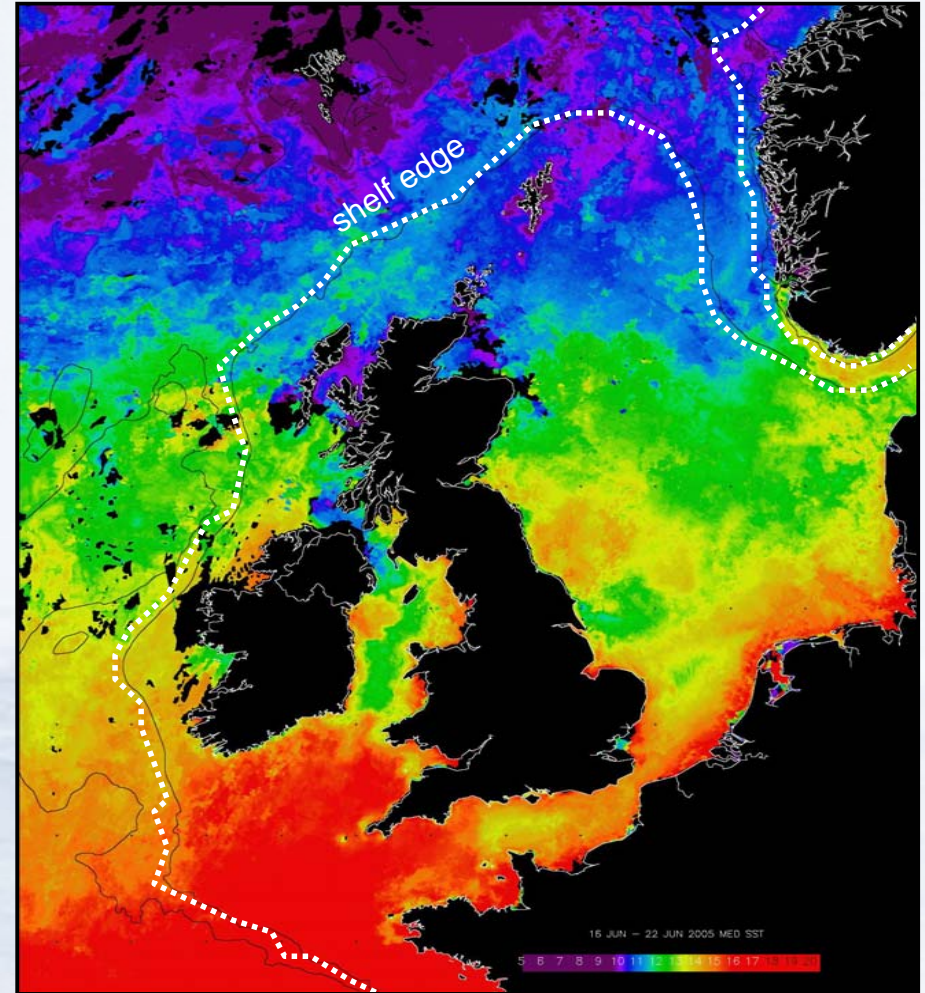


Response and Role of our Shelf Seas in a Changing Climate.

Jonathan Sharples
j.sharples@pol.ac.uk

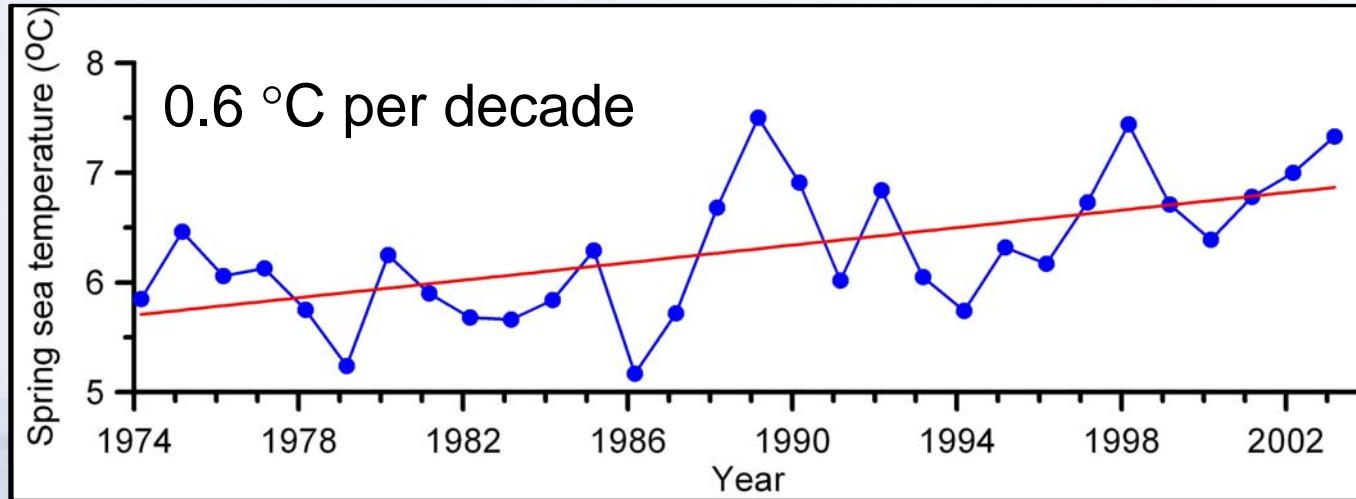
Introduction

- Recent signals of change.
- How we monitor change.
- What the shelf seas can give us.
- Unknowns....



Recent signals of change

Are our seas warming up?



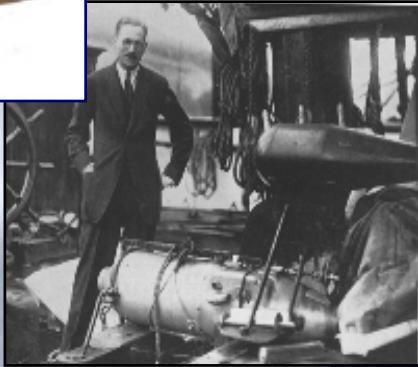
Yes they are.

Is it important?

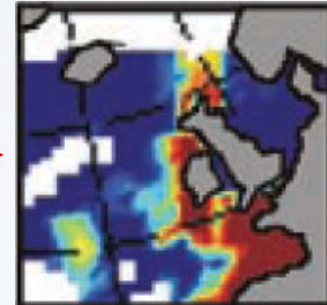
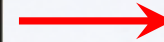
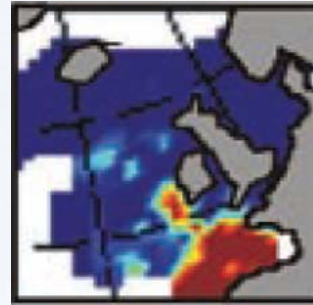
Recent signals of change

Plankton distributions have changed.

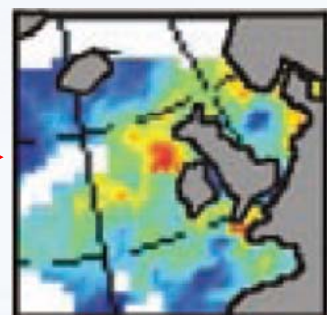
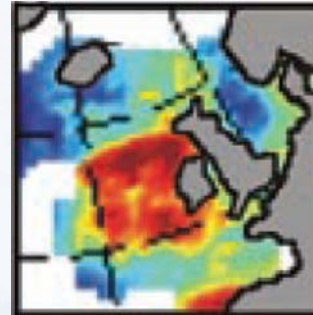
(Data from the Continuous Plankton Recorder)



“Warm”
species

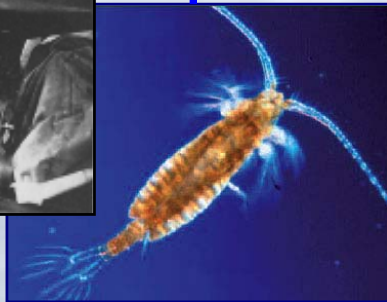


“Cool”
species



1980-83

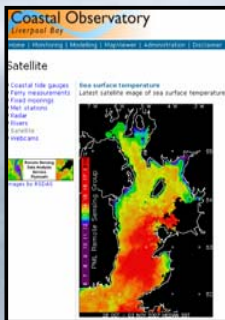
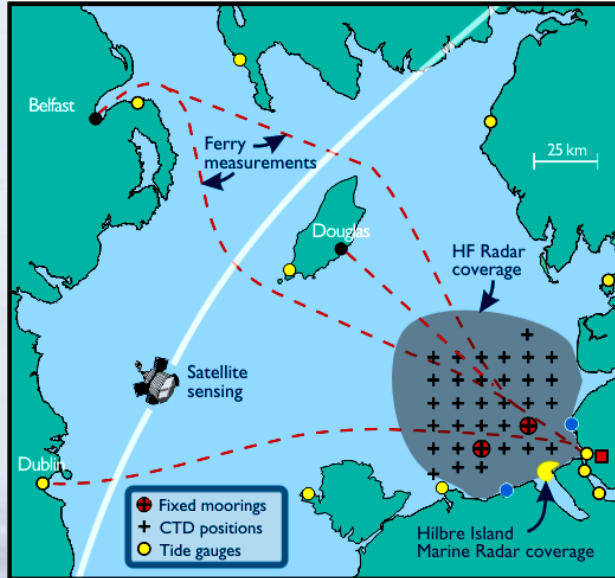
1996-99



Cod move north in response to warmer seas.

How we monitor change

The Irish Sea Observatory



6 years of monitoring

9 survey cruises per year

2 long-term moorings

2 instrumented ferries

HF radar (currents and waves)


Satellite remote sensing


Forecast and scenario modelling

Major collaborations with:

Cefas, Liverpool University,
EA, NEODAAS, AFBI

How we monitor change


**Coastal Observatory**
Irish Sea

Proudman
Oceanographic Laboratory
NATURAL ENVIRONMENT RESEARCH COUNCIL


Home | About us | Monitoring | Modelling | MapViewer

Popular links | Status | Contact us

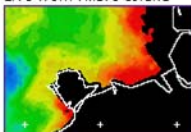
Today's science for tomorrow's operational systems



Area of research interest




Live from Hilbre Island



Latest satellite composites

What's new

19th August 2009
Web site status
Web systems working normally. Please refer to individual measurement systems for more detailed information.



RV Prince Madog deck

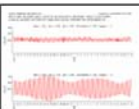
1st June 2009
Coastal Observatory review 2009
The following document contains the results from a review of the first five years of the Coastal Observatory and recommendations for future direction.
[» Review document \(.pdf, 217K\)](#)

[View past news items](#) | [Check status for problems](#)

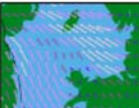
Tue 25 Aug 9:09 UTC 2009

» About us
About the Irish Sea Observatory, future plans, participants, cruise plan, outputs, register for data, Steering Group information.

» Monitoring
What we are monitoring? Get the latest meteorology, wave heights, currents, tidal sea levels, sea water temperature, salinity, turbidity chlorophyll. Some in real-time others in delayed mode.



» Modelling
View forecasts for the Irish Sea. Outputs from the Ocean shelf, Irish Sea, Liverpool Bay models, including map based Irish Sea meteorological forecasts.




Real-time latest

Liverpool Bar Light
2009/08/25 05:59
Sea temp 17.1 degC
[» Find out more](#)

WaveNet Buoy
2009/08/25 07:30:00
Wave height .80 m

Hilbre Island
Hilbre Island Met Station
2009/08/25 08:50
Add one hour for BST
Last hour wind average was 9 knots
Force 3 S
Air Tem 14.7 degC

Date/time (GMT)
Wind speed (knots)
08/25 08:50 7 S
08/25 08:40 9 S
08/25 08:30 10 S
08/25 08:20 10 S
08/25 08:10 10 S
08/25 08:00 10 SE
08/25 07:50 10 SE
08/25 07:40 11 SE
08/25 07:30 11 SSE
08/25 07:20 13 SSE
08/25 07:10 13 SSE
[» Find out more](#)

NATURAL
ENVIRONMENT
RESEARCH COUNCIL

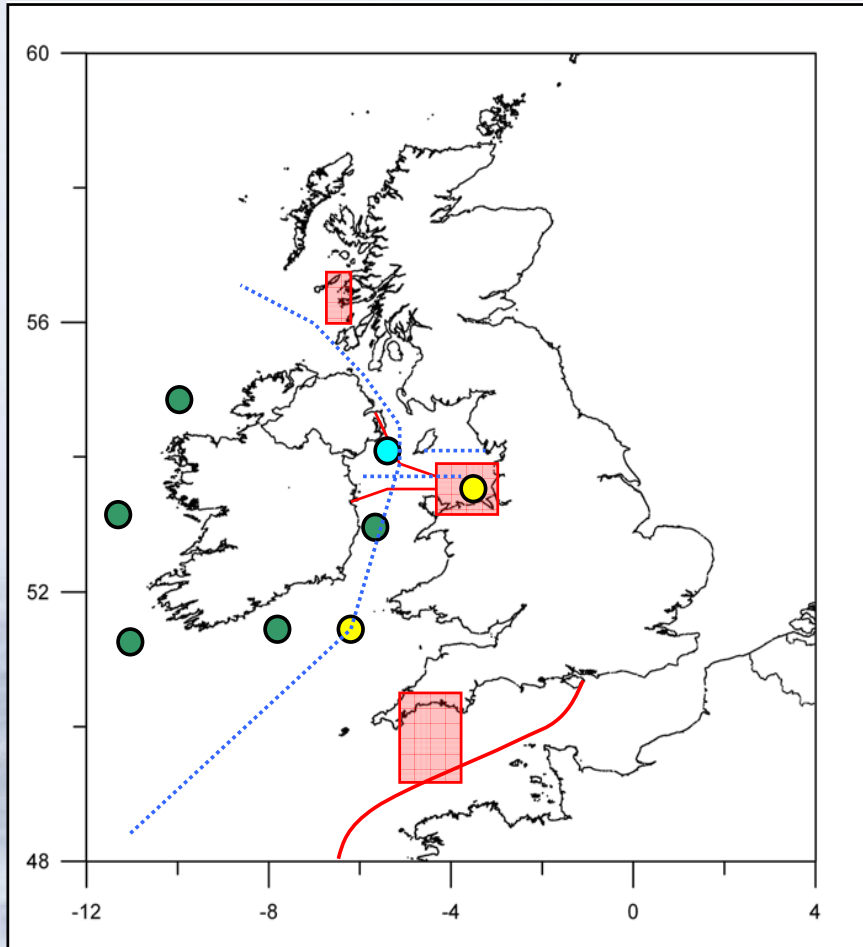
Free access to data.

Encourage participation and collaboration.

Steered by stakeholders.

Rooted in research.

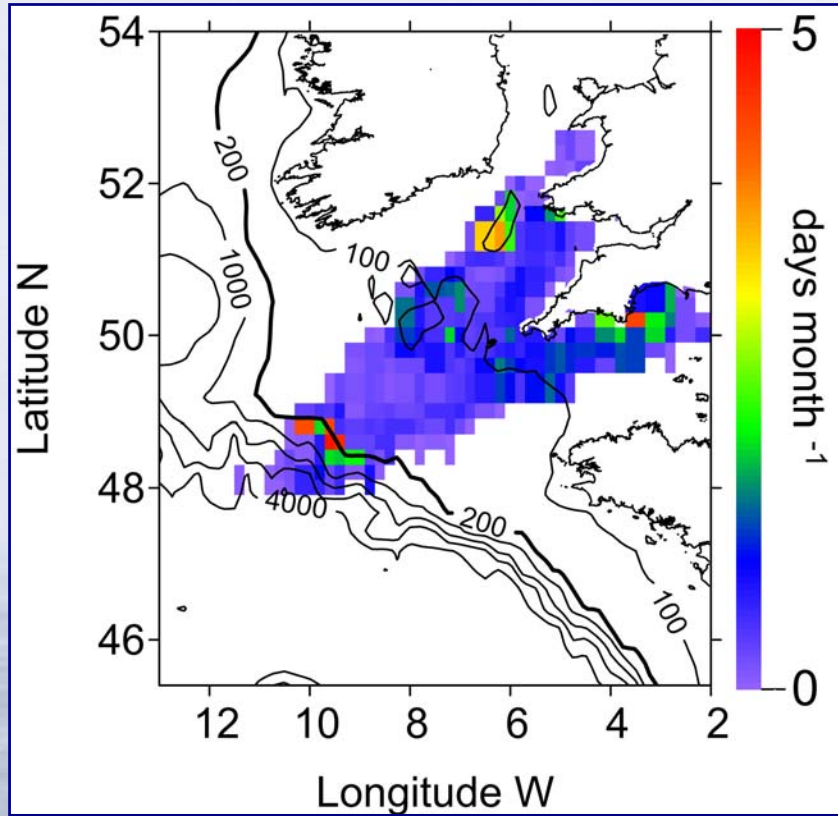
How we monitor change



-  NERC observatories
-  Cefas Smartbuoy
-  Irish buoys
-  AFBI long-term mooring
-  AFBI survey lines
- + SAHFOS

**The Western Shelf
Observatory**

What the shelf seas can give us



Fishing effort on the SW UK shelf

Shelf seas provide 95% of global fish catches.

Fishing effort occurs in patches – controlled by oceanographic features.

We need to understand how fishing might change as the ocean climate changes.

What the shelf seas can give us

UK has unique potential for tidal power.

Possible barrage sites:

Solway

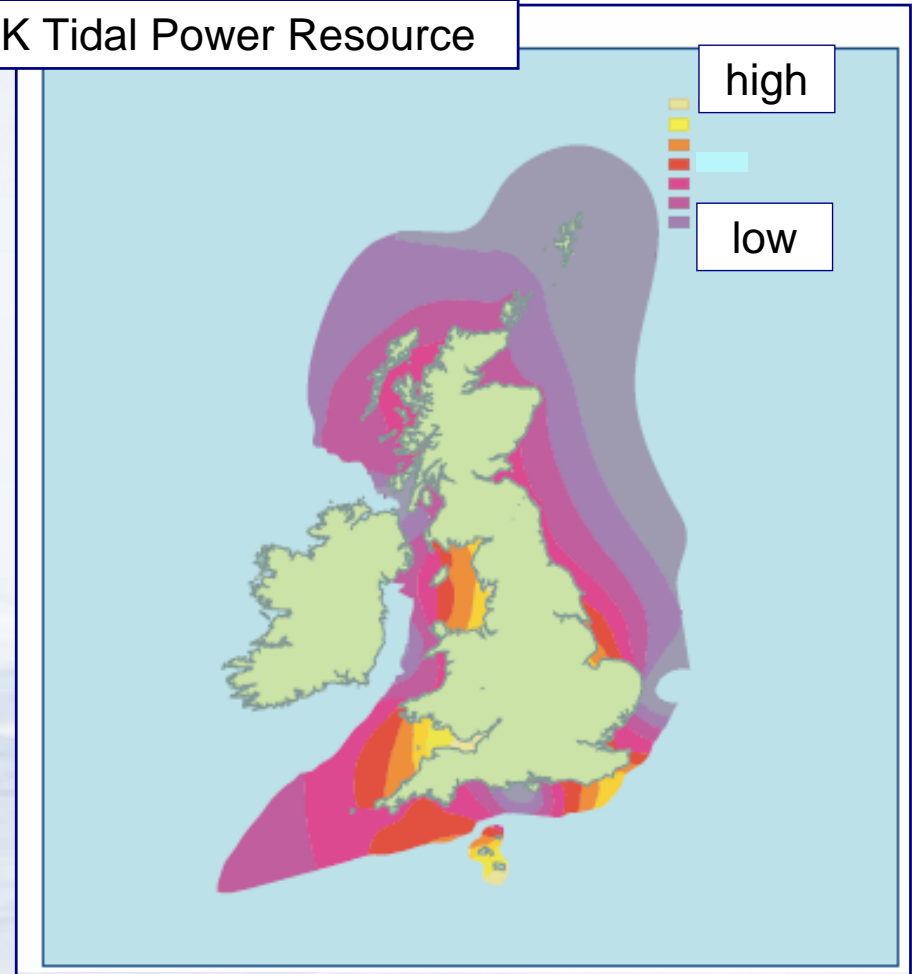
Morecombe Bay

Mersey

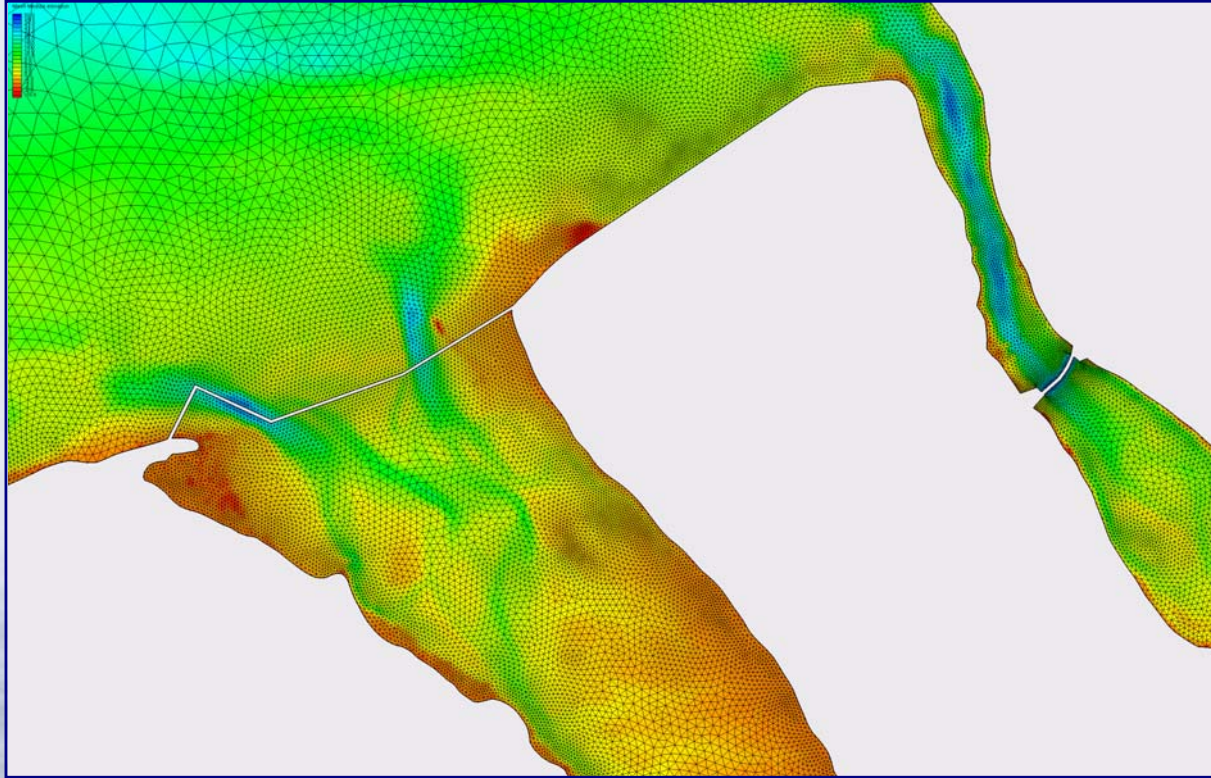
Dee

Severn

UK Tidal Power Resource



What the shelf seas can give us



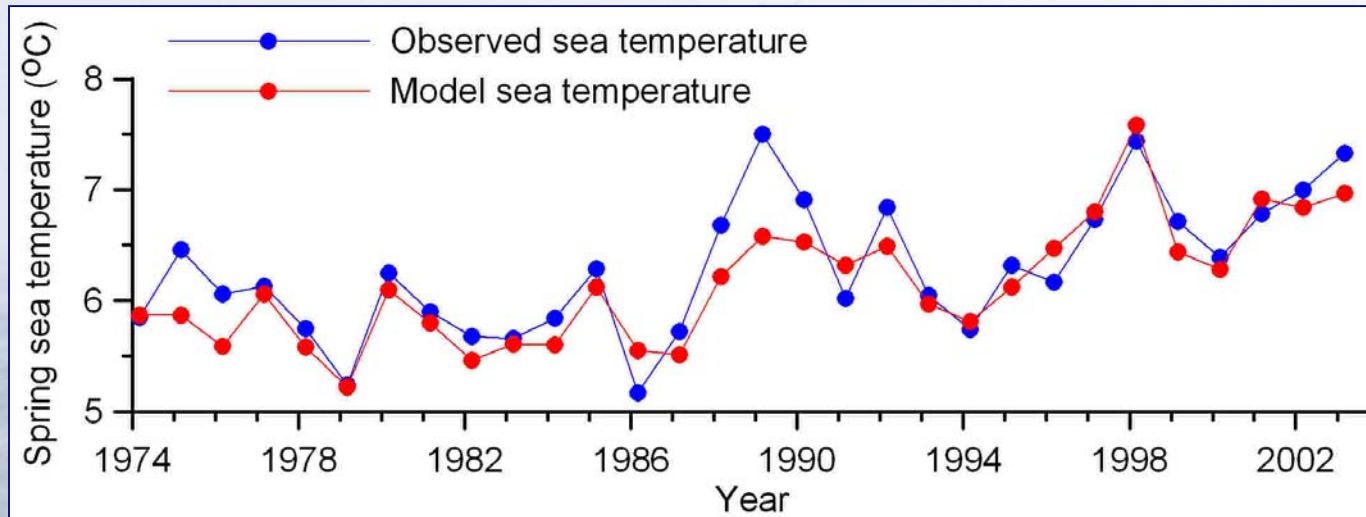
High resolution
computer models of
barrage power output
and physical
impacts.

All barrages: 15% of present UK electricity requirements.

NW UK barrages: 50% of NW regional electricity requirements.

Unknowns....

Where are the key gaps in our knowledge of how shelf seas will respond to a changing climate?



Given the right meteorological information, we can predict physical changes in the shelf seas.

Unknowns....

But, ecosystems are more difficult, and humans will respond to ecosystem responses!

