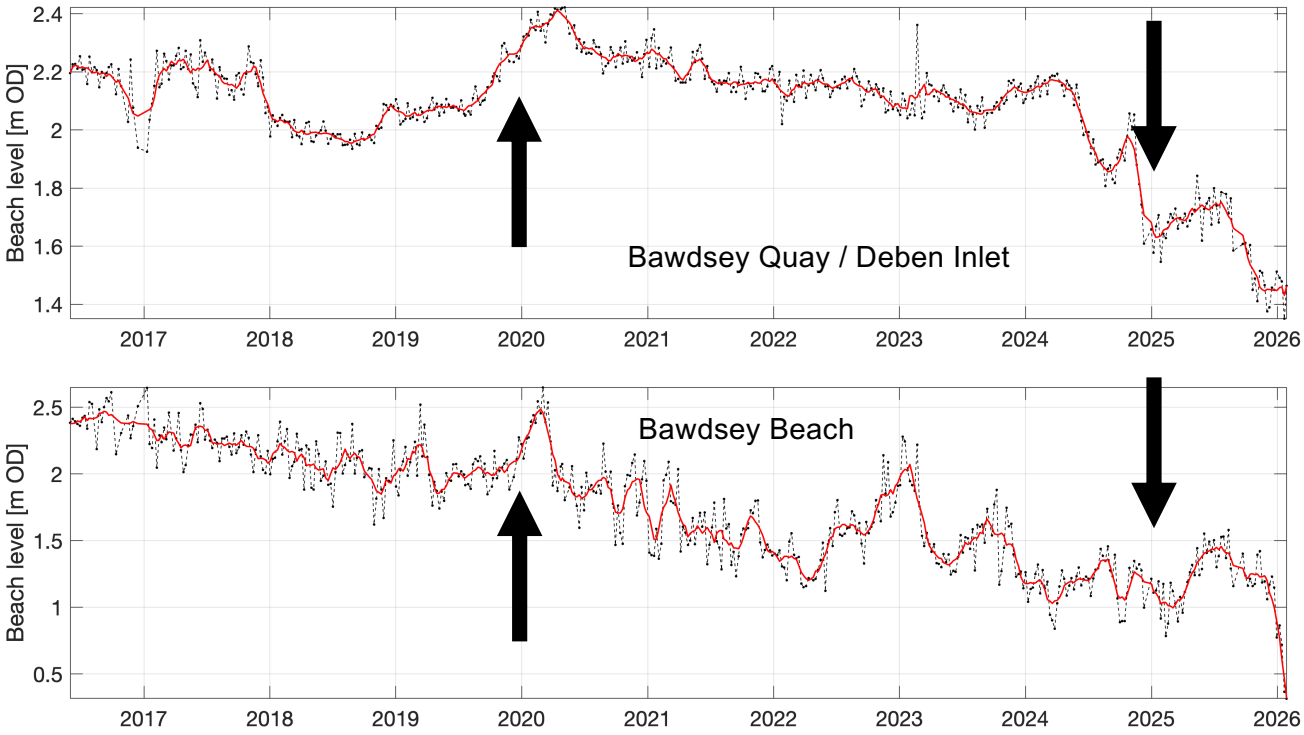
Erosion and lowering of the Quay shoreline will almost certainly continue as a reversal requires a change in the orientation of the spit head. Even over the space of 1 month, the shape of the spit head has changed (rounded in December, pointed in January) and it now extends further east than in recent years as shown above. The red-dashed line shows the berm edge in May 2024; the spit was larger, but further south and west. Comparing this shoreline with present, not only has the beach in front of the yacht club receded substantially in 6 months, so has the beach immediately to the south of measuring point 1 (see next page).

The spit is substantially smaller now than in early 2024, and it's possible that the reconfiguration of the inlet in 2023 (channel movement from south-oriented to east-oriented) and the redistribution of sediment throughout the inlet (south knoll attaching to the Felixstowe Ferry shoreline, and shrinking/lowering of the north knoll) has caused:

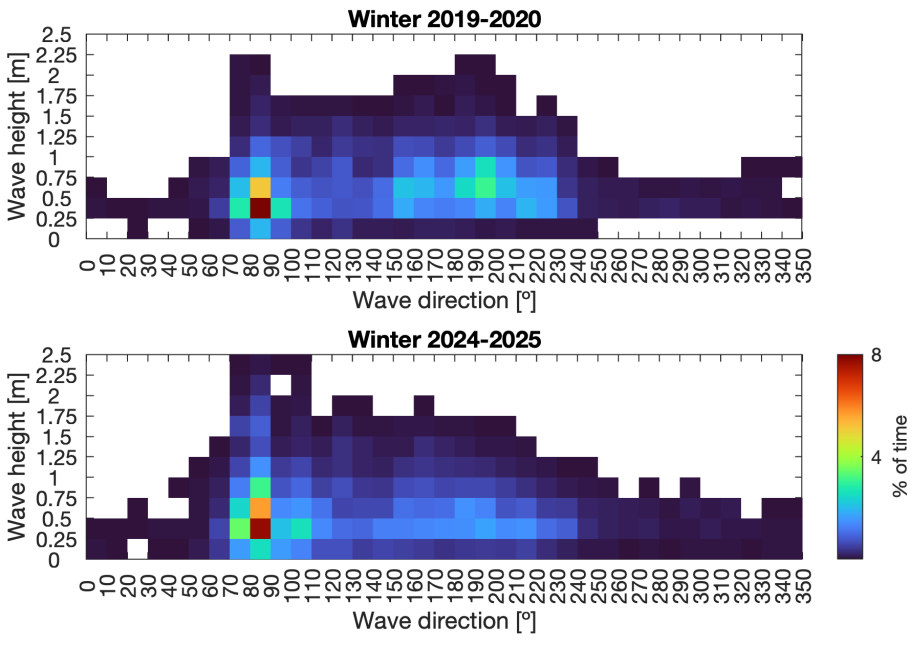
- a reduction in the sheltering influence of the banks, meaning larger waves can propagate further into the inlet
- there is space within the knoll system for sediment, and the spit is a key source for this, ie spit sediment is currently supplying both the knolls and the quay shoreline

For the Quay shoreline to receive a new supply of sediment, the spit needs to recurve to the north (primary driven by southerly waves). But at present, the spit extends eastward into the inlet, meaning the ebb tide is not helping the situation as it shaves off the point and takes that sediment into the knolls.


Sep-2022
May-2023
Good supply through the upper beach
Nov-2023
Apr-2024
This upper beach was lost 2023-2024
Nov-2024
Mar-2025
Sep-2025
Dec-2025
The upper beach is also receding to the south into the spit



There is a big difference in beach levels over the winter 2019-20 (when sediment is supplied to Bawdsey Beach and the Quay shorelines) and 2024-25 (when sediment is lost from both shorelines). Comparing the wave conditions at Felixstowe over these two winters, both have a strong northeasterly component, with a significant proportion of waves from the east-northeast with 0.25-0.5 m wave height. There is a larger component of bigger waves from the east evident in the winter of 2024-25. The winter of 2019-20 in contrast has a distinct component of southerly waves with 0.5-1 m wave height, and also a presence of larger waves (>1.75 m) from the south. The presence of larger easterly waves and an absence of southerly waves from the 2024-25 winter might explain the more prominent erosional signature that winter relative to the accretional signature of 2019-20.



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