



Department
for Environment
Food & Rural Affairs



A scientific perspective on challenges and developments in the shellfish sector



Content

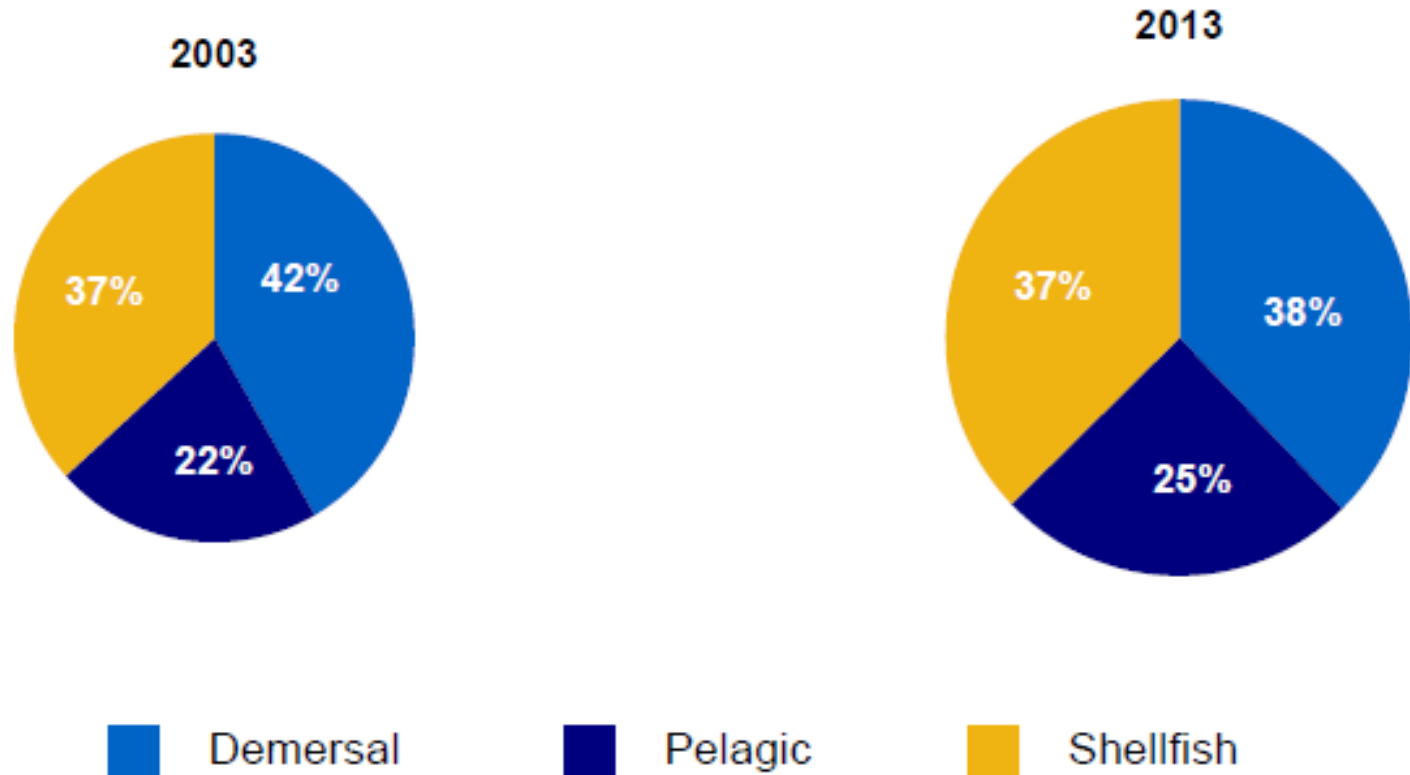
- Sector
- Vision
- Key challenges
- Science and Evidence
- Developments and Opportunities

The sector: Wild shellfisheries

- Main commercial species include crabs, lobsters, scallops, but
- Increasing pressure on less traditional target species including cuttlefish, whelks, cockles.
- High market value
- Some stocks within the 6 nm limit (IFCA management) or exploited only by UK fisheries
- No catch quota from EU (except for *Nephrops*)

The sector: Wild shellfisheries

Value of landings by UK vessels into the UK and abroad

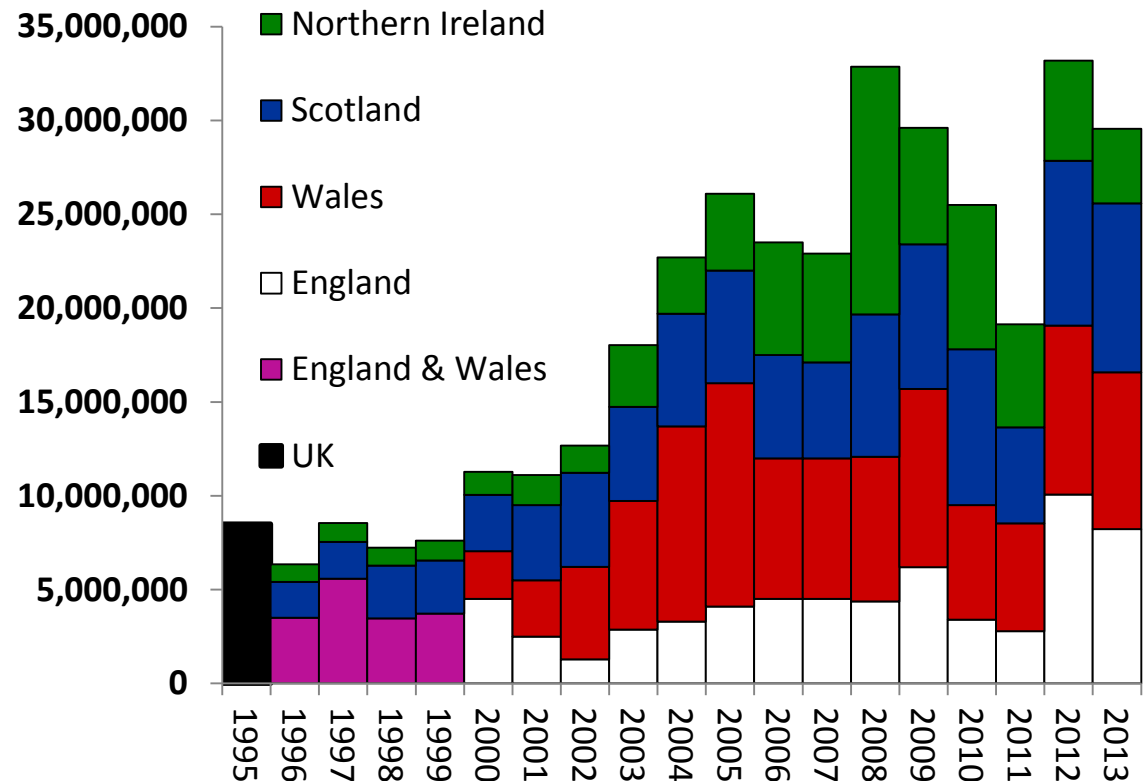


Source: UK Sea Fisheries Annual Statistics

The sector: Shellfish aquaculture

- Main species are oysters, mussels
- Increased production over the years
- Relatively low environmental impacts

Value of shellfish aquaculture sector (£)



Comparative efficiency of aquaculture

(Adapted from Phillips et al. 1991, FAO 2003, Hall et al. 2011)



	Food Conversion	Protein efficiency	Nitrogen emissions	Phosphate emissions	Water consumption	Land use
Beef	Green	Green	Green	Green	Green	Green
Chicken	Green	Green	Red	Red	Red	Green
Pigs	Green	Green	Green	Red	Red	Green

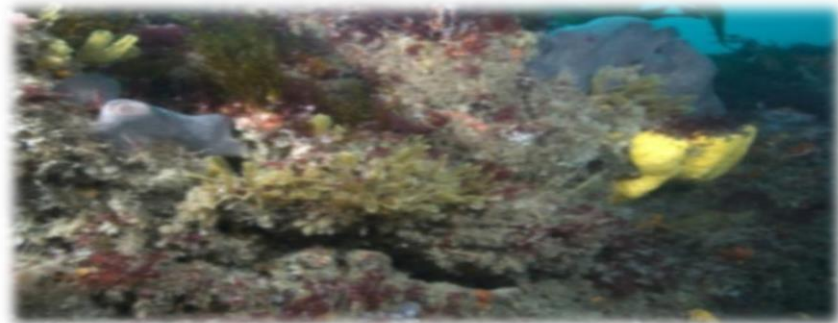


	Food Conversion	Protein efficiency	Nitrogen emissions	Phosphate emissions	Water consumption	Land use
Beef	Green	Green	Green	Green	Green	Green
Chicken	Green	Green	Green	Green	Green	Green
Pigs	Green	Green	Green	Green	Green	Green



Our Vision

- A thriving shellfish sector supporting the UK economy and local communities.
- Healthy, highly productive stocks
- Low environmental footprint



European context

- Commitment to achieve Maximum Sustainable Yield (MSY) for commercial shellfish stocks
- Emphasis on ecosystem approach
- EU Guidelines for boosting aquaculture
- Blue growth agenda



Challenges

- Multiple dependencies and links among species and habitats makes it difficult to understand impacts.
- Limited knowledge of biological processes
- High risk of overexploitation given demand/price (need to understand exploitation better)
- Finite resources/funding



Challenges

- New EU requirements/targets create a level playing field across EU but also increase work (ecosystem approach)
- Impact of climate change (incidents and distribution of toxin threats, impact of flooding on water quality, more risk from invasive species)
- Competition for space (use of marine environment, competing activities)



Using science to meet challenges

Research on stock dynamics help understand species responses to pressure and safe level of catches

PIECRUST:

Covers both crabs and lobsters and develops methods for:

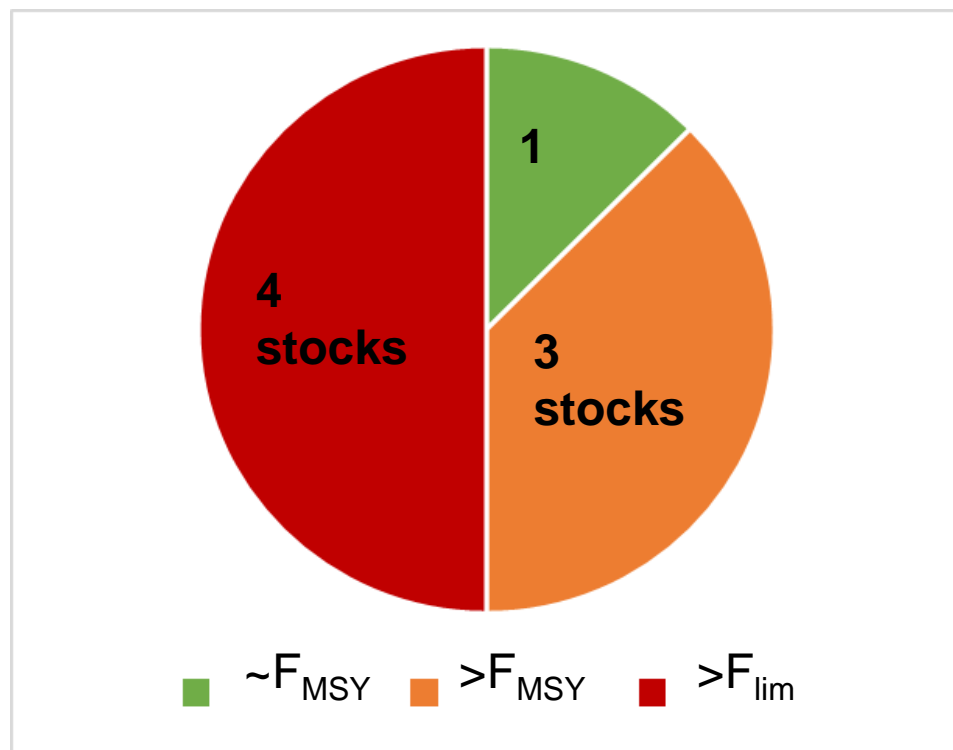
- Monitoring growth
- Assessing recruitment strength



Stock assessment analysis

- Quantitative estimates available for most crabs and lobsters stocks around England.
- Assessment still not possible for 2 stocks.
- Results indicate that exploitation is above optimum levels for most stocks.
- Need to improve data

Exploitation of crabs and lobsters



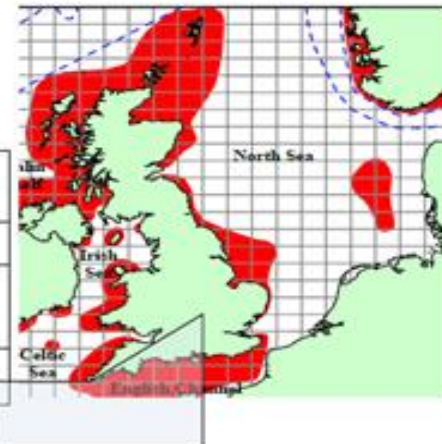
Latest results. Stock assessment undertaken by Cefas

Make findings and science easily accessible

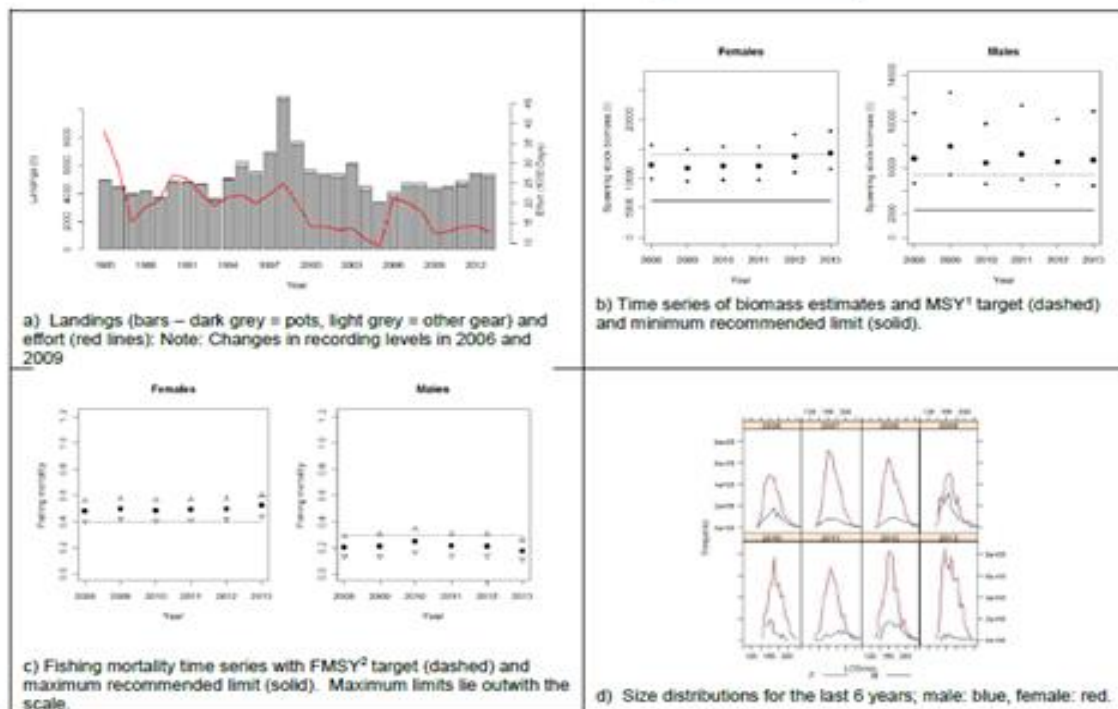
Cefas Stock Status 2013: Edible crab (*Cancer pagurus*) in the Western English Channel

Sustainability Status

Minimum Landing Size	Multiple spawning opportunity before capture
Discarding	High discard survival
Exploitation rate	Around level generating Maximum Sustainable Yield (Females above, males below)
Stock size	At Maximum Sustainable Yield target



- 2-page summaries for each stock available online
- Cefas and IFCA's contribute data for assessment
- Cefas explores options for closer collaboration with fishermen



Improving evidence collection

Collection and use of data that is easier, faster, more effective and reliable.

MSAR:

- Using digital technology, on-line tools
- Aim to fill gaps about exploitation of shellfish
- Reduce processing time
 - fishermen submitting data electronically
 - automatic checks

Shellfish Returns

[Calendar view](#) [Manage account](#) [Sign out](#)

ALPHA This is a new service – your [feedback](#) will help us to improve it.

Home > [Catch view](#)

Vessel:

Test Vess Two ▾

Previous month

May 2015 ▾

Next month

Activities calendar

[Retained catch summary](#)

[Comments](#)

1st	Friday				
		Location	Target species	Gear	Gear hauled
		31E6 in belt 3-6 Mi landing at SWANSEA	LOBSTERS	PARLOUR POTS	2 Edit
		Add activity			
2nd	Saturday				
		Add activity			
3rd	Sunday				
		Add activity			
4th	Monday				
		Location	Target species	Gear	Gear hauled
		31E6 in belt 3-6 Mi landing at SWANSEA	BROWN CRAB	PARLOUR POTS	Edit

Control invasive species

- Defra-funded research focusing on control of non-native crayfish
- Consider alternative trap designs to maximise chance of capture
- Closely supported by volunteers from Anglian Trust to deploy and check traps
- Development of analytical tools to assess effort needed and best treatment to eradicate colonies

Effects of climate change on toxins

- FSA-funded research considered the effects of climate change on toxins in the marine environment
- Identified new toxins that could affect UK waters
- Reviewed the risks of new toxins to shellfish products
- Focused work on developing reliable methods of:
 - Detecting the new toxins
 - Measuring their levels in shellfish



Rural Affairs



Safeguard shellfish health

Research on new diseases and their impact on shellfish can inform business decisions and support action to mitigate threats

- New molecular techniques has improved our ability to detect pathogens and understand their effects on shellfish species.
- New research has highlighted the potential impact of diseases on mortality of juvenile edible crab stocks

Using science to meet challenges

It is a joint effort!



Our evidence strategy

***Promote co-ownership,
co-design and co-funding
of evidence activities***

***Drive innovation and
quality in the ways we
access and use evidence***

***Sustain critical evidence
capacity and capabilities***



www.gov.uk/defra

**Making the most of our evidence:
A strategy for Defra and its network**

June 2014



Joint action: Shellfish symposium

Hosted by Defra, brought together scientists, Government, NGOs, industry, and funding bodies to:

- Increase collective understanding of the current state of evidence and action still needed
- Catalyse joint research and strengthen communication

Led to:

An online communication platform to meet the need for a Shellfish Research Network*

A LinkedIn group for UK shellfish research

An action plan from the Symposium is being developed



Opportunities for joint evidence work

- Funding opportunities include European Regional Development Funds; EMFF; Horizon 2020
- Comprehensive on-line guide to funding opportunities and research partners for aquaculture developed by Seafish
- Discussions with all interested parties about stock-specific management plans for crabs and lobsters.
- Next round of MMO consultation on Marine Plans
- A review of monitoring schemes for scallops and industry's role in evidence gathering is underway.
- The UK's Multiannual Aquaculture Plan will highlight key areas EMFF will look to fund.



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Questions



shellfish@defra.gsi.gov.uk

