



Sussex Kelp
Recovery
Project

Kelp Summit 2025

Progress Beyond Protection

Event Summary Report

Kelp Summit sponsors



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Sussex Kelp
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Introduction to the Kelp Summit and the Sussex Kelp Recovery Project

Kelp Summit 2025: Progress Beyond Protection

On 2 April 2025, the Sussex Kelp Recovery Project hosted the first UK Kelp Summit at the Attenborough Centre for Creative Arts, University of Sussex.

The event brought together over 150 key stakeholders including national and regional government agencies, local authorities, environmental NGOs and charities, academics, industry and business leaders, fishing industry representatives, diving and community groups, and artists.

27 speakers shared updates and learnings from kelp research, citizen science and community projects from across Sussex, the UK and abroad.

A key aim of the Summit (and a follow-up workshop with 50 attendees the next day) was to examine the other factors beyond bottom trawling that may impact kelp growth and settlement, and the monitoring and management measures needed to enable marine ecosystem recovery.

A new report [UK Kelp Recovery: Barriers and Optimum Conditions](#) commissioned by Blue Marine Foundation, was launched at the Summit. The report, authored by leading experts, describes UK kelp ecology and ecosystem service benefits, the barriers and optimum conditions for kelp growth and recovery, and recommendations for future research and monitoring.

The Kelp Summit brought together kelp enthusiasts to hear galvanising talks, share knowledge, network. In the words of SKRP's Sam Fanshawe: *"Kelp inspires us all to learn more"*.

This report provides summaries of presentations and attendee feedback. A [highlights video](#) captures insights from Kelp Summit speakers.

Left: The *UK Kelp Recovery: Barriers and Optimum Conditions* report launched at the Kelp Summit.

Right: The Kelp Summit was covered in the news.

Below: Some of the SKRP and Kelp Summit speakers (photo: Kai Hilton / Sussex Wildlife Trust)





An introduction to the SKRP

The **Sussex Kelp Recovery Project (SKRP)** is a partnership of organisations working together to champion, study and facilitate the recovery of Sussex kelp and other essential fish habitats, through progressive, coherent and collaborative action.

Kelp was once abundant in Sussex waters, covering an area of at least 176km² but by the turn of this century, only 4% of this vital habitat (one of the most productive on earth) remained.

In 2021, a pioneering piece of legislation - **the Sussex Nearshore Trawling Byelaw** - was implemented by the Sussex Inshore Fisheries and Conservation Authority (IFCA) to protect 300km² of the Sussex seabed from trawling. By removing one of the key pressures on the marine environment, the Byelaw aims to enable the recovery of kelp and other essential fish habitats.

The SKRP formed in Spring 2021, transitioning from '**Help Our Kelp**', a group of local and national organisations that had campaigned and lobbied for the Byelaw. Today, the partnership is a cross-sector collaboration comprising academic and research institutions, local authorities, eNGOs and a filmmaker. It is supported by a wider network of over fifty organisations and groups, in addition to local citizen scientists, volunteers and other Sussex community members.

In service of its five aims (opposite), the SKRP has implemented a **comprehensive and integrated seabed monitoring and research programme** so that it can measure changes to, and the impacts of, the Byelaw. It also inspires and directly undertakes diverse engagement and educational activities, from documentary films to murals, multi-sector workshops to school visits.

In addition to the **Kelp Summit held in April 2025**, the SKRP previously convened the public and key stakeholders in Autumn 2021, an event that celebrated SKRP's origins, aims and the communities at its heart. Two **Impact & Progress Reports** published in 2022 and 2023, document SKRP activities and the interim results of its long-term monitoring programme, as well as related regional initiatives. Both reports, and more, can be found on SKRP's website: Sussexkelp.org.uk.

SKRP aims



Aim 1

To **support and monitor** the **natural recovery** of kelp and other essential fish habitats in Sussex, and the impact of the Sussex Nearshore Trawling Byelaw.



Aim 2

To **understand the ecological, social and economic value** of kelp and other essential fish habitats in Sussex.



Aim 3

To **identify and minimise damaging impacts** on existing and potential kelp habitat and other essential fish habitats.



Aim 4

To **assess the need for**, and the feasibility of, **active kelp restoration**.



Aim 5

To **increase understanding and community engagement** in Sussex kelp and other essential fish habitats, so their importance to the environment and society is known, and to enable marine ecosystem recovery elsewhere.



Comments from Kelp Summit attendees

Further feedback can be found in the [appendix](#)

"Fantastic to see and hear from the many people who too have an involvement & passion for kelp ecology"

"I learned a lot - great to hear about the range of work and also meet like minded passionate individuals"

"Good to meet all the researchers who work in the local area in one space, it is rare. Plus interesting to hear about the broader research being conducted in the UK"

"Excellent presentations; great networking"

"It was great to provide an overview of the status of UK kelp beds; great opportunity to network with specialists on the sector and develop collaborations"

"Great insight and depth into the science"

"This was the best summit I have been on in a long time, well done"

"The conference was brilliant for networking (particularly the workshop) The quality of the speaker and presentations was very high. I particularly liked the talks on the nitrogen isotope and eco toxicology"

"Each individual area of research and the results found were both interesting and helpful to achieving our future goals both along our immediate coastline and worldwide, particularly in the areas of pollution, regeneration and carbon"

"I got great insights into the variety of research being conducted in relation to kelp around the country, and I learnt a great deal. It encouraged me to do more by realising I can contribute to the bigger picture"

"I am currently studying an MSc in Marine Biology and found the entire day inspiring and incredibly valuable"

"Greater understanding of key issues that are affecting the existing kelp recovery; barriers to kelp expansion and how sewage discharges may be exacerbate sargassum dominance"

"It was very insightful to have so many speakers and experts in kelp ecology and conservation sharing their ideas and research under one roof. Usual conferences don't get to have such a specific focus and certainly aren't tailored around once ecosystem type so this was truly unique"

"Very interesting talks and to hear more about what is happening within the kelp restoration sphere. Good range of topics. Also ending with the social aspects was really good"



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Session 1:

Kelp status and recent trends:
global, UK, and regional perspectives

Session 1: Kelp status and recent trends: global, UK, and regional perspectives

| Topic | Speaker | Role | Organisation |
|--|-----------------------|---------------------------------|----------------------------|
| <u>Welcome from the SKRP Chair</u> | Henri Brocklebank | Director of Conservation | SKRP/Sussex Wildlife Trust |
| <u>Global status of kelp (via video)</u> | Aaron Eger | Founder, Programme Director | Kelp Forest Alliance |
| <u>UK kelp population trends & evidence of natural kelp recovery following a century of large-scale industrial pollution</u> | Professor Pippa Moore | Professor of Marine Science | Newcastle University |
| <u>Kelp and the Sussex Nearshore Trawling Byelaw: spatial management prioritisation</u> | Dr George Balchin | Conservation & Research Manager | Sussex IFCA |
| <u>Perspectives of the past: Sussex kelp habitats</u> | Madison Bowden-Parry | Doctoral Researcher | University of Exeter |
| <u>The evolution of the Sussex Kelp Recovery Project</u> | George Short | Kelp Recovery Coordinator | SKRP/Sussex Wildlife Trust |

Welcome and introduction

Henri Brocklebank, Sussex Wildlife Trust and Chair of SKRP

Welcome to Sussex and the Kelp Summit

There are many crises in the world, but there are three that are pertinent today: climate, biodiversity and one that is less talked about: a crisis in nature connection.

Shockingly, the UK has one of the lowest nature connection indices in Europe. Here in Sussex, 300km² of marine ecosystem was nearly lost, in part due to a lack of connection with the marine environment within our local community.

Today we will meet people who have dedicated their lives, creativity and passion to ensuring that our connection with the sea is restored and maintained.

Globally and nationally, we want 30% of our seas restored and protected by 2030. This is a big ask based on the current state of protection in the UK marine space.

It highlights why we need excellent monitoring projects like the Sussex Kelp Recovery Project (SKRP), to ensure we can gather and provide the best possible evidence to support work, here in Sussex and elsewhere in the UK.

“Having worked on numerous nature conservation and restoration projects over the years, I can tell you that the SKRP stands out.

I hope that over the course of the day, you’ll understand why and be inspired and interested in the different strands of its work.”

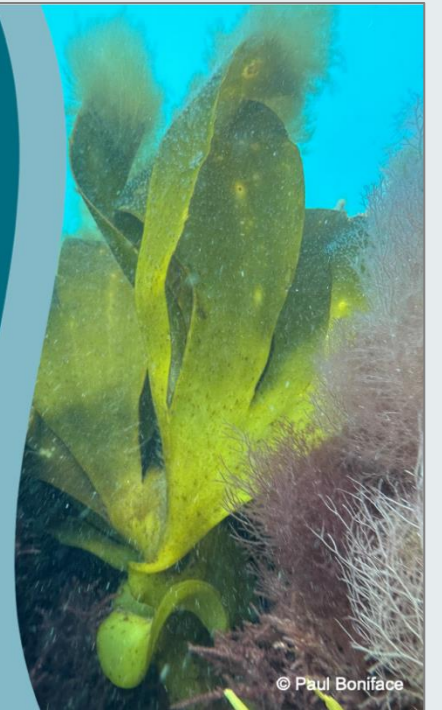
Why are we here?

The Triple Crises

30% of our seas restored and protected by 2030

- Poor state of British marine ecosystems
- Lack of adequate marine management
(38% Protected – 9% managed)

This highlights the need for ecological monitoring to demonstrate success and continual engagement



Why our Sussex case study?

- An ecosystem led approach
- The story-telling
- The learning and discovery
- The people
- The blend of empirical and anecdotal
- The sense of local connection



Global status of kelp

Aaron Eger, Kelp Forest Alliance

The [Kelp Forest Alliance](#) is a collaborative global movement to protect and restore 4 million hectares of kelp forest by 2040. It consists of 650 people, 380 organisations across 26 countries.

Global statistics

- Kelp covers a third of the world's coastlines
- Kelp generates \$500bn in economic services annually
- 40-60% of kelp forests have been degraded over the last 50 years
- Declines in kelp (red bubbles on the map, right) are often linked to ocean warming, coastal development or disruption to food webs
- Kelp is more stable in more remote areas (blue bubbles).

The absence of kelp in international policy

Despite its importance and fragility, kelp is not widely represented in policy. For every mention of kelp, seagrass or mangrove are mentioned 8 to 40 times more. Lack of policy attention correlates to a lack of funding for kelp conservation and management. The Kelp Forest Alliance aims to address this through its work.

[Kelp Forest Alliance knowledge hub: Resources and publications](#)

- Database of projects (searchable by species and area)
- Kelp Restoration Guidebook – methods, planning, monitoring
- Monitoring Guidelines – to standardise data and information collected
- State of the World's Kelp Forests report
- In progress: country level report cards and action plans.

[Join the Kelp Forest Alliance on Linktree](#)



UK kelp population dynamics & evidence of natural kelp recovery following a century of large-scale industrial pollution

Professor Pippa Moore, Newcastle University

Kelp forest structure is affected by various physical and biological drivers including temperature, wave action and the impacts of anthropogenic stressors. Contemporary stressors such as climate change and pollution can alter kelp structure and functioning, and their goods and services.

Extent of kelp in the UK

- Best estimate: 5,700 km² dominated by two of the seven UK species-
- *Laminaria hyperborea* estimated to occupy 2,552 km²
- *Saccharina latissima* estimated to occupy 1,332 km²

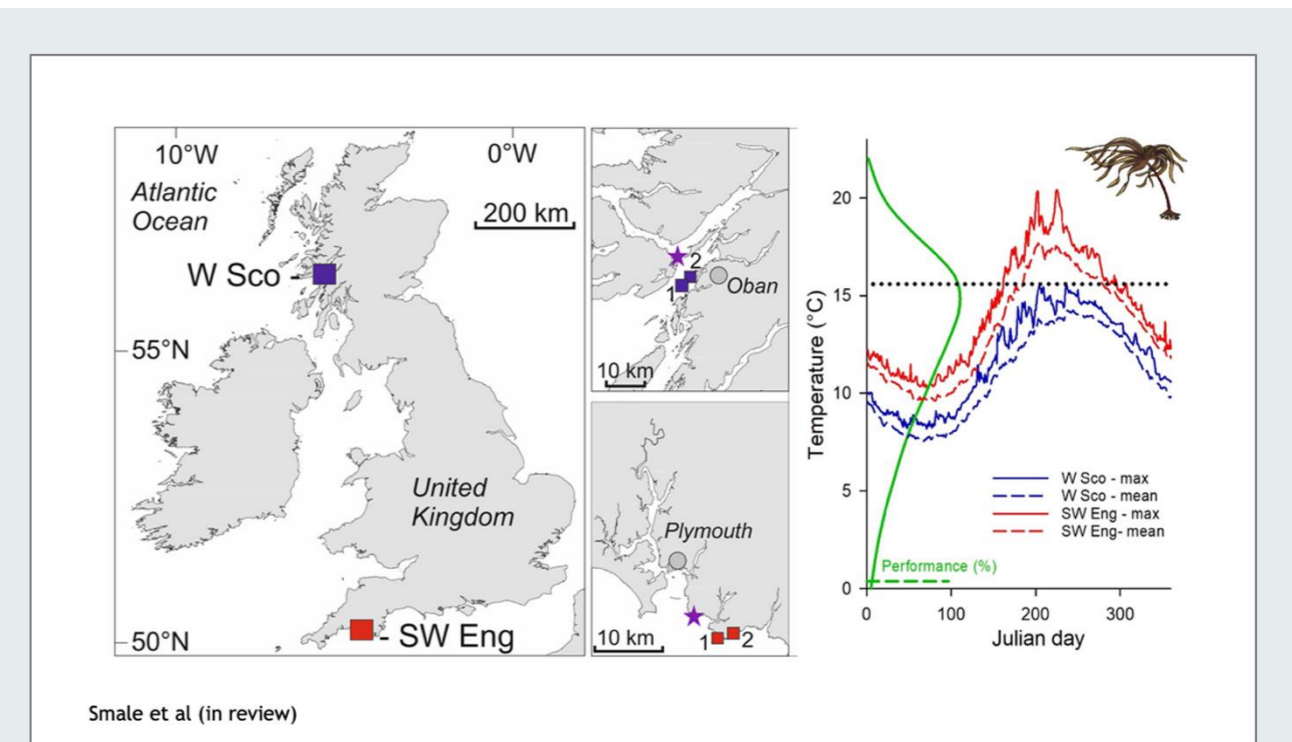
How has kelp distribution changed over time?

The study looked at numerous sites around the UK over 10 years, but comparisons were most marked between two sites in SW England and W Scotland. Water temperature in the SW site was on average 2 degrees warmer than in W Scotland. As the optimal temperature for kelp is 16 degrees, water temperature in SW England can exceed kelp's thermal tolerance.

- Density, % cover and standing stock stayed relatively similar over the 10 year period.
- UK kelp beds appear more stable than many parts of the world.
- In W Scotland, no significant change in standing stock over 40 years.
- In SW England, decrease in density and standing stock between 1940s and 2010s.

Case study: Historic coal mining in NE England – Harry Catherall PhD study

- NE England coast was heavily impacted by dumping of c. 40m tonnes of coal waste on shorelines over 100 years. Impacts included heavy metal pollutants, smothering of habitats.
- 48% reduction in fauna and flora, and shifts in assemblages of kelp holdfasts due to turbidity.
- Restoration activity in 1990s removed 1.3m tonnes of waste and introduced MPA protections.
- In 2020s: Kelp forest has mostly recovered naturally. Structure, density and biomass are now the same as non polluted sites though some changes related to holdfast size.

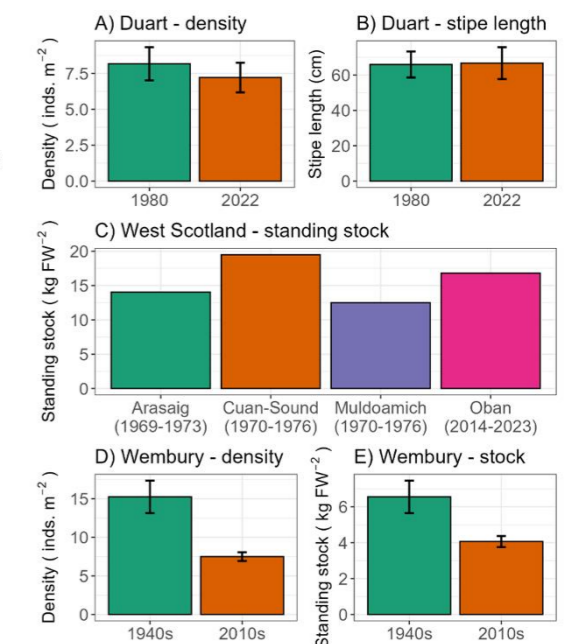


Smale et al (in review)

Kelp forest stability

- Duarte Castle kelp density and stipe length similar between survey periods >40 years apart
- Standing stock estimates of *L. hyperborea* broadly similar between 1970s and contemporary data in W. Scotland
- In SW England density and standing stock markedly lower in 2010s compared to 1940s
 - *Saccorhiza polyschides* present in contemporary quadrats, but not historic
- Decrease likely a response to warming waters where SST regularly above optimal temperature for *L. hyperborea*

Smale et al (in review)



Kelp and the Sussex Nearshore Trawling Byelaw – spatial management prioritisation

Dr George Balchin, Sussex IFCA

Sussex IFCA is one of 10 Inshore Fisheries and Conservation Authorities in England, responsible for fisheries management out to 6 nautical miles. Democratic governance is achieved through a Committee including local fishers, councillors, academics, Natural England, MMO.

- Remit: “To lead, champion and manage a sustainable marine environment and inshore fisheries... right balance between social, environmental and economic benefits...”
- Fishing is primarily small scale (under 14m), targeting mixed fisheries, and culturally and socially important.
- IFCA develop, communicate, monitor, review and enforce Byelaws in a cyclical process.

Sussex Nearshore Trawling Byelaw 2021

- Manages trawling in 300km² of nearshore waters to protect essential fish habitats.
- Driven by ecosystem approach, helping secure sustainable fisheries and habitat recovery.

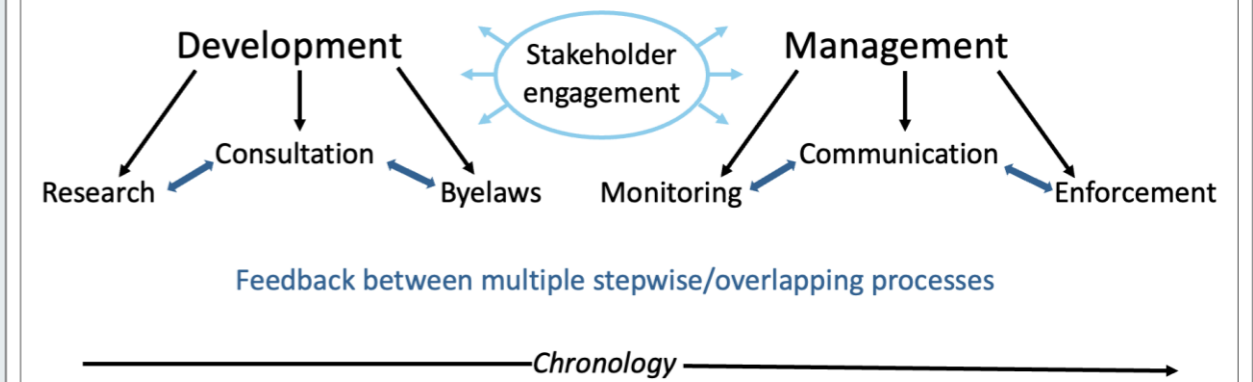
IFCA prioritisation process, available data, and how this informed the Byelaw

- Prioritise management of areas with high environmental value that are heavily impacted.
- Habitat maps assign value of diversity, ecosystem system services and sensitivity across the Sussex IFCA district, divided into 1km² grid squares.
- Fishing effort maps show where fishing is happening, its intensity and impact.
- Pivotal historical evidence used to inform the Nearshore Trawling Byelaw area came from a nearly lost 1980s council survey of kelp density.
- Community participation in statutory consultations helps bring about the urgent protections needed for our marine space.

Monitoring changes to the environment and to fishing activity

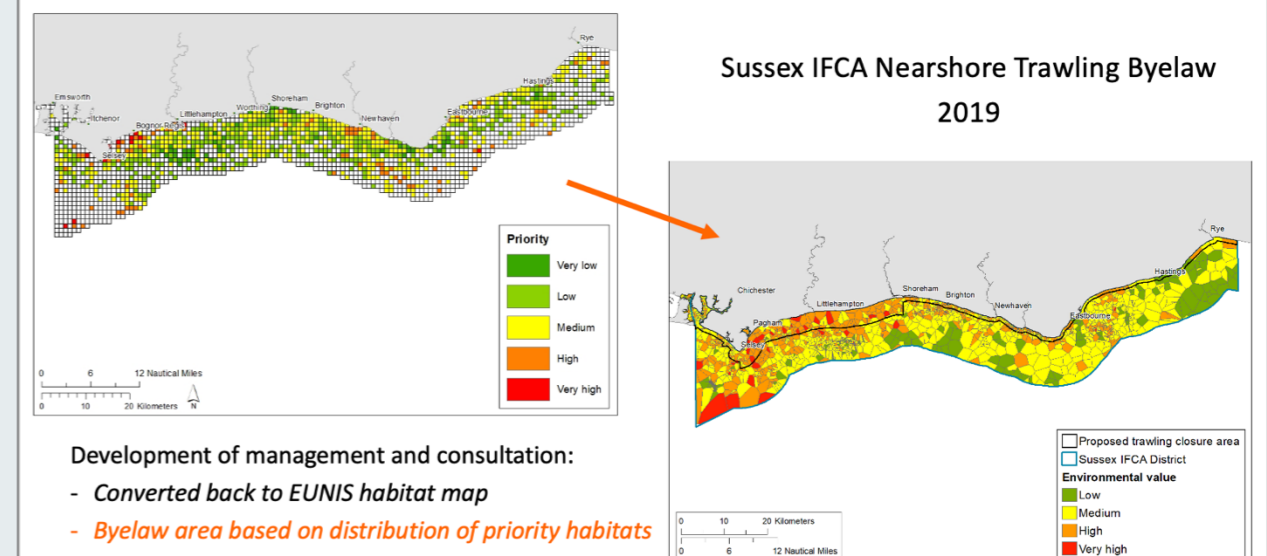
- To date, no record of newly established area of kelp, but don't necessarily expect this yet.
- Fisheries are redistributing - recorded a reduction in trawling pressure and a decrease in its spatial extent.

FARM-TO-TABLE FISHERIES MANAGEMENT



Background

APPLICATION – MANAGEMENT



Byelaw development

Historical ecology of Sussex kelp habitats

Madison Bowden-Perry, University of Exeter

Perspectives of the past

Understanding the magnitude and drivers of change within marine ecosystems subject to long-term anthropogenic influences, requires **an interdisciplinary approach that includes the historical, ecological, and social disciplines.**

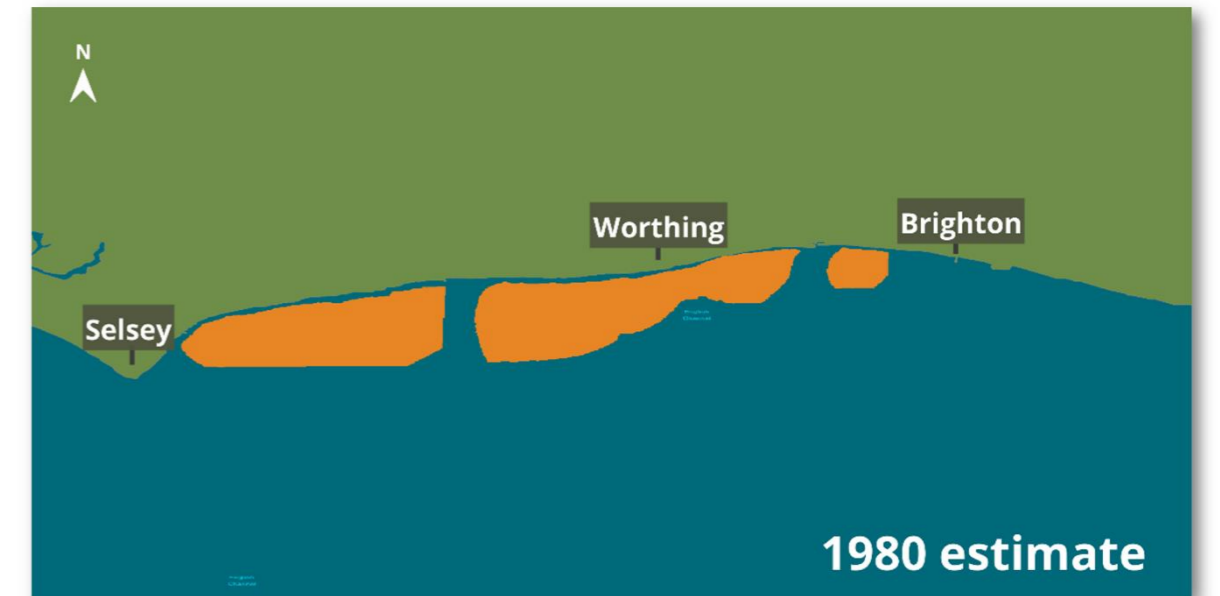
This is particularly important for marine ecosystems that are difficult to survey, including kelp forests.

Little is known about the historical extent of kelp and the timings and drivers of its decline along the Sussex coastline; however, kelp decline has generally been accepted to be driven by the Great Storm of 1987.

With extremely limited ecological understanding of Sussex kelp habitats past extent and timings of demise, as part of her PhD, Madi integrated local ecological knowledge (LEK) from fishers, participatory mapping and historical climate and weather data over multi-decadal scales, to uncover the distribution and potential drivers of decline of this iconic historical habitat.

Results revealed a dramatic loss of kelp habitats over a short period of time, failing to support the existing narrative of kelp decline pertaining to the Great Storm of 1987.

These results provide the first systematic exploration into this habitat and its changes over time, providing information that can be used to inform future conservation efforts.



Evolution of the Sussex Kelp Recovery Project

George Short, SKRP

Origins of the SKRP- the UK's largest marine rewilding project

- By 2018, 96% of historic kelp beds had been lost in Sussex.
- Pioneering protection, Nearshore Trawling Byelaw, set bar for fisheries management.
- Supported by Help Our Kelp, a group of orgs (mostly eNGOs) and Big Wave TV.
- Big Wave created a seminal film, voiced by David Attenborough to promote the issue.
- Led to 2,100 signatures in support of the Byelaw and regional sign off by Sussex IFCA.
- Help Our Kelp then lobbied Secretary of State and the Byelaw was implemented 18 months later.
- SKRP formed from Help Our Kelp members, joined by IFCA, Universities, local council.
- Strength of the partnership comes from its diversity and collaborative ethos.
- SKRP also part of several large networks including: Weald to Waves, Sussex Bay, Sussex Nature Partnership, Living Coast, Rewilding Britain, Kelp Forest Alliance.

SKRP's 6 areas of focus and key aims:

- Support and monitor the natural recovery of biodiversity.
- Understand marine ecosystem goods and services - societal, economic, ecological.
- Identify and minimise damaging impacts to natural recovery.
- Assess the need and feasibility for active kelp restoration.
- Connect people to their marine environment (what's there now, what has been lost, and to the rewilding journey as it takes place in real time).
- To act as a case study to enable wider marine recovery elsewhere.

A recurring theme of this project (and others) is people going above and beyond to protect, create connection with, and increase understanding of, kelp ecosystems.

Sussex Kelp Recovery Project

The UK's largest marine rewilding project!

Project Aims

- Support and monitor natural recovery
- Identify & minimise damaging impacts
- Community engagement
- Understand ecosystem services
- Need & feasibility of active restoration
- Enable wider marine recovery

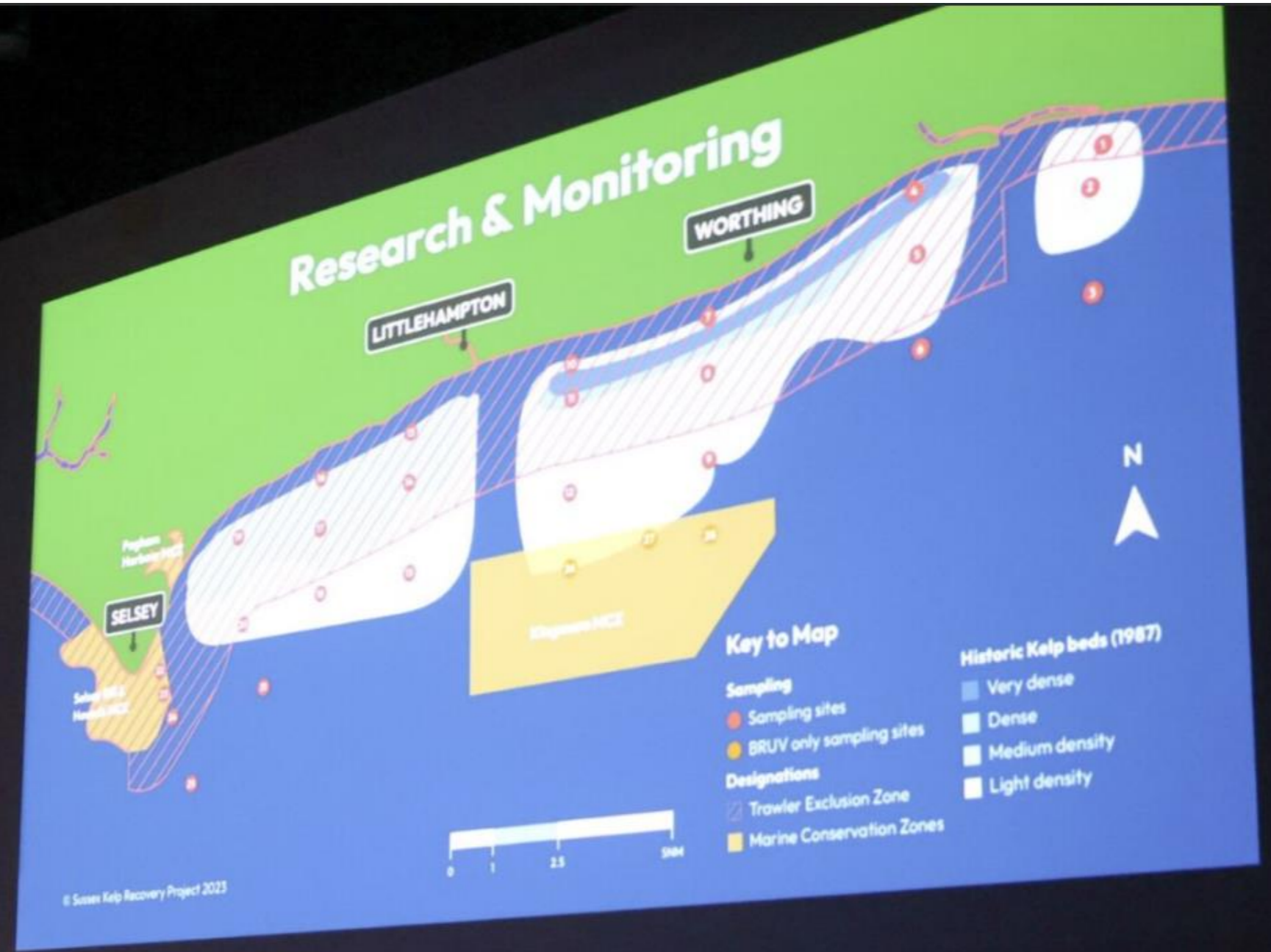


Sussex Kelp
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Session 2:

Kelp ecosystem and marine recovery monitoring

Dr Chris Yesson presents SKRP's research and monitoring sites.
©Kai Hilton/Sussex Wildlife Trust



KELP
SUMMIT
2025

Session 2: Kelp ecosystem and marine recovery monitoring

| Topic | Speaker | Role | Organisation |
|--|-----------------------------|--|---|
| <u>Overview of SKRP research & monitoring</u> | Dr Chris Yesson | Senior Research Fellow | Zoological Society of London |
| <u>Biodiversity beyond the byelaw: monitoring marine recovery with eDNA and video Surveys</u> | Alice Clark | Doctoral researcher | University of Sussex |
| <u>Crab and lobster potting surveys and film</u> | Emily Bulled | UK Projects Manager | Blue Marine Foundation |
| <u>Muddy waters and blues carbon - sedimentary storage drivers of Sussex Bay</u> | Claude Annels | Doctoral researcher | University of Brighton & Queen Mary University London |
| <u>Monitoring our hidden forests - the Natural Capital and Ecosystem Assessment (NCEA) Programme</u> | Erin Lawes Keith McGruer | Senior Advisor, Estuaries and Coasts. Team Leader, Coastal and Estuarine Assessment | Environment Agency |
| <u>Kelp monitoring - an essential fish habitat (NCEA project)</u> | Matilda Longstaff | Doctoral researcher | University of Plymouth |
| <u>Stable isotopes in kelp ecosystems (NCEA project)</u> | Professor Darren R. Gröcke | Professor of Stable Isotope Geochemistry | Durham University |

Overview of SKRP research and monitoring

Dr Chris Yesson, London Zoological Society and Research Lead for SKRP

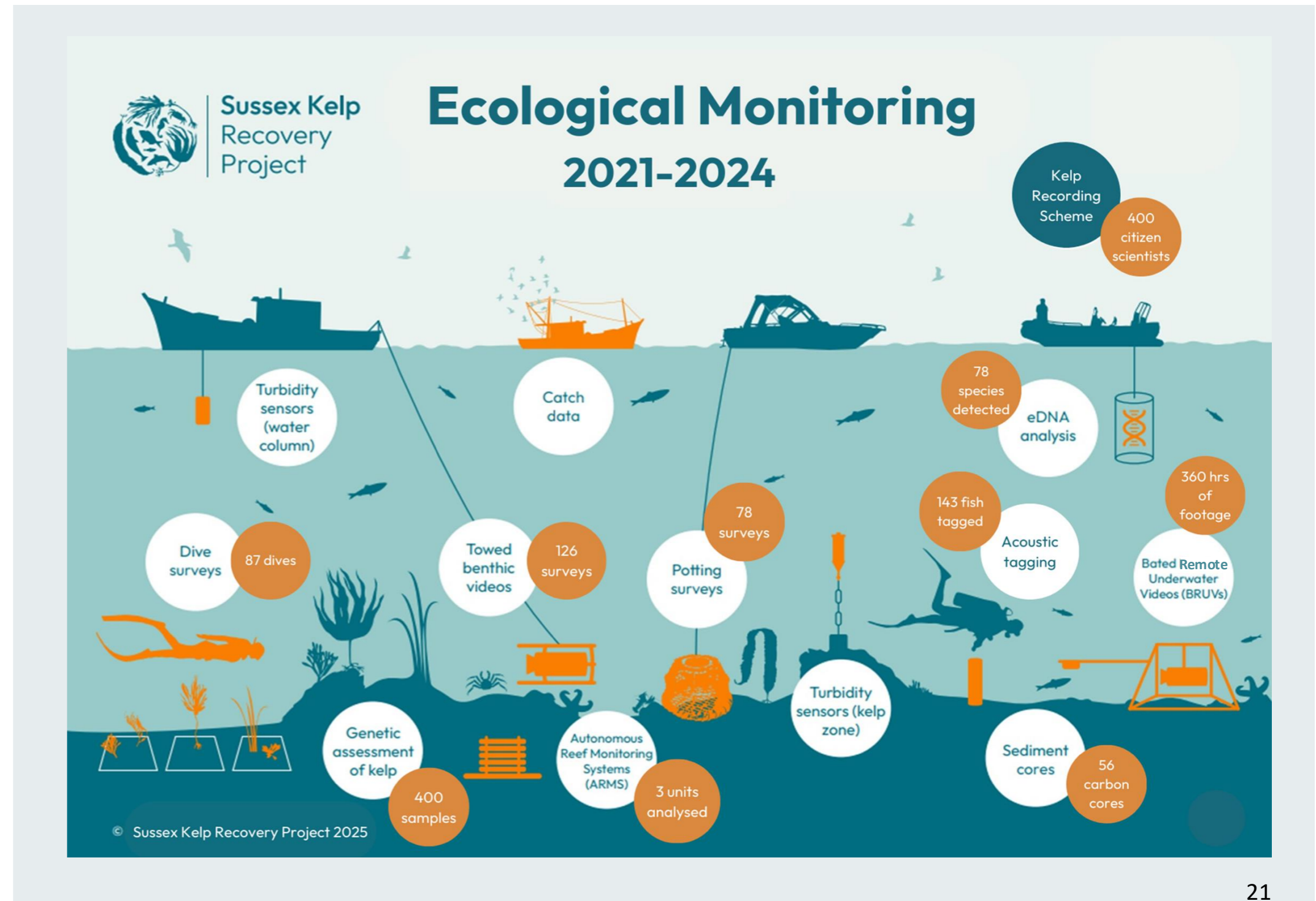
How to systemically monitor to document change?

This talk reviewed the wide range of ecological monitoring and research being conducted by partners and collaborators of the Sussex Kelp Recovery Project, including a wide range of surveys aimed at documenting the flora and fauna of the region.

It highlighted the towed camera surveys conducted by Sussex IFCA, which document changes in seabed habitats between 2019-2023, showing a highly dynamic environment.

It also showcased the deployment of Autonomous Reef Monitoring Structures (ARMS) used to examine communities settling on the seabed by the wreck of the Indiana near Worthing Pier.

Finally, it shows efforts to examine kelp habitats remotely using remote imagery.



Biodiversity beyond the byelaw: monitoring marine recovery with eDNA and video surveys

Alice Clark, University of Sussex

This study evaluates early ecological responses to the Sussex Nearshore Trawling Byelaw (NTB) over the first four years post-implementation, using annual monitoring across 30 sites within Sussex Bay - both inside and outside the NTB area, including sites within Marine Conservation Zones (MCZs). Two complementary biomonitoring methods were used:

- **Baited Remote Underwater Video (BRUV) surveys:** involve deploying a metal frame fitted with cameras directed toward a bait canister. Each unit is placed on the seabed for one hour, after which footage is reviewed to identify species attracted to the bait.
- **Environmental DNA (eDNA) metabarcoding:** eDNA refers to genetic material shed by organisms into the environment; by collecting seawater samples and filtering them, DNA can be isolated and sequenced to detect species present in the surrounding area, including those less likely to be recorded on camera.

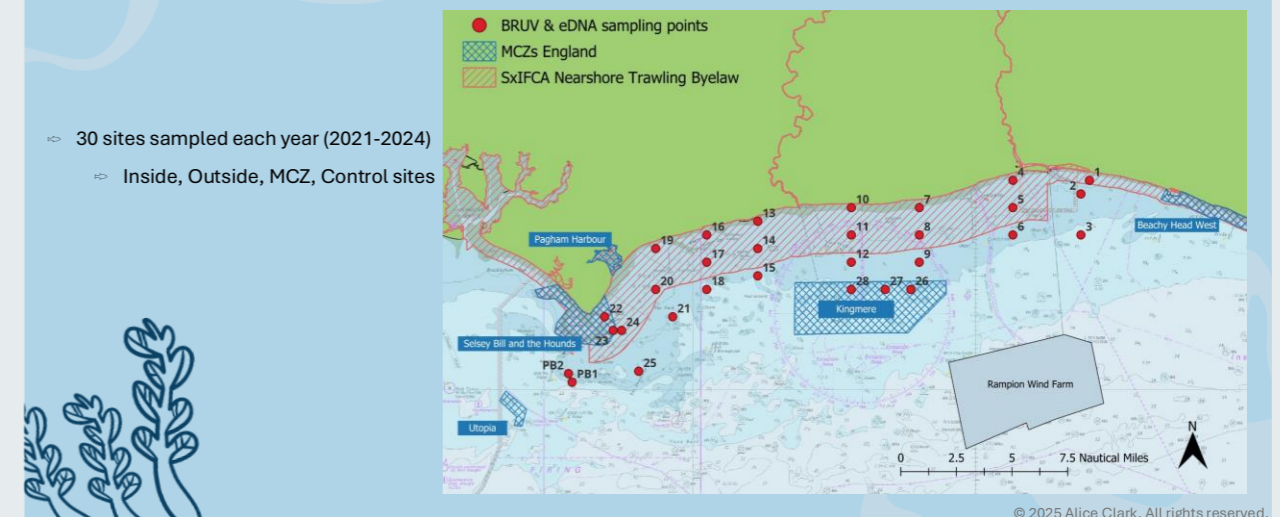
Both methods revealed a consistent core assemblage of species, alongside natural interannual variability. Community structure was influenced by year, depth, tidal stream rate, and management treatment (inside vs. outside the NTB vs. within MCZs). While it remains too early to conclusively attribute changes to recovery, the observed patterns may indicate the first signs of ecological response following trawling exclusion.

Notably, the combined use of BRUV and eDNA enhanced detection across taxonomic and spatial scales, including records of threatened species such as Atlantic bluefin tuna (*Thunnus thynnus*), European eel (*Anguilla anguilla*), and short-snouted seahorse (*Hippocampus hippocampus*).

These findings highlight the value of integrating multi-method monitoring with habitat-focused management to advance ecosystem-based approaches in marine conservation and fisheries policy. Continued long-term monitoring will be essential to determine the trajectory and significance of recovery.

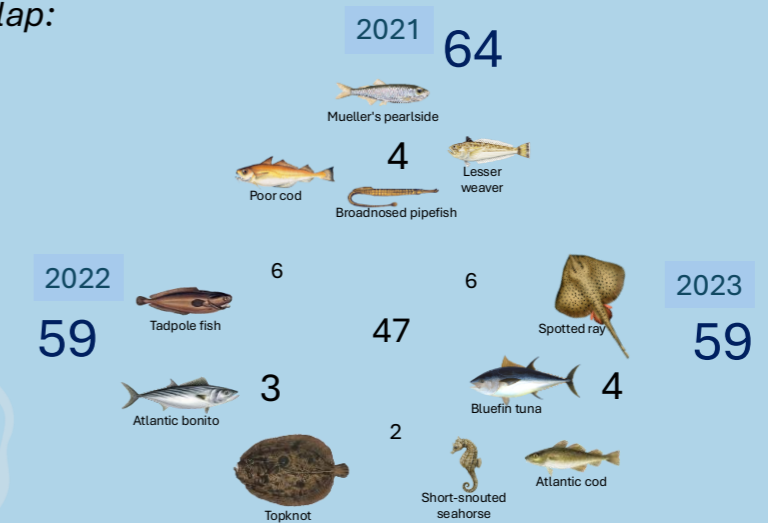
Background information

Monitoring biodiversity since SxIFCA Nearshore Trawling Byelaw



eDNA survey results

Species overlap:



Crab and lobster potting surveys

Emily Bulled, Blue Marine Foundation

This study aims to assess population changes in two key commercial Sussex fisheries: brown crab and lobster since introduction of the Sussex Nearshore Trawling Byelaw.

Co-designed monitoring – and example of collaborative research

- Surveys were co-designed with local fishers which built trust in the project.
- Conducted from local fishers' small-scale boats with crab and lobster parlour pots.

About the surveys

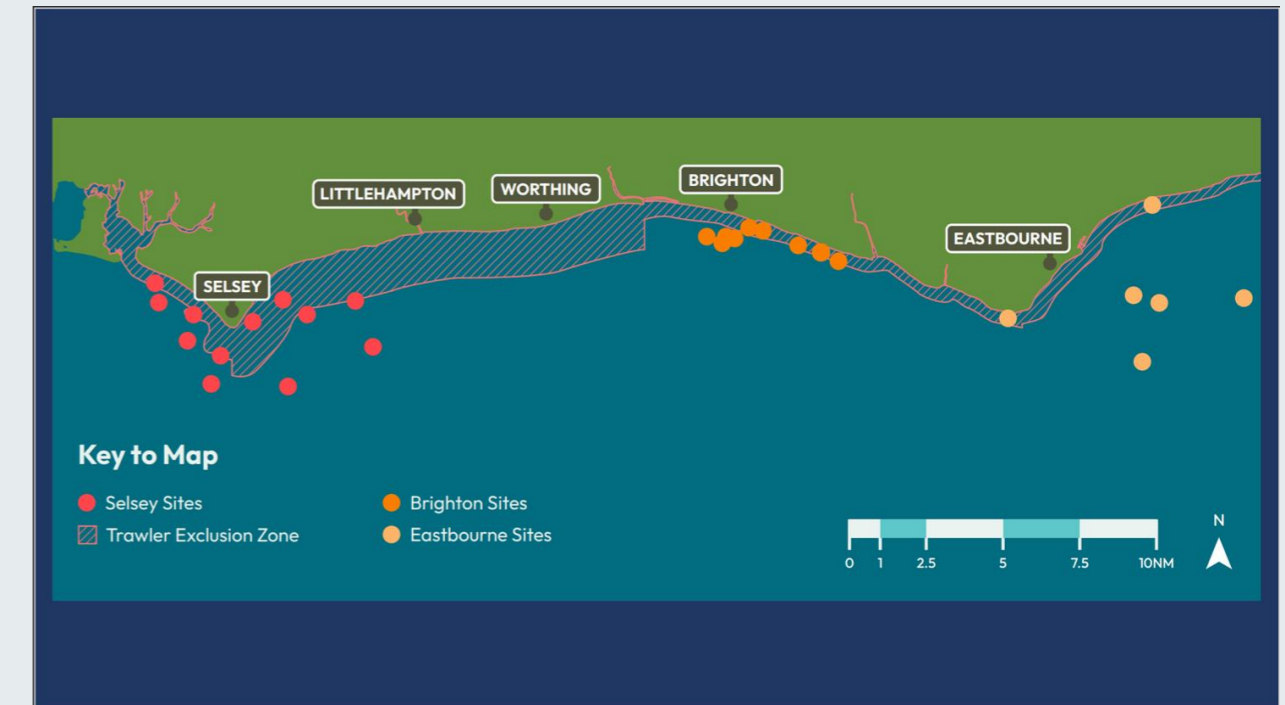
- Sites: Selsey x12 (surveyed over 4 years). Brighton x9, Eastbourne x6 (surveyed twice)
- Method: 20 pots deployed at each site for 24 hours. Any brown crab and lobster caught measured for abundance, weight, sex, condition and berried status.
- All individuals caught in the survey pots were returned to sea.
- All variables compared inside and outside Byelaw area.

Results – Selsey Results 2021-24 (longest data set)

- No significant changes in Selsey. Some fluctuations in crab and lobster abundance but could be natural changes in the populations or caused by external factors.
- Crab and lobster take time to recover so unlikely to see significant results for 5+ years.
- Surveys are very localised and only conducted over one month. Need to combine with other data sets covering the area over a longer timescale.

[Watch the film: Monitoring the recovery of Sussex Pot Fisheries](#)

A 5-minute film about the potting surveys, shot by Maddison Bowden-Perry and narrated by Selsey skipper Dan Langford. The film highlights the importance of potting surveys to the local fishers and industry, as well as to fishery management.



Muddy waters and blues carbon - sedimentary storage drivers of Sussex Bay

Claude Annel, University of Brighton, Queen Mary University of London

This study seeks to understand the sources and distribution of carbon stores in the sub-marine ecosystems off Sussex.

Sampling

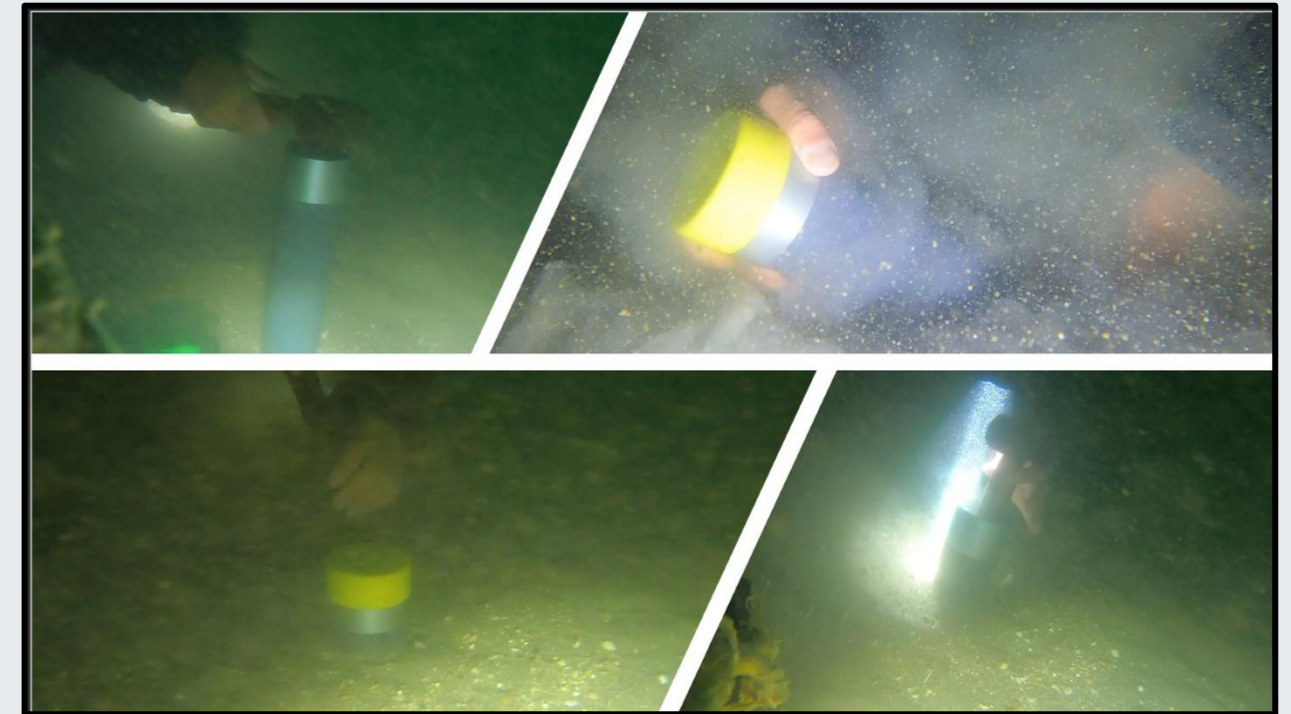
- 56 sediment cores were taken over 3 years from a variety of sites off Sussex.
- Site selection was informed by EUNIS classification of substrate.
- Bathymetry: very dynamic bay with strong Atlantic tidal currents. Sites ranged from 10m to 59m depth.
- Cores taken from a mix of trawled sites and 'defacto' no trawled areas e.g. Rampion windfarm and marked large wrecks.
- Cores were up to 34cm deep, sub-divided into 1cm segments.

Determining sediment characterisation: the soil's physical and chemical properties

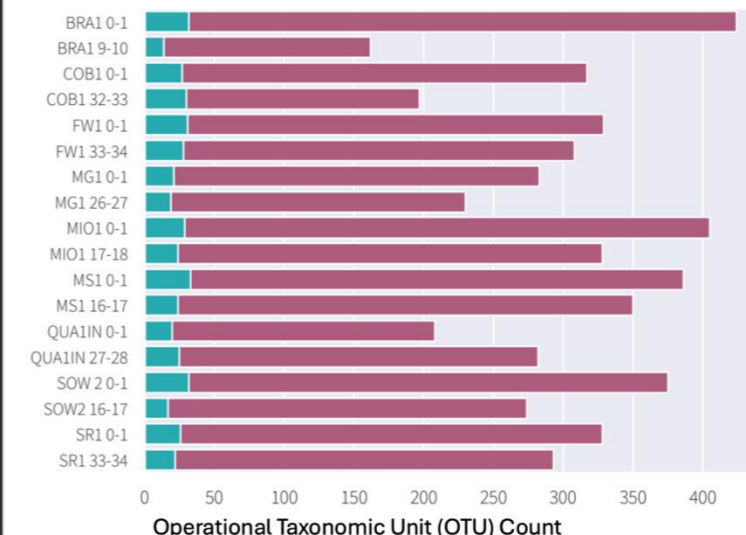
Analysis included: organic matter, inorganic carbon, species contributing to organic matter, grain size and sorting coefficient.

Interim findings:

- Two-dimensional analysis shows interesting relationships between assessed environmental variables. For example, as Dry Bulk Density decreases, % carbonate increases, and the larger the size of grain, the more poorly sorted it is.
- Principal Component Analysis also showed surprising results, including that depth of sampling does not show a strong positive correlation to organic matter.
- Comparing wreck sites with open sites showed key differences.
- Species identified by interim eDNA results include riverine species (esp. liverworts found in every core) and vascular plants. Findings suggest terrigenous and riverine inputs as well as marine.



eDNA Summary results



Monitoring our hidden forests - the Natural Capital and Ecosystem Assessment (NCEA) Programme

Erin Lawes and Keith McGruer, Environment Agency

Part of government's NCEA Programme, the Environment Agency's kelp monitoring and research work is a collaborative effort across its teams and with partners. Data will help understand the true value of our environmental assets and their contribution to ecosystem services.

Why is the Environment Agency looking at kelp?

- Amongst earth's most diverse and productive habitats. Provide numerous ecosystem services.
- Create a unique 3-dimensional habitat which supports a wide array of marine life.
- Despite importance, currently no national monitoring programme of kelp extent and condition.

What is the EA doing?

- Creating a kelp asset inventory on extent, density, biomass and condition.
- Creating a map to identify who is doing what, where and methods for monitoring kelp.
- 35 organisations identified who are involved in kelp research, monitoring and recovery.
- Developing a long-term surveillance network to monitor changes in kelp distribution.
- 5 projects to assess methods to map kelp and assess ecosystem services benefits.


Spotlight on: Single Beam Echosounder and Drop-Down Video methods

- EA team is testing new methods and combined methods.
- Single Beam Echosounder: data on kelp height, volume, water depth and extent.
- Drop-down Video - kelp species, assemblages, substrate type, epiphyte community, grazers.
- Data collected at multiple sites in England's Northeast (10 sites) and Southwest (15 sites).

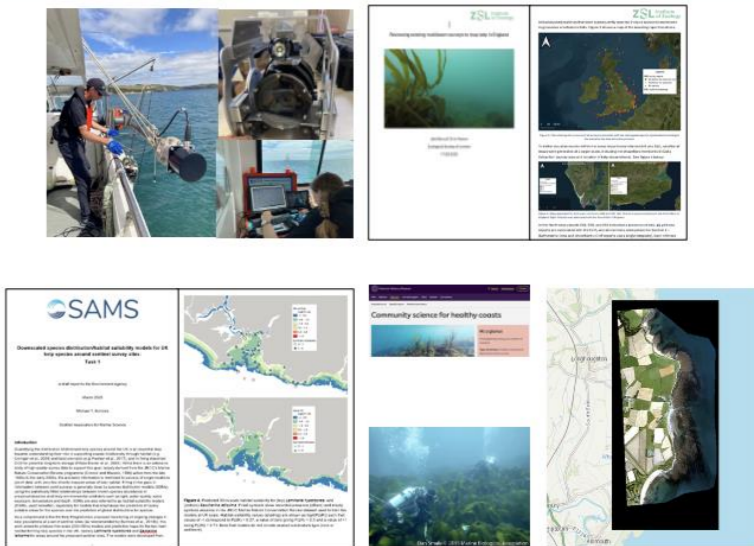
Next steps

- Survey 36 new sites including those in Northwest and Southeast.
- 2 projects to assess ecosystem benefits (biodiversity enhancement and nutrient uptake).
- Establish a tool to assess quantity and quality of UK kelp beds.


Methods explored



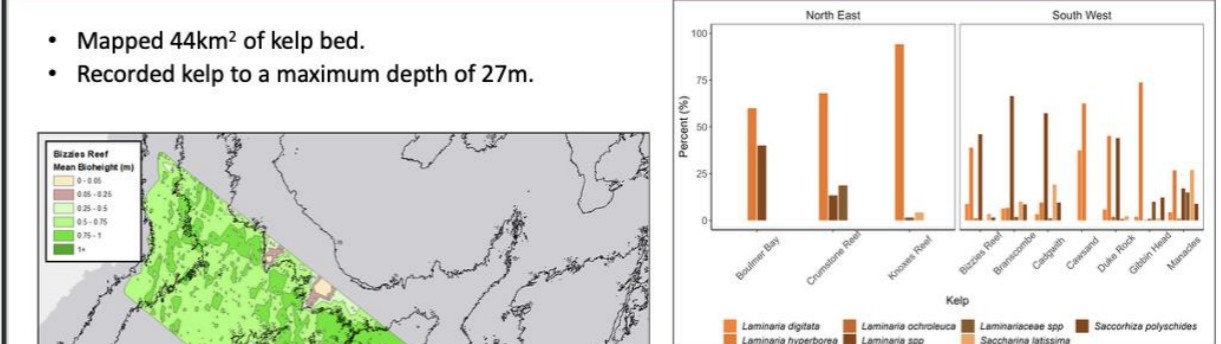
- Single Beam Echosounder
- Drop Down Video / Camera
- Multibeam Sonar
- Modelling
- Optical Remote Sensing methods
- Dive Survey
- Uncrewed Surface Vessels
- Citizen Science
- Artificial Intelligence



Results – So far!



- Mapped 44km² of kelp bed.
- Recorded kelp to a maximum depth of 27m.



- Kelp species composition was more varied in the southwest.
- Epiphytic red algae and urchins were more abundant in the northeast.
- Significant patches of bare hard substrate in northeast sites.
- Juvenile fish assemblages using kelp habitat.

Kelp monitoring - an essential fish habitat (NCEA project)

Matilda Longstaff, University of Plymouth

This work is part of a PhD, which investigates the presence of elasmobranchs (sharks) in Plymouth Sound and surrounding waters, reviewing 5 years of Baited Remote Underwater Videos (BRUVs) and deploying acoustic telemetry (1,300 species tagged) to assess species.

Monitoring of kelp Plymouth Sound

Between 2020-24, video surveys monitored a range of habitats to provide a baseline of biodiversity. Those featuring kelp were the focus of the collaboration with the EA.

Method development to address the challenge of seeing mobile species in kelp

Kelp can obscure mobile species in video, so additional methods were deployed in 2024. These included Towed Underwater Videos (TUV), an adapted pelagic BRUV (suspended above the kelp to spot species moving in and out of the area) and an adapted 'snowshoe' BRUV to reduce the kelp obscuring species in videos.

Method development learnings

- TUV often snagged. Diver surveys, Drop Down Video and AUV are potential alternatives.
- The current was often too strong for the pelagic BRUV. More testing is required.
- Snowshoe BRUV worked well, reducing blocked videos from 66% to 23%.

Analysis of the mobile species in four kelp areas within Plymouth Sound

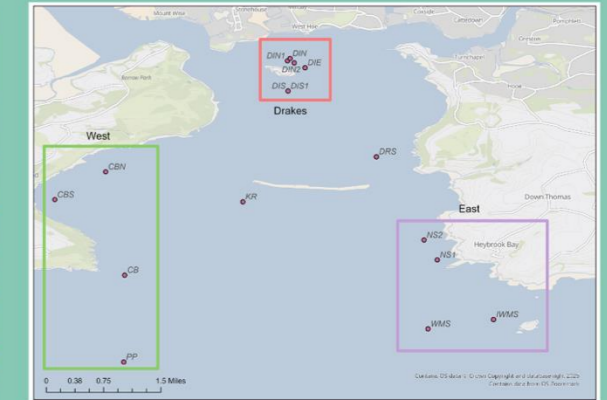
- Little variability between areas in terms of mobile species. Some nuanced results.

Comparing kelp to other habitats and next steps

- Seagrass had the highest abundance of mobile species.
- Kelp has significantly (45.6%) greater levels of species richness than bare sediment.
- Some commercial species exclusively seen in kelp: pollack (kelp is particularly important for juveniles), grey mullet and ballan wrasse.
- Important to continuing monitoring. Value in also incorporating acoustic telemetry to get an understanding of how key species are using kelp and other habitats.

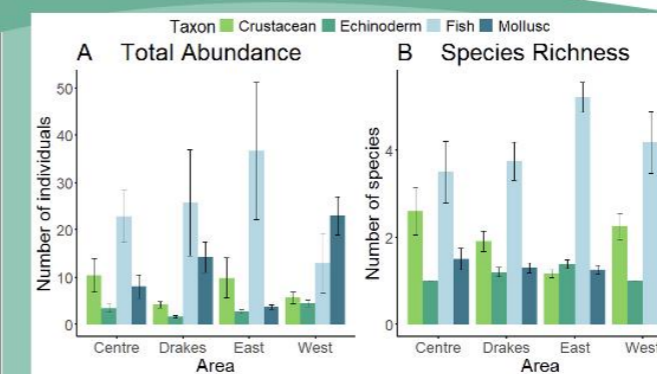
Monitoring of Plymouth Sound

- Monitored each summer across 2020-2024
- Baseline diversity across a range of habitats

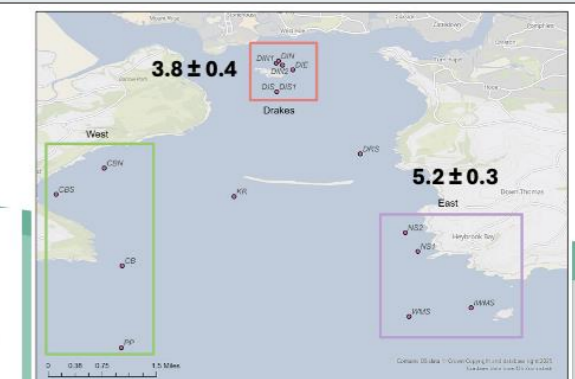


BRUV Results

Comparison across taxon groups by Area



A. Total abundance and B. Species richness of mobile species per replicate across areas of Plymouth Sound, separated by taxon (n = 59), ± standard error.



Statistical significance in fish species richness between the East and Drakes ($\chi^2(3) = 7.9, p < 0.05$).



Stable isotopes in kelp ecosystems (NCEA project)

Professor Darren R. Gröcke, Durham University

Darren is a stable isotope geochemist who studies modern, intertidal systems with a focus on pollution in intertidal seaweeds and kelp.

Using carbon and nitrogen isotopes to trace carbon and nitrogen pathways

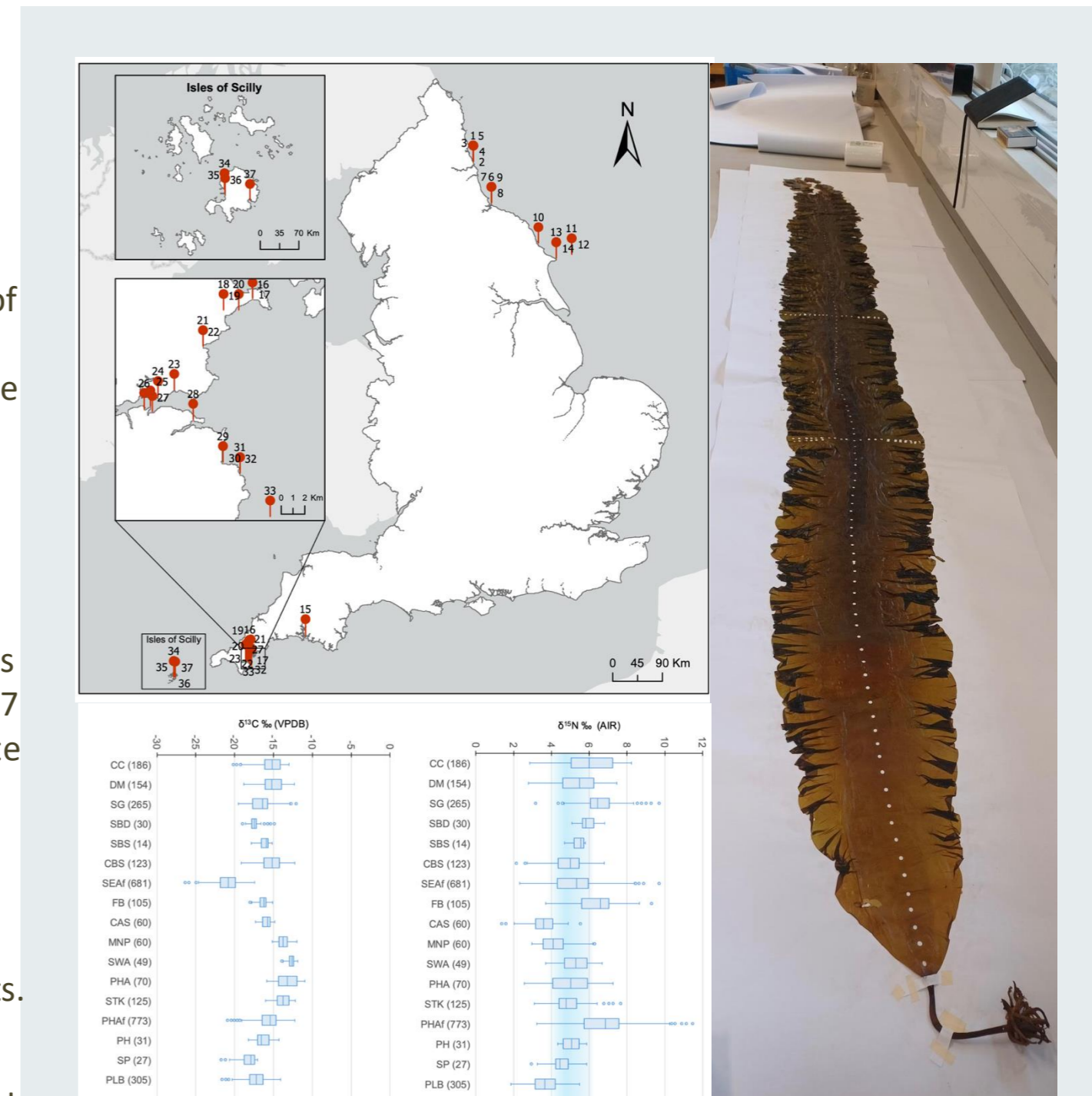
Stable isotopes of carbon and nitrogen from seaweed are analysed using an isotope ratio mass spectrometer. Carbon isotope ratios can be used to trace and monitor photosynthetic carbon pathways in the marine system. Nitrogen isotope ratios in seaweed can be used to trace the type of nitrogen pollution, especially distinguishing between agricultural fertiliser and sewage pollution in estuarine and coastal systems. This method is relatively easy, less time-consuming and can be done at low cost, but its application in the UK is very limited: essentially this is the only project actively using this technique.

Nitrogen isotopes in kelp can be used to map different nitrogen pollution sources.

Incremental sampling of kelp from the top of the blade down to the holdfast can be analysed for stable isotope analysis, thus providing a historical record of productivity (C/N ratio), photosynthesis and nitrogen sources in the environment. The project has sampled intertidal and kelp samples at 37 locations around the UK, analysing over 3,500 incremental samples. Nitrogen isotope ratios indicate that several near-shore sites indicated either agricultural or sewage related nitrogen pollution.

Learnings and applications

- Seaweed aquaculture could be deployed to remove nitrogen in pollution-rich areas.
- Sections of the kelp blade can be targeted to inform cultivation related to different end products.
- Identify the best location for aquaculture farms based on the ecosystem service of interest.
- Our understanding of UK kelp in terms of carbon and nitrogen cycling in the marine environment is still in its infancy and thus, more regional and national targeted research is required.





Sussex Kelp
Recovery
Project

Session 3:

Barriers to recovery and future interventions

Session 3: Barriers to recovery and future interventions

| Topic | Speaker | Role | Organisation |
|---|--------------------------|-----------------------------|--|
| <u>Introduction to Barriers and Optimum Conditions for kelp growth and recovery</u> | Sam Fanshawe | Senior UK Projects Manager | Blue Marine Foundation |
| <u>Troubled waters? Kelp ecotoxicology in Sussex Bay</u> | Marianne Glascott | Doctoral Researcher | University of Sussex |
| <u>Changes in Laminaria digitata occurrence in southeast England</u> | Ian Tittley | Scientific Associate | Natural History Museum |
| <u>Learnings from the Great Yorkshire Kelp Project</u> | Professor Rodney Forster | Hull Marine Laboratory Lead | University of Hull |
| <u>Marine restoration potential (MaRePo)</u> | Charlotte Johnson | Senior Specialist Marine | Natural England |
| <u>Active restoration – UK trials</u> | Cat Wilding | Doctoral Researcher | Marine Biological Association & Newcastle University |
| <u>Seaweed suitability: GIS modelling of optimal cultivation sites</u> | Ethan Clark | Doctoral Researcher | Newcastle University |

Introduction to Barriers and Optimum Conditions for kelp growth and recovery

Sam Fanshawe, Blue Marine Foundation

While the Byelaw addresses a key pressure on the marine environment in Sussex, other environmental and human-related stressors are now present in the area that may not have been a significant factor 40 years ago. These pressures may both impact kelp's recovery in Sussex and could cause declines in other areas of the country.

Blue Marine recognised the need to collate current information and knowledge on these pressures, which include sediment, pollution, disturbance and temperature. Crucially, they also saw the importance of communicating the gathered science and understanding in such a way that a broader, non-expert audience can use the insight to affect change.

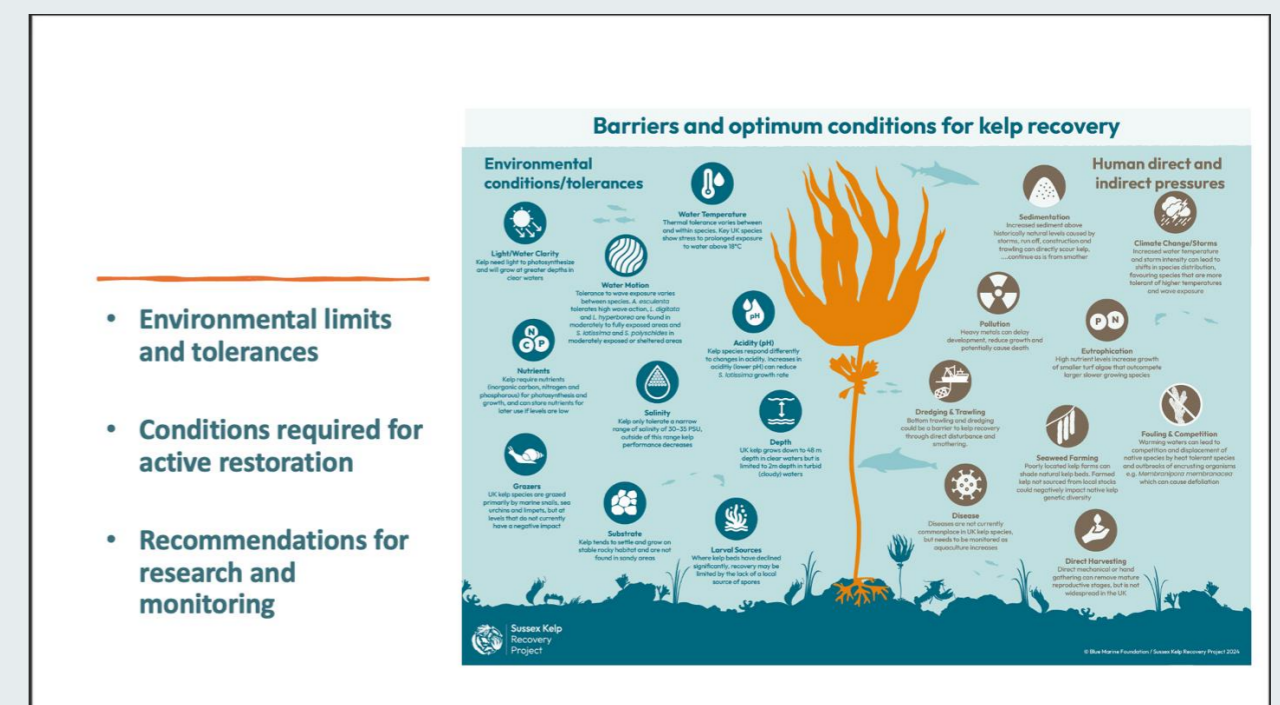
The result is a new report, [UK Kelp Recovery – Barriers and Optimum Conditions](#), a 'one-stop shop' on kelp, authored* by leading experts, which launched at the Summit. It covers the barriers and the optimum conditions for kelp recovery, applicable to natural kelp, active restoration efforts, and kelp aquaculture.

The report has a strong visual focus, with infographics, photography and art – a reminder of the need to communicate with people in different ways.

What the report covers:

- Information about kelp: UK species, biology, distribution, ecosystem service value
- Kelp's environmental limits and tolerances (substrate, turbidity, salinity, nutrients etc.)
- A focus on Sussex kelp: conditions, barriers, likely scenarios and conclusions
- Environmental conditions required for active restoration
- Recommendations for future research and monitoring

*Authors: Hannah S Earp, Pippa J Moore, Sam Fanshawe, George Balchin, Chris Yesson.



- Environmental limits and tolerances
- Conditions required for active restoration
- Recommendations for research and monitoring

Troubled waters? Kelp ecotoxicology in Sussex Bay

Marianne Glascott, University of Sussex

Initial findings: potential impacts of increased temperatures and storminess on kelp

Sussex Bay's kelp forests are attempting to grow back in a coastal environment that is warmer, stormier, and arguably more turbid than in the past. This presentation explored how changes in temperature, light, suspended particulate matter (SPM), and contaminants interact with the tiniest kelp life stages – motile zoospores and early gametophytes that underpin future kelp beds.

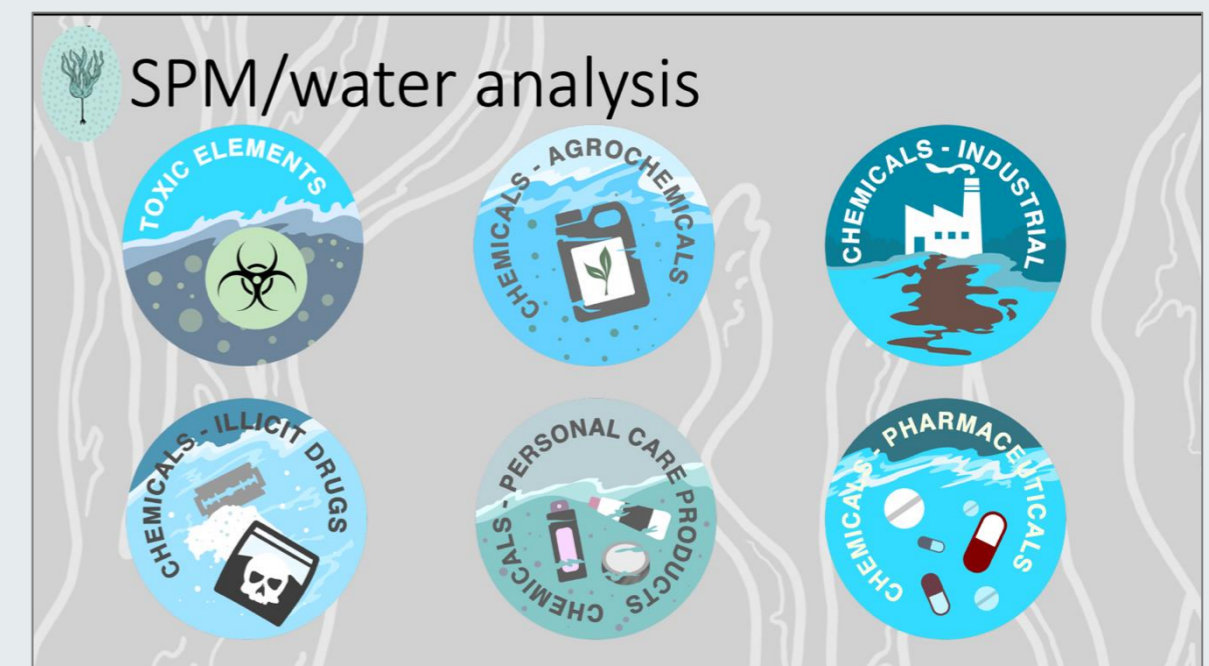
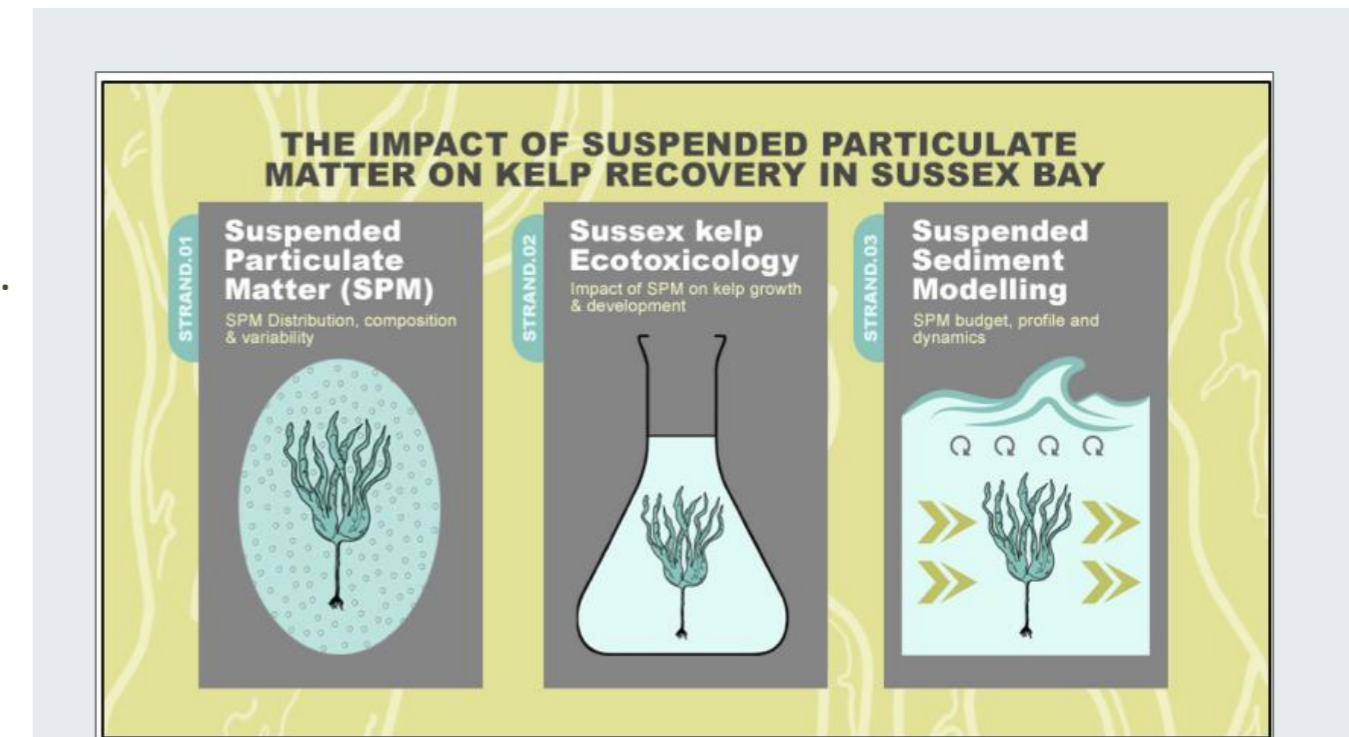
Using fixed temperature, light, and turbidity loggers alongside targeted SPM and water chemistry sampling, the project is building a year-round picture of the 'kelp zone' across key Sussex sites. Early records show sharp drops in underwater light and spikes in turbidity in response to land-based storms, with knock-on impacts on rivers and wastewater outflows. These observations help identify when and where kelp spore settlement is most likely to be challenged by low light and high sediment loads, conditions that are further stressed by rising summer water temperatures.

Profiling SPM for pollutants and testing stressor impacts on kelp

In parallel, laboratory ecotoxicology work at the University of Sussex's Kelp Lab uses zoospore motility as a sensitive, high-throughput endpoint for sub-lethal stress. By tracking thousands of individual spores on video, we can quantify changes in speed, trajectory, and settlement in response to realistic exposures of pollutants (in different chemical forms) and SPM types.

Across *Laminaria digitata*, *L. hyperborea*, and *Saccharina latissima*, there are clear, dose-dependent reductions in motility and settlement at environmentally relevant concentrations.

Together, this field-to-lab approach is developing kelp early life stages as a practical bioassay for coastal water quality. The work aims to support regulators, restoration practitioners, and local stakeholders by identifying conditions and contaminants most likely to limit kelp recovery in Sussex Bay, and by providing tools that could, in time, complement or replace some fish-based toxicity tests.



Changes in *Laminaria digitata* in southeast England

Ian Titley, Natural History Museum

Decline of kelp in Sussex, Essex and Kent

Kelp has been long known to occur on the rocky shores of southeast England with records going back to the 17th century.

The *Laminaria digitata* bed that until the 1980s occurred from Selsey to Brighton has now largely disappeared. Recent field surveys in East Sussex have recorded the near absence of beds from Brighton to Beachy Head that were abundantly present as recently as 2009-12. Small populations remain at Beachy Head, and on the greensand outcrop at Eastbourne which is now undergoing long term monitoring.

Thanet in east Kent supported *Laminaria digitata* beds around much of its coast until 2011. Recent fieldwork revealed in places a near absence of kelp beds and overall, a decline in distribution and abundance by 60%.

The small, isolated, population of *Laminaria digitata* at Harwich in Essex has also undergone a substantial decline.

Laminaria digitata is now discontinuously present east of the Isle of Wight. The main population in the eastern English Channel is between Folkestone and the South Foreland in Kent where decline has been less severe.

What might be causing these changes?

Several environmental factors affect *Laminaria digitata* survival and growth; one of these is extreme sea temperature which in East Sussex in 2022 was above 18°C for 96 days and reached 20°C for 56 days. Long periods at 18°C cause stress to the large sporophyte stage and have an impact on the microscopic gametophyte.

Beachy Head kelp bed July 2009



Beachy Head kelp bed July 2023



Learnings from the Great Yorkshire Kelp Project

Professor Rodney Forster, University of Hull

The [Great Yorkshire Kelp Project](#) was a one-year project to produce a comprehensive map of kelp presence, density and condition, and an estimate of blue carbon stock.

Historic data on kelp in Yorkshire

Kelp studies from the 1960-70s show maximum depths of 8-10m below sea level. Sites polluted from coal mining further north were shallower, at 2-3.5m.

The need to ground-truth data was the prompt for the project

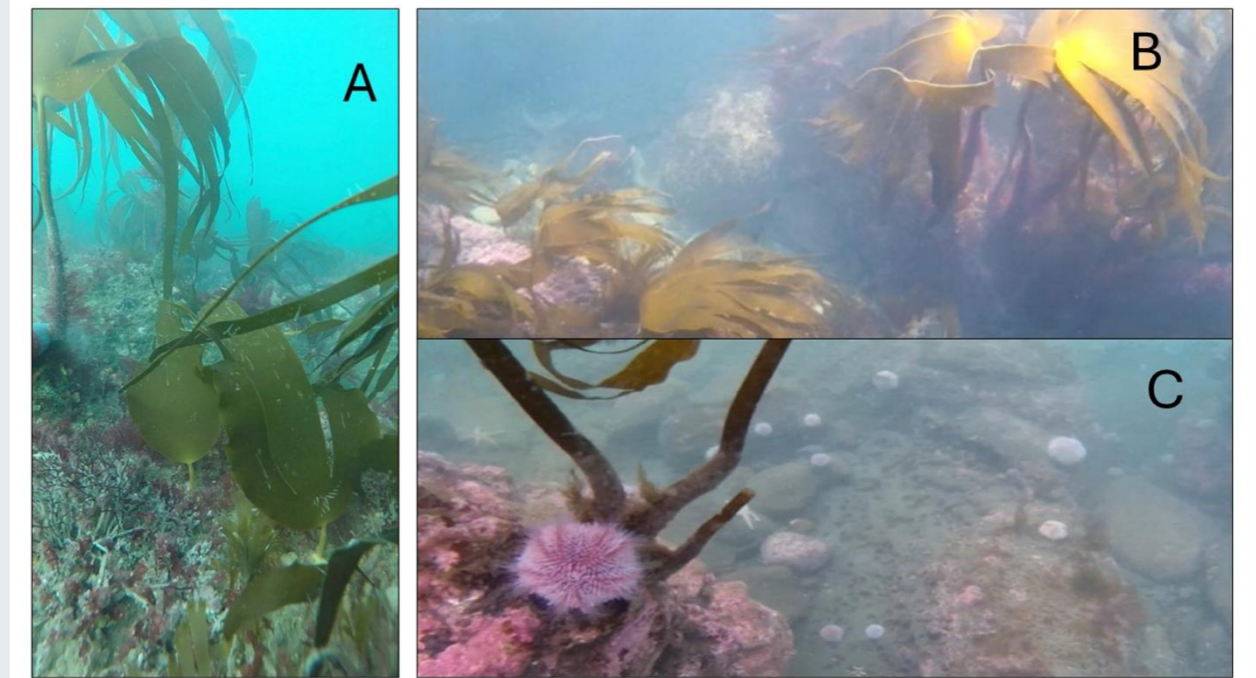
Predictive model estimates of the Northeast coast show kelp where it has not been found and where conditions mean it is unlikely to be found. Sources such as the Marine Atlas NBN Recorder show kelp sightings but data is patchy and needs improvement.

How the project is mapping and measuring kelp

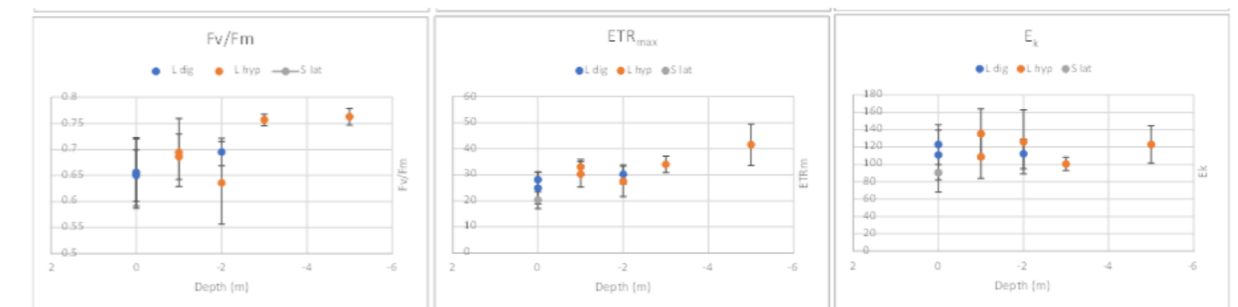
Three target areas were selected based on small boat access points. Where possible shoreline and snorkel surveys were undertaken as well, otherwise drop-down video and dive surveys were used. Video footage shows bouldery terrain with dense kelp in shallow water and lots of urchins in deeper water. The project also collected and measured kelp samples for carbon and photophysiology. Results conform to previously published figures and show healthy plants, with no signs of stress. Carbon estimates were generated and an estimate of the number of individual kelps was developed using satellite imagery and density derived from the videos. The work has led to a kelp coverage model with an estimated blue carbon stock of 2,000 tonnes.

What is causing the decline of kelp at historic depths in Yorkshire?

Kelp is no longer found below 10m. Thick kelp forest is found 2-3m below sea level after which it transforms to bare rock and urchins. More work is needed to understand why.



Photosynthetic activity



Marine restoration potential – MaRePo

Charlotte Johnson, Natural England

Natural England's *Marine Net Gain* is an emerging policy that aims to align with terrestrial Biodiversity Net Gain by ensuring development leaves the marine environment in a measurably better condition.

MaRePo is a 3-year joint project funded by Natural England, Defra and The Crown Estates Offshore Wind Evidence and Change programme (OWEC).

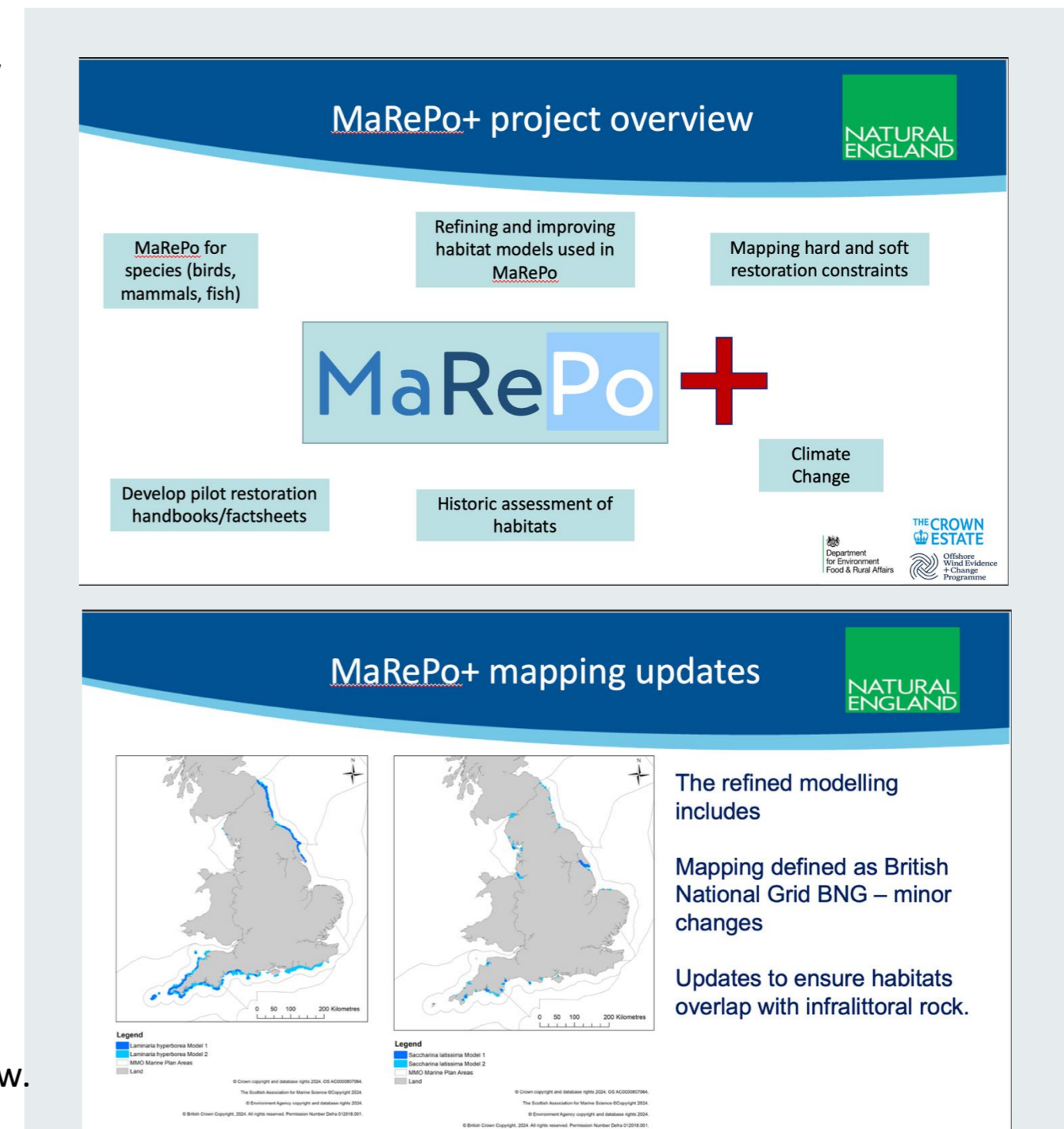
Year 1 Pilot: Reviewed declining priority marine habitats and the feasibility of mapping restoration potential. Kelp was one of the habitats taken forward from the pilot.

Year 2-3: Aims to provide improved evidence on which habitats and species could be restored, and where. Focused areas of work include:

- Refining and improving habitat models
- Hard constraints mapping - the removal of areas where kelp couldn't be restored due to infrastructure, safety reasons (shipping routes etc.) and existing rights.
- Soft constraints mapping - where anthropogenic activities and legislative frameworks wouldn't prevent restoration but would influence its feasibility, deliverability and success.
- Climate change - uses temperature anomaly data to highlight potential worst impacted areas and inform how to future-proof restoration efforts
- Historic assessment of habitats
- Restoration prioritisation for marine species.

Outputs and next steps

- Reports available on [Marine Data Exchange](#)
- Kelp mapping updates published on The Crown Estate and Defra websites.
- Kelp Restoration Guide (pending) compiles current data and looks at what we still don't know.
- The project used a 'sky-down' (theoretical and environmental) approach. Next step is to ground-truth with local conditions, local needs and local restoration examples. [Get in touch](#).



Active restoration – UK trials

Cat Wilding, Marine Biological Association, University of Newcastle

Loss of kelp habitats driven by anthropogenic stressors has resulted in ecosystem-wide shifts, declines in biodiversity and loss of ecosystem services globally.

With environmental stressors predicted to intensify, development of restoration capacity is timely, to allow for fast intervention and promote recovery and resilience. While the UK has yet to experience widespread kelp habitat loss, species substitutions and range shifts are widely documented. Local declines have occurred in the UK and extensive losses are reported from elsewhere in Europe.

To mitigate further habitat degradation and safeguard ecosystem services, it is important to develop and test techniques aimed at building resilience, ‘future-proofing’ and potentially restoring kelp habitats as a precautionary approach.

The Sugar Kelp *Saccharina latissima*, a cold-adapted species distributed from the Arctic to the Iberian Peninsula, has shown recent population declines along the southern UK coastline, although its current status remains poorly documented. We conducted surveys to examine spatiotemporal variability in *S. latissima* demography (density, standing stock, growth rate), assess population status, and establish baselines for future monitoring. Reproductive output was also quantified to estimate recovery potential and the need for restoration intervention.

Concurrently, “green gravel” restoration techniques are being developed and tested by seeding kelp spores onto various substrates, including natural stone, fishing industry shell waste and 3D printed “reef” units. The influence of substrate on kelp settlement density, attachment strength and growth parameters will be measured under different hydrodynamic conditions. “Green gravel” will then be deployed at sea and monitored to evaluate performance relative to reference kelp habitats.



FaSS Green Gravel UK

- Plymouth and Newcastle - precautionary development of method



- Key project partners:

- ↳ MBA
- ↳ Alison Freeman - Founder at The Kelp Conservation Initiative CIC, former Fisheries Programme Manager at the Fishmongers' Company's Fisheries Charitable Trust
- ↳ Newcastle University
- ↳ Northeast Fishing Collective

- Funding: FaSS, Newcastle University, Fishmongers' Company, Devon Environment Foundation, Dixon Foundation, Marshall Wace, Seafarers Charity



Seaweed suitability: GIS modelling of optimal cultivation sites

Ethan Clark, University of Newcastle

This study is part of a PhD which aims to map macroalgae aquaculture suitability across the UK, determine which UK offshore wind farms show greatest suitability for it, and compare and contrast two models used in suitability mapping.

Seaweed aquaculture, an emerging UK industry, has minimal requirements (no freshwater, no power, no extra nutrients) and can provide valuable bio-compounds used in pharmaceuticals, cosmetics, fertilisers etc. However, site selection is vital for success to ensure optimal environmental conditions and minimal conflict with other uses or regulation.

Five kelp species were reviewed against parameters impacting kelp growth (sea surface temperature, salinity, nitrate concentration, wave height, current velocity and light intensity), to identify metrics for optimal, sub-optimal and unsuitable conditions. Two models were applied. Model 1 uses a discrete reclassification while Model 2 uses continuous reclassification (fuzzy logic). Modelled data is overlaid on satellite imagery to show colour-coded areas of high and low suitability for kelp aquaculture. Multi-criteria evaluation and weighting is then applied to further refine maps.

Results

Both maps show increasing suitability towards the north of the UK. Pockets of unsuitability include the Southwest due to high sea temperatures, the North Sea due to low nutrients and the North/Northwest due to high wave heights.

While trends between the two models are similar, they have different strengths. Combining them provides a more holistic view of high and low risk areas. Models can be improved to include regulatory restrictions as well as economic and technological considerations.

The work demonstrates that suitability mapping can enable regulators and farmers to make informed decisions about the best places to develop kelp aquaculture.

The infographic is divided into two main sections. The top section, 'Importance of site selection', features three circular icons: a cube with arrows for 'Yield and productivity', a recycling symbol for 'Environmental sustainability', and a handshake for 'Regulation and social'. Each icon is accompanied by a brief explanatory text. The bottom section, 'Target species', displays five circular images of different seaweed species, each with its scientific name: *Laminaria digitata*, *Alaria esculenta*, *Palmaria palmata*, *Saccharina lattissima*, and *Saccorhiza polyschides*.

Importance of site selection

- Yield and productivity**
The success of depends on environmental conditions.
A poorly chosen site may result in slow growth, low biomass yields, or complete crop failure.
- Environmental sustainability**
Ensuring the environment is capable of hosting a farm, and that the farm is able to withstand the conditions of the site.
- Regulation and social**
Many marine areas have restrictions, such as MPAs or shipping lanes.
Appropriate site selection will ensure compliance with these areas

Target species

- Laminaria digitata*
- Alaria esculenta*
- Palmaria palmata*
- Saccharina lattissima*
- Saccorhiza polyschides*



Sussex Kelp
Recovery
Project

Session 4:

Community engagement in seascape recovery

Session 4: Community engagement in seascape recovery

| Topic | Speaker | Role | Organisation |
|---|-------------------------------------|-----------------------------|----------------------------|
| <u>Introduction to community engagement</u> | George Short | Kelp Recovery Co-ordinator | SKRP/Sussex Wildlife Trust |
| <u>Ocean literacy</u> | Dr Lewis White | Seascape Research Lead | Sussex Bay |
| <u>Empowering coastal communities</u> | Ella Garrud | Coastal Communities Officer | Sussex Wildlife Trust |
| <u>Sussex Underwater – a window beneath the waves</u> | Eric Smith and Catrine Priestley | Founders | Sussex Underwater |
| <u>Introducing BBC 1's Our Sea Forest</u> | Sarah Cunliffe | Founder and CEO | Big Wave Productions |

Introduction to community engagement

George Short, SKRP

Many attendees at the Summit have experience, knowledge and skill sets focused on collating scientific evidence and undertaking research and monitoring – all essential in the protection and ongoing understanding of kelp ecosystems, but what's also essential is the translation of this to communities, particularly coastal communities.

This is not a role we can all have, often we are overwhelmed in our statutory, eNGOs and regulatory bodies, but its key that we work with organisations and entities that have the capacity and expertise to further ocean literacy in our communities.

Session four is filled with inspiring speakers and ocean advocates who have done incredible work to engage local communities in their local ecosystems.

A thank you to the Blue-footed boobies who raised £9,000 for the SKRP by swimming the Channel.

A highlight from our projects in 2024 were the efforts of 6 inspiring women who trained for a year and a half to swim the Channel. Accepting flowers, they spoke of their love for the coast, and how swimming in the sea everyday has reinforced the importance of maintaining its health.

[Read more about the Blue-footed boobies.](#)



Ocean literacy

Dr Lewis White, Sussex Bay

[Sussex Bay](#) is a regional initiative dedicated to restoring and protecting the marine and coastal environment through community-led action and evidence-informed strategy. As part of this commitment, Sussex Bay conducted its first Ocean Literacy Survey, engaging over 1,800 residents across the region.

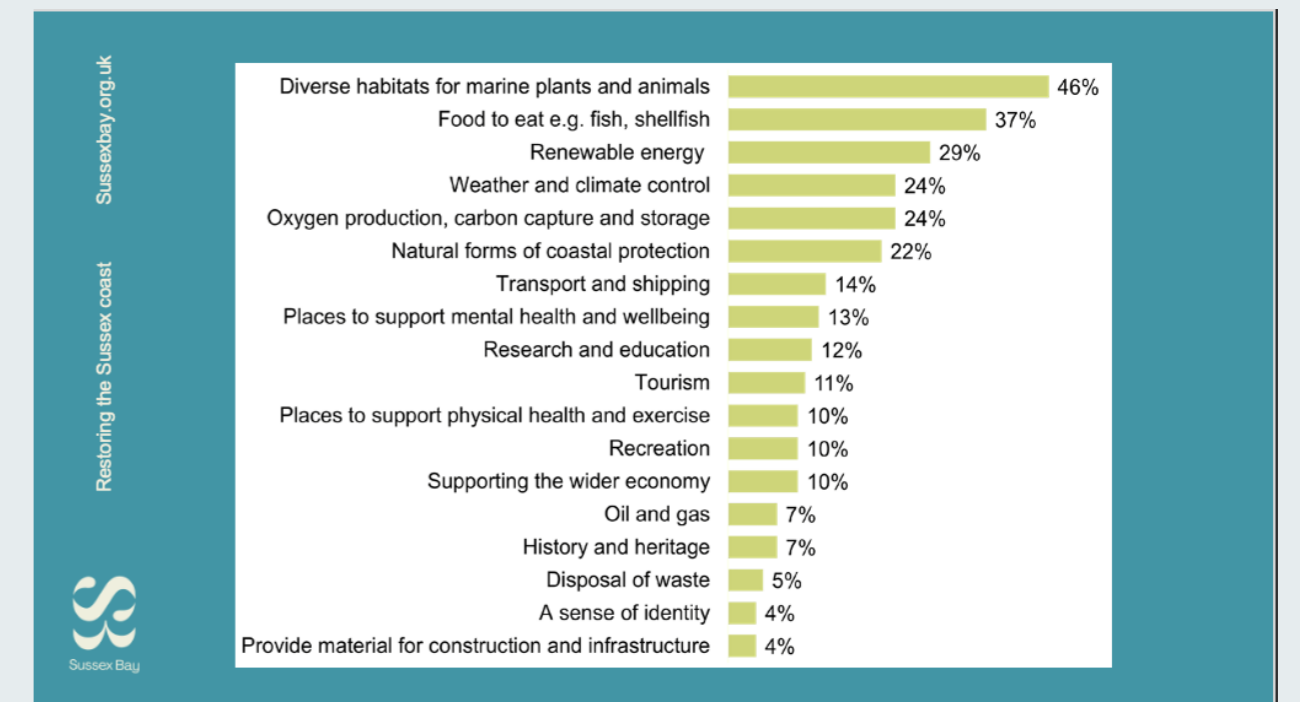
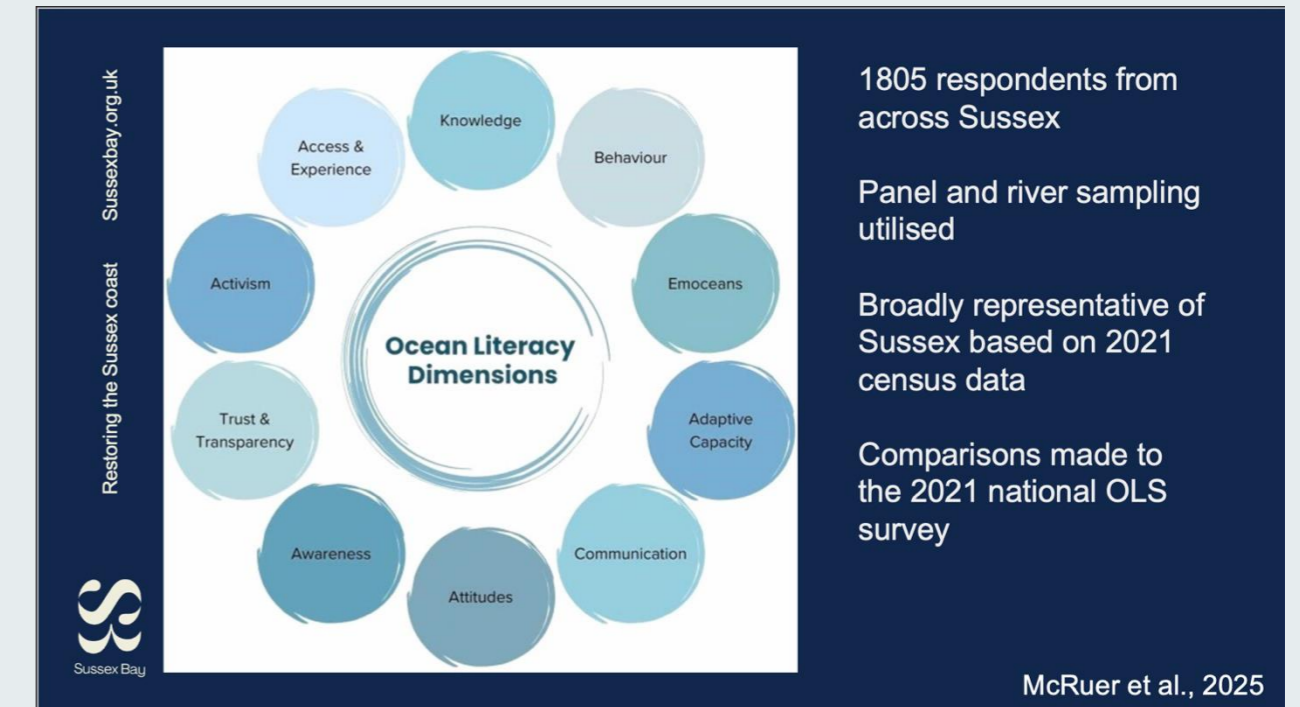
Ocean literacy is essential because it empowers individuals and communities to understand the ocean's influence on their lives, as well as their influence on the ocean.

It fosters informed decision-making, supports sustainable behaviours, and builds the social license needed for effective marine recovery. Measuring ocean literacy provides a baseline for understanding public awareness, attitudes, and behaviours, helping to shape targeted interventions and track progress over time.

The results for Sussex Bay show a strong connection to the sea among residents. A majority (81%) reported that the ocean positively impacts their mental health, with *"it clears my head"* being the most cited reason. Physical health benefits were also widely recognised (76%). The most common emotion associated with the ocean was *"concern"* (44%), followed by *"awe or wonder"* (36%), *"curiosity"* (27%), and *"calm"* (25%).

Encouragingly, 70% of respondents reported taking action to protect the marine environment - well above the national average of 55% - with 18- to 34-year-olds particularly engaged. However, perceptions of marine health varied across different demographics, highlighting the need for broad reaching engagement when it comes to our marine environment.

These insights help inform Sussex Bay's Blueprint for Seascape Recovery, where the views of the public, scientific evidence, and collaborative action are all needed to drive positive change. By prioritising ocean literacy, Sussex Bay is building a foundation for long-term stewardship, resilience, and nature recovery across the region. Result highlights are published within our [Blueprint for Seascape Recovery: Part 1 – The Story So Far](#).



Empowering coastal communities

Ella Garrud, Sussex Wildlife Trust

Sussex Wildlife Trust (SWT) launched the Our Wild Sussex strategy in 2024. This lays out their vision to 2030, and a set of strategic transformations to reach it, including ‘*Connecting people with nature and inspiring 1 in 4 people in Sussex to take meaningful action for wildlife*’.

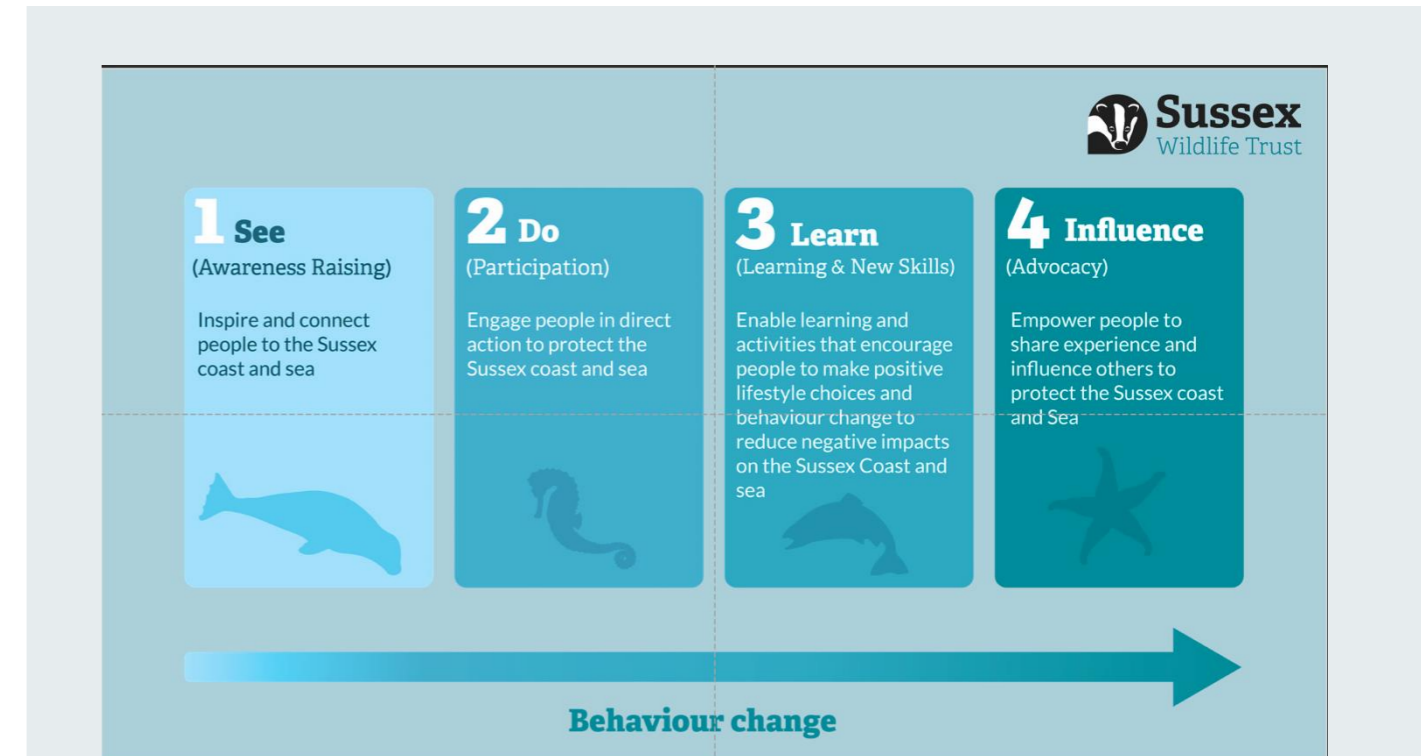
Wild Coast Sussex

Partnership project with National Lottery Heritage Fund in 2024 to connect target audiences with their coastline through activities that inspired ocean-positive behaviour change and upskilled people to protect their coast and sea. This behaviour change model has since been adopted across SWT’s strategy and approach.

Behaviour change model:

- 1. See: Raise awareness by inspiring people and connecting them to nature.**
Experiential learning, making visible what’s normally hidden beneath the waves.
- 2. Do: Direct action; getting people to participate in protection activities.**
Beach cleans (easy and accessible to put on, good for mental health).
- 3. Learn: Upskilling and training that encourage positive lifestyle choices.**
Wild Beach Training (forest school for the coast), includes a week-long accredited course for teachers. Citizen Science projects including [Sussex kelp recording scheme](#), [Seasearch](#), [Shoresearch](#), and the emerging Shoresearch Community Network.
- 4. Influence: Advocacy, empowering people to share experiences and influence others.**
Wilder Campaigner which trains people to campaign for nature, and Beach Litter Survey Leader, empowers people to organise local beach cleans.

“The power of communities and their collective voices is needed to make a difference for our ocean. This was demonstrated brilliantly by the thousands of people who responded to the Help Our Kelp campaign in support of the Byelaw, helping to make it law.”



Sussex Underwater – a window beneath the waves

Eric Smith and Catrine Priestley, Sussex Underwater

Sussex Underwater's mission is to inspire ocean advocates by showing people the wonderful world under the waves. Becoming a charity in 2025, members are free-divers who record Sussex marine life and share videos and photos via the charity's popular social channels (the Sussex Underwater [Facebook group](#) has 20k followers).

How the group started

Eric, now in his late 70s, began diving aged 11. He recalls the miles of kelp forest found off the Sussex coast as a "garden of Eden". Over the next 30-40 years he was an eye-witness to the devastation wreaked by trawling, a key factor in the decline of kelp to just 4% of pre-1980 levels.

Heartbroken, Eric wrote letters to local authorities and articles to raise awareness. Eventually, this led to the Help Our Kelp campaign and to the implementation of the Sussex Nearshore Trawling Byelaw by Sussex IFCA. Eric and fellow divers began filming the recovery of the seabed following the removal of this key pressure, and Sussex Underwater was born.

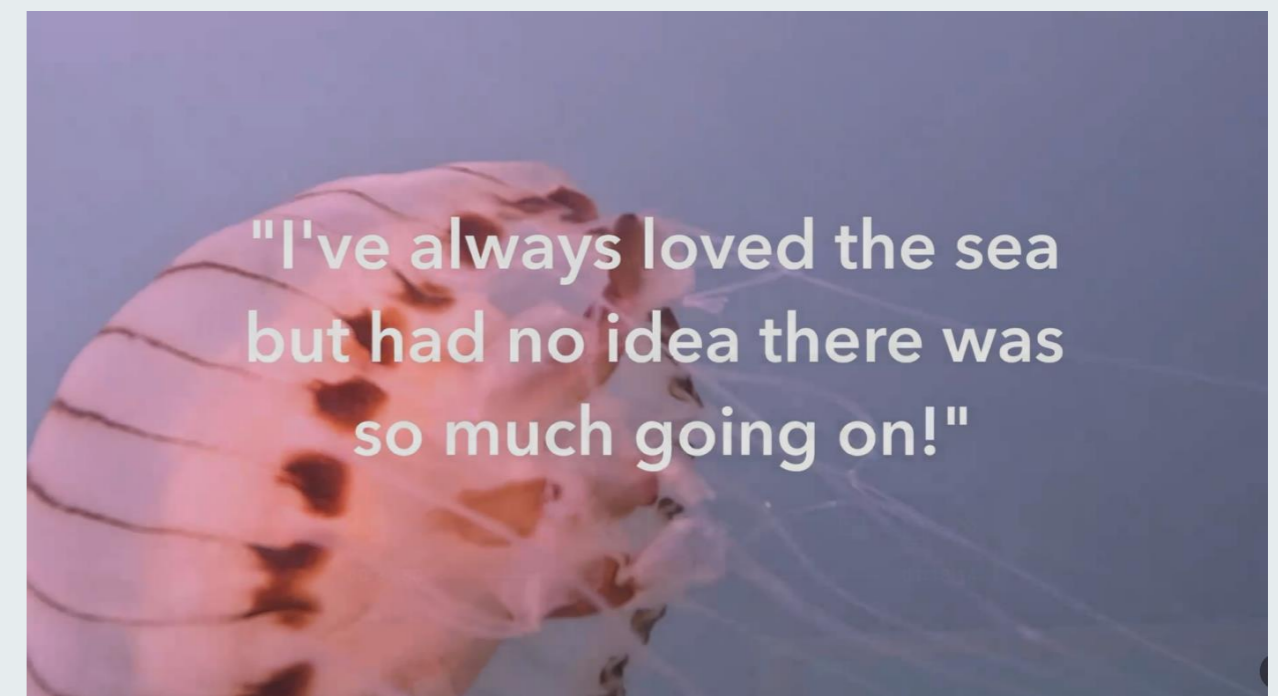
The charity has grown to 12 volunteer members including two youth ambassadors. In addition to creating films, they answer thousands of questions raised by their social media followers and regularly give talks to schools and other groups. Two videos played by Eric and Catrine illustrated what Sussex Underwater and restoring marine life means to volunteers and followers.

What they are seeing now

While not seeing new areas of kelp, Sussex Underwater has observed the return of some species including stingrays, and greater abundance of others, including mussel beds. Their anecdotal evidence is combined with empirical data as part of SKRP's monitoring programme.

Advice on how to engage people with the ocean

Sussex Underwater posts are positive and hope-filled. They stress the importance of telling stories, not just about Sussex marine ecosystems, but also of the people that really care about it.



Introducing BBC1's Our Sea Forest

Sarah Cunliffe, Big Wave Productions

Sarah Cunliffe is an award-winning executive producer and director, a biologist with a special interest in all things marine and producer of Our Sea Forest, a documentary broadcast on BBC 1 in 2023.

In 2019, Sarah met Sean Ashworth, then Deputy Chief Officer at Sussex IFCA. Sean told her about the disappearance of the kelp and the IFCA proposals for a Byelaw. Sarah immediately saw that a film was needed to make people care about the loss of kelp. She went ahead and made a film – called 'Help Our Kelp' and asked David Attenborough to narrate it. David said yes.

The film appeared on the One Show and other channels reaching millions of people. IFCA had done all the hard work in getting the Byelaw submitted to Government, but the Help our Kelp film and the group of the same name was instrumental in generating awareness and thousands of signatures in public support of the Byelaw. The Help our Kelp partners continued to campaign and lobby the Secretary of State throughout 2020 and the Sussex Nearshore Trawling Byelaw was finally passed in 2021.

The Help our Kelp campaign and the Sussex Kelp Recovery Project that followed shows the power of collaboration - of a government body (IFCA), community people and NGOs - and how this can affect real change.

Sarah met Eric Smith in Autumn 2021 at the first SKRP conference. Inspired by his extraordinary story and character she made a documentary film about him. To tell the story of the kelp, you need extraordinary people and characters who can engage people emotionally so that they want to care. Eric has that quality and Our Sea Forest is the film inspired by the power of one individual to effect change.



**Our Sea Forest was broadcast on BBC 1 in November 2023.
The film was screened at the Kelp Summit.**



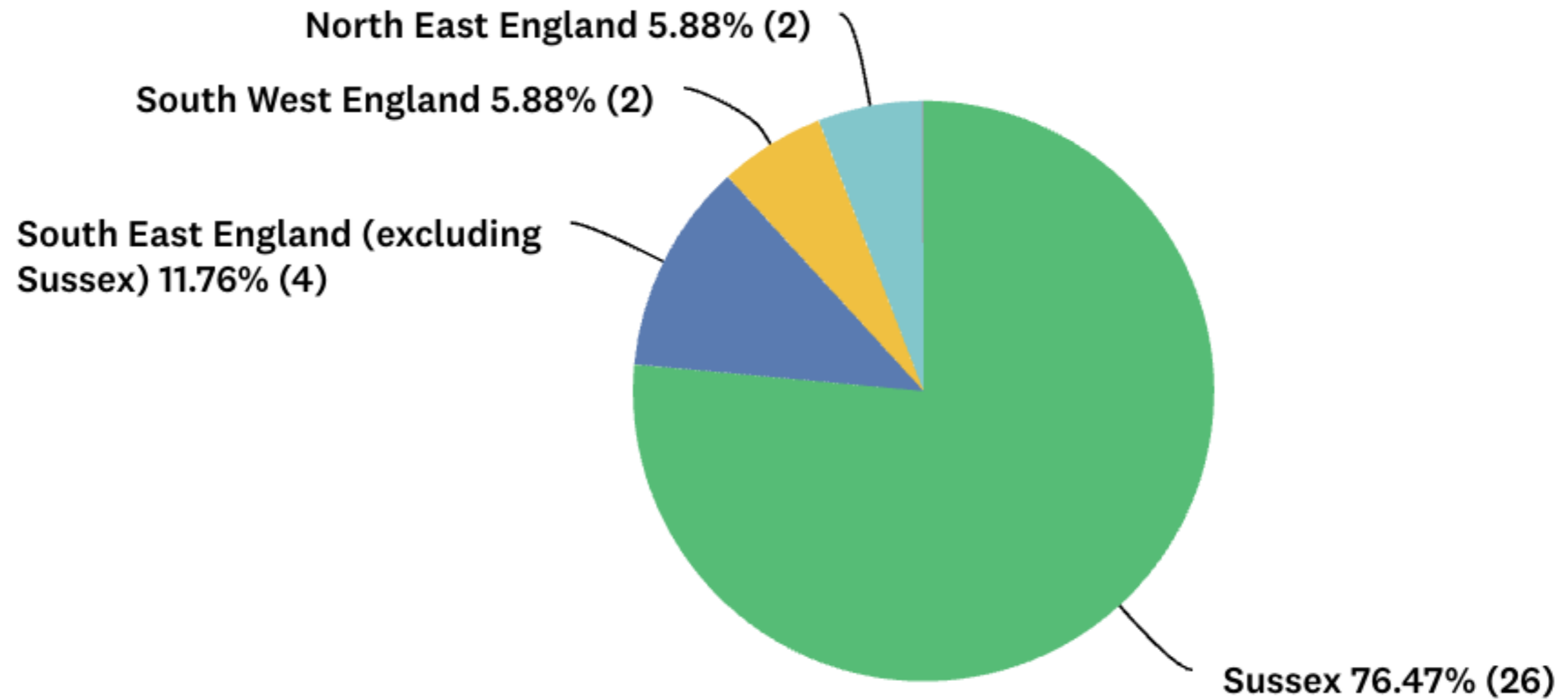
Sussex Kelp
Recovery
Project

Appendix:

Kelp Summit attendee feedback survey results

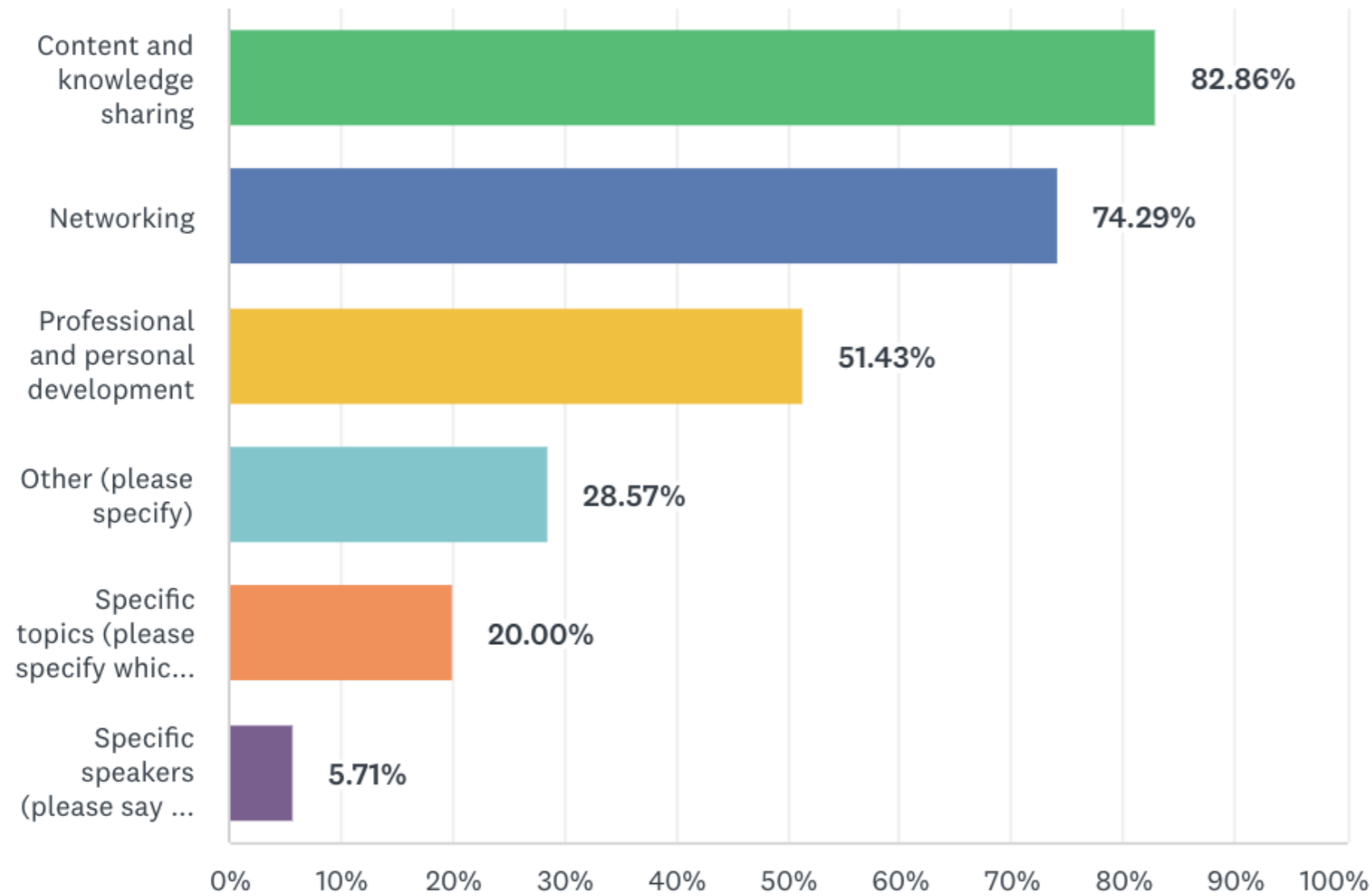
In which region are you based? (Please tick one)

Answered: 34 Skipped: 1



What was your primary reason for attending the conference? Please tick all that apply

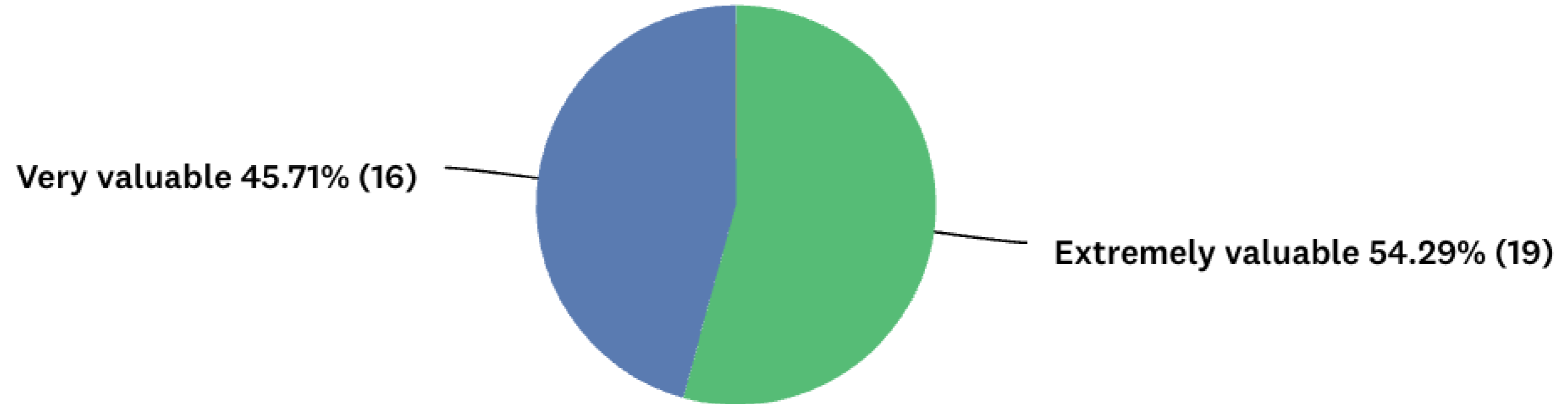
Answered: 35 Skipped: 0



'Other' box: Verbatims regarding speakers and/or topics

- I am part of the SKRP Steering Group
- General personal interest
- Kelp Recovery Following the Byelaw
- Data Management
- Practical kelp research conducted along the Sussex coast
- How Local Authorities can support the efforts
- Commercial fishing
- Learn more
- Kelp Monitoring
- Topic: Kelp ecology monitoring

Overall, how valuable did you find the conference?



Can you give us a bit more detail about your answers above (1/2)

We are a new Sussex community interest company using cast seaweed to cold press a liquid plant food called Seaweed Guy. We were guests of Sussex Underwater, and Catrine has been a very supportive individual who has helped us to get established and introduced us to the wider marine ecology community. We hope to use our story telling skills to promote the kelp recovery project to a wider audience who may not at present be aware or pay much attention to the issue.

Good speakers & format

I am a non-academic passionately interested in ocean and kelp recovery and was just interested to be updated on the work that is being done but don't have any specific ways to do anything with the information

It was great to provide an overview of the status of UK kelp beds; great opportunity to network with specialists on the sector and develop collaborations.

I really appreciated and valued the amount of knowledge shared on the day. I personally would have liked it to be all about Sussex Kelp but I must admit I appreciated being able to compare data/knowledge/research from other locations.

I found the conference very insightful and motivating, and hearing from a range of different speakers on a variety of kelp research and issues from policy to new advancements in survey methods was brilliant.

The workshop was incredibly helpful for networking and getting to have a better understanding of everyone's stake in the kelp restoration project and what people are doing across the country for kelp.

Good to meet all the researchers who work in the local area in one space, it is rare. Plus interesting to hear about the broader research being conducted in the UK.

It was very valuable to get a better understanding of the kelp recovery project and broader ecology as well as networking opportunities

Fantastic to see and hear from the many people who too have an involvement & passion for kelp ecology.

I didn't know much about kelp before but now have a much better understanding of UK species, the environments they live in and the threats they face.

I learned a lot - great to hear about the range of work and also meet like minded passionate individuals.

I got great insights into the variety of research being conducted in relation to kelp around the country, and I learnt a great deal. It encouraged me to do more by realising I can contribute to the bigger picture.

Can you give us a bit more detail about your answers above (2/2)

Greater understanding of key issues that are affecting the existing kelp recovery; barriers to kelp expansion and how sewage discharges may be exacerbate sargassum dominance

Some of science was amazing like monitoring source of pollution in kelp and how tiny and fragile spores are

Great opportunity to network!

Excellent presentations; great networking

Very interesting talks and to hear more about what is happening within the kelp restoration sphere. Good range of topics. Also ending with the social aspects was really good.

A gained a good understanding of the national seaweed situation. And I learned about the limitations and constraints for kelp recovery off Sussex shore

Wide range of topics and speakers covered a lot of material in a short space of time. Provided background to each others' information.

Great range of speakers, really valued the space made for community voices as well as academia. Only small thing I would say is I would have welcome to hear from the fishing industry directly, but otherwise a very comprehensive and well thought out agenda.

Each individual area of research and the results found were both interesting and helpful to achieving our future goals both along our immediate coastline and worldwide, particularly in the areas of pollution, regeneration and carbon.

The conference was brilliant for networking (particularly the workshop) The quality of the speaker and presentations was very high. I particularly liked the talks on the nitrogen isotope and also eco toxicology.

I am currently studying an MSc in Marine Biology and found the entire day inspiring and incredibly valuable.

An opportunity to catch up with the latest research on the status of kelp populations in England

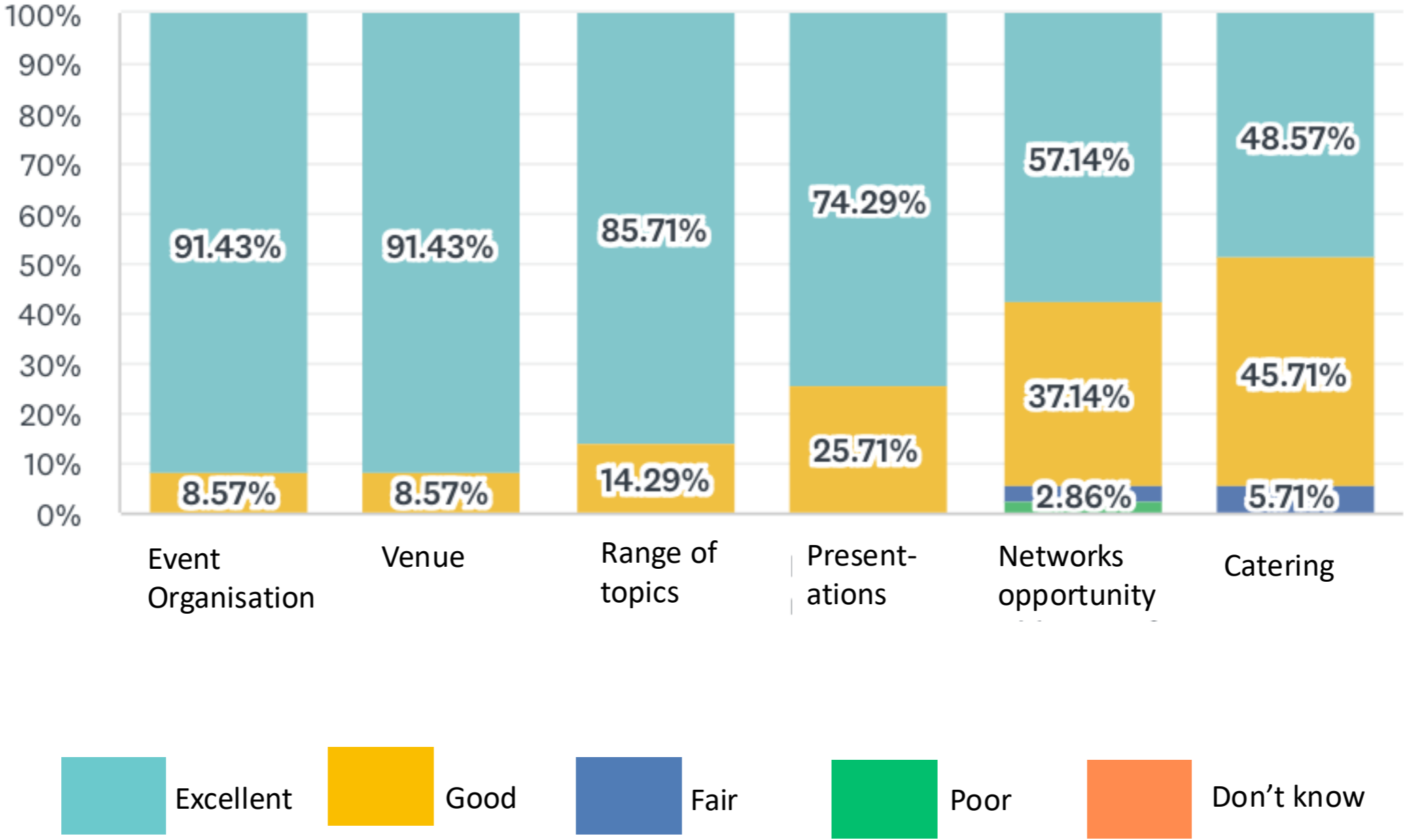
I learned a lot about the situation of kelp recovery and the outreach being done.

Great insight and depth into the science.

It was very insightful to have so many speakers and experts in kelp ecology and conservation sharing their ideas and research under one roof. Usual conferences don't get to have such a specific focus and certainly aren't tailored around once ecosystem type so this was truly unique.

How would you rate the following aspects of the conference?

Answered: 35 Skipped: 0



If you have any further detail, please note it here

Where possible can presentations from the day be shared?

Speakers did well to quickly take us from basics to more advanced themes. Unfortunately local major road works caused some travel problems which were beyond your control, and gave us rather a rushed entry. Good quality catering was a pleasant surprise.

The talks were good lengths and it was nice to have the film at the end.

The networking was a little bit challenging. It felt like people/speakers were hard to find. Maybe having some of the speakers to be located at a specific spot to have discussions with the participants would be a good idea?

It would have been preferable to have more time for networking. (Create a platform for this to continue beyond the event?) Perhaps an evening event, or site visit?

It is good that this initiative has expanded from being part of a local campaign to more of a national research forum.

The programme was very tight, perhaps fewer speakers and longer presentations would have been better. I'm not quite clear as to the final outcome of the workshop (day 2)

This was the best summit I have been on in a long time, well done.

Appreciated the kelp research hardcopy report

What might you take away from the conference into your future work?

We're very buoyed about the future making waves in the sustainable plant food world!

How different are kelp beds characteristics, status and pressures between SW, SE England and NE England

To report all relevant findings along our coastline to some of the groups that presented at the summit to assist with on going research.

Promotion of importance of kelp

Realisation that the small things I can do can contribute to our greater understanding.

I gained a good understanding of the national seaweed situation. And I learned about the limitations and constraints for kelp recovery off Sussex shore

As a volunteer free diver I can help gather samples and collect data to aid scientists in their research. Also the deeper knowledge of the subject helps me to communicate what being done/ happening behind the scenes to the wider community in Sussex

Contacts for people in similar areas of work to help further study of kelp monitoring and survey methods, and what methods work best for specific areas around the country.

As I thought before, the breadth of the research being conducted in the local area is outstanding. Darren was a great speaker, really interesting and I work in this area.

Interlinking of studies need to continue data collection over longer time periods awareness of scale of projects and funding which may be available

Strangely pessimistic about kelp beds recovery in Sussex. Too far gone, especially onset of warmer sea temperatures

The engagement of local communities in the project

Importance of cross-country, multi university collaboration for better research outputs

Methods available for kelp monitoring

The need to keep this momentum going - a UK Kelp Alliance perhaps, to continue to share knowledge, contacts, resources and passion.

The temperature increase and potential implications for kelp recovery is startling. Need to think what this means

I learned a lot about the situation of kelp recovery and the outreach being done.

Be brave and talk to more people!

Possibilities of kelp planting

Pursuing a greater understanding of how land-side river pollution can affect the kelp recovery effort and therefore what upstream measures can be taken to assist downstream coastal kelp recovery

A gained a good understanding of the national seaweed situation. And I learned about the limitations and constraints for kelp recovery off Sussex shore

Useful to the SeaSearch work I am involved with thro Sussex Wildlife Trust

Could you suggest an idea that could have improved the event?

Live recording of the event for people who could not join in person

More posters to be included please.

No - event organisation first class - thank you!!!!

Potentially a list of agreed contacts to follow up with later.

It wasn't clear in the pre-event materials that lunch would be provided, but kind of assumed.

Split the refreshments over more places to reduce queueing.

maybe work more with projects in Europe on kelp rewilding . work and research carried out by Dutch company Hortimare

I think some breakout rooms or smaller sessions with even more specific focuses would have maximised knowledge sharing on kelp in the UK

I understand the primary purpose was scientific, however some of the presentation deck slides were too small or technical to understand from a non scientific perspective. So perhaps cram less info onto one slide.

Perhaps live screening of the event for those unable to participate. In the absence of this, the option to watch the presentations back. More involvement from Scottish/Irish orgs working on kelp to get the full UK picture. International representatives?

Stronger emphasis on the status of kelp in southeast England

Needed more balance between fishing and conservation

I did speak to Henri Brocklebank about getting the commercial marine industry aware - yesterday I went to the Newhaven Port Users group, and I doubt anyone was aware of this project at the meeting.

More focus on the second day's workshop, I thought it was brilliant!

Produce a sheet of 'highlights' no more than one side A4.

More on community involvement opportunities?

More voices from fishers

Biased opinion here, but, having a presentation on what action could be taken locally by political decision-makers (local councils) and how they could have a meaningful impact on recovery, protection, awareness etc.

A proper poster session - with more than 3 posters

More opportunity for questions; I didn't get a chance to have my question heard