

Meeting of:	Place Scrutiny Committee
Date of Meeting:	Tuesday, 20 January 2026
Relevant Scrutiny Committee:	Place Scrutiny Committee
Report Title:	Coastal Monitoring Update
Purpose of Report:	To update Committee on monitoring of the coastline with regards to flood and coastal erosion risk management
Report Owner:	Rob Thomas – Chief Executive
Responsible Officer:	Colin Smith – Head of Neighbourhood Services
Elected Member and Officer Consultation:	Due to the corporate nature of this report, no specific Ward member consultation has been undertaken Committee Reports
Policy Framework:	This is a matter within the policy framework and budget
Executive Summary: - The approval to establish the Wales Coastal Monitoring Centre (WCMC) hosted by the Vale of Glamorgan Council was agreed 30th July 2018 (minute no. C388 refers). Full details of the programme and risk-based monitoring programme are available on the Wales Coastal Monitoring Centre (WCMC) website. - The priority of the WCMC team managed by the Council, is to monitor areas and datasets collected around the Vale of Glamorgan coastline which continue to be identified, and prioritised. - The Vale of Glamorgan has approximately 45 kilometres of open coast, of which around 4 kilometres benefit from formal coastal defences maintained by the Council. - The coastline is subject to ongoing erosion and the risk of flooding to low-lying areas, with projected sea-level rise, in the order of one metre over the next century, is likely to increase the frequency and impact of these hazards over time. - Topographic beach profile data is collected at set locations around the coastline allowing change in the beach profile to be assessed. Over time trends in the area under the profile can be used to identify areas of loss or gain. - During 2025, and up to 11th November 2025, 100 profiles have been surveyed around the Vale of Glamorgan coastline through the WCMC funded programme. - A further 176 profiles were extracted from UAV-based LiDAR surveys (drone flights) undertaken earlier this year, as identified within the report. The surveys were commissioned by the Vale of	

Glamorgan Council and the delivery and quality assurance of the deliverables, was managed through the WCMC.

- The UAV LiDAR flights this year, covered three key areas centred on The Knap (2.4km frontage), Swanbridge (1.2km frontage, plus Sully Island) and Penarth (4.6km frontage). The survey deliverables included a dense colourised point cloud and pseudo-nadir aerial imagery (derived from the colourised point cloud).
- There has also been localised monitoring, following reports of cliff falls or areas of concern and these have been undertaken on an ad hoc basis. On occasion this has necessitated the use of UAVs to obtain close-up imagery and alternative viewpoints in hard-to-reach areas, including in Jackson's Bay and at Penarth Head.
- At Penarth, there continues to be ongoing Wave and water level data collection, from devices installed at the end of Penarth Pier.

Recommendation

1. That the Place Scrutiny Committee (the Committee) consider the progress and the current programme of coastal monitoring.

Reason for Recommendation

1. To ensure the Committee is aware of the current programme of monitoring undertaken to monitor the Vale of Glamorgan coastline to inform ongoing flood and coastal risk management.

1. Background

- 1.1 Cabinet on 17th November 2010 (minute no. C1125), confirmed adoption of the Severn Estuary Shoreline Management Plan 2 (SMP2).
- 1.2 Cabinet on 3rd December 2012 (minute no. C1923), confirmed adoption of the Lavernock Point to St. Ann's Head - Shoreline Management Plan (SMP2).
- 1.3 Approval to establish the Wales Coastal Monitoring Centre (WCMC) hosted by the Vale of Glamorgan Council was agreed 30th July 2018 (minute no. C388 refers). Full details of the programme and risk-based monitoring programme are available on the Wales Coastal Monitoring Centre website.
www.wcmc.wales
- 1.4 In 2019, the Council established Project Zero as response to the climate change emergency declared by Welsh Government. It brings together the wide range of work and opportunities available to tackle the climate emergency, reduce the Council's carbon emissions to net zero by 2030 and encourage others to make positive changes.
- 1.5 Cabinet on 19th September 2024 (minute no. 117 refers) considered and noted the Wales Coastal Monitoring Centre as a strategic collaborative working initiative between the Authority and external partners.
- 1.6 The priority monitoring areas and monitoring datasets collected around the Vale coastline remain as reported to the Environment and Regeneration Scrutiny Committee on 12th November 2024.
- 1.7 [www.valeofglamorgan.gov.uk/Documents/ Committee%20Reports/Scrutiny-ER/2024/24-11-12/Coastal-Monitoring-Update.pdf](http://www.valeofglamorgan.gov.uk/Documents/Committee%20Reports/Scrutiny-ER/2024/24-11-12/Coastal-Monitoring-Update.pdf)

2. Key Issues for Consideration

- 2.1 The Vale of Glamorgan has approximately 45 kilometres of open coast, of which around 4 kilometres benefit from formal coastal defences maintained by the Council.
- 2.2 The coastline is subject to ongoing erosion and the risk of flooding to low-lying areas, with projected sea-level rise in the order of one metre over the next

century, is likely to increase the frequency and impact of these hazards over time.

- 2.3** Strategic long-term monitoring of the Vale coastline has been coordinated and delivered through the WCMC as part of an all Wales risk-based monitoring programme since 2019. Full details of the programme and risk-based monitoring programme are available on the [Wales Coastal Monitoring Centre website](#).
- 2.4** Additionally, local monitoring data-sets are collected to assist delivery of the council's flood and coastal risk management functions, at a range of scales, from delivery of the shoreline management plan policies through to responding to local issues, e.g. localised cliff falls.

2025 update - monitoring data-sets

- 2.5** Topographic beach profile data is collected at set locations around the coastline allowing change in the beach profile to be assessed. Over time trends in the area under the profile can be used to identify areas of loss or gain (see Table 1).
- 2.6** This data is generally collected as part of the WCMC programme, usually with ground-based GPS but occasionally derived from UAV-based LiDAR. UAV based LiDAR is light detection and ranging and is a remote sensing technology that uses drones equipped with LiDAR sensors to capture high resolution data. This technology emits laser pulses and measures the time it takes for the pulses to return after hitting a surface, allowing for precise distance measurements and the creation of detailed 3D models of the environment.
- 2.7** Over the previous year to 11th November 2025, a further 100 profiles have been surveyed around the Vale coastline through the WCMC funded programme, as tabled below.

Table 1.

Survey Unit	Survey Unit Description	Number of surveys	Total number of profiles surveyed
8a6.1	The shore south of Forest Road to Penarth Head	3	36 (3x12)
8b2.3	Whitmore Bay, Barry Island	3	6 (3x2)
8b3.1	The Knap (Cold Knap Point to Bull Cliff)	2	2(2x1)
8b3.2	Bull Cliff	2	2(2x1)
8b4.1	Aberthaw	3	51 (3x17)
8b5.2	Llantwit Major (Cwm Col-huw)	3	3(3x1)
TOTAL		16	100

- 2.8** A further 176 profiles were extracted from UAV-based LiDAR surveys flown earlier this year, as tabled below. The surveys were commissioned by the Vale

with delivery and quality assurance of the deliverables, managed through the WCMC.

Table 2.

Survey Unit	Survey Unit Description	Total number of profiles surveyed
8a6.1	The shore south of Forest Road to Penarth Head	43
8a6.2	Lavernock Point to the shore south of Forest Road	43
8b1.1	Lavernock Point to St Mary's Well Bay	10
8b1.2	St Mary's Well Bay to Swanbridge	13
8b1.3	Swanbridge East	6
8b1.4	Swanbridge West	7
8b1.5	Sully to Bendrick Rock (including Sully Island)	5
8b2.5	Barry Harbour (Breakwater to Watch House Bay)	18
8b3.1	The Knap (Cold Knap Point to Bull Cliff)	16
8b3.2	Bull Cliff	15
TOTAL		176

- 2.9** The UAV LiDAR flights covered three key areas centred on The Knap (2.4km frontage), Swanbridge (1.2km frontage, plus Sully Island) and Penarth (4.6km frontage). The survey deliverables included a dense colourised point cloud and pseudo-nadir aerial imagery (derived from the colourised point cloud). This allows for effective and precise monitoring.
- 2.10** There have also been visual inspections undertaken by staff following reports of cliff falls or areas of concern, on an ad hoc basis. On occasion this has necessitated the use of UAVs to obtain close-up imagery and alternative viewpoints in hard-to-reach areas, including in Jackson's Bay and at Penarth Head.
- 2.11** Wave and water level data continues to be collected from the end of Penarth Pier, with data available via the National Network of Regional Monitoring Programmes real-time data portal.

3. How do proposals evidence the Five Ways of Working and contribute to our Well-being Objectives?

- 3.1 Long term** – The collection of coastal monitoring data helps inform a long-term and sustainable data-driven approach to managing flood and coastal risk around the coastline.
- 3.2 Long term** – The collection of coastal monitoring data helps inform a long-term and sustainable data-driven approach to managing flood and coastal risk around the coastline.
- 3.3 Prevention** - Helping to prevent inappropriate development in high-risk areas, through the shoreline management plans and links to the Local Development

Plan. Also assisting with the response to more immediate risks, e.g. cliff falls, and managing the risk to public safety.

- 3.4** Collaboration – Working collaboratively with the WCMC enables more efficient collection and analysis of data. By supporting and hosting the WCMC the Vale has helped foster collaboration with academia and other risk management authorities resulting in a state-of-the-art and also more efficient monitoring programme despite relatively low funding compared to contemporary programmes, for example in England. Hosting the WCMC within the council has also allowed the transfer of knowledge and skills helping improve the delivery and interpretation of local monitoring data. It has also allowed for stronger collaboration with the local coastal groups, with a coastal officer employed by the Swansea and Carmarthen Bay Coastal Engineering Group currently working alongside the WCMC team which has led to improved knowledge sharing and productivity within the group.
- 3.5** Integration – Monitoring data is used to inform ongoing flood and coastal risk management activities around the Vale coastline at a variety of temporal and spatial scales. The collection of data is integrated with the SMP action plans helping facilitate delivery of the SMP policies. In turn this helps inform our wider response to change on the coast, for example informing the LDP
- 3.6** Involvement – Through citizen science projects, such as Coast Snap, local communities are encouraged to contribute to monitoring of the coastline. Better visibility of data through the WCMC data platform and indirectly through the use of data to inform future community engagement over coastal adaptation.

4. Climate Change and Nature Implications

- 4.1** Monitoring of the coastline and nearshore environment will help inform an evidence-driven strategy for adapting to the impact of climate change on the coast and in the long-term the Council's ongoing response to the Climate Change and Environmental Emergency declaration.

5. Resources and Legal Considerations

Financial

- 5.1** The Wales Coastal Monitoring Centre is entirely Welsh Government grant funded and the Council is party to a collaborative legal agreement sharing the financial risks as grant recipient and host authority for three full-time staff with Gywnedd Council, Conwy Council and the WLGA.
- 5.2** It is recognised that the Council's financial position is extremely challenging and is likely to remain so. Therefore, all forms of external grant funding will be investigated to support monitoring of the coastline, particularly via the Wales Coastal Monitoring Centre. Collaboration with local universities and the wider academic community, facilitated via the WCMC will help the council secure

additional monitoring of the coastline, often utilising state-of-the-art monitoring and research techniques and at no cost or a significantly reduced cost relative to commissioning on the open-market.

Employment

- 5.3** There are no direct employment issues arising from the activities detailed within this report. Visual inspections and limited topographic surveys are currently undertaken utilising existing resource within the Engineering Environment team.
- 5.4** The Wales Coastal Monitoring Centre is entirely Welsh Government grant funded and the Council is party to a collaborative legal agreement sharing the liability and risk of acting as host authority and employer for three full-time staff members with Gwynedd Council, Conwy Council and the WLGA.
- 5.5** There is a future aspiration to undertake more topographic and UAV based surveys using internal resource, subject to staff obtaining the necessary qualifications, knowledge and experience.

Legal (Including Equalities)

- 5.6** There are no direct legal implications arising from the activities detailed within this report, but activities undertaken in response to the climate change emergency will be consistent with duties under the Environment Act and the Well-being of Future Generations Act.

6. Background Papers

None