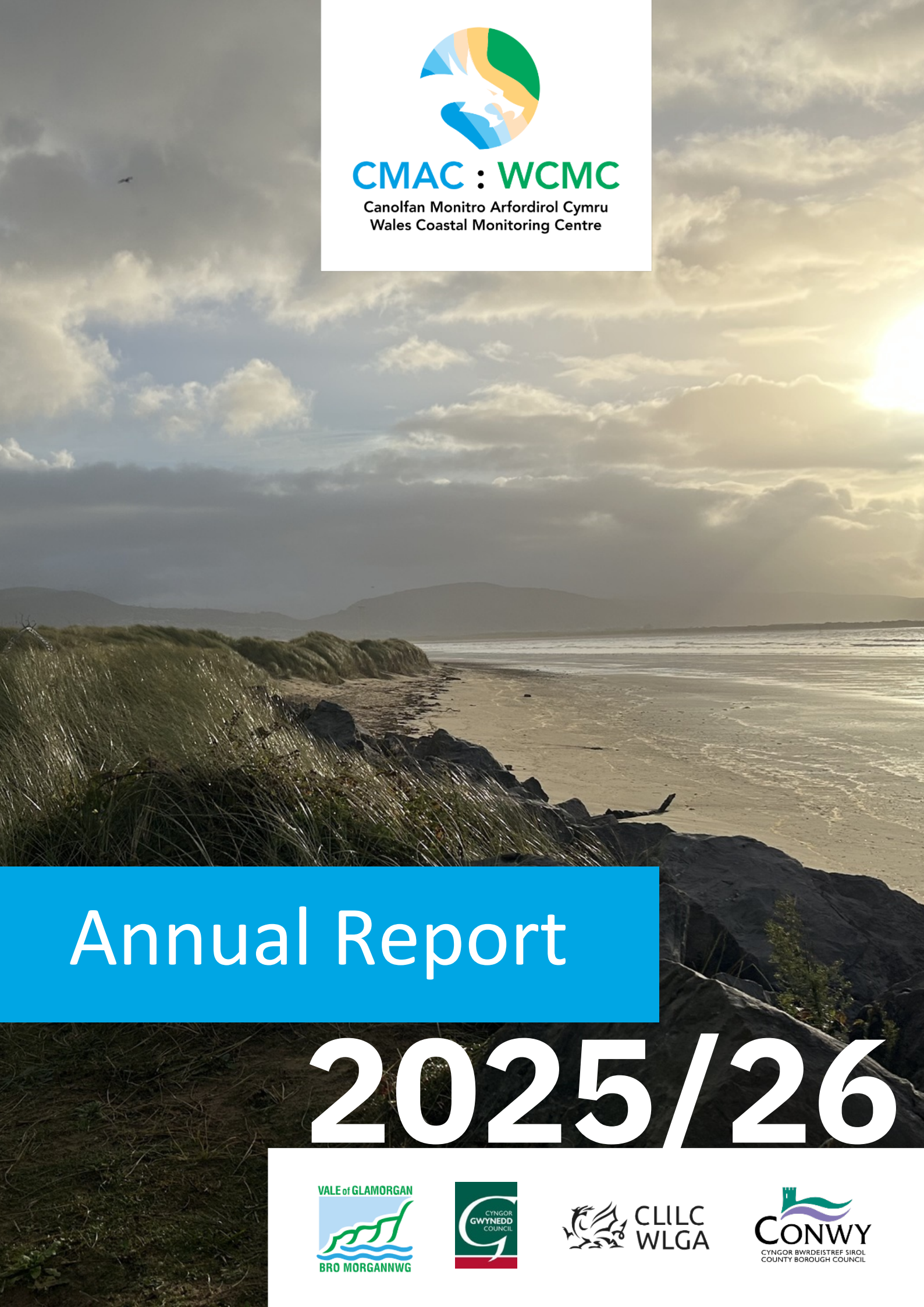


CMAC : WCMC

Canolfan Monitro Arfordirol Cymru
Wales Coastal Monitoring Centre

Annual Report

2025/26

VALE of GLAMORGAN
BRO MORGANNWG

CYNGOR GWYNEDD COUNCIL

CLlLC
WLGA

CONWY
CYNGOR BWRDEISTREF SIROL
COUNTY BOROUGH COUNCIL

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Strategic Direction

Purpose
Monitoring coastal change for informed risk management decisions, while promoting continuous learning and education for all stakeholders.

Vision
The vision for 2026 is to be a role model monitoring centre that provides an accessible platform of understandable coastal process data.

Mission
Delivering a dynamic evidenced programme, optimising access to coastal process data and engaging stakeholders.

Values
Our values, developed by our team, are at the core of all our decisions.

Welcome and Overview

Completing Phase 2 and Preparing for the Future

The 2025-26 financial year marked the fifth and final year of the Wales Coastal Monitoring Centre's second phase. Alongside continuing our national monitoring programme, much of the year was focused on completing the evidence, planning and internal development needed to establish the next phase of the Centre.

This internally focused work was less visible than a new survey technique or public-facing project, but it was essential. We completed the second iteration of our Risk-Based Methodology, converted stakeholder priorities into a new business case, and began designing an aerial LiDAR programme that will extend monitoring to high-risk areas that cannot be surveyed safely on foot. We also reviewed the way data moves through our internal systems so that future delivery can be more efficient, consistent and resilient.



The survey team meeting with Rhianwen, a drainage engineer from Neath Port Talbot County Council

Reaching the end of Phase 2 also provides an opportunity to reflect. Over five years, the programme expanded its coverage and frequency, developed in-house UAV LiDAR capability, created a national Data Platform and strengthened public-sector coastal monitoring skills. Our education, citizen science, placement and research programmes have extended the value of monitoring beyond the surveys themselves.



Thank you

Our work is made possible by the continued funding and support of the Welsh Government Flood and Coastal Erosion Risk Management Branch. We are grateful to the WCMC Consortium - the Vale of Glamorgan Council, Conwy County Borough Council, Gwynedd Council and the Welsh Local Government Association - for their time, guidance and commitment.

We also thank our Advisory Panel, the survey teams in Gwynedd and Conwy Councils, our contractors, coastal risk managers across the 15 maritime local authorities, Natural Resources Wales, and colleagues across the UK coastal monitoring community. Their knowledge, challenge and collaboration continue to shape the programme.

Gwyn Nelson,
Programme Manager

2025/26
AT A GLANCE

WCMC maintained national coastal monitoring while completing Phase 2 and preparing the evidence, systems and procurement needed to expand delivery in the next phase.

MONITORING DELIVERY

5
survey teams

180
Survey Units completed

1,930
profiles surveyed

RBM 2
completed

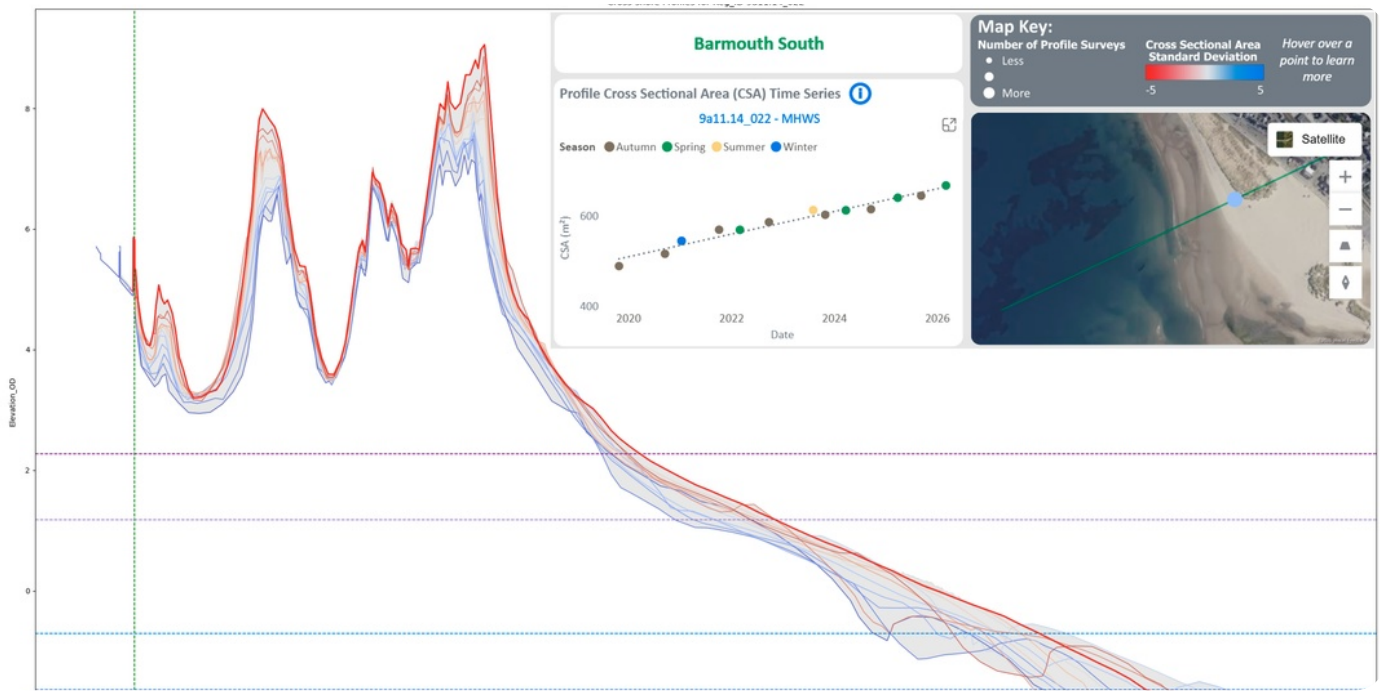
ENGAGEMENT & IMPACT

3
future priorities agreed

5,684
CoastSnap submissions

250
pupils reached

180
datasets published



Example beach profile showing variation in sediment levels displaying the importance of monitoring over time

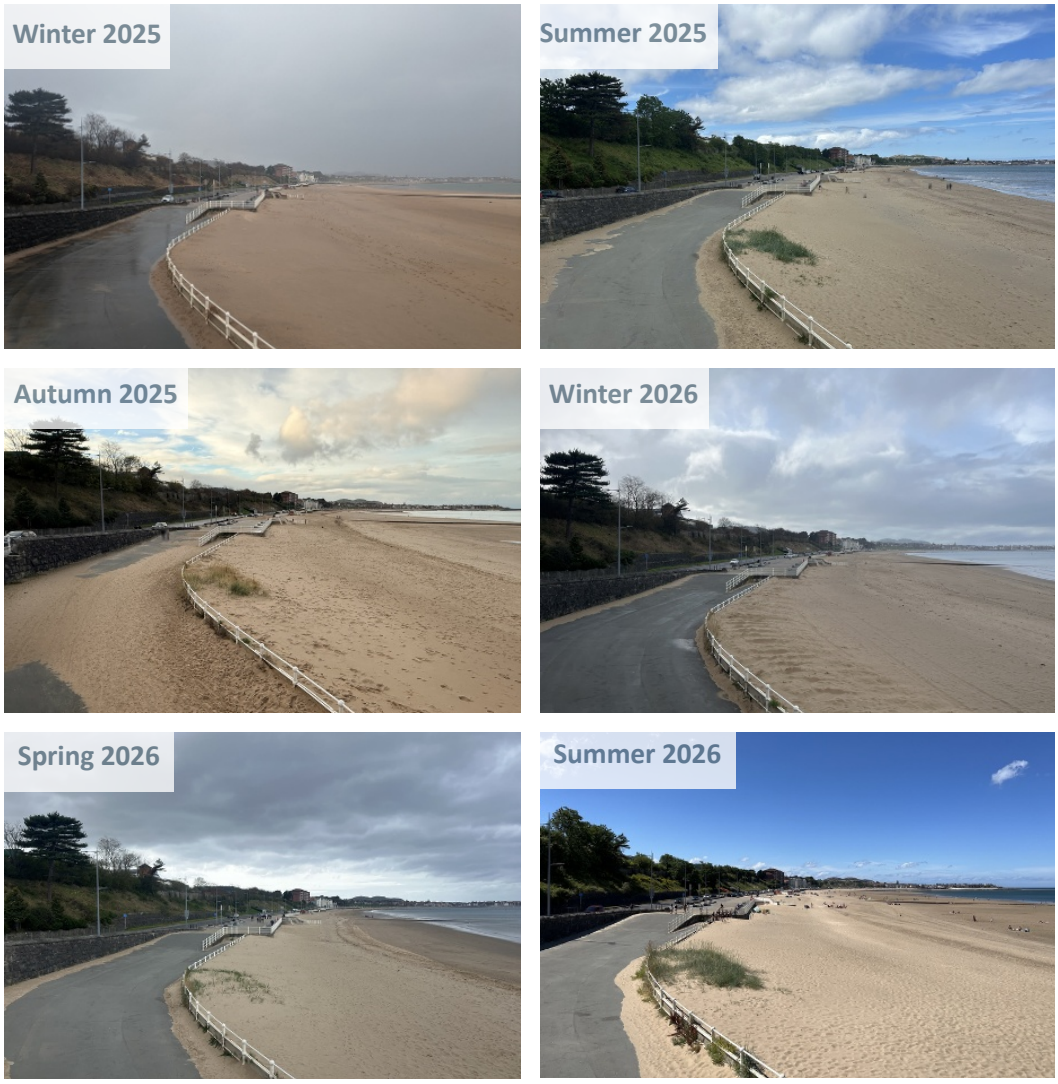
[View our data platform]

2025/26 In More Detail

Continuing the National Programme

Throughout this transition year, WCMC continued to coordinate a standard, repeatable and cost-effective programme of coastal monitoring on behalf of Welsh Risk Management Authorities. Surveys were delivered by a combination of public-sector teams and external suppliers working to common specifications and quality requirements.

During 2025-26, 180 Survey Units and 1,930 profiles were completed by 5 survey teams. Data continued to be checked, processed and made freely available, maintaining the long-term record needed to understand how beaches, dunes and other coastal landforms respond to seasonal conditions, storms, management interventions and longer-term climate change.



Series of CoastSnap photographs from Colwyn Bay Pier. **View our CoastSnap photos**

Why continuity matters

The value of monitoring grows with time. Individual surveys provide a snapshot, but repeated measurements reveal trends, recovery and variability. Maintaining the programme through a period of strategic development protected this evidence base and ensured that future decisions can draw on a continuous national record.

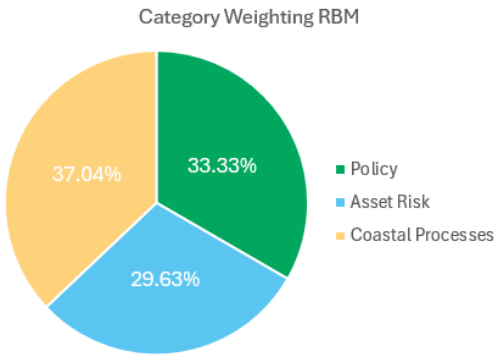
The programme also retains practical survey and data expertise within the Welsh public sector. Gwynedd and Conwy survey teams remained important delivery partners, complemented by specialist contractors where external capability offered the most appropriate and cost-effective route.

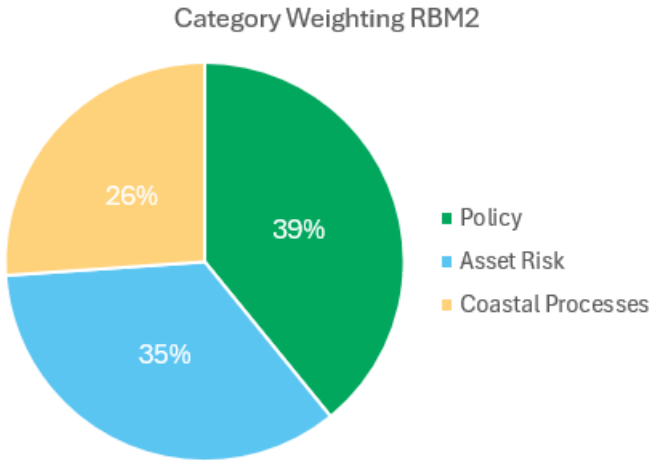
2025/26 In More Detail

Risk Based Methodology Version 2

Five years after the original Risk-Based Methodology was introduced, WCMC completed its first major review. RBM2 supports the fair and strategic allocation of surveys by identifying where monitoring is most important for understanding and managing flood and coastal erosion risk.

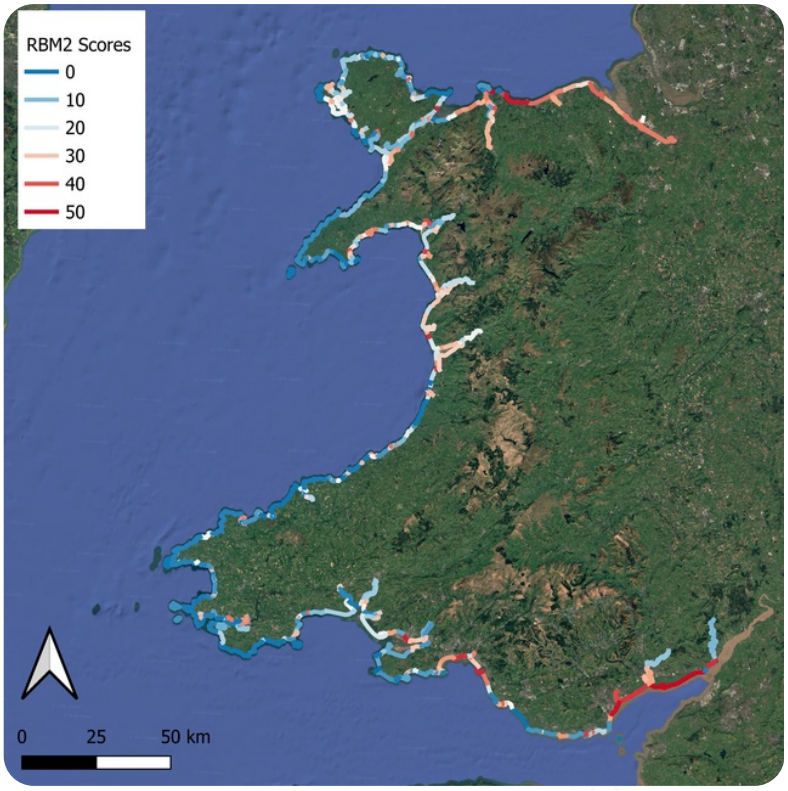
The Welsh coastline is divided into 473 Survey Units whose boundaries are informed by Shoreline Management Plan policy units. Each unit receives a score, allowing groups of locations to be assigned an appropriate survey type and frequency.





What changed

- Updated flood and erosion datasets.
- Improved extraction of information from the National Receptor Database.
- A revised approach to the spatial assessment of erosion risk.
- Changes to the scoring of critical infrastructure.
- Updated road and rail network datasets.
- Greater use of WCMC's established monitoring record to understand coastal behaviour.



RBM2 around Wales

The review ensures that the methodology evolves as national datasets, analytical methods, technologies and the WCMC evidence record improve. It also provides a transparent basis for explaining why some locations require more frequent or more detailed monitoring than others.

2025/26 In More Detail

Preparing for Phase 3

Preparation for the next phase began with the stakeholder event hosted at Cardiff University in October 2024. Workshops explored the changing needs of coastal risk managers, the challenges created by sea-level rise and more frequent extremes, and the evidence required to support future adaptation.

Post event, the findings were shared with coastal risk managers and followed by a wider scoring exercise involving the 15 maritime local authorities and Natural Resources Wales. Three priorities emerged: expanding monitoring coverage, supporting adaptation and data-driven triggers, and advancing estuarine monitoring.

Building the Business Case

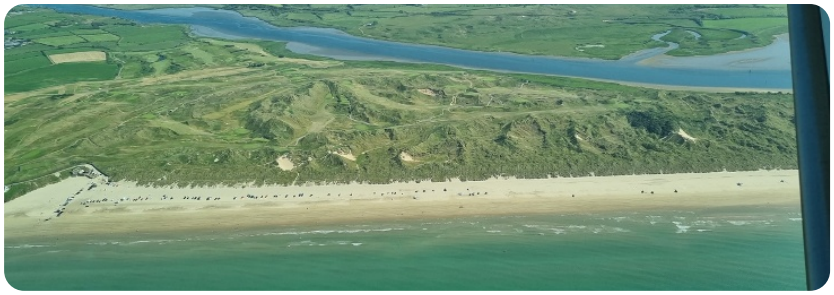
During 2025-26, these priorities were developed into the business case for the next phase and aligned with the National Strategy for Flood and Coastal Erosion Risk Management in Wales. Welsh Government support provided the basis for WCMC to retain the core topographic programme while beginning to address important evidence gaps.

Planning aerial LiDAR delivery

A key development is the introduction of manned-aircraft aerial LiDAR for high-risk coastline that cannot be monitored safely or efficiently from the ground. The programme will also establish baseline surveys in selected areas where Shoreline Management Plan policy is planned to change in a future epoch (Policy Change Locations).

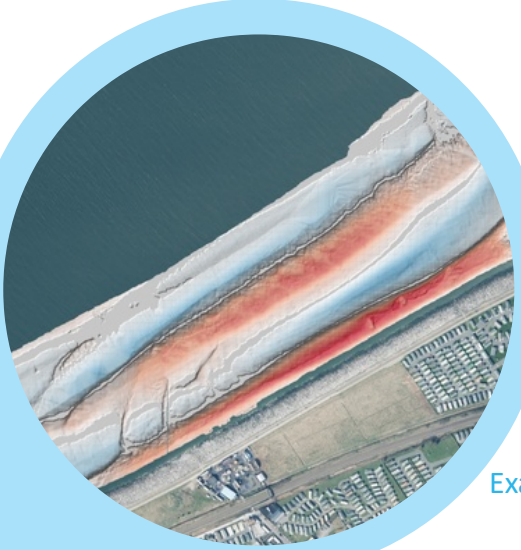
Following confirmation of support, WCMC began defining the capture areas, developing a survey specification suitable for the Welsh coastline, engaging with the supplier market and establishing the procurement process. This preparatory work will allow a multi-year programme to begin from a clear, risk-based foundation.







Contractor provided photographs



Example of LiDAR dataset

2025/26 In More Detail

Building Better Systems

As the monitoring programme has grown, so has the volume of survey information and the complexity of managing it. During 2025-26, WCMC began an internal development programme known as Project 61 (Programme Process Streamlining) to review how data is received, checked, stored, linked and prepared for analysis and reported.

The work builds on database and data-presentation skills gained through the Office for National Statistics Data Science Campus Data Visualisation Accelerator Programme. Its purpose is to develop a more coherent internal architecture rather than relying on disconnected spreadsheets and manual transfers between stages.

Expected benefits

- More consistent records and clearer ownership of information.
- Reduced manual handling and duplication.
- Stronger quality control and audit trails.
- Faster preparation of data from contractor to stakeholder with analysis and publication
- A more resilient system that can support a larger monitoring programme.



Project Name	Survey Status	Delivered	QC Accepted	Uploaded to CCO	Published	Checked on Platform
141_i_NW_Q1Q2_2026-2027_T_p	13/13 SUs complete	13/13 SUs	13/13 SUs	13/13 SUs	13/13 SUs	13/13 SUs
142_i_NWW_Q1Q2_2026-2027_T_p	18/18 SUs complete	18/18 SUs	18/18 SUs	18/18 SUs	18/18 SUs	18/18 SUs
144_e_Barry Harbour (Breakwater to Watch House Bay) to Llanddulas to Clwyd Estuary_T_b	25/25 SUs complete	22/25 SUs	21/25 SUs	18/25 SUs	12/25 SUs	12/25 SUs
148_i_NWW_Q3Q4_2026-2027_T_p	4/20 SUs complete	4/20 SUs	3/20 SUs	0/20 SUs	0/20 SUs	0/20 SUs
149_i_NW_Q3Q4_2026-2027_T_p	4/21 SUs complete	4/21 SUs	4/21 SUs	0/21 SUs	0/21 SUs	0/21 SUs
150_e_The shore south of Forest Road to Penarth Head to Borth Golf Course_T_p	0/41 SUs complete	0/41 SUs	0/41 SUs	0/41 SUs	0/41 SUs	0/41 SUs

Survey Unit	Planned Survey Date	Type	Survey Complete	Contractor Delivered	Received by WCMC	QC Accepted	Uploaded to CCO	Published	Checked on Platform	QC Completion Date
8b2.5 – Barry Harbour (Breakwater to Watch House Bay) [144/1]	15/08/2026	Baseline	✓	✓	✓	✓	✗	✗	✗	29/09/2026
8b7.2 – Newton Point to Rhych Point (Trecco Bay) [144/1]	28/09/2026	Baseline	✓	✗	✗	✗	✗	✗	✗	
8b7.3 – Rhych Point to Porthcawl Point (Sandy Bay) [144/1]	28/09/2026	Baseline	✓	✗	✗	✗	✗	✗	✗	
8b7.4 – Porthcawl (Porthcawl Point to Hutchwns Point) [144/1]	28/09/2026	Baseline	✓	✗	✗	✗	✗	✗	✗	
8c16.1 – Dolwen Point to Amroth east [144/1]	16/05/2026	Baseline	✓	✓	✓	✓	✓	✓	✓	11/06/2026
8c16.2 – Amroth [144/1]	16/05/2026	Baseline	✓	✓	✓	✓	✓	✓	✓	11/06/2026
8c16.10 – Tenby North Beach	11/09/2026	Baseline								06/10/2026

Example survey progress reporting

Recording coastal change

WCMC also developed a simple data-submission form and dashboard for public-sector officers to record observed coastal events such as cliff falls, overtopping, erosion and other beach changes. Users can upload a photograph, date, time and short description from a mobile device, while the dashboard brings the observations together for review on a desktop computer.

Over time, these observations can complement formal surveys and help identify evidence for future flood and coastal erosion modelling, event review and local decision-making.

Phase 2 Five Years of Progress

Phase 2 developed WCMC from a relatively new national programme into an established centre for coastal monitoring, accessible data and collaborative development. The survey record below reflects five years of programme delivery.

959
policy units surveyed

10,155
profiles collected

156
baseline surveys

779
profile surveys

£1,435,733
total survey cost

8
contractors

The cumulative figures should be read as activity across the five-year phase rather than the number of unique coastal locations.



Capability developed during the phase

- The risk-based programme expanded into more areas, with increased frequency and survey density at selected locations.
- An in-house laser-scanning UAV was acquired and a WCMC coastal scientist completed the demanding qualification process required to operate it.
- A further permanent post increased the team's capacity, with staffing reaching six full time employees at its peak.
- The national Data Platform was built following support and training from the ONS Data Science Campus.
- Twelve placements were supported, including five undergraduate placements and two KESS2 research placements.



Undergraduate handover

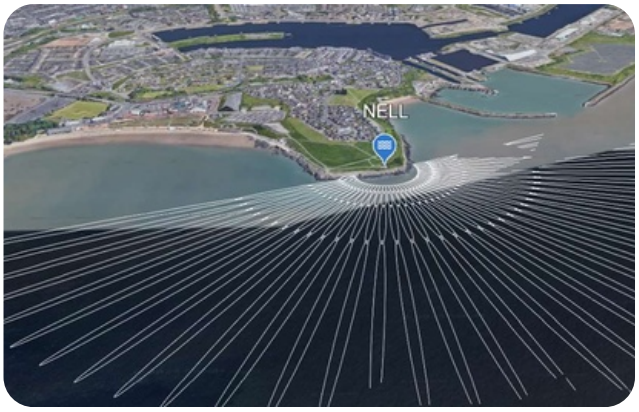
Research and Collaboration

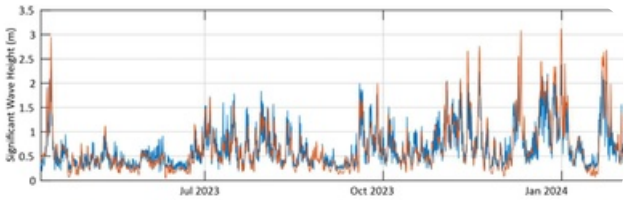
Case study 1

Low cost water level and wave monitoring

WCMC has worked with the National Oceanography Centre in Liverpool to provide Welsh test locations for Global Navigation Satellite System Interferometric Reflectometry, known as GNSS-IR. The technique uses reflected satellite-navigation signals to estimate water level, including tide and storm surge, from compact land-based equipment.

Two test sites have been established in Wales. Measurements can be reported in near real time, and researchers are also developing methods to estimate wave height from the same equipment. The collaboration explores whether relatively low-cost systems could help fill gaps between existing gauges and provide additional evidence at locations where conventional hydrodynamic monitoring is limited.





NOC data from the GNSS-IR test site at Nells Point, Barry

Case study 2

Understanding the composite beach at Borth

WCMC has worked closely with the University of Bath and connected researchers with Ceredigion County Council to support research at Borth. Composite beaches combine a lower sandy beach with a steep gravel or cobble berm, creating behaviour that differs from purely sandy or gravel systems.

Continuous LiDAR measurements collected between July 2021 and October 2024 showed that the lower face of the berm at Borth is regularly reshaped by swash, while the main berm crest remained comparatively stable. Secondary berms could form and disappear within a single tide. The study also found that existing wave-runup equations provided reasonable estimates of total water level, but performed less well than at some other composite beaches because runup at Borth was more strongly influenced by offshore wave height.

Why it matters?

The cobble berm contributes to flood protection for Borth. Understanding which parts of the beach change, how quickly they respond and how reliably runup can be predicted supports better interpretation of monitoring information and more informed management of this distinctive frontage.



Composite beach at Borth

Looking Ahead

The next phase will build on the systems, skills and evidence developed since 2021. WCMC will continue the core topographic programme while extending coverage and working more closely with risk managers to turn monitoring information into practical coastal-management insight.

Expand monitoring coverage

A multi-year aerial LiDAR programme will capture high-risk inaccessible frontage and selected Shoreline Management Plan policy-change areas. The aim is to fill important national evidence gaps and establish baselines for future management decisions.

Target: at least 90% of high risk inaccessible and policy change coastal units in Wales, including previously inaccessible estuarine and intertidal frontages through aerial LiDAR.

Support adaptation and triggers

WCMC will work with Coastal Risk Management Authorities to pilot evidence-based triggers that help determine when operational intervention or longer-term adaptation should be considered. These may use water levels, waves, overtopping, beach levels, sediment volume or shoreline position.

Target: at least three pilot triggers developed and in operational use by 2029.

Advance estuarine monitoring

A pilot estuary will be used to test practical and cost-effective monitoring approaches in a more complex environment. The work will compare methods, cost, quality and repeatability and will produce guidance to inform any justified future expansion.

Target: pilot datasets, evaluation and guidance completed by 2028.

Continue the foundations

Across all three objectives, WCMC will retain its core commitments to a cost-effective delivery model, public-sector skills and expertise, quality-assured data, and accessible evidence that supports the prioritisation of FCERM investment



Thank you to our volunteers at our primary schools day

Acknowledgements and Contacts

The Wales Coastal Monitoring Centre is hosted by the Vale of Glamorgan Council and delivers the national coastal monitoring programme with the support of the Welsh Government Flood and Coastal Erosion Risk Management Branch.

With thanks to

Welsh Government; Vale of Glamorgan Council; Conwy County Borough Council; Gwynedd Council; Welsh Local Government Association; Natural Resources Wales; the WCMC Advisory Panel; Wales Coastal Groups Forum; National Trust; Gwynedd and Conwy survey teams; external survey contractors; the 15 maritime local authorities; academic and research partners; Wales Coast Path; citizen scientists; schools; students; and colleagues across the UK coastal monitoring community.



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