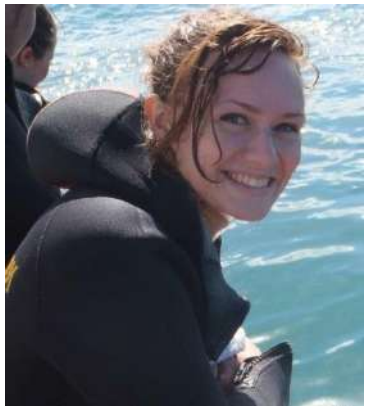
UK Intertidal Citizen Science

CoCoast South West Team



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CAPTURING OUR COAST

CoCoast Aims

- Scientists and members of the public **work together** to collect data
- Understand, in more detail, the **variety of species** that we have on our coasts
- Collect **robust & relevant data**
- **Provide a baseline** from which to pinpoint any environmental changes





CAPTURING OUR COAST

Who's Involved?

THE wildlife TRUSTS

heritage lottery fund
LOTTERY FUNDED

SAMS

Newcastle University

UNIVERSITY OF Hull

PRIFYSGOL BANGOR UNIVERSITY

marine conservation society

EARTHWATCH INSTITUTE

THE MARINE BIOLOGICAL ASSOCIATION

University of Portsmouth

CAPTURING OUR COAST

Building On Success

Big Sea Survey

- Northeast England
- 357 trained volunteers
- Data contributed to evidence base for conservation zone designation process

MarClim

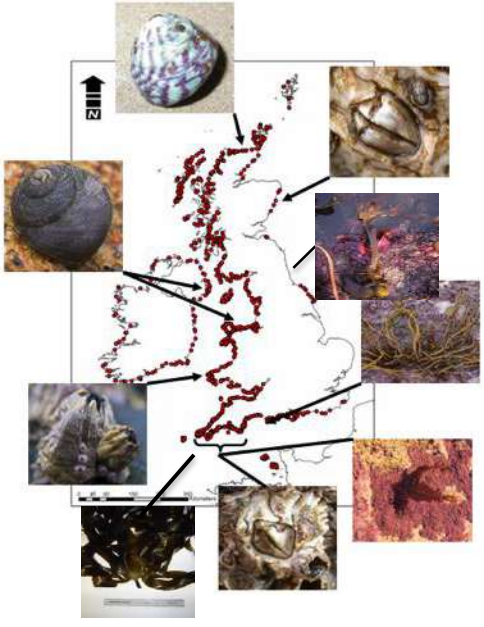
- UK wide
- Research project
- Range shifts of intertidal species
- Track invasions of non-native species
- Inform UK policy

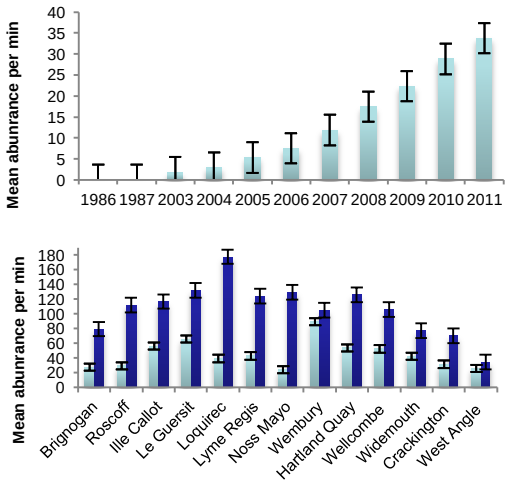
Capturing Our Coast

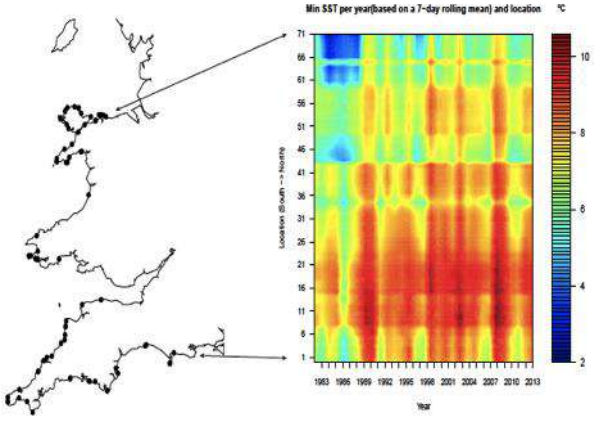
- UK wide
- 3500+ volunteers
- Coastal surveying and internet-based participation
- Potential to inform policy

MarClim

Marine Biodiversity & Climate Change: MarClim







- Most spatio-temporally extensive intertidal time-series in the world
- Detecting some of fastest biogeographic shifts in response to climate change

PHILOSOPHICAL TRANSACTIONS OF THE ROYAL SOCIETY A MATHEMATICAL, PHYSICAL & ENGINEERING SCIENCES

The role of sustained observations in tracking impacts of environmental change on marine biodiversity and ecosystems

N. Mieszkowska, H. Sugden, L. B. Firth and S. J. Hawkins

Phil. Trans. R. Soc. A 2014 **372**, 20130339, published 25 August 2014

Global Change Biology

Global Change Biology (2012) **18**, 1270–1281, doi: 10.1111/j.1365-2486.2011.02620.x

Region-wide changes in marine ecosystem dynamics: state-space models to distinguish trends from step changes

MATTHEW SPENCER*[1], NOVA MIESZKOWSKA†[1], LEONIE A. ROBINSON*[1], STEPHEN D. SIMPSON‡[2], MICHAEL T. BURROWS§[1], SILVANA N. R. BIRCHENOUGH¶[1], EVA CAPASSO**[1], POLLY CLEALL-HARDING**[1], JULIA CRUMMY††[1], CALLAN DUCK‡‡[1], DAMIEN ELOIRE§§¶¶[1], MATTHEW FROST†[1], AILSA J. HALL‡‡[2], STEPHEN J. HAWKINS§**[1], DAVID G. JOHNS***[1], DAVID W. SIMS†,†††[1], TIMOTHY J. SMYTH‡‡‡[1] and CHRIS L. J. FRID*[1]

Hydrobiologia (2006) 555:241–251

H. Queiroga, M.R. Cunha, A. Cunha, M.H. Moreira, V. Quintino, A.M. Rodrigues, J. Serôdio & R.M. Warwick

Marine Biodiversity: Patterns and Processes, Assessment, Threats, Management and Conservation

DOI 10.1007/s10750-005-1120-6

Changes in the range of some common rocky shore species in Britain – a response to climate change?

N. Mieszkowska[1]*, M.A. Kendall[2], S.J. Hawkins[1], R. Leaper[1], P. Williamson[3], N.J. Hardman-Mountford[1,2] & A.J. Southward[1]

Living on the Edge of Two Changing Worlds: Forecasting the Responses of Rocky Intertidal Ecosystems to Climate Change

Brian Helmuth,[1] Nova Mieszkowska,[1] Pippa Moore,[2] and Stephen J. Hawkins[2,3]

Ways To Participate

1. Species Package Surveys
2. Experiments and Targeted Observations
3. Additional Engagement (Zooniverse, Bioblitz)






CAPTURING OUR COAST


Support

Newsletter

Survey Days

Social Evenings

Talks

Expert Training

BioBlitz Events

CAPTURING OUR COAST

Why Survey?

Baseline data

CAPTURING OUR COAST

Anthropogenic Drivers

Coastal squeeze

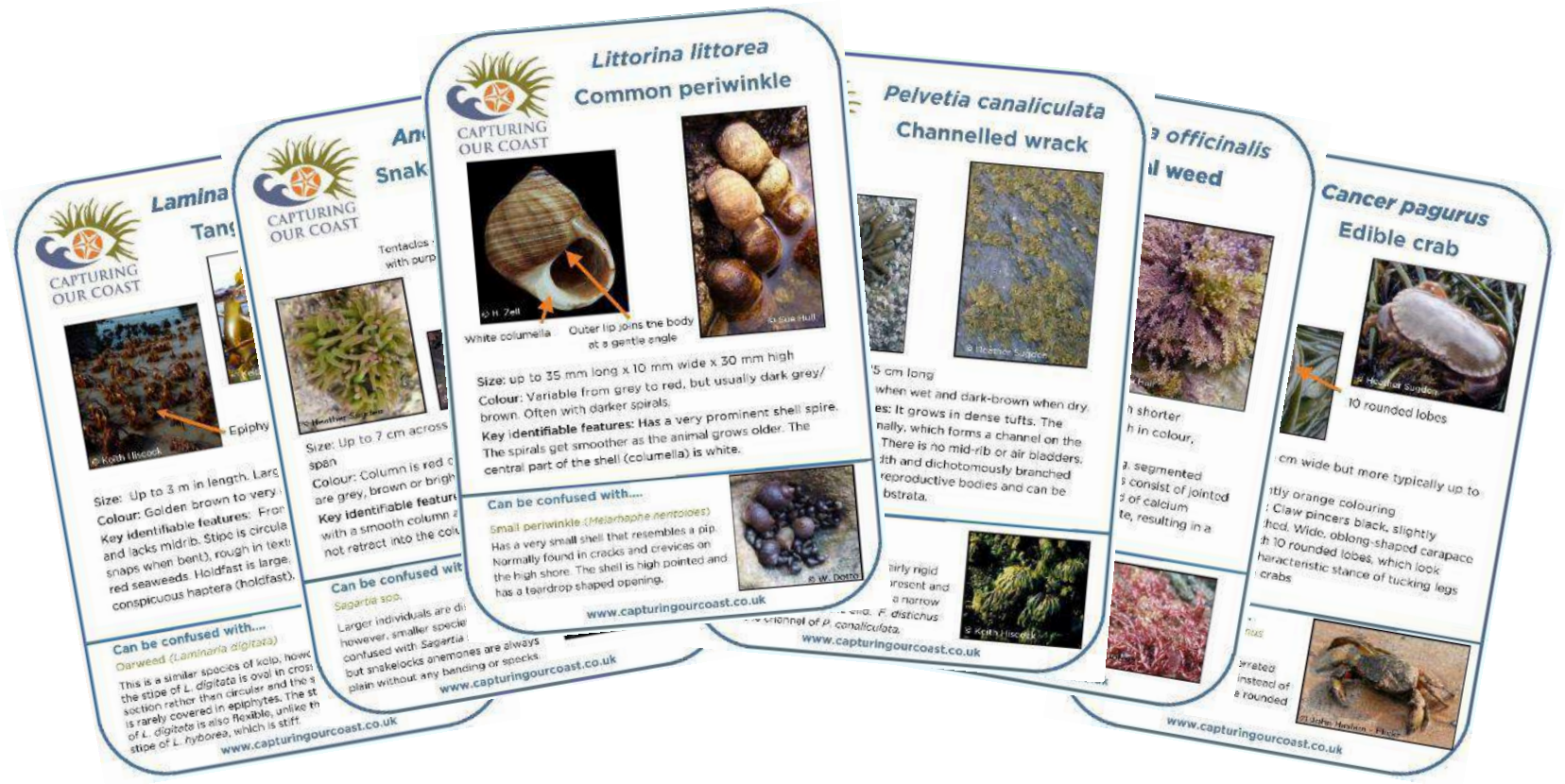
Climate change

Extreme weather

Ocean acidification

Surveys & Experiments

What are we surveying and **Why**?



CAPTURING OUR COAST

Experiments

Carried out by all 7 hubs around the UK

Field experiments
Lab sample analyses

CAPTURING OUR COAST

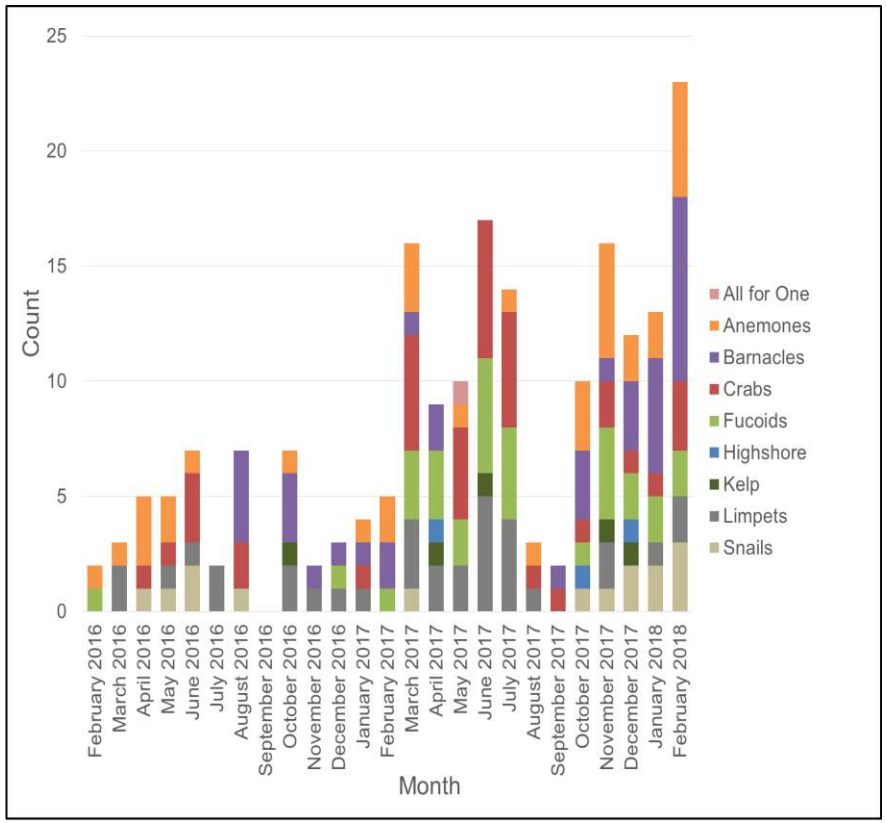
Southwest Citizen Scientists

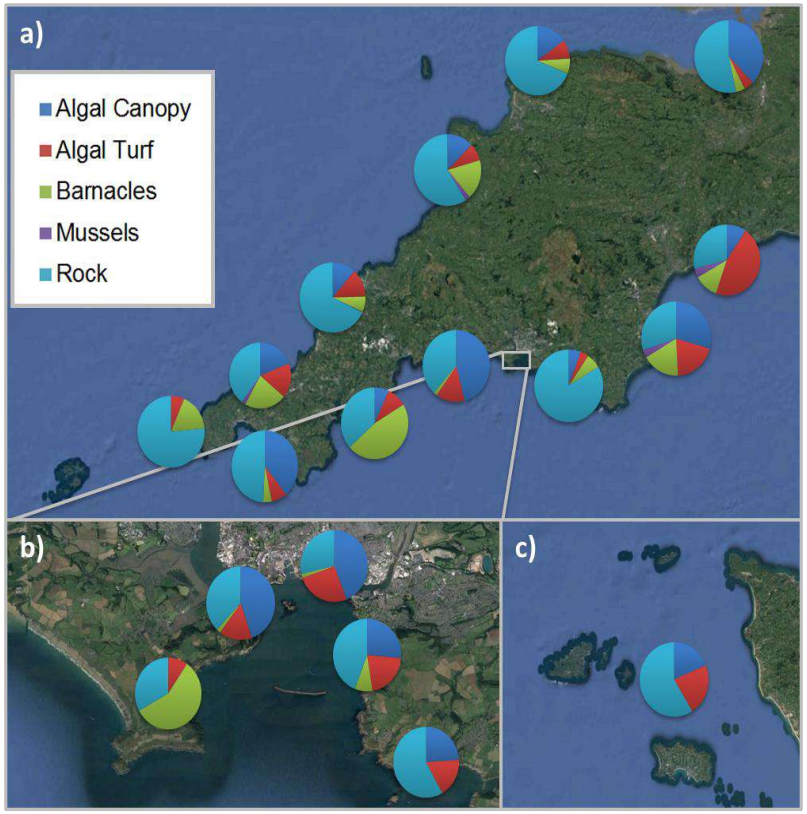
- 757 volunteers registered with CoCoast Southwest.
- 388 volunteers trained.
- 82 volunteers have uploaded quadrat data.
- 179 unique surveys uploaded in the southwest.
- 61 sites surveyed in Devon, Cornwall, the Bristol Channel and Channel Islands.*

** Data correct as of 16/03/2018.*

CAPTURING OUR COAST

Southwest data





CAPTURING OUR COAST

SEAWEED VS LIMPETS

WHY?

Limpets are very important grazers on UK rocky shores and can control how much seaweed there is. We want to understand what drives the balance between limpet numbers and seaweed abundance around the UK.

WHERE?

35 ROCKY SHORES AROUND THE UK COASTLINE

WHO?

55 CoCoast Citizen Scientists

WHAT?

1487 quadrats
OR
372 m^2 surveyed

HOW MANY LIMPETS?

28,511 limpets counted

24,355 limpets measured

If all the limpets were lined up, the line would be over 525 metres.
Longer than 21 blue whales tail to tip!

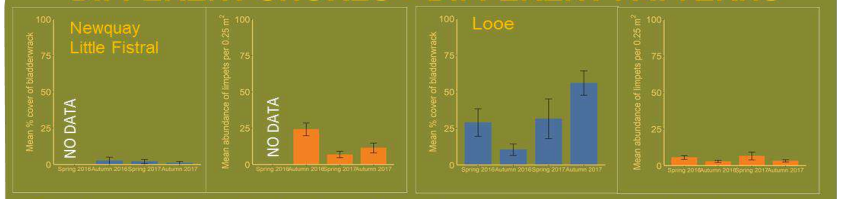
LOTTERY FUNDED

…And its not over yet! Contact your local hub to get involved!

CAPTURING OUR COAST

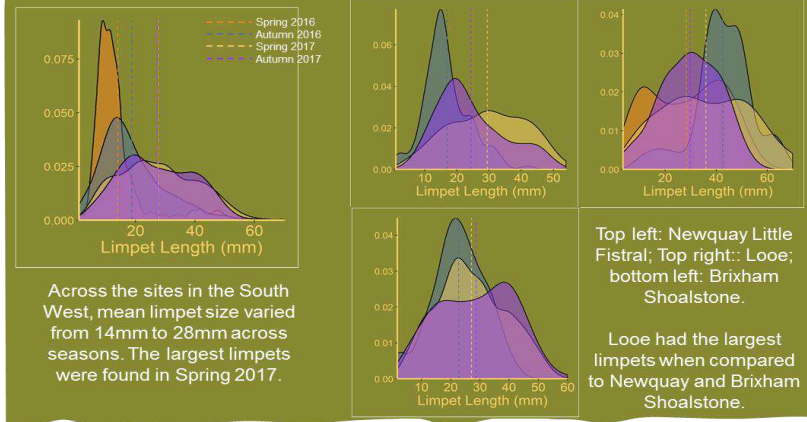
SEAWEED VS LIMPETS

DIFFERENT SHORES = DIFFERENT PATTERNS



Each shore shows slightly different patterns with few shores showing a strong relationship between limpet abundance and seaweed cover. This suggests that local processes are more important than limpet abundance in determining seaweed cover. One such process that could be important is wave action. Although each shore was chosen for its similar exposure, variation in wave action could be important in explaining the differences among shores.

AND HOW ARE THE LIMPETS?



Across the sites in the South West, mean limpet size varied from 14mm to 28mm across seasons. The largest limpets were found in Spring 2017.

Top left: Newquay Little Fistral; Top right:: Looe; bottom left: Brixham Shoalstone.

Looe had the largest limpets when compared to Newquay and Brixham Shoalstone.

LOTTERY FUNDED

Thanks to all CoCoast-ers who surveyed! Seaweed vs Limpets isn't over yet: Contact your local hub to get involved!

CAPTURING OUR COAST

CAPTURING OUR COAST

MARINE INVADERS

Home | Rocky Shores | Man-Made Structures | Sand/mud | Things to Remember

ABOUT US

Did you know that our seas in the UK are being invaded by an intriguing array of animals and seaweeds? Non-native species can catch a ride to UK marine waters on the many ships that cross our oceans annually, or through a variety of other routes. Once established, they may be harmful to our native diversity, by outcompeting them or by introducing disease. Others bring benefits, such as the tasty edible Pacific Oyster, and can benefit our local species by creating habitats and shelter.

CoCoast has an exciting new initiative focusing on understanding how quickly these species are becoming established. We need your help to tell us which species are in your region and on shores near you. This really important information will allow future management decisions to be made on the control of non-native species. We are asking volunteers to join us as we survey the shores around the UK. It's so easy to get involved and is an activity all the family can share. The survey only takes 10 minutes of your time. All information is valuable for us to have, including records of where you surveyed and didn't find your chosen species!

First choose one of the three shore types that you want to visit. Click one of these three panels - and find out more!



www.mba.ac.uk/marineinvaders

Marine Invaders

Species	Confirmed	Probable	Total
Asparagopsis armata	**4**		4
Corella eumyota	**5**		5
Crassostrea angulata/Magallana gigas	**19**		19
Crepidula fornicata	**4**	2	6
Grateloupia turuturu	**4**		34
Sargassum muticum	**21**	7	28
Styela clava	**1**		1
Undaria pinnatifida	**6**		6

83 people uploading Marine Invaders data nationally.

447 timed searches to date.

64 confirmed sightings to date with images verified.

9 probably sightings to date - no images provided, but species known to exist locally.

Total number of unlikely sightings: **1**

Total number of incorrect sightings: **2**

CAPTURING OUR COAST

Get involved!

Upcoming Events

Saturday 21st April

Beach Clean
Jennycliff Beach

Pub Quiz
Marine Biological Association

Capturing Our Coast
Click on Eventbrite link to register

CAPTURING OUR COAST

Contact details

Email: CoCoast@mba.ac.uk

Website: www.capturingourcoast.co.uk

Facebook: CoCoastSouthWest

Twitter: @CapturingRCoast