

OCTOBER 2016

# Options for a New Integrated Natural Resource Monitoring Framework for Wales

## Project Report - Phase I

### Executive Summary

Welsh Government Contract No. C147/2010/2011

Agreed Additional Work Requirement Dated 8th March 2016

NERC CEH Project: NEC05945

*How to cite this document:* Emmett, B.A., Bell, C., Chadwick, D., Cheffings, C., Henrys, P., Prosser, H., Siriwardena, G., Smart, S., Williams, B., (2016) **Options for a New Integrated Natural Resource Monitoring Framework for Wales; Phase 1, Executive Summary;** Report to Welsh Government (Contract reference: C147/2010/11; Agreed Additional Work Requirement Dated 8th March 2016). NERC/Centre for Ecology & Hydrology (NERC CEH Project: NEC05945)

# Options for a New Integrated Natural Resources Monitoring Framework for Wales

## Phase 1 Project Report - Executive Summary

Welsh Government Contract No. C147/2010/2011  
Agreed Additional Work Requirement Dated 8<sup>th</sup> March 2016  
NERC CEH Project Number: NEC05945

### Authors:

Bridget Emmett<sup>3</sup>, Chris Bell<sup>3</sup>, David Chadwick<sup>1</sup>, Chris Cheffings<sup>8</sup>, Peter Henrys<sup>3</sup>, Havard Prosser<sup>7</sup>,  
Gavin Siriwardena<sup>2</sup>, Simon Smart<sup>3</sup>, Bronwen Williams<sup>3</sup>

### Other Contributors:

David Allen<sup>9</sup>, Alun Attwood<sup>9</sup>, Dawn Balmer<sup>2</sup>, Jeremy Biggs<sup>6</sup>, Kath Bollington<sup>9</sup>, Colin Chapman<sup>11</sup>, Si  
Creer<sup>1</sup>, Andy Davey<sup>13</sup>, Tara Froggatt<sup>4</sup>, France Gerard<sup>3</sup>, Rob Griffiths<sup>3</sup>, Paul Guest<sup>11</sup>, Tristan Hatton-  
Ellis<sup>9</sup>, Claire Horton<sup>11</sup>, Liz Howe<sup>9</sup>, Dave Johnston<sup>9</sup>, Kelvin Jones<sup>2</sup>, David Jones<sup>1</sup>, Chris Jones<sup>9</sup>, Barnaby  
Letheren<sup>9</sup>, Kate Lewthwaite<sup>12</sup>, Dylan Lloyd<sup>9</sup>, Lindsay Maskell<sup>3</sup>, Katie Metcalfe<sup>5</sup>, Helen Millband<sup>9</sup>,  
Nick Moran<sup>2</sup>, Dan Morton<sup>3</sup>, Andy Musgrove<sup>2</sup>, Stuart Neil<sup>11</sup>, Hayley New<sup>10</sup>, David Noble<sup>2</sup>, Lisa  
Norton<sup>3</sup>, Oliver Pescott<sup>3</sup>, David Robinson<sup>3</sup>, Paul Robinson<sup>8</sup>, Clare Rowland<sup>3</sup>, Cath Shellswell<sup>10</sup>,  
Rachel Taylor<sup>2</sup>, Lawrence Way<sup>8</sup>, Dylan Williams<sup>9</sup>, Martin Williams<sup>11</sup>, Ben Wilson<sup>9</sup>

The Welsh Government Senior Responsible Officer: James Skates<sup>11</sup>

Steering Group members and meeting attendees:

Catherine Duigan<sup>9</sup> (Chair)

David Allen<sup>9</sup>, Joanne Amesbury<sup>11</sup>, Alun Attwood<sup>9</sup>, Colin Chapman<sup>11</sup>, Howard Davies<sup>11</sup>, Emily  
Finney<sup>11</sup>, Dai Harris<sup>11</sup>, Jenni Hartley<sup>11</sup>, Claire Horton<sup>11</sup>, Betsan John<sup>11</sup>, Peter Jones<sup>9</sup>, Dewi Jones<sup>11</sup>,  
Dave Jones<sup>11</sup>, Jim Latham<sup>9</sup>, Chris Lea<sup>11</sup>, Fiona McFarlane<sup>11</sup>, Helen Minnice-Smith<sup>11</sup>, Kathleen  
Mulready<sup>11</sup>, Stuart Neil<sup>11</sup>, Victoria Seddon<sup>11</sup>, Steve Spode<sup>11</sup>, Bob Vaughan<sup>9</sup>, Clive Walmsley<sup>9</sup>, Susan  
Williams<sup>9</sup>

October 2016

---

Key:

<sup>1</sup> Bangor University

<sup>2</sup> British Trust for Ornithology

<sup>3</sup> Centre for Ecology & Hydrology

<sup>4</sup> Dwr Cymru Welsh Water

<sup>5</sup> Environment Systems Ltd

<sup>6</sup> Freshwater Habitats Trust

<sup>7</sup> Independent

<sup>8</sup> Joint Nature Conservation Committee

<sup>9</sup> Natural Resources Wales

<sup>10</sup> Plantlife International

<sup>11</sup> The Welsh Government

<sup>12</sup> Woodland Trust

<sup>13</sup> WRc plc

Intentionally blank

## Options for a New Integrated Natural Resources Monitoring Framework for Wales

### EXECUTIVE SUMMARY AND RECOMMENDATIONS

Healthy natural resources underpin significant economic sectors in Wales including agriculture, fisheries, tourism and forestry, they also make a significant contribution across Cabinet policies including the health and well-being agenda. In order to develop policies that build social, economic and environmental resilience and to evaluate policy implementation, a robust natural resources monitoring framework is required. Current monitoring activities are of varying quality, not sufficiently aligned to the new legislative and policy landscape, disjointed and when considered as a whole, potentially not as cost-effective as they could be.

This project was tasked with identifying options and developing recommendations for an integrated natural resources monitoring framework for Wales reflecting the ambitions and integrating principles of the Environment Act and Well Being of Future Generations Act. The monitoring community, the Welsh Government and Natural Resources Wales Core Evidence Group, the project team, stakeholders and partners, have agreed on a set of recommendations which underpin the following vision:

***A National Natural Resources Monitoring Framework will be developed to service the needs of a wide customer base across Cabinet portfolios, and to deliver the full economic potential of our natural resources. This will be phased in over 5 years guided by a Coordination Board representative of evidence users and providers. It will optimise and target monitoring, analytical and interpretation resources in Wales and enable rapid feedback to policy and management. This framework will be a key source of data and evidence underpinning National Natural Resource Policy including State of Natural Resource Reporting and a wider range of legislative requirements including international commitments. It will embrace, improve and integrate monitoring methods and technologies and rebalance resources to enable data to be 'collected once—reused often' through more effective sharing of data. A modelling and scenario testing component will underpin data interpretation and provide a predictive capacity. Levels of engagement across Welsh Government, public and private sectors will be increased, helping to promote Wales' position at the forefront of collaborative and innovative working.***

To deliver this vision the following recommendations have been co-developed through a series of stakeholder workshops and bilateral meetings, and supported by technical Briefing Papers:

1. Working **collaboratively** the Welsh monitoring community should develop an Integrated Natural Resources Monitoring Framework (NRMF). The new framework should be adaptive, responsive to policy priorities and emerging risks whilst maintaining a systematic programme of monitoring the stock and condition of natural resources. This will make more effective use of people and funding and deliver increased benefits.

2. NRMF should **service the needs of a wide customer base** for natural resources evidence across Cabinet, NRW and partners in recognition of the social and economic benefits arising from healthy and resilient natural resources.
3. A **Coordination Board** should be established that is representative of evidence users and providers. This Board should be tasked with advising on the **optimisation and targeting** of the collective survey, monitoring, analytical and interpretation resources in Wales. This will deliver an adaptive approach to monitoring, increase efficiencies, improve partnership working and help guide future management decisions to improve the resilience of our natural resources and ecosystems and increase benefits.
4. The community should take advantage of the NRMF domestically and internationally to build capacity, increase co-funding and investment into Wales, and use and develop novel solutions and products with industry exploiting the **full economic potential** of the NRMF for developing the economy.
5. The NRMF should **embrace, improve and integrate monitoring methods and technologies** and in so doing deliver and benefit from innovation, new opportunities and make more effective use of resources. This should include a robust and systematic assessment of new technologies and methods prior to their potential adoption. This approach will improve strategic deployment of resources ensuring an ongoing improvement programme.
6. The NRMF should follow the principle of **collect once – reuse often**. It should be **a key source of data and evidence** underpinning the Environment and the Well Being of Future Generations Acts, the State of Natural Resources Report, the National Natural Resource Policy, and a range of legislative requirements including international commitments.
7. To reduce duplication and increase efficiencies, NRMF should adopt a clear approach to efficient and effective **sharing of data** to enable the conversion of data into robust evidence products. A **rebalancing of resources** away from data collection to data coordination, analysis and interpretation is needed. This approach should exploit new technologies which allow for networking of data, information and analytical tools to increase the value and utility of data.
8. The NRMF should include a **modelling and scenario testing** component to underpin data interpretation, develop a predictive capacity and enable **rapid feedback to policy and management**. This will support the ongoing development of more robust policies which optimise the social and economic benefits derived from our natural resources and ecosystems in the long term.
9. To realise the significant benefits of this integrated framework **a three phased approach over 5 years** is required to convert the ambition into a practical programme and align with ongoing activities and initiatives:
  - a. Phase I – an initial exploration period which was primarily focussed on terrestrial systems (completed);
  - b. Phase II - including a delivery and improvement programme putting into practice opportunities identified in Phase I and developing a comprehensive framework

across all natural resource and ecosystem monitoring spanning air, land and freshwater and marine systems and their interface;

- c. Phase III - implementing an integrated monitoring framework which is refreshed on an ongoing cycle.

10. The NRMF should increase **engagement** across Welsh Government, public, private and voluntary sectors; communicating the fundamental importance of Wales' natural resources to its economy and the well-being of future generations.

In summary, these recommendations will:

- contribute to the development of the economy;
- make better use of resources across the monitoring community;
- better inform wider Welsh Government policy across Cabinet portfolios;
- enable more adaptive, responsive and targeted management of natural resources and ecosystems;
- be a key evidence source for National Natural Resource Policy including the State of Natural Resources Report and a wider range of legislative requirements including international commitments;
- provide more accurate, timely and efficient delivery of data, evidence and information;
- deliver integration of expertise, data and technologies;
- put Wales at the forefront of collaborative and innovative working.



**BANGOR**  
Centre for Ecology & Hydrology  
Environment Centre Wales  
Deiniol Road  
Bangor  
Gwynedd  
LL57 2UW  
United Kingdom  
T: +44 (0)1248 374500  
F: +44 (0)1248 362133

**EDINBURGH**  
Centre for Ecology & Hydrology  
Bush Estate  
Penicuik  
Midlothian  
EH26 0QB  
United Kingdom  
T: +44 (0)131 4454343  
F: +44 (0)131 4453943

**LANCASTER**  
Centre for Ecology & Hydrology  
Lancaster Environment Centre  
Library Avenue  
Bailrigg  
Lancaster  
LA1 4AP  
United Kingdom  
T: +44 (0)1524 595800  
F: +44 (0)1524 61536

**WALLINGFORD - Headquarters**  
Centre for Ecology & Hydrology  
Maclean Building  
Benson Lane  
Crowmarsh Gifford  
Wallingford  
Oxfordshire  
OX10 8BB  
United Kingdom  
T: +44 (0)1491 838800  
F: +44 (0)1491 692424