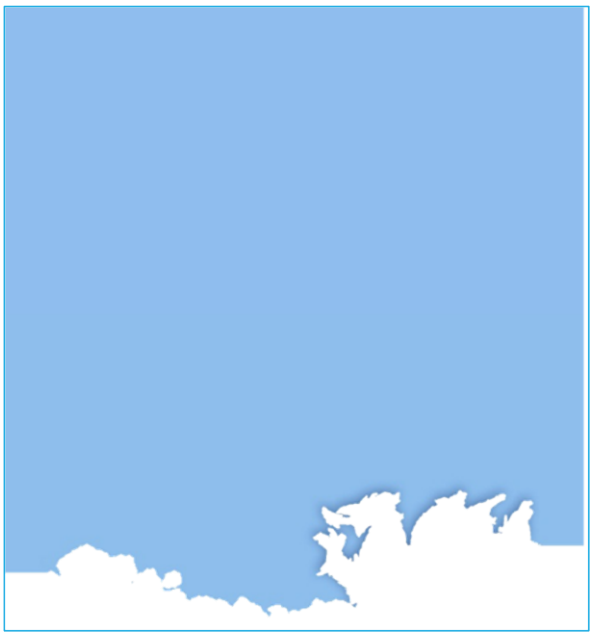

# *Business Case for a Wales Coastal Monitoring Centre*

## Document control sheet

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|---|---|
| Document author: | JF Dulong / Emlyn Jones |
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## Revision history

| Date | Version No. | Summary of changes |
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## Consultation

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## Approval

| Approved by | Signature | Date | Version |
|---|---|---|---|
| | | | |

# CONTENTS

## I EXECUTIVE SUMMARY

### INTRODUCTION

1 This proposal seeks Welsh Government Flood and Coastal Erosion Risk Management (FCERM) Branch approval and 100% grant funding to re-establish a Local Authorities led Wales Coastal Monitoring Centre (WCMC) to deliver a monitoring programme for a period of 3 years (until March 2021) or until the end of the current government's mandate at an estimated cost of **£1,015,000.00** with an option to bid in for additional monitoring when joint opportunities arise.

2 This proposal also seeks WG's commitment in principle to fund the start of a long-term national monitoring programme developed by the Coastal Groups through the WCMC to embed and improve the consistent national network of risk based coastal monitoring necessary to improve strategic decision making and reduce assumptions and uncertainties.

3 The WCMC will work closely with the English National Coastal Monitoring group and Channel Coastal Observatory. Where sediment cells cross the border between Wales and England, the WCMC will share best practice and co-ordinate approaches with Northwest and Southwest England regional programmes, to ensure opportunities for integration are realised.

4 The risk-based English model has secured funding for a number of years, and has an established history of programme delivery to time and cost. The Programme continues to achieve efficiencies and savings in procurement, data capture using existing and new technologies, analysis, dissemination and sharing best practice. The freely available data (https://www.channelcoast.org) collected over the last 10 years has proved invaluable for a wide range of stakeholders and should be seen as the example of what can be achieved in Wales using a similar format with long term sustained investment.

5 The current patchy monitoring initiatives and lack of consistency in methodology used in Wales has almost rendered existing data unusable for decision making at a regional or national level. This gap contributes to a lack of evidence to help inform policy change of Shoreline Management Plans (SMPs), stalling of all SMPs actions linked with monitoring, and lack of evidence needed to identify where the highest risk is around our coastline going against the National Strategy objective, undermining the ability to invest on a prioritised risk based basis.

6 The proposed monitoring programme will therefore provide improved data and information to underpin robust evidence-based strategic and local level FCERM decision making, and help make predictions of shoreline evolution such as those required in SMPs. It will also identify the most at risk locations along our coastline to allow investment on a risk

based approach, and will inform decisions on timing and design of coastal adaptation where managed realignment is the preferred policy.

## OPTIONS CONSIDERED

7 The options examined in this document are as follows:

- **Option 1:** Do Nothing
- **Option 2**: Do Minimum – status quo (piecemeal approach)
- **Option 3**: Optimised risk-based approach through the WCMC
- **Option 4:** Intensive data framework through the WCMC

## PREFERRED OPTION

8 The preferred option (3) is to set-up the WCMC to deliver an optimised risk-based approach to monitoring to provide the necessary data and information to underpin robust evidence-based strategic and local level Flood and Coastal Erosion Risk Management (FCERM) decision making.

It is therefore recommended that funding is approved by the Welsh Government for a sum of **£1,015,000.00** to set-up the WCMC with 2 members of staff, to deliver an agreed work programme for an initial period of 3 years or up to the end of the current Welsh Government mandate.

## BENEFITS OF MONITORING

9 This proposal, supported with further evidence from the ongoing English National Coastal Monitoring programme identifies the following 3 main benefits of a centrally managed national monitoring programme through the WCMC:

- **Increased effectiveness**- consistent national approach to coastal process monitoring and public data availability, and better collaboration and up skilling of public sector.

- **Increased efficiencies** through economy of scale and by providing better value for money

- **Decision making** to underpin evidence-risk based decisions regarding investment, strategic and local level FCERM activities and provide comparable data pre and post capital scheme construction.

## II INTRODUCTION AND BACKGROUND

### PURPOSE OF THIS REPORT

10 This proposal seeks Welsh Government (WG) approval and funding to re-establish a Local Authorities led Wales Coastal Monitoring Centre (WCMC) and deliver a monitoring programme for a period of 3 years and / or until the end of the current Welsh Government mandate at an estimated cost of **£1,015.000.00** with an option to bid in for additional monitoring if added value and opportunities are identified.

11 The proposal demonstrates that whilst the status quo is an option, the lack of consistent monitoring initiatives and methodology used has almost rendered any existing data unusable at the strategic scale. It also demonstrates the validity of funding a centrally delivered Programme on behalf of Risk Management Authorities based on a consistent approach for programme design, specification and procurement, whilst accounting for local priorities.

12 The proposal also demonstrates the need to further develop skills and expertise within the public sector to build long-term resilience of the WCMC and coastal monitoring in Wales and achieve additional savings by reducing the reliance on private sector organisations to deliver coastal monitoring.

13 The report has been prepared by Welsh Local Government Association with support from Natural Resources Wales and the local authorities' Consortium[1] which received support of all Maritime Local Authorities and the Wales Coastal Groups Chairs Forum to develop this proposal.

### BACKGROUND

14 The recognition by the Wales Coastal Groups Forum of the need to improve the co-ordination of coastal monitoring data collection to reduce assumptions, and establish a framework necessary to provide good quality information on coastal change to inform coastal risk management decisions led to the creation of the WCMC in 2010. The WCMC was funded by the Welsh Government for an initial period of three years and was hosted by Gwynedd Council.

15 Funding for the WCMC was extended until August 2014 under the previous funding arrangements whilst discussions continued regarding its future, but the WCMC has

[1] The Consortium comprises of Conwy, Gwynedd, Vale of Glamorgan Councils and the Welsh Local Government Association

effectively been dormant since this funding ceased bringing to a halt any consistent monitoring regime.

16 With a view to developing a new collaborative model beneficial to all Maritime Local Authorities (MLAs), Natural Resources Wales (NRW) and others, an initial consultation amongst Risk Management Authorities took place to gauge expressions of interest to be part of the consortium in January 2015 and again in July 2016. This initial process generated interest from 3 MLAs, NRW, Aberystwyth and Bangor Universities and the Welsh Local Government Association.

17 The proposed delivery model which consists of a joint local authorities' management approach with the Vale of Glamorgan Council as the employer and grant recipient body, and with the support of an Advisory Panel comprising of Natural Resources Wales, Wales Coastal Groups Forum and universities will promote a pro-active collaboration benefiting from the best expertise and opportunities available in Wales and beyond, and will offer further opportunities to help deliver the Well-Being of Future Generations Act, Environment Act and additional benefits.

## III BENEFITS OF STRATEGIC COASTAL MONITORING & CURRENT MONITORING IN WALES

### BENEFITS OF COASTAL MONITORING

18 Coastal monitoring comprises of periodic measurements of the behaviour of the coastal zone in response to forcing parameters. A wide range of variables may be monitored, including extent and topography (elevation/slope) of beaches, seabed, cliffs, structures and ecological systems; and forcing parameters such as wind, waves, tidal range and currents, which affect the evolution of the coastal zone. Each of the variables may be monitored at a range of temporal and spatial scales, according to the specific monitoring objectives.

19 A strategic coastal monitoring programme must be tailored not only to adequately describe differing environments and forcing parameters but also available funding and evolving risk management approaches. As an ecosystem approach to the sustainable management of natural resources becomes more prevalent in Wales, as required by the Environment (Wales) Act2016, coastal monitoring is required to provide the evidence base to justify and measure the success of techniques such as natural flood management, including the use of softer engineering measures such as beach nourishment or salt marsh restoration on the coast.

20 Appropriate coastal monitoring can realise multiple benefits, both tangible and intangible not just specific to FCERM. Targeted and sustained coastal monitoring will improve our understanding of how complex coastal systems are evolving in response to changes in forcing parameters such as sea level rise. This will inform understanding of risk to life or property and timing of decisions to invest in improved defences or coastal adaptation measures. It will also help to inform the scale of requirements for compensatory habitats.

21 The benefits identified above are already starting to be realised by the successful National Network of Regional Coastal Monitoring Programmes for England recently awarded a further five-years funding by the Environment Agency. The benefits reported to date (2015 NP2 StAR submission) include savings realised through national procurement exercises, use of consistent methodology enabling widespread use of metadata and the availability of free data to third parties to help develop capital schemes thus reducing the overall cost of schemes and length of time needed to develop Project Appraisal Reports.

22 The recent joint LiDAR flight between the Maritime and Coastguard Agency (MCA) and Swansea & Carmarthen Bay Coastal Group is a prime example of how opportunistic collaborations with similar Programme can be replicated in Wales, subject to appropriate funding and a consistent programme.

23 In the long-term there are many wider benefits that have the potential to be supported by a consistent and sustained coastal monitoring programme. These can be found in **appendix 1.**

## CURRENT MONITORING ACTIVITY IN WALES

24 Since 1992, several MLAs and Coastal Groups have led monitoring initiatives around the coast of Wales, engaging 11 of the 15 MLAs. These programmes received WG's "grant in aid" with rates ranging from 45% to 65%. WG's annual average expenditure in MLA-led monitoring was in the region of £100,000. Unfortunately, since the WCMC ceased to operate there has been a reduction in grant applications and monitoring activity in recent years.

25 There is no standardised, coordinated and strategic monitoring currently taking place, thus making it extremely difficult to target efforts and investment nationally in an intelligent and risk based approach and going against a key Objective of the National FCERM Strategy: *''Prioritising investment in the most at risk communities''.*

26 There are currently significant data gaps persisting, predominantly in the near-shore, hindering complete understanding of coastal processes and the ability to refine and validate numerical modelling or inform operational management.

27 Coastal monitoring programmes across Wales were established essentially to examine local problems. Despite these programmes having delivered a good evidence base to inform the design of capital works, coastal groups, Natural Resources Wales and universities have recognised that an overall integrated approach is missing, leading to a significant lack of consistency in terms of the type of data collected and its subsequent analysis.

28 The options examined in this document address the objectives of the WCMC, issues with current monitoring activity in Wales and concerns raised in the recent Wales Audit Office and Public Accounts Committee reports in a consistent manner based upon the guiding principle that the most effort (and hence cost) of coastal monitoring should be targeted towards the areas where the risks are highest.

29 Whilst the benefits of coastal monitoring are outlined in general terms, the proposed programme will build on historic monitoring initiatives, working towards a national risk-based programme. Setting up a WCMC will allow opportunities for the dedicated staff to seek out additional opportunities such as collaborative bathymetric or LiDAR surveys, potentially realising a more comprehensive dataset at a reduced cost.

## IV AIMS & OBJECTIVES OF THE WCMC

30 In order to make adequate predictions for future evolution of the shoreline, knowledge of past evolution and the forcing factors that cause the changes are required to enable an evidence-based approach. Without reliable historical data, prediction of future responses becomes extremely difficult and relies on unproven assumptions; this approach provides limited confidence in planning methods. The probability of poor decision-making under such conditions is high. The management of the coastline and its defences relies heavily on an understanding of coastal processes and the effects that these processes have on shoreline evolution. Recommendations from SMP2s and recent audits and reports have consistently identified a requirement for development of strategic coastal monitoring programmes to inform effective and efficient expenditure on coastal risk management. In the current economic and political climate there is a clear need to drive efficiency, and an evidence-based approach provides this basis.

### AIM:

31 The Welsh Coastal Monitoring Centre will develop a strategic approach to coastal monitoring in Wales, supporting the National Strategy for Flood and Coastal Erosion Risk Management, through delivery of the evidence base required for risk based FCERM decision making.

To achieve this, the WCMC will focus on delivering 3 key objectives as identified in figure 1 below.

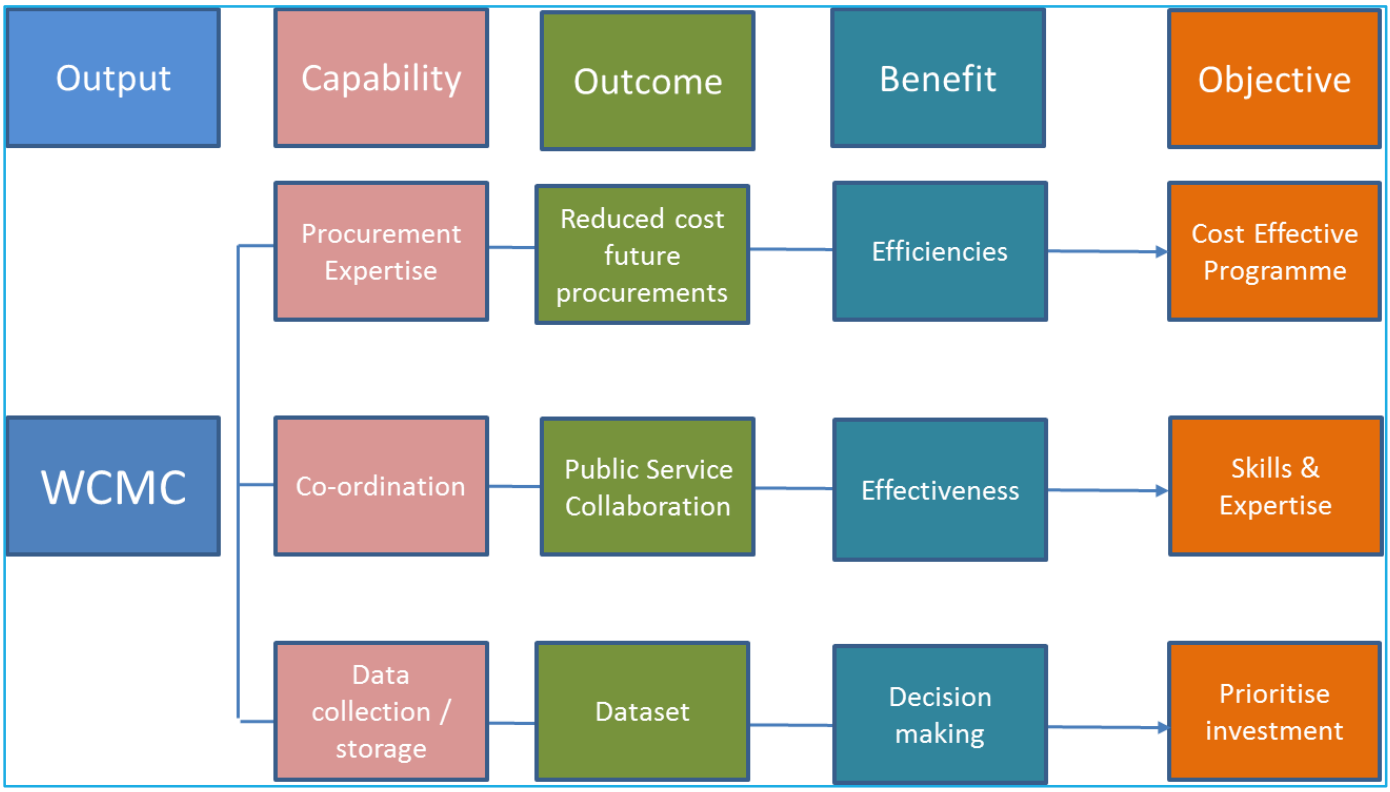


Figure **1**: WCMC Objectives Map

## V OPTIONS AND APPRAISAL

32 Four options have been considered to evaluate the benefits of alternative approaches to monitoring, each providing different levels of detail (including spatial and temporal coverage), expenditure and risk. The options examined are:

**Option 1 – Do Nothing** – undertake no coastal monitoring

**Option 2 - Do Minimum** – Status quo, piecemeal monitoring by some LAs/Coastal Groups and NRW

**Option 3 – Optimised risk-based approach through the WCMC** –– Co-ordinated, strategic and consistent risk based programme to support investment decisions

**Option 4 – Intensive data framework** – high resolution data across all coastline and near-shore wave buoy network

| | Composition | Benefits | Limitations |
|---|---|---|---|
| **1**-Do Nothing | No monitoring programmes, reactive approach.<br>-Monitoring for scheme specific design. | Immediate cost saving due to investment withdrawal. | Limited or no information available to inform FCERM capital investment planning.<br>-Unacceptable, poor decision making.<br>-Lack of understanding of coastal processes and risks.<br>-Key regional and national requirements are not delivered. |
| **2**-Do Minimum | Piecemeal approach to monitoring, managed in isolation by MLAs and NRW<br>-Beach profiles and topographic surveys at current locations and frequency, plus LiDAR at defended frontages in Ceredigion. | Information to address MLAs and NRW issues.<br>-Operational scale management. | |
| **3**-Risk Based Approach | Common deliverables*<br>-Ground-based surveying:<br>-Biannual topographic surveys plus post-storm profiles at HTL/defended frontages.<br>-Strategic risk-based beach profiling at MR and dynamic sites adjacent to HTL frontages. | Operational scale management.<br>-Robust evidence base to contribute to National Programme of Investment delivery.<br>-Seamless datasets suitable for modelling and capital defence design. | No data at NAI sites (43% of the Welsh coastline) and part of the designated areas.<br>-Little contribution to Habitats Directive delivery.<br>-No data to update SMPs and NCERM consistently.<br>-No near-shore wave data: inaccurate modelling. |
| **4**-Strategic Risk Based Approach with habitat and near-shore wave data | Common deliverables*, option 3 ground-based surveying plus:<br>-Complete Welsh coast bathy-topo LiDAR + aerial photo surveys every 6 years, variable spatial resolution according to monitoring needs.<br>-Near-shore wave buoy network: risk/defence design based | Option 3 plus increased knowledge about forcing factors to improve modelling and defence design | Improved near-shore tide data in conjunction with wave data would be required for a more robust solid analysis of joint probability. |

Table 1: Summary of options-*COMMON DELIVERABLES: 1) Risk based monitoring model. 2) Data management, sharing and dissemination. 3) Review and analysis of current data. 4) Regular high-level reporting. 5) Communication and guidance for operating authorities.

## OPTIONS APPRAISAL

33 The options appraisal is based upon an assessment of the provision of the necessary data and information required to underpin strategic and sound FCERM decision making against the WCMC's 3 objectives and critical success factors. Detailed options framework can be found in **appendix 2.**

| Reference to | Option 1 | Option 2 | Option 3 | Option 4 |
|---|---|---|---|---|
| Description of option | Do nothing | Status Quo | Optimised Risk based | maximum |
| Objectives | | | | |
| Cost effective | ✓ | ✓ | ✓ | ✓ |
| Skills & capacity | x | x | ✓ | ✓ |
| Prioritise investment | x | x | ✓ | ✓ |
| Critical Success Factors | | | | |
| Strategic fit | x | x | ✓ | ✓ |
| Benefits optimisation | x | x | ✓ | ✓ |
| Potential affordability | ✓ | ✓ | ✓ | x |
| Service solution | ✓ | ✓ | ✓ | ✓ |
| Service delivery | ✓ | ✓ | ✓ | ✓ |
| Funding | ✓ | ✓ | ? | x |
| Summary | **Discounted** | **Discounted** | **Preferred** | **Discounted** |

Table 2: Options delivery against objectives & CSFs

34 Whilst option 3 and option 4 are being considered, option 4: Intensive Data Framework is discounted due to its unaffordability and the current lack of sufficient public funds and other funding opportunities to sustain such a programme.

## VI PREFERRED OPTION

35 The preferred option is **Option 3: Optimised risk-based approach**: This option is based upon WG funding the WCMC with 2 full-time employees to move from the piecemeal inconsistent approach to having a coherent and co-ordinated risk based monitoring programme delivered by the WCMC on behalf of RMAs.

36 Whilst using the monitoring budget more efficiently and effectively by providing better, coordinated and consistent coverage, this option would provide the necessary data to inform key national initiatives, appropriate regional consideration and development of SMPs and other strategies, together with local development of schemes.

37 Existing coastal monitoring around Wales includes strategic beach profiles in Swansea Bay & Carmarthen bay, detailed survey of 13 beaches in Ceredigion, and a range of techniques providing varying detail for 139 profile locations in Gwynedd, Conwy and Flintshire. The total annual investment is approximately £175,000. The proposal is to aim to retain this level of investment for the duration of this programme but to secure a more

comprehensive and consistent risk based programme, which ensures that all of the Welsh coast is considered within the programme.

38 The WCMC will identify joint funding opportunities form other ongoing and planned monitoring programmes by other organisations including MCA, CEFAS, British Geological Survey (BGS), universities.

39 While it is envisaged that one of the fundamental roles of the WCMC in the future will be to develop and source its required resource from the public sector or academia to up-skill the public sector for a more robust and sustainable WCMC, we are proposing to create a core resource of 2 full-time fully funded by the WCMC as a base need in order to develop the WCMC' s presence and resilience.

40 Recruitment will be led by the Vale of Glamorgan County Borough Council in accordance with their recruitment policy. We are proposing to create a Grade I Project Coordinator post and the Grade F Coastal Scientist post. Applications will be reviewed and shortlisted by the Consortium which will also form the interviewing panel.

41 We are proposing for the WCMC core resources to be based within the Vale of Glamorgan County Borough Council in an attempt to fill-in the skills and capacity gap in south Wales and support other southern local authorities. Monitoring activities in North Wales are already resourced by Conwy County Borough Council and Gwynedd Council and we propose to build upon this existing arrangement.

42 As part of the WCMC's purpose of supporting a more sustainable and resilient public sector, the WCMC will prioritise provision via the public sector and academia to undertake project specific work including monitoring. We are therefore proposing to put in place a framework with a clear financial mechanism of remuneration based on existing public sector examples.

43 The cost estimates to deliver a national monitoring programme based on current specifications have been prepared using actual tendered or in-house costs from the recent initiatives. The estimated programme costs and annualised expenditure profile are shown in **Table 3**. We anticipate monitoring costs to reduce from 2020 onwards once the risk based methodology has been applied. We also anticipate internal costs to reduce from year 2 onwards.

| | YEAR 1<br>2017-18 | Year 2<br>2018-19 | YEAR 3<br>2019-20 | YEAR 4<br>2020-21 | TOTALS<br>per activity |
|---|---|---|---|---|---|
| **Monitoring Programme & data management** | **£0.00** | **£175,500.00** | **£181,645.00** | **£185,944.35** | **£543,089.35** |
| **Staff cost** | **Recruitment only** | | | | |
| **1 Programme Manager** | **£2,000.00*** | **£46,656.00** | **£48,163.00** | **£49,404.00** | **£146,223.00** |
| **1 Coastal Process Scientist** | **£2,000.00*** | **£27,950.00** | **£28,666.00** | **£29,497.00** | **£88,113.00** |
| **Internal costs** | **£0.00** | **£44,000.00** | **£44,000.00** | **£44,000.00** | **£132,000.00** |
| **Contingency 20% (applies to monitoring costs only)** | **£0.00** | **£34,300.00** | **£35,329.00** | **£36,388.87** | **£106,017.87** |
| **Totals per year** | **£4,000** | **£328,406.00** | **£337,803.00** | **£345,234.22** | **£1,015,443.22** |

Table 31: Estimates for preferred option

* National advertising for recruitment

## EFFICIENCY SAVINGS, CONTRIBUTIONS AND FUNDING OF PREFERRED OPTION

44 The following are examples of estimated efficiency savings based on the proposed Programme:

- The procurement exercise and establishment of a single monitoring framework led by the WCMC instead of 15 individual MLAs is expected to lead to efficiency savings in officers' time of £48,500 over the 3 years' period. This is based on the number of days necessary to procure the service, award and manage the contract multiplied by 15 MLAs.
- Beach profiling undertaken by Conwy and Gwynedd Councils in 2015-16 identified savings of 20% compared to private sector suppliers' costings. The WCMC will increase savings in the long-term by building capacity within the public sector to deliver the monitoring programme. Effectively, a regular monitoring programme should entice some local authorities to build their in-house surveying team to deliver at a lesser cost.

- The core team will also play an important role in developing skills and expertise in coastal monitoring within the public sector thus reducing the reliance on private companies for monitoring activities.

- A significant contribution in terms of costs avoided would be from the ready supply of appropriate data for SMPs and capital scheme development and from savings in staff time for data handling.

45 Whilst the cost of the Programme is expected to be 100% grant funded by WG, a number of potential sources of joint funding opportunities have been identified for funding some additional aspects of monitoring. External contributions could result from a number of collaborations, e.g. jointly-funded swath bathymetry and LIDAR surveys with, for example:

- Maritime and Coastguard Agency,
- CEFAS
- Coastal Groups
- Royal Commission on the Ancient and Historical Monuments of Wales (EU funded project CHERISH)
- British Ports Association
- Network rail
- Other WG departments
- Other NRW departments

46 In addition, contributions in kind through partnership working with Welsh Universities and the use of students for research projects will further increase the value of the programme.

## VII IMPLEMENTATION & PROPOSED OUTPUTS

47 The preferred option (3) promotes the development of a risk-based national coastal monitoring programme. The principal monitoring and analytical tasks recommended within the period include:

- Bi-annual beach survey and data collection
- Data management and quality control in partnership with Channel Coastal Observatory or Lle portal
- Online data dissemination
- Analysis and reporting of data
- Integration of data to deliver national objectives
- Programme performance review

48 Once grant funding from WG has been secured we are proposing to recruit 2 full-time employees to undertake core tasks, establish a WCMC presence, and deliver the following deliverables for 2017-18 onwards:

**YEAR 1 (January – March 2018)**

- Advertise nationally Programme Manager's post
- Finalise delivery model: staff management, technical support and MoU between management authorities
- Identify membership for the Advisory panel

**YEAR 2 (April 2018 – March 2019)**

- Employ Programme Manager and Coastal Scientist
- Set-up Advisory Panel, draft Terms of Reference
- Packaging current monitoring programmes to avoid duplication of work and identify joint monitoring and funding opportunities.
- develop the procurement strategy to commission the first year of bi-annual beach profiles following a standard specification developed previously by the WCMC, and identify the best way to develop and manage future procurement contracts on behalf of MLAs.
- Deliver 1 round of topographic surveys in Autumn
- Identify and agree the most suitable, sustainable and economically viable platform to store and display data and to make it freely available to use.
- Consider a risk based methodology for the selection of future monitoring locations along the Welsh coast with a view of applying the methodology against the national programme of monitoring in 2019.
- 1 joint stakeholders event

**YEAR 3 (April 2019 – March 2020)**

- Finalising and testing the risk based methodology to review monitoring sites for suitability and deliver the risk based bi-annual beach profiles programme with reporting, data comparison and report.

- 1 stakeholder event to disseminate findings and identify opportunities for improving risk assessment as well identifying ways to increase efficiency and effectiveness in data collection and evidence provision.

- Develop a coastal specific training programme for risk management authorities including specific training for data management to fill-in the national gap on being able to deal with large amount of data identified in a recent study.

- Maintain watching brief on new and emerging observing technologies, modelling and analytical tools that have the potential to reduce cost and increase effectiveness of monitoring and evidence provision.

**YEAR 4 (April 2020 – March 2021)**

**This would need to be agreed and finalised but we anticipate the programme to deliver:**

- Bi-annual topographic surveys with data comparison and an annual report.

- 1 stakeholder event

- Finalising the Business Case for the next tranche of funding

49 The proposed programme which will be refined as needs are identified will provide a consistent monitoring programme providing stakeholders with a detailed understanding of coastal processes around the Welsh coast, annual maps and report as well as an analysis of existing data. It will also provide an online and physical presence to provide support and information.

## VIII MEMBERSHIP AND GOVERNANCE STRUCTURE

50 The Consortium managing the WCMC and overseeing finances comprises of the following member organisations:

- Conwy County Borough Council
- Gwynedd County Borough Council
- Vale of Glamorgan Council
- Welsh Local Government Association

Current members will have an equal role on the Consortium by providing a healthy and challenge-based approach to the delivery of the Centre. The above organisations will provide technical support to the staff, facilitate the delivery of specific tasks as well as manage and mitigate risks associated with the programme. Table 4 identifies some of the high level risks associated with the programme.

51 The employer for the core resource of staff as well as the grant recipient body will be the Vale of Glamorgan Council.

| Key Project Risk | Adopted Mitigation Measure |
|---|---|
| Lead organisation(s) wishing to leave the management consortium or unbalanced workload | Ensure equal say between 4 organisations through regular meetings and review.<br><br>Develop a SLA or MoU and spread workload accordingly |
| Recruitment and loss of staff | Ongoing discussion with WG to ensure long-term funding for the programme<br><br>Offer ongoing personal development opportunity |
| Roles and responsibility between Consortium and Advisory Panel | clear terms of reference which clarify where responsibilities lie and where decisions are taken. |
| Annual/ long-term funding not yet secured | Development of robust business case and ongoing discussion with WG<br>Demonstrate value of programme through measurable objectives |
| Value for money not demonstrated | Specialist survey/monitoring contractors selected via Procurement Procedures<br>Continuous market testing exercise |

| | |
|---|---|
| | Demonstrate cost savings through WCMC/RMA in house delivery of monitoring programme where possible. |
| Low quality data delivery from survey contractor and local authorities | Adequate resource available for quality control and data management<br>Adequate training provided to key staff and use of the WCMC's standard specification |
| Weather risks resulting in delayed delivery and expenditure of survey programmes | Provide alternative delivery through modified contractual arrangements but at increased cost or slippage of expenditure<br>Adequate number of work packages to enable risk to be spread between several contractors<br>Appropriate references in contract specifications for all works<br>Contingency must be allowed for as this risk is uncontrollable |
| Work packages too large for efficient delivery | Base work package size on manageable and realistic estimates of public sector and contractor capacity<br>Reduce work package size where delivery has been a problem |

Table 2: High level risk Register

52 To ensure best use of existing expertise in Wales we are proposing to set-up an Advisory Panel to provide strategic direction and support to the WCMC. To avoid the creation of another group we are proposing to use the Wales Coastal Group Forum (WCGF) as the Advisory Panel. As well as current WCGF members it is also proposed that Welsh Universities are invited. Terms of reference and working arrangements for the Advisory Panel should be agreed by the WCGF.

53 Using the WCGF as the Advisory Panel will ensure that all other Welsh MLAs receive de-facto membership and allow for a good mix of expertise and the ability to deliver multi benefits. Ultimately, as the WCGF develops, other public, private or third sector organisations with an interest in the WCMC or a wider monitoring programme could be invited as an ad-hoc attendee if deemed necessary.

54 To ensure transparency, accountability and scrutiny we are proposing to report directly to WG's FCERM team as stated by the grant T&Cs. It is also recommended that a link to the new Flood and Coastal Erosion Committee (FCEC) would also be beneficial to both parties and ensure a good flow of information. This could be achieved through the WCGF Chair.

# APPENDICES

## APPENDIX 1: ADDITIONAL BENEFITS OF LONG-TERM NATIONAL DATA GATHERING

Contribute marine and coastal physical data to inform the delivery of WG functions including FCERM, CADW, Marine Spatial Planning, Nature Conservation, Tourism, Transport and infra-structure. *E.g. health of beaches for tourism or for the defence function they provide to roads, railways and footpaths.*

Analysis of coastal change data can inform strategic planning such as The National Strategy for FCERM, Marine Spatial Planning, Local Development Plans, and SMP2 implementations.

Be a key data source for understanding the effects of climate change and the impacts of storms by providing long term records/evidence base. Provide a platform to procure and coordinate monitoring to help evidence the effects of climate change (LIDAR, Bathy, wave buoys, etc), and to help us analyse change from storm events to understand trends and issues of significant storms. This data could then help to improve NRW's flood forecasting and warning system.

Support statutory reporting including Habitats Directive Water Framework Directive, Marine Strategy Framework Directive, Flood & Water Management Act by developing an inclusive monitoring programme with key partners and identifying joint monitoring opportunities.

Provide improved data on coastal habitat loss or accretion to inform the National Habitat Creation Programme, which NRW delivers on behalf of WG to offset coastal squeeze losses associated with implementation of SMP2s.

- Data to inform biodiversity priorities- coastal and marine (*E.g. through improved knowledge of extent of habitats, erosion of dune/soft cliff etc*).

Data to inform Environmental Impact Assessments of development proposals in the marine and coastal environment e.g. impact on coastal processes from tidal lagoons, depth of cable burial for offshore windfarms etc.

- Evidence of erosion effects and future management of recreation and access activities, including the Wales Coast Path.

Data for research activities to improve understanding of coastal change, develop and improve modelling capabilities to improve future predictions of change in response to forcing parameters and support coastal management decisions e.g. timing of adaptation or investment. Links with academia, including potential student projects or placements can be promoted and will help contribute to development of skills in Wales.

**Option 1- Do nothing**

Do Nothing option reflects the lack of a programme of coastal monitoring or availability of reliable robust data, or an approach for data collection, processing, analysis. The likely consequences of doing nothing were identified by the English model as being:

- No data availability to inform long-term planning for capital investment programme in FCERM
- Lack of information to verify and improve flood warnings and flood forecasting
- No data availability to inform prediction of small-scale, mid-scale or largescale coastal evolution
- No data to inform either strategic or operational and incident response managers in all aspects of coastal management
- Lack of common data sharing with coastal partners *e.g.* Coastal Groups, and piecemeal management of the coast by various operating authorities
- Increasingly unreliable data and strategic information to underpin SMPs, strategy study options, and feasibility studies, potentially leading to unsustainable policy
- Lack of sound data leading to poor/unacceptable decision making and communication, reactive, site-specific and expensive surveys and remediation, exacerbating or increasing risk to vulnerable communities
- Restricted opportunities for development of region-wide strategic beach management and cell wide beach recycling
- Potential full value of previously collected data will not be realised. The value of the data will diminish and, as not archived or available, may eventually be physically lost
- Fails to comply with SMP best practice guidance and actions to continue monitoring
- Considerable costs would arise due to the lack of data leading to potential for poor decision making.

This option would result in unacceptable data quality to deliver any aspect of FCERM. It is technically, environmentally and economically unacceptable and opposes all best practice

principles. This option does not present an acceptable management option and is not considered further.

**Option 2 – Do Minimum**

The option is the current status quo. Although described as "Do Minimum", there are some areas where coastal monitoring is undertaken, but generally this type of monitoring has slowly stopped and there are large sections of coastline with no systematic data collection. The outcomes of this piecemeal approach are:

- Variable specifications resulting in data that is not comparable either at a regional or national scale

- The full potential value of previously collected data is not realised. The value of the data diminishes rapidly through poor data management and may eventually be lost or unavailable.

- No co-ordination of data procurement reducing cost saving opportunities

- No data available to make region-wide strategic decisions or monitor post construction

- Minimal regional or national benefits realised, such as provision of data for key national initiatives and missed opportunities for joint working

- No benefits arise from shared data

- Long-term region-wide trends cannot be established with adequate detail to make informed decisions or review SMP policies.

Whilst the option will provide some marginal localised benefits, current practice and lack of activity proves that it does not present a technical and environmentally acceptable management option.

**Preferred Option 3 - Optimised risk-based approach**

This option addresses the drawbacks of the piecemeal approach by providing the necessary data and information to underpin robust evidence-based strategic and local level Flood and Coastal Erosion Risk Management (FCERM) decision making with an option to bid in for additional monitoring on an ad-hoc basis.

The option recognises the need to coordinate monitoring centrally on behalf of RMAs for consistency and to mitigate the lack of expertise in certain authorities. This is achieved through

setting up the WCMC with 2 FTEs to develop, procure and manage the monitoring programme. The benefits of this option are:

- Nationally-consistent data, based around standard specifications
- Based around coastal sediment cells, rather than administrative boundaries
- Generic programme design but tailored to local requirements
- Regional delivery of programme, with over-arching co-ordination at national level
- Economies of scale, including costs and systems *e.g.* web archive and metadata

Option 3 would also maximise savings through joint monitoring opportunities with key organisations. This would allow to capture additional data, further apply a risk based approach to monitoring through selection by only targeting areas of interest.

**Option 4 – Strategic risk based approach with habitat and near-shore wave data.**

Option 4 is based on option 3 but includes and all Wales bathy-topo LiDAR flight to ensure that data is available for the complete Welsh coastline, including those No Active Intervention (NAI) sites which are not included in designated areas.

These NAI frontages do not need data at the same temporal and spatial resolutions. Having the risk based model in place will refine the approach of data collection at these sites to ensure resources are not misused but an acceptable level of data is provided.

All the strategic requirements would be completely delivered under Option 4 and there would following a sustained investment be wave data from the near-shore region to enable modelling refinement and improved scheme design.