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# UK Coastal Monitoring and Forecasting (UKCMF) Service

Strategy for 2009 to 2019

In Partnership with



FLOODFORECASTINGCENTRE

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# Introduction

The Storm Tide Warning Service (STWS) was set up after the east coast flooding disaster of 1953, to provide warnings of impending high water levels. This was originally based on a network of tide gauges, which were then increased to cover the whole of the country. After weather and surge models were developed, the Met Office was then able to provide national forecasts and warnings.

In 1996, the Environment Agency took over the role of issuing flood warnings to the general public. In January 2005, responsibility for the service passed from Defra to the Environment Agency as the principal operational user. From 1 April 2009 the service was renamed 'UK Coastal Monitoring and Forecasting' (UKCMF) to more accurately reflect the service carried out.

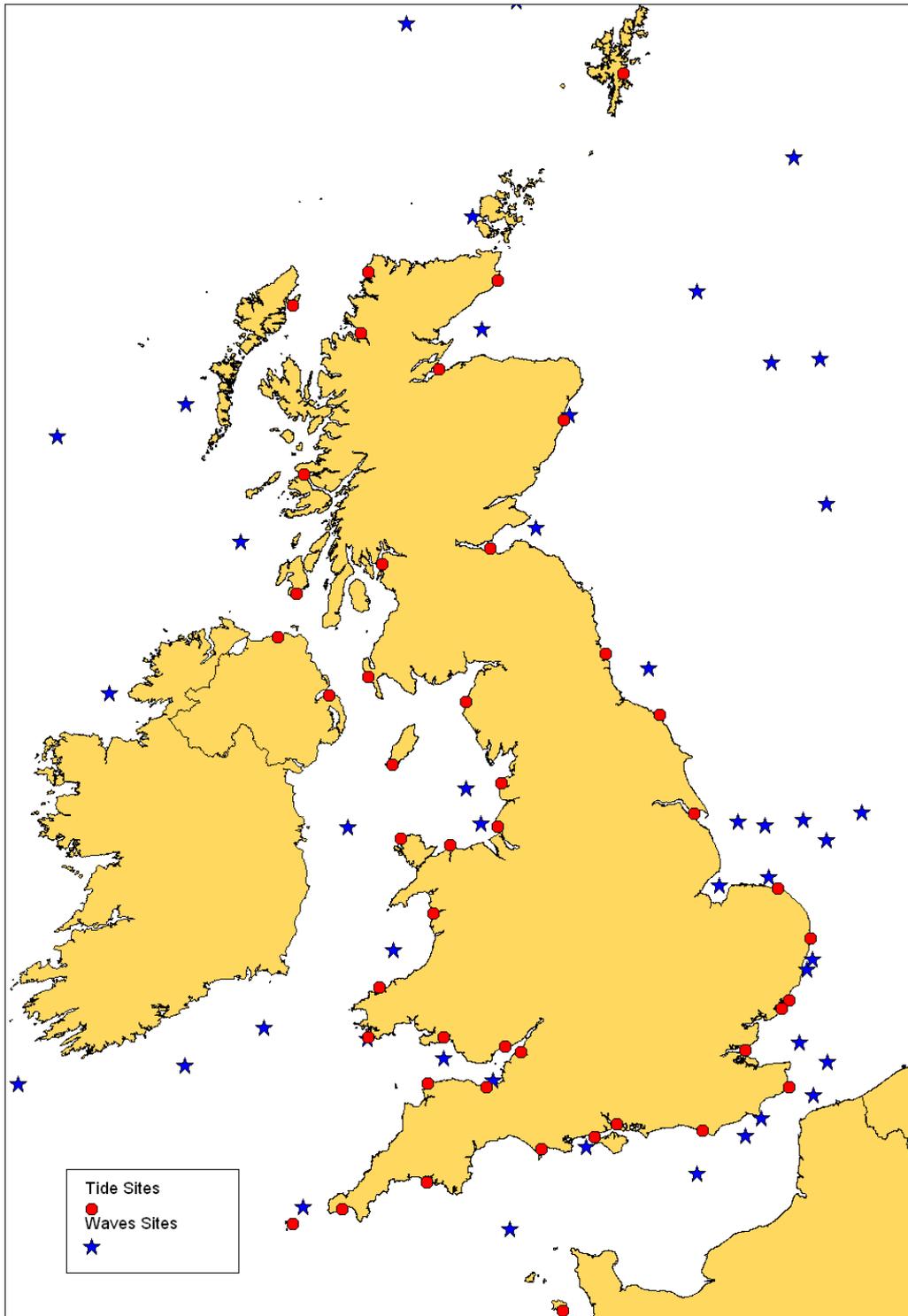
Five key partners and suppliers work with the Environment Agency. These are the Met Office, Proudman Oceanographic Laboratory (POL), Centre for Environment, Fisheries and Aquaculture Science (Cefas), British Oceanographic Data Centre (BODC) and Flood Forecasting Centre. This unique collaboration of professional expertise combines to provide a comprehensive United Kingdom wide service for coastal surge and wave monitoring and forecasting.

This strategy for UK Coastal Monitoring and Forecasting sets out a vision for the service and provides direction for stakeholders, partners, suppliers and funding organisations on how UKCMF will meet the diverse challenges the service faces both in the short term (next five years) and the medium term (5-10years).

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# Strategic monitoring network for tide levels and wave heights



# The UK Coastal Monitoring and Forecasting service

## What is the UK Coastal Monitoring and Forecasting service?

UK Coastal Monitoring and Forecasting (UKCMF) is a collaboration of public bodies with expertise in specialist areas, working together to provide a comprehensive coastal monitoring and forecasting service. This service makes sure that those people at risk of coastal flooding can be warned in good time and action taken to save lives and reduce the impact on homes, businesses, infrastructure and communities.

The Department for Environment, Food and Rural Affairs (Defra) and the Scottish Office provide grant in aid funding to the Environment Agency to manage the service. The service will often work with different organisations to co-fund development initiatives. The annual running cost of the service is approximately £2.1 million with a development budget running at approximately 1 million pound sterling.

UKCMF is an established service, which continues to meet the needs of all those who use it, including forecasters, coastal authorities, academics, government, emergency responders, commercial and the general public.

The service provides astronomical predictions for tide levels, real-time observations of wave and tide data, forecasts of coastal flood risks, advice, archive data and information.

The coastal forecasting service is based on a network of tide and wave gauges used to validate the forecasts. The primary purpose of the network is to develop forecast models, which will predict the effects of climate change on sea states and coastal processes.

As well as promoting the service, UKCMF is also looking at the wider benefits of working with European partners, by sharing knowledge, data, research and forecasting techniques.

### **Our vision**

We will provide strategic coastal forecasts to support the current and future needs of those who provide coastal warnings.

We will secure the future of the monitoring networks that underpin those forecasts and provide evidence for a managed response to the potential impacts of rising sea levels and climate change on communities.

### **UK Coastal Monitoring and Forecasting aims**

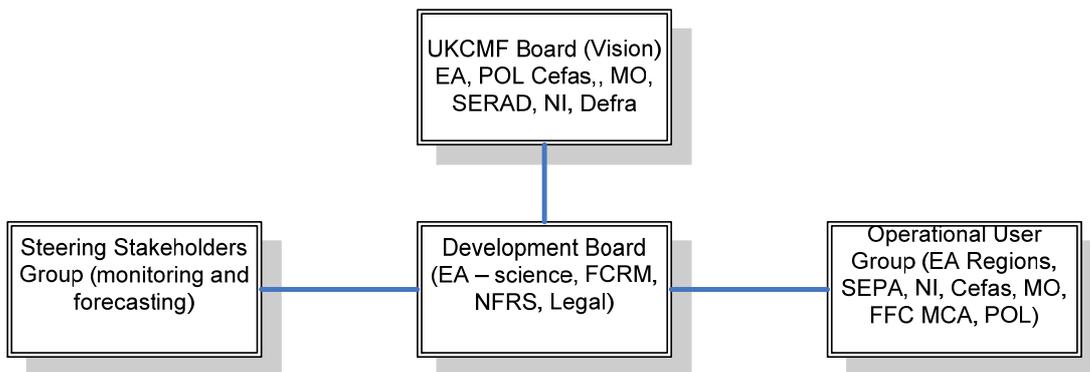
The outcomes in the Environment Agency corporate strategy we support are:

- Protect more homes from flooding
- Warnings are given in an emergency and acted on – accuracy and timeliness
- Flood defences operate effectively
- Fewer utility suppliers and transport are disrupted by flooding

We will:

1. work together to provide a comprehensive coastal flood risk forecast service for the UK;
2. develop the skills and capacity in strategic coastal forecasting and monitoring networks to meet the needs of those using them both now and in the future;
3. provide the long-term evidence to develop forecast models to meet the environmental challenge of climate change and inform coastal flood risk management;
4. work with European partners to share knowledge and forecast data;
5. encourage UKCMF data and information to be widely used by allowing it to be openly available.

# Management structure



The UKCMF board will take policy and direction from Government to shape and communicate the visions and aspirations of the service. The Environment Agency will be responsible for the management of the board

Three groups will support the board.

1. The steering group aims to review the performance of the service
2. The development board sits within the Environment Agency, providing direction and funding for activities.
3. The user group will represent the operational need for the service

# 1 Work together to provide a comprehensive coastal flood risk forecast service for the UK.

To achieve this we will:

- continue to provide high quality forecasts that meet the changing operational requirements of our customers;
- continue to invest in developing improvements in the forecasting system in line with advances in science;
- promote a culture across partner organisations that encourage skilled staff with knowledge of coastal forecasting to be competent and retained;
- publicise the importance of coastal forecasting and the operational benefits and activities UKCMF provides;
- be adaptable, understand the needs of our customers and have planned responses with each of our supplying partners.

We will measure our progress by:

- carrying out customer surveys with those involved in forecasting and warning in public organisations, to understand their needs and how well the service is meeting them. Consider further surveys with our public and commercial customers about the wider use of UKCMF services;
- continuing to validate the forecasts by using the data we have, reporting on performance to the steering group at least once a year, so that we can identify operational improvements and agree future programmes of work;
- monitoring the progress of planned operational development activities against the agreed programme and making sure that they meet the activity's objectives;
- carrying out our communication and publicity plans and monitoring completion of planned activities;
- logging enquiries about the service and its products to measure the take up of the newly named service.

## 2 Develop the skills and capacity in strategic coastal forecasting and monitoring networks to meet the needs of people using them both now and in the future.

To achieve this we will:

- develop the technological capabilities of the monitoring network, making it adaptable and able to meet operational needs;
- recognise the need for long-term funding of the strategic monitoring network for the ongoing operational requirements for coastal forecasting and to promote the service as a main source of evidence on trends in sea level rise and land movements;
- provide long-term records of measured tidal records and forecasts which are secure and subject to strict quality control.

We will measure our progress by:

- every three months monitoring the consistency and quality of measured data to confirm the information is reliable, identifying areas of concern and proposing changes where required;
- reviewing the coverage and resilience of the monitoring network to meet the strategic requirements;
- monitoring how the data is used, both within coastal monitoring and forecasting and wider evidence-based applications, to demonstrate the value and wider benefits of the service;
- producing a catalogue of data standards, agreements and maintenance records to demonstrate security and quality of the systems;
- demonstrating reduced installation, maintenance and management costs by using nationally consistent systems and equipment.

### 3 Provide the long-term evidence to develop forecast models to meet the environmental challenge of climate change and inform coastal flood risk management.

To achieve this we will:

- use the monitoring network as much as possible to capture on and offshore data;
- engage with academic researchers to understand their data requirements;
- compliment the Environment Agencies National Coastal Monitoring Strategy;
- inform asset management and all data and mapping strategies;
- be forward looking as a service, able to provide high quality advice and information;
- introduce consistent standards in instrumentation, data storage, archiving and retrieval of data;
- provide and share best practice in expertise, instrumentation, distribution systems, processes and products.

We will measure our progress by:

- having UKCMF data specified for use in academic research and coastal assessments;
- monitoring access to the data, recording what, when, who and why data is being used, together with the activity on real time data sites;
- in our annual report, include statistics to support selecting strategic and non-strategic measurement sites.

# 4 Work with European partners to share knowledge and forecast data.

To achieve this we will:

- work with European tidal forecasting organisations;
- expand the service to the whole of the UK and explore opportunities to work together;
- identify and assess the European partnerships, understanding what they contribute and when we will interact;
- along with existing finance, explore other potential European funding for UKCMF;
- make sure that any expansion in the scope or coverage of the service is sustainable and has clear benefits.

We will measure our progress by:

- increasing and maintaining membership of the steering group;
- increasing international activity on the UKCMF website;
- recording feedback from attendance of European forecasting groups, conferences and seminars;
- increasing the reference of UKCMF sourced material in European publications;
- showing an ongoing increase in funding sources for UKCMF from the European community on collaboration and knowledge sharing initiatives;
- showing an increase in the number of people using the service both within the UK and across Europe;
- including in the annual report any significant contacts and communications with similar authorities;
- carrying out market research with international customers to find out what they think of UKCMF.

# 5 Encourage UKCMF data and information to be widely used by allowing it to be openly available.

To achieve this we will:

- create and implement a data policy with agreements on data sharing with partners;
- allow UKCMF data to be openly available to all UK customers and only charge administration and data processing costs for data requests;
- publish descriptions of the data available and the administration charges for supplying data to UK and non-UK customers;
- work with partners on data access to make sure their interests are satisfactorily protected;
- continue to develop and expand the web portal for UKCMF as the single point of access for data and information on the service;
- automate the data supply process with partners.

We will measure our progress by:

- recording the number, type and purpose of the data requests, including a summary of the collection, storage and dissemination costs with the annual statistics.

# Challenges and opportunities in coastal monitoring and forecasting

We want to be the leading authority on coastal monitoring and forecasting and, working with our partners, be regarded as the best service provider in the sector.

To achieve this, we face a number of challenges both from within and outside the service.

## Challenges

- Although the service relies heavily on investment in hardware, automated processes and software, the organisation also depends on the professional skills of its staff if the service is to secure its future.
- Environmental changes, in particular climate change, may have an effect on both strategic monitoring and coastal forecasting.
- Social changes and the impact of population growth on coastal areas place additional demands on forecasts.
- There has to be a long-term commitment to funding if the service is to provide a core operational service and achieve its strategic aims.
- The operational delivery of the service must not be compromised and each of the component parts must be developed equally to achieve common goals. The service must also be competitive and responsive to other organisations who may offer a similar service on a commercial basis.

## Responding to the challenges

We will:

- identify key roles and draw up specific development plans to recruit, retain and develop staff to ensure knowledge transfer and succession planning.
- promote the value of the service through co-ordinated communications plans to demonstrate its benefits and maintain its profile.
- promote the capability of the monitoring network to provide the data for responding to environmental changes.
- adopt and promote alternate and new technology, such as satellite data and High Frequency radar that will bring benefits and make the service more efficient.
- aim to maintain the level of core funding for the service and extend additional sources of short and long-term funding to include other operating authorities, partner organisations and commercial operations.
- continue to set standards that make UKCMF resilient to external pressures and challenges.

## Planned activities

### Short term (0-5 years):

- Expand the forecasting network and service to the whole of the United Kingdom of Great Britain and Northern Ireland.
- Develop a strong management structure for UKCMF, including planned succession for key staff and knowledge retention.
- Publish and implement a package of business plans to cover communications, disaster recovery, data policy, forecasting tools, validation and introduce an information systems strategy.
- Consider if the existing monitoring network can measure other parameters, which will improve the service provided by UKCMF.
- Managing expectations as the service invests in extending lead times and forecast accuracy.

### Medium term (5-10 years):

- Expand the forecasting network and service to provide wider geographical coverage if required.
- Carry out international initiatives, in particular working with European partners.
- Be an integral part of and lead on the monitoring of coastal flood risk incidents, including coastal erosion.
- Extend the service to include near shore coastal monitoring.
- Provide combined fluvial and coastal forecasts.
- Single platform for all forecasting information.

### Long term (10 years +):

- Compliance with the long-term Environment Agency Investment Strategy, meeting Government's objectives in managing flood risk and coastal erosion in England over the period 2010 to 2035.

# Glossary of terms

EA	Environment Agency
STFS	Storm Tide Forecasting Service
MO	Metrological Office
POL	Proudman Oceanographic Laboratories
Cefas	Centre for Ecology Fisheries and Aquaculture Science
FFC	Flood Forecasting Centre
NI	Northern Ireland
UK	United Kingdom (England, Scotland, Wales and Northern Ireland)
UKCMF	United Kingdom Coastal Monitoring and Forecasting
Defra	Department of Environment Food and Rural Affairs
SEPA	Scottish Environmental Protection Agency
DARDNI	Department of Agriculture and Rural Development
British Isles	England, Scotland, Wales, Northern Ireland, Eire (Irish Republic), Isle Of Man, Channel Isles, Isles of Scilly, Orkney and Shetland Isles

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