CORNWALL & ISLES OF SCILLY
MARINE NATURE RECOVERY FRAMEWORK

2025

Cornwall & Isles of Scilly
Marine & Coastal
Partnership

CORNWALL & ISLES OF SCILLY
LOCAL NATURE PARTNERSHIP

CORNWALL COUNCIL
one and all • onen hag oll

Council of the
ISLES OF SCILLY

CONTENTS

FOREWORD

Cornwall and the Isles of Scilly have always been defined by their relationship with the sea. Our marine environment is central to our identity, our economy, and our wellbeing, but it is under unprecedented pressure from climate change, pollution, and biodiversity loss.

The Marine Nature Recovery Framework is our collective response to these challenges: a bold, evidence-based plan to restore and protect the ecosystems that sustain us.

This is not just an environmental imperative; it is a social and economic one. Healthy seas mean resilient communities, thriving businesses, and a legacy of natural wealth for future generations.

This Framework aligns with national and global commitments to halt nature's decline but also reflects Cornwall Council's ambition for a clean, green Cornwall with healthy Rivers and seas. It provides a practical roadmap for action, connecting land and sea, and calls on all of us - government, industry, communities, and individuals - **to work together to achieve our shared goal of at least 30% of land, rivers, and seas being well managed for nature by 2030**. Built on collaboration and local knowledge, it champions innovation and partnership to deliver real change.

WE ARE ONE OF ONLY A HANDFUL OF REGIONS TAKING THIS INNOVATIVE APPROACH TO DRIVING NATURE RECOVERY ACROSS OUR LAND, RIVERS AND SEAS WITH THIS VOLUNTARY BUT ALIGNED FRAMEWORK WHICH COMPLEMENTS OUR EXISTING NATURE RECOVERY STRATEGY.

In Cornwall and the Isles of Scilly we have an exemplary history of strong voluntary groups in all sectors of our marine economy – a thread that runs through our communities as deep as our mining roots. This amazing platform of voluntary activity cannot sustain us with the imminent challenges facing us. As a maritime region we need our civic leaders to advocate for more support and to treat our rivers and seas with as much importance as our land.

We need to amplify discussions about our amazing landscapes into a wider "seascape" set of priorities running though all our policies and practices.

We invite you to read this Framework not as a static document, but as a call to action. Let us lead by example, seize this opportunity, and ensure Cornwall and the Isles of Scilly remain a beacon of marine stewardship for the UK and beyond.

TOGETHER, WE CAN TURN THE TIDE.

Cllr Loic Rich,
Cornwall Council, Cabinet Member for Environment and Climate Change

Claire Eatock,
CIOS Marine and Coastal Partnership

Lord Teverson,
Cornwall and Isles of Scilly Local Nature Partnership

John Peacock,
Council of the Isles of Scilly

RAGLAVAR

Kernow ha Syllan re beu aswonnys pupprys gans aga hevren dhe'n mor. Agan kerghynnedh morek yw kresel dh'agan honanieth, agan erbysieth, ha'gan sewena, mes yma ev yn-dann wask heb par dhyworth chanj an hin, defolyans, ha koll a vewdhiversita.

An Framweyth Dhasvewnans Natur Morek yw agan gorthyp kuntellek dhe'n chalenjys ma: towlen stout ha selys war dhustuni dhe dhaswul ha difres an ekosystemys neb a'gan sosten.

Nyns yw hemma res dhe gerghynnedh hepken; yth yw res socyal hag erbysek ynwedh. Moryow yagh a styr kemenethow stout, negysyow vyw, ha sostenadewder bythow natur rag henedhow y'n termyn a dheu.

An Framweyth ma a alin gans omriansow kenedhlek hag ollvysel dhe hedhi difigyans natur, mes dastewynnya ynwedh ughelhwans Konsel Kernow rag Kernow glan ha glas gans dowrow ha moryow yagh. Hi a brov mappa rag gwrians, ow kevrenna tir ha mor, ha gelwel orthyn ni oll – governans, diwysyans, kemenethow, ha unigynnow – **dhe oberi war-barth rag kowlwul agan amkan kevrynnys dhe'n lyha 30% a dir, dowrow, ha moryow bos dyghtys yn ta rag natur erbynn 2030**. Drehevys war gesoberyans ha skians leel, hi a generth nowedhyans ha keskowethyans dhe dhelivra chanj gwir.

NYNS ON NI MARNAS ONAN A DHORNAS A RANNDIRYOW OW SYWYA AN FORDH NOWYDHYANSEK MA OW HERDHYA DASVEWNANS NATUR DRES AGAN TIR, DOWROW HA MORYOW GANS AN FRAMWEYTH BODHEK MES ALINYS, NEB A GESSEN GANS AGAN STRATEJI DASVEWNANS NATUR A-LEMMYN.

Yn Kernow ha Syllan yma genen istori bryntin a vagasow bodhek krev yn oll agan rannoberyow erbysieth morek – linen neb a ystyn dres agan kemenethow mar dhown avel agan gwreydh balweyth. Ny yll an bynk marthys ma a wriansow bodhek agan sostena gans an chalenjys degynsywek orth agan enebi. Avel konteth morek yma edhom dhyn a ledyoryon civik dhe erghi rag skoodhyans pella ha dyghtya agan dowrow ha moryow gans kemmys a vern ha'gan tir.

Res yw dhyn ughelhe agan dadhlow a-dro dh'agan tirwedhow marthys yn ledanna rol ragwiryow "morwedh" dres oll agan policis hag praktisyow.

Ni a'gas gelow dhe redya an Framweyth avel galow gwrians a-der restren stag. Gwren ni ledya der ensample, dalghenna an chons ma, ha surheKernow ha Syllan dhe besya avel tansys a stywardieth morek a'n RU ha pella.

WAR-BARTH, Y HYLLYN TREYLYA AN MORTID.

Klr Loic Rich,
Konsel Kernow, Esel Kabinet rag Kerghynnedh ha Chanj an Hin

Claire Eatock,
Keskowethyans Morek hag Arvorek Kernow ha Syllan

Arlodh Teverson,
Keskowethyans Natur Leel Kernow ha Syllan

John Peacock,
Konsel Syllan

CORNWALL AND THE ISLES OF SCILLY MARINE NATURE RECOVERY FRAMEWORK (MNRF)

Cornwall and the Isles of Scilly are in the midst of a climate and ecological emergency. Our marine and coastal environments are facing unprecedented pressures, from climate change and pollution to habitat loss and declining biodiversity. Yet, these waters are home to extraordinary marine life. Our region is a marine ecological hotspot within the UK, the health of our waters underpins local livelihoods and play a crucial role in shaping our cultural heritage. We must take urgent action to help our seas recover.

WHAT IS THE MARINE NATURE RECOVERY FRAMEWORK?

The MNRF is a voluntary, evidence-based shared vision for the recovery of marine and coastal wildlife. It provides a locally agreed, strategic blueprint for marine nature recovery across Cornwall and the Isles of Scilly.

The MNRF is catalysing collaboration to protect, restore, and enhance marine biodiversity. The Framework builds on existing regulations and conservation efforts. It uses local knowledge combined with scientific data to guide effective marine management for the future. It provides a roadmap for how we can collectively work towards at least 30% of land, rivers and seas well managed for nature by 2030.

WHAT DOES THE MARINE NATURE RECOVERY FRAMEWORK DO?

The MNRF:

- **Identifies** priority habitats and species for recovery;
- **Maps** existing areas of protection;
- **Maps** focused action areas;
- **Provides** a framework for coordination and investment;
- **Encourages** nature-based solutions to enhance marine resilience and productivity;
- **Informs** and complements the planning and licensing processes, such as marine spatial planning and fisheries management.

HOW HAS IT BEEN CREATED?

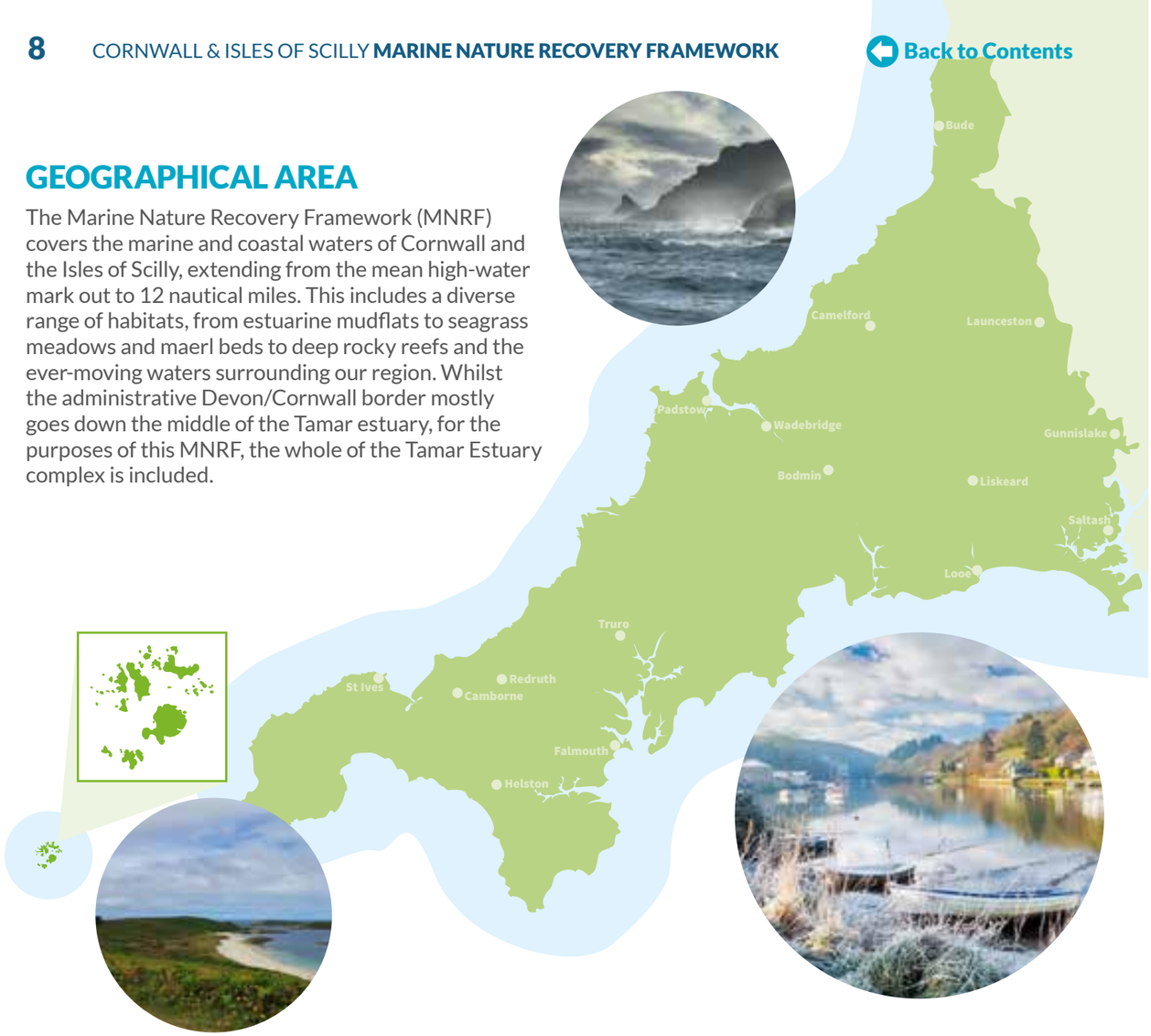
The Framework has been developed through a collaborative process, led by Cornwall Council and supported by the Cornwall and Isles of Scilly Marine and Coastal Partnership (MCP). It incorporates insights from the public, alongside views from a broad range of partners, including environmental organisations, communities, marine businesses, academics, and statutory agencies. Evidence has been drawn from public surveys, local monitoring programs, environmental assessments, and engagement with marine stakeholders.

THE MNRF HAS BEEN ENDORSED AND CHAMPIONED BY CORNWALL COUNCIL, AND ENDORSED BY THE COUNCIL OF THE ISLES OF SCILLY, THE LOCAL NATURE PARTNERSHIP, THE MCP, EXPERT WORKING GROUPS AND COMMUNITIES FOLLOWING THE CONSULTATION PROCESS.

Back to Contents

GEOGRAPHICAL AREA

The Marine Nature Recovery Framework (MNRF) covers the marine and coastal waters of Cornwall and the Isles of Scilly, extending from the mean high-water mark out to 12 nautical miles. This includes a diverse range of habitats, from estuarine mudflats to seagrass meadows and maerl beds to deep rocky reefs and the ever-moving waters surrounding our region. Whilst the administrative Devon/Cornwall border mostly goes down the middle of the Tamar estuary, for the purposes of this MNRF, the whole of the Tamar Estuary complex is included.



HOW DOES THE MNRF ALIGN WITH THE CORNWALL AND ISLES OF SCILLY NATURE RECOVERY STRATEGY?

The statutory Cornwall and Isles of Scilly Nature Recovery Strategy (NRS) is a new statutory spatial blueprint for delivering nature recovery down to the mean low water mark, required by the Environment Act 2021. Whilst the NRS has a mainly terrestrial and coastal focus, it:

- Reflects the maritime nature of our region;
- Includes coastal and intertidal priorities, actions and nature recovery opportunity area maps;
- Proposes actions for land, freshwater and intertidal environments that will benefit the marine environment.

The voluntary MNRF complements the NRS by addressing marine conservation beyond the mean low water mark and treating nature as one interconnected system. Nature does not recognise administrative boundaries and our action for nature needs to reflect this.

The NRS and MNRF should be used together to achieve nature recovery by identifying locally agreed priorities, actions and areas to deliver nature positive management for our land and seas and fostering partnerships for long-term environmental resilience.

WHAT IS THE LEGAL STATUS OF THE MNRF?

Unlike the Nature Recovery Strategy (NRS) which is a statutory requirement under the Environment Act 2021, the MNRF is voluntary in recognition of the importance of the maritime environment across Cornwall and the Isles of Scilly. The MNRF aligns with national marine conservation objectives and compliments statutory initiatives such as Marine Conservation Zones (MCZs), Marine Spatial Planning, and Biodiversity Net Gain for coastal developments. It also informs regulatory bodies and funding opportunities for marine nature recovery projects.

Having been adopted by Cornwall Council this Framework is now a material planning consideration and considered in wider decision making at the local authority.

WHO IS RESPONSIBLE FOR DELIVERING THE MNRF?

While no single authority is mandated to implement it, the Framework is endorsed by local and national conservation organisations, statutory agencies, and marine industries committed to nature recovery who will champion actions which deliver on the locally agreed priorities. Collaboration between the public, private, and voluntary sectors is key to achieving its goals. The Cornwall and Isles of Scilly Marine and Coastal Partnership enables such cross-sectoral collaboration and will be crucial to the successful coordination and delivery of the MNRF.

A STRENGTHENED BIODIVERSITY DUTY ON PUBLIC AUTHORITIES

This new duty, set out in the Environment Act 2021 requires relevant authorities, to not just protect, but also to demonstrate how they are enhancing nature in their operations, decisions and plans. The strengthened duty applies to:

- Local Authorities, including Town and Parish Councils;
- Government departments;
- Organisations managing public infrastructure, including roads and water, such as water companies and harbour authorities.

WHEN WILL THE MNRF BE REVIEWED?

As this is a voluntary Framework, at the time of writing there is no specific timetable or resources available for a formal review. However, the intention would be to try to align it with the review of the Nature Recovery Strategy or in response to any new legislation or opportunity, whichever comes soonest. Any future review of the MNRF is dependent on funding and resources.

HOW WILL WE MEASURE PROGRESS?

The MNRF is intended to enable and inspire action, but as it is voluntary any monitoring or evaluation of delivery will mainly have to be achieved using existing information collected for the purposes of reporting against national targets, such as progress towards Good Environmental Status under the UK Marine Strategy, Marine Protected Area condition monitoring and data collection for the Government's Environmental Improvement Plan.

Locally, there are also a range of incredible citizen science monitoring and reporting schemes, such as Shoresearch, Seasearch, Seaquest, Seal Surveys, Marine Strandings Network, Cornwall Birds (CBWPS) and the Cornwall Marine and Coastal Code Group Marine Disturbance Register held by the Environmental Records Centre for Cornwall and the Isles of Scilly (ERCCIS). These can all help to measure progress against the locally agreed priorities within the MNRF. However, most of these schemes rely on the goodwill of thousands of volunteers supported by local charities such as Cornwall Wildlife Trust and the Seal Research Trust.

It is also hoped that the statistics compiled for the 2020 Cornwall State of Nature report can be reviewed again in the future, and a similar report created for the Isles of Scilly. To achieve this, it is vital to improve structured monitoring and ensure we have the necessary biological records to identify changes and trends across species groups, seabed habitats and the water environment.

Key organisations will explore options for creating a few key performance indicators to help track progress in delivering on the MNRF and demonstrate local trends. The KPIs will need to use readily accessible, robust and repeatable best-available data as there will unlikely be any resources to collect new data.

Back to Contents

STRATEGIC CONTEXT OF THE MNRF

The Cornwall and Isles of Scilly (CIOS) Marine Nature Recovery Framework cannot work in isolation. It exists within a framework of global, national, and local policies, plans, and legally binding targets. This Framework helps support delivery of these policies and ensures joined up thinking, working, and acting across sectors.

30% OF RIVERS, SEAS AND LAND WILL BE WELL MANAGED FOR NATURE BY 2030

GLOBAL

UN CONVENTION FOR BIOLOGICAL BIODIVERSITY
• Protect & restore biodiversity • Through national policies • Legally binding • Conservation initiatives

KUNMING-MONTREAL GLOBAL BIODIVERSITY FRAMEWORK
• 30 by 30 • Halt and reverse biodiversity loss • Support ecosystem recovery

PARIS AGREEMENT ON CLIMATE CHANGE
• Conserve and enhance • Blue carbon • Carbon sinks

OSPAR CONVENTION
• NE Atlantic • Eliminate pollution • Protect Biodiversity • Sustainable Development Goals

NATIONAL

HABITAT & OFFSHORE REGULATIONS
• Special Areas of Conservation (SAC) & Special Protection Areas (SPAs) • Designation • Management

MARINE STRATEGY REGULATIONS
• Must achieve Good Environmental Status • Actions must be taken • Requires a Marine Strategy

25 YEAR ENVIRONMENT PLAN
• Our seas must achieve Good Environmental Status (GES) • Network of well managed MPAs

ENVIRONMENT ACT
• Local Nature Recovery Strategies • Environmental Improvement Plans • Protected Site Strategies • Species Conservation strategies • Biodiversity Net Gain

UK MARINE STRATEGY
• Programme of measures to achieve GES • Uses 15 descriptors e.g. Cetaceans, Fish, Benthic habitats, Food webs • Targets • Measures

ENVIRONMENTAL IMPROVEMENT PLAN & TARGETS 2023
• Sets goals • Marine net gain • 70% of MPA features to be in favourable condition by 2042

MARINE AND COASTAL ACCESS ACT
• Marine Conservation Zones • Sustainable management via Marine Planning and Licensing • Considered in all decisions that affect England's marine area

REGIONAL

SOUTH WEST INSHORE (& OFFSHORE) MARINE PLAN
• Sets policies • Directs decision making

THE CORNWALL PLAN
• 2020-2050 • Overlap with Marine Plan and Duty to Cooperate

CIOS ENVIRONMENTAL GROWTH STRATEGY
• Long term framework • Conserves • Improves

CIOS NATURE RECOVERY STRATEGY
• Above mean low water mark • Statutory • Provides a framework • Outlines opportunities • Identifies actions • Spatial

CIOS MNRF
• Above mean low water mark • Non-statutory • Provides a framework • Outlines opportunities • Identifies actions • Spatial

OUR STRATEGY EXISTS WITHIN A FRAMEWORK OF GLOBAL, NATIONAL AND LOCAL STRATEGIES, PLANS AND REGULATIONS

Cornwall and Isles of Scilly Marine Nature Recovery Framework should also be considered by and within regional and local policies, plans and projects including:

MARINE NATURE IN CORNWALL AND THE ISLES OF SCILLY

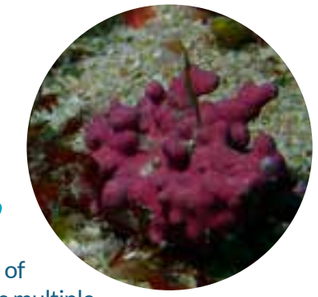
From breathtaking seabed's covered in reef, seagrass and maerl, to world class marine megafauna including whales, dolphins and seals swimming offshore, the sea surrounding Cornwall and the Isles of Scilly is one of the most diverse and captivating in the UK. Rugged cliffs and coastlines, supporting chattering nesting seabirds, spread down and out into the intertidal shallows. Here, rocky shore life captures the imagination of people of all ages who explore the pools exposed by the retreating tide. Bright sandy beaches gradient into blue waters, where an array of fish thrives and huge shoals form bait balls. Cornwall and the Isles of Scilly is a marine biodiversity hotspot, admired by all who live and visit our region.

NATURE HIGHLIGHTS

St Austell Bay is the largest known subtidal seagrass bed in England at
359 ha[1]

TUNA
are now regularly seen in UK waters with the majority being spotted in the South West.
In 2021 Bluefin Tuna were downgraded in the IUCN Red List of endangered species to Least Concern[2]

The Fal and Helford supports an astounding
1,000 ha of MAERL,
an irreplaceable habitat that supports high levels of biodiversity and provides multiple other nature-based solutions[3]



Cornwall and the Isles of Scilly are vital for the conservation of
GREY SEALS
given they are at the southernmost limit of their pupping range and form a hub for seals moving around the Celtic Sea.

2024 saw
40 successful pairs of Chough breeding in Cornwall, raising 108 young[4]

Looe Island, located in southeast Cornwall, supports the second largest colony of
GREATER BLACK-BACKED GULLS
in the South West.

Cornwall supports a distinct inshore population of
BOTTLENOSE DOLPHINS
which travel widely along the South of England but are frequently spotted in our region feeding and playing close to shore.

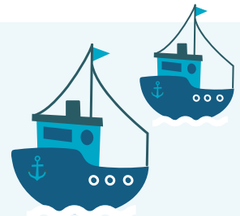
STATE OF OUR SEAS

Although rich, dynamic and ecologically significant, the seas of Cornwall and the Isles of Scilly face a range of environmental and human-driven challenges. Shifting environmental conditions driven by climate change are influencing species distributions and causing planktonic shifts which in turn ripple through the marine food web. Certain fish stocks remain under pressure, and bycatch continues to be a significant issue facing our marine megafauna. Pollution, from plastics, nutrients, and chemicals is widespread. Wildlife is increasingly being disturbed by water use and activity. Although there are gaps in the data, evidence shows concerning trends for the abundance and distribution of marine life and their habitats in Cornwall and the Isles of Scilly which needs reversing.

FACTS

The interaction between fishing activities and conservation features has been assessed for all MPAs in Cornwall inside **6 nm** to support effective management.

however 60%
of Marine Protected Areas (MPAs) **in Cornwall are still open to bottom towed gear**[1]

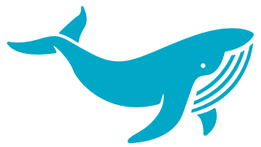


Population **DECLINES for some fish species**, such as Cod and Whiting[2]

The Isles of Scilly lost nearly 50 HECTARES of seagrass in five years from 2010.[3]

The UK is home to **38% of the world's population of Grey Seals**[9]

In 2023, **more dead seals were recorded across Cornwall than were born**[5]



Humpback Whale sightings have increased significantly in the last 5 years in Cornwall – with 71 SIGHTINGS reported in 2023.

There were **34 SIGHTINGS of Fin Whales in 2023, the highest since sightings schemes began**[6]

31.3% DECLINE in seabird populations on the Isles of Scilly between 1983 and 2015[7]

2023 saw continued increases in burrow-nesting seabirds and auks on Scilly: both continuing to benefit from rat eradication [11]

In 2025, **82% of Cornwall's beaches rated as 'excellent', a decline from 98% in 2018**

MPAs in Cornwall have some of the highest densities of shore-based and intertidal litter in England[18]

ONLY 25%
of Cornwall's water bodies, which includes estuaries, are classified as having 'Good Ecological Status'

More than **80,000 KG of marine litter was removed from Cornish beaches in 2019**[9]

WHAT DOES THE SEA DO FOR US?

We are all part of nature.

Without the sea, life as we know it wouldn't exist.

As identified in the Cornwall Maritime Strategy, Cornwall's identity and prosperity are inseparable from the sea. With over 400 miles of coastline and no community more than 20 miles from the shore, our marine environment is foundational to our local people and our economy. Maritime industries, both leisure and commercial, are integral to Cornwall's identity and economy, supporting jobs, innovation, and cultural heritage. It keeps us healthy and fulfilled and is essential to our day to day lives.

The Cornwall and Isles of Scilly Environmental Growth Strategy emphasises, however, that a thriving natural environment is fundamental to a healthy economy and society. This means that when we harm our seas, it harms us. We live in a world of limited resources, and we pay when we misuse them.

NATURE-BASED SOLUTIONS

Involve working with nature to address societal challenges. When we restore and enhance nature, we grow our natural capital.

Source: **Ecosystem services - nature's benefits | NatureScot**

Back to Contents

FACTS

In 2018 Cornwall's Marine and Maritime Industry contributed

£1.1 BILLION

to the local economy[1]

7,800 JOBS

across Cornwall and the Isles of Scilly were provided by the local seafood sector and upstream supply chain[2]

St Austell bay has ~359 ha of subtidal seagrass which sequesters 1,235 tonnes of Carbon annually, valued at

£160,524[3]

3.7 MILLION CARS WORTH OF CARBON ABSORBED

each year by live maerl in the Fal and Helford Estuaries SAC[4]

In 2012 an estimated

£436m

was spent locally thanks to the South West Coast Path[5]

In 2013 Cornwall's surfing industry contributed

£153 MILLION

to the local economy[6]

In 2021, an estimated

£6.7 BILLION

was generated by Cornwall's coastal tourism[7]

Across the UK, an estimated

79 MILLION PEOPLE

take a trip to the countryside or coast to watch wildlife (2016)[8]

24% OF SEASONAL VISITORS

to Cornwall take part in paid-for nature-based activities[9]

Between April 2021 and March 2023 an estimated

9.9 TO 11.1 MILLION

leisure visits were taken to seaside and other coastal locations around Cornwall[10]

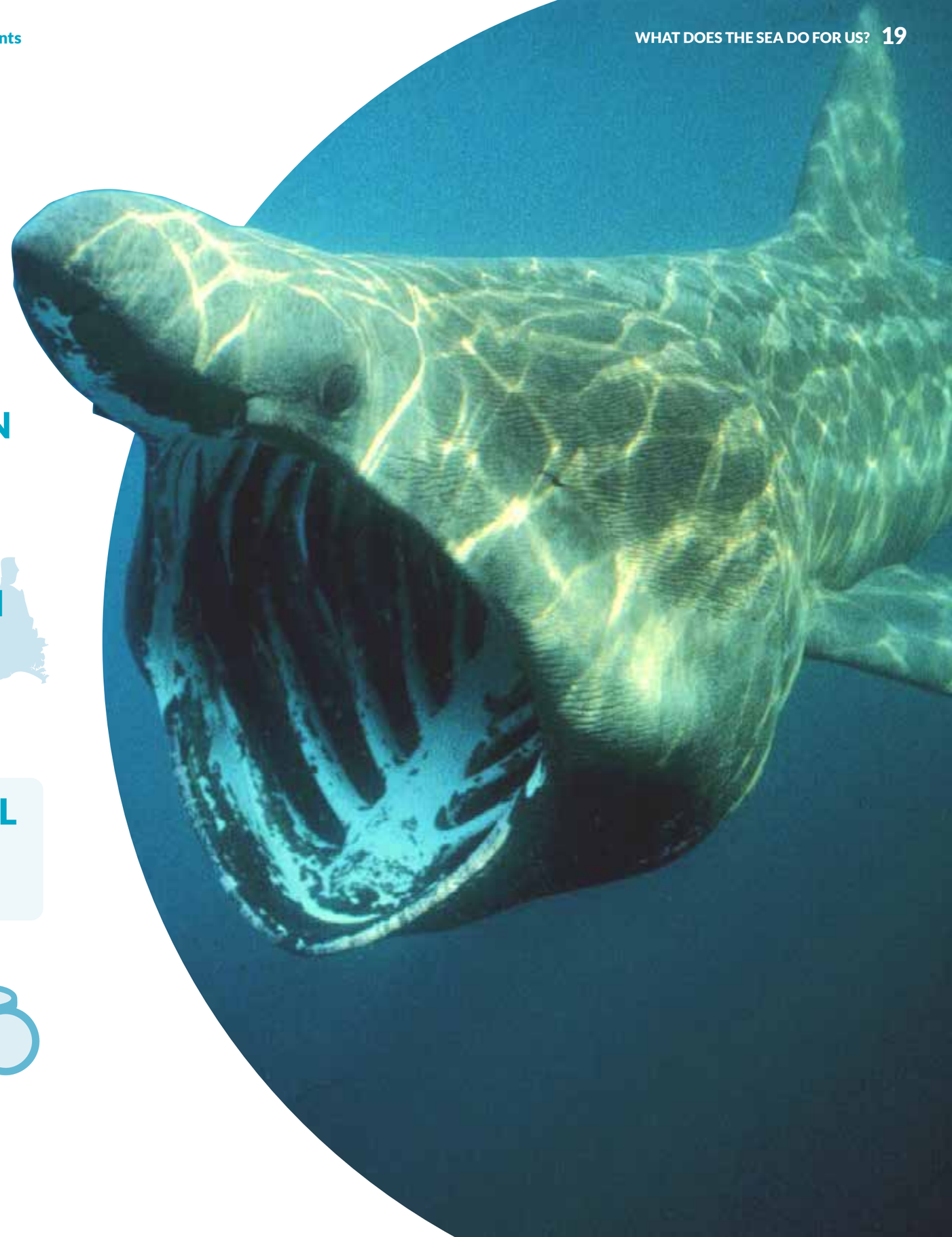
In 2018, visitors to Cornwall spent

£666 MILLION

specifically in coastal areas[12]

In 2021, visitors to Cornwall spent

£2 BILLION[11]



Back to Contents

YOUR VIEWS ON MARINE NATURE RECOVERY: CORNWALL AND THE ISLES OF SCILLY

In 2023 we launched a survey to get your views on nature. Over 1,000 of you took part. We heard from businesses, farmers and growers, environmental professionals, volunteers and residents. This survey told us…

95% of you are concerned about the current state of nature.

97% of you are concerned about the future state of nature.

WE ASKED WHY NATURE, ON LAND AND AT SEA, WAS IMPORTANT TO YOU AND YOU TOLD US…

- …it has its own intrinsic value.
- …it is important for tackling climate change.
- …I am a part of nature.
- …it is important for our mental health and wellbeing.
- …it protects us from natural hazards like flooding and pollution.
- …it provides us with goods and services (e.g., food and raw materials)
- …it is important for our physical health and keeping active.
- …it is beautiful.
- …it is important for our heritage and sense of identity.
- …it matters to me spiritually.
- …it is important for education and skills.
- …it is important for our jobs and businesses.

In Cornwall, our connection with the sea is deep and complex. It is the cornerstone of our heritage, society and economy, as well as being globally recognised for its environmental value.

WE ASKED YOU WHAT THE SEA DOES FOR US…

"I'm so fortunate to be able to live by the sea and bring my family up here … we get to use this beautiful place."

"A lot of the people here they'll carry on fishing in their 70's and 80's and it keeps them fit and healthy … I call that a good life by the sea."

"Iconic species from Puffins and Mackerel to Shore Crabs, Native Oysters, and Common Starfish are as much symbols of the English seaside as lighthouses, fishing boats and beach huts. They are a cherished part of how we experience our coast and seas."

"The sea has become a playground for so many people and so many different types of craft and activities that are used on it … everybody's got something they can use on the sea."

"[The sea] is not only about the swimming, it's about the friendships that you make. It's about how your brain just settles."

"[The sea] it's in my heart, soul, body, blood and breath, everything … it's an essence for me that is part of my whole life."

"It can be argued that essentially, coastal and marine ecosystem services are priceless, in that humanity is dependent on them for health, wellbeing and prosperity."

WE ASKED YOU WHAT YOU'D LIKE NATURE TO LOOK LIKE IN 5 YEARS' TIME…

"I would like Basking Sharks, seals and whales to be thriving, with plenty of benthic life and a rewilding of forests and ocean"

"Accessible, inviting, clean, beautiful, appreciated, protected"

"The sea and its shores free from plastic and rich in life"

"Greater and improved opportunities for people to engage with nature. Nature and its benefits and why it is so wonderful and important to life on Earth, taught to our children"

"Balanced, beautiful and bursting with life"

"HOW INAPPROPRIATE TO CALL THIS PLANET EARTH, WHEN IT IS QUITE CLEARLY OCEAN."

ARTHUR C. CLARKE

OUR COLLECTIVE AMBITION FOR MARINE NATURE RECOVERY

This Framework sets out what, where and how we can take collective action to work towards our shared target of at least 30% of land, rivers and seas well managed for nature by 2030 across Cornwall and the Isles of Scilly.

For this we will need an ecologically coherent and actively managed for nature network of Marine Protected Areas, and to protect and restore our regions locally agreed priorities and location – The Isles of Scilly.

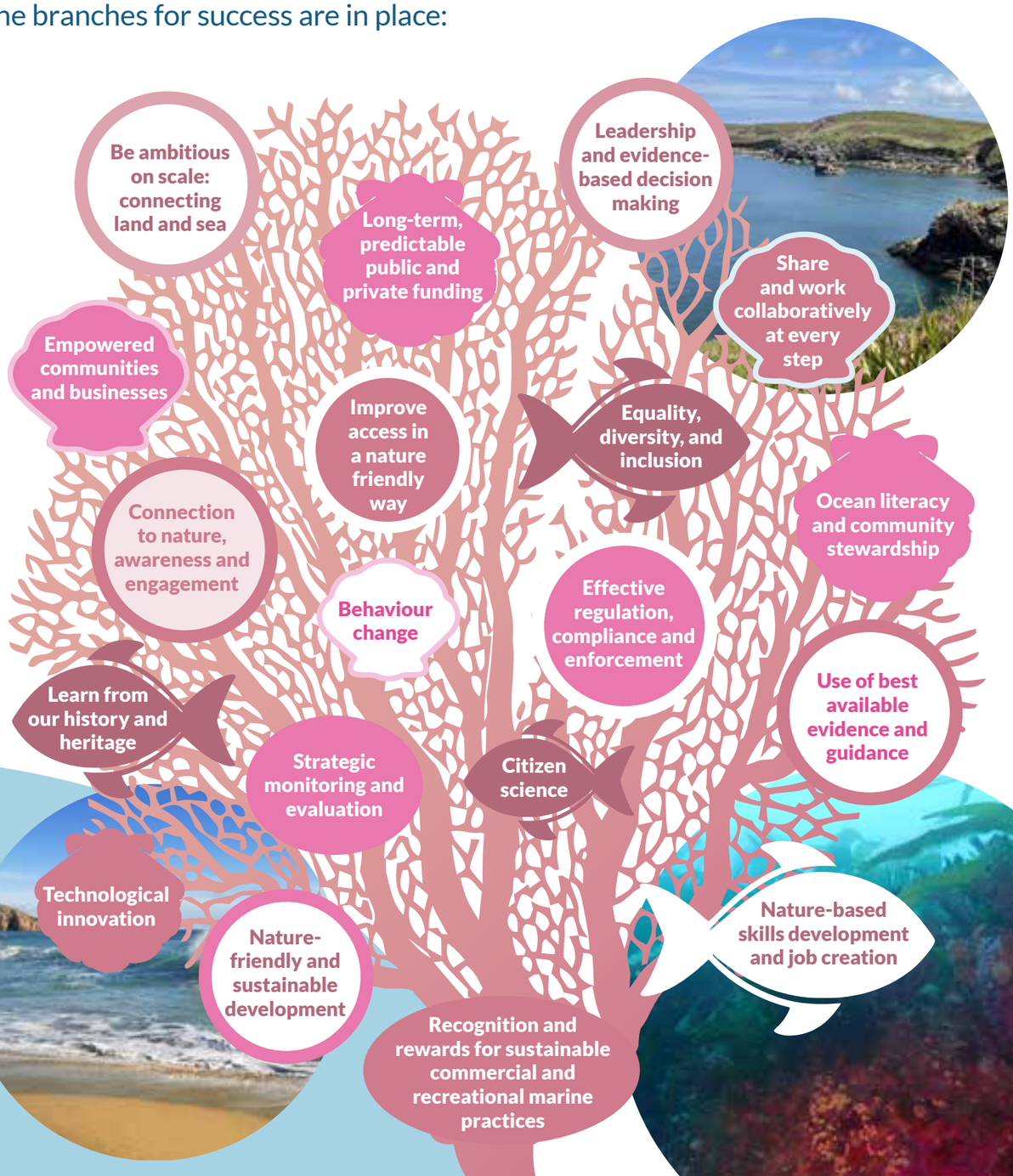
- **WE CAN ALL TAKE ACTION FOR NATURE**
- **NATURE RECOVERY IS FOUNDATIONAL TO OUR HEALTH AND PROSPERITY**
- **WE NEED MORE NATURE AND FOR IT TO BE BIGGER, BETTER AND JOINED UP**
- **PROTECTION IS NOT ENOUGH. WE NEED TO RECOVER AND GROW NATURE**
- **WE NEED TO BEND THE CURVE ON NATURE'S DECLINE**
- **WHEN WE DO MORE FOR NATURE, NATURE DOES MORE FOR US**

WE KNOW WHAT WE NEED TO DO, WE UNDERSTAND THE CHALLENGES AND WE HAVE A FRAMEWORK TO OVERCOME THEM. NOW WE NEED TO ALL MAKE THE CHANGE HAPPEN.

BRANCHES NEEDED FOR SUCCESS

The pressures faced by nature in the marine environment are complex and multifaceted. No single organisation or individual is tasked with delivering it alone.

To deliver this action on a broad scale, we all need to ensure that the branches for success are in place:




MANY ORGANISATIONS AND INDIVIDUALS CAN PLAY A ROLE IN HELPING TO DELIVER THIS FRAMEWORK
Strategic partnerships
Cornwall Council and the Council of the Isles of Scilly
Owners of the coastal hinterland, foreshore and seabed
Communities and residents
Developers, planners and marine licensing bodies
Local marine groups and volunteers
Anglers and recreational clubs
Business and industry
Fishing sector
Coastal town and parish councils
Strategic organisations and public bodies
Schools, colleges, higher education institutions and universities
Non-Governmental Organisations

Back to Contents

NATURE RECOVERY PRINCIPLES AND BEST PRACTICE

These nature recovery principles and best practice are a checklist for how all actions should be designed and delivered and are relevant to everyone from project delivers to decision makers.

1 PROJECT SCOPING

WE ARE NATURE

Remember that humans are a part of nature. Our health, happiness and livelihoods are interconnected with the wildlife and wild seas around us. When nature thrives, so do we. Nature deserves our respect, so give breeding and sensitive wildlife space.

LOOK BACK BEFORE GOING FORWARDS

Historic records and past uses of an area can often provide clues about lost habitats, species and management practices that can help inform future ambitions and avoid impacts on heritage features. Use past charts, expert advice, and Historic Environment Records to design your plans.

UNDERSTAND YOUR AREA

Capture local knowledge, look at the MNRF maps, Coastal Data Hub, species records from the Environmental Records Centre (ERCCIS), and undertake baseline surveys to ensure that the right actions are taken in the right place, taking into account current uses.

MEANINGFUL CO-CREATION

Communities and sea-users know the marine area better than anyone. Avoid working in siloes; develop partnerships with sea users, strategic bodies, environmental professionals, charities, biological recorders, universities, and citizen science networks. Consider quality and inclusion and working with all members of society to create a fair and accessible project that benefits all.

SEEK ADVICE

Look at the help and guidance available online, through charities, regulators and other relevant experts depending on the nature of your project. Seek expert advice early.

CAREFUL PROJECT PLANNING

Develop a clear vision, predicted outputs and objectives. Create a plan which integrates your specific local circumstances. Consider appropriate governance and long-term management planning to sustain your outcomes for nature, , including monitoring and funding both during and after the project completion.

COMPLIANCE AND ENFORCEMENT

Get to know environmental and wildlife laws and embed the regulations into every stage of your project to ensure there are no surprises, delays, or adverse impacts. Report infringements to protect wildlife.

A marine nature recovery project in England may need to secure several statutory consents and permissions under marine and wildlife legislation, depending on the activity. These may include a Marine Licence issued by the MMO, or permissions from The Crown Estate.

FUNDING OPTIONS

A variety of public and private funding sources exist for projects of different scales. Choose those which are best suited to your project, organisation, or circumstances. Collaboration may unlock additional funding but avoid chasing funding and losing sight of your original goals.

RISK REGISTER

Create and maintain a risk register and review it regularly at each key stage of your project.

RIGHT HABITAT IN THE RIGHT PLACE

Seabed substrate, geology, wave conditions and pollution shape the marine habitats and species of every area and all need to be considered when creating a new habitat. The MNRF maps can help to inform plans, before ground truthing and refining through site surveys.

CO-LOCATION

Many uses of the coast and seas can be co-located alongside positive action for nature in suitable locations. Consider if there are opportunities for co-location of your nature recovery scheme alongside activities such as fishing, renewables, boating infrastructure.

ENGAGE, ENGAGE, ENGAGE

Embed engagement throughout the project, from writing the proposal to monitoring the outcomes. Effective early consultation with other interested parties, such as fishers, harbour authorities, adjacent landowners, sea user groups, heritage, access, landscape, coastal community groups, Town and Parish councils are essential for positive delivery and usually result in better outcomes. Think about which of these groups require engagement and how to access them.

A VARIETY OF PUBLIC AND PRIVATE FUNDING SOURCES EXIST FOR PROJECTS OF DIFFERENT SCALES

EFFECTIVE EARLY CONSULTATION WITH OTHER INTERESTED PARTIES IS ESSENTIAL FOR POSITIVE DELIVERY

2 DETAILED PROJECT DESIGN

MAKE SPACE FOR NATURE

Design in the space nature needs to function dynamically and as naturally as possible. Allow rivers to meander, sand dunes to shift, coasts to evolve, the seabed to move around and give species space to thrive at all stages of their lives. Understand and work with natural processes and seasonal cycles.

THINK AT SCALE

Be open to exploring opportunities at the seascape-scale working across stretches of coast and seas. Consider talking to other projects you could join forces with through wider, strategic opportunities.

BUILD WITH NATURE IN MIND

Integrate nature into infrastructure thinking of both night and day, through the sensitive design of structures, lighting, blue infrastructure, sustainable drainage, and integration of wildlife-friendly features.

BRING SPECIES BACK FROM THE BRINK

Research historic species, landing records, photos and place names and identify wildlife records through Heritage advice and Local Environmental Record Centres (ERCCIS). Create and manage habitats to benefit those species, with a focus on our threatened wildlife. In the right places, consider the reintroduction of lost species. Focus on species that will drive habitat creation and enhancement that benefits lots of other wildlife as well as communities and businesses.

BIGGER, BETTER, CONNECTED

Your actions are part of a bigger picture for nature. Consider how your actions add to what's already there and seek opportunities to engage and collaborate with other partners. Embed the Lawton Principles of nature being bigger, better, more and joined up into your plans. Retain, enhance, and grow nature-rich areas to act as stepping stones for wildlife. Protect our most valuable places and buffer them from adjacent sea-uses.

MULTIPLE BENEFITS

When nature flourishes it improves our health, protects our communities and businesses, and regulates the climate through nature-based solutions. Maximise the multiple benefits from your project by supporting coasts and seascapes to draw down carbon, provide natural coastal protection, reduce wave-energy hitting our shores, improve water quality, reduce pollution risks, and deliver health, wellbeing and economic outcomes.

EMBRACE MESSINESS

Nature thrives on variety. Create a dynamic patchwork mosaic of habitats, at both a local and seascape scale.

ACCESS IN THE RIGHT PLACES

Bringing nature closer to people allows them to connect with wildlife and feel happier. Inappropriate access can harm wildlife through disturbance and erosion. Consider the right approach on a case-by-case basis, including coastal fencing, seasonal zoning, no anchor areas, marker buoys, education and signage.

WHEN NATURE FLOURISHES IT IMPROVES OUR HEALTH, PROTECTS OUR COMMUNITIES AND BUSINESSES, AND REGULATES THE CLIMATE THROUGH NATURE-BASED SOLUTIONS

3 PROJECT DELIVERY

FOLLOW DUE PROCESS

Ensure you have sought advice and followed all the guidance and regulations your project requires. Such as baseline surveys, Environmental Impact Assessments, permissions, licence applications, consultation, seasonal constraints to works etc.

DELIVERABLE OVER PERFECT

Get the balance right between careful project planning and knowing when you have got to take the first steps towards cracking on with your project. Consider phasing delivery to reduce uncertainties, especially if you are taking an innovative approach.

ADAPTABILITY

Take an agile approach throughout the lifecycle of the project. Review and revise the project based on early consultation, baseline monitoring, site surveys, engagement and progress and be prepared to adapt if new information or opportunities arise.

COMMUNICATION AND ENGAGEMENT

Tell people what your plans are, engage key stakeholders to help shape decisions using a range of methods. Keep people informed of progress, communicate throughout to avoid confusion. Celebrate completion and thank your supporters. Consider opportunities to share information about your site, either through events or virtual methods.

KEY PERFORMANCE INDICATORS

Design your project monitoring plan early based on your original predicted outputs and any funding requirements. Collect data and evidence from start to finish, to help measure the impact of your project. Use data to help tell the story of what you have achieved for nature and for people.

LONG-TERM THINKING

Nature takes time to mature and establish. Nature can be complex and needs to be dynamic, especially in the mobile marine environment and as our climate is changing. Plan for long-term stewardship and deliver with a changing climate in mind. Build in resilience and adaptation. Future-proof actions to ensure they don't prevent adaption, especially at the coast.

4 MANAGEMENT AND MONITORING

LONG-TERM MANAGEMENT

Seek advice and understand the habitats and species present, as this can influence management decisions. Consider a mix of approaches spanning from sustained active management such as invasives control, to purposeful natural regeneration through the removal of pressures. Record your management plans on a map for reference and to help communicate future operations.

LONG-TERM MONITORING

Projects should carry out baseline surveys and consider how long-term systematic monitoring can take place (including through citizen scientists) to understand the impact of actions taken, feed into national and local targets, and help plug evidence gaps. Get advice to shape your monitoring plans.

PEOPLE POWER

Long-term management and use of sites large and small, can provide fantastic opportunities for bringing people together for events, work, and volunteering, allowing people from a range of backgrounds to connect with nature, be part of a community and to develop new skills. Consider opportunities for engagement of people of all ages and abilities, at all stages of delivery of a scheme.

LESSONS LEARNT

Document and share your experiences both good and bad and consider if you can become a case study to provide inspiration and encourage others to take action for nature.

Back to Contents

OUR LOCAL PRIORITIES

The following section lays out our Marine Nature Recovery priorities for Cornwall and the Isles of Scilly. Setting out what, where and how we can take collective action to work towards our shared target of at least 30% of land, rivers and seas well managed for nature by 2030 across Cornwall and the Isles of Scilly.

These are;

- An ecologically coherent and actively managed for nature network of Marine Protected Areas.
- To protect and restore our regions locally agreed species and habitat priorities.
- A focus on The Isles of Scilly.

Back to Contents

THE MARINE PROTECTED AREA NETWORK

At the heart of the Marine Nature Recovery Framework lies the existing Marine Protected Area (MPA) Network which is made up of designated sites currently protected for nature found between the mean high-water mark and out to 12 nm. Multiple agencies are collectively responsible for the management of the MPAs including the Marine Management Organisation (MMO), Inshore Fisheries and Conservation Authorities (IFCAs), Natural England (NE), Environment Agency (EA), Harbour Authorities and both Cornwall and Isles of Scilly Council. These organisations work together to put management measures in place to protect the designated features.

CORNWALL'S MPAs:

NATIONALLY DESIGNATED

- **6 marine Special Areas of Conservation (SACs)**: protecting 7 features including Harbour Porpoise, reefs, shallow inlets and bays, sandbanks, seagrass, estuaries, mudflats and saltmarsh.
- **2 marine Special Protection Areas (SPAs)**: protecting seabirds including Avocets, Little Egrets, divers and grebes.
- **13 Marine Conservation Zones (MCZs)**: protecting critical coastal and estuarine species and habitats including sponges, sea-fans, maerl beds, fish and Native Oysters.
- **Sites of Special Scientific Interest (SSSI)**: Some SSSIs include marine features within their boundary where they extend below mean high water springs; this is especially true in estuaries where they can include saltmarsh and reedbeds, but also other coastal areas like seal haul-out shorelines. It is for this reason that there is a cross-over between the NRS and the MNRF and the two should always be considered together as they knit together at the land-sea interface.

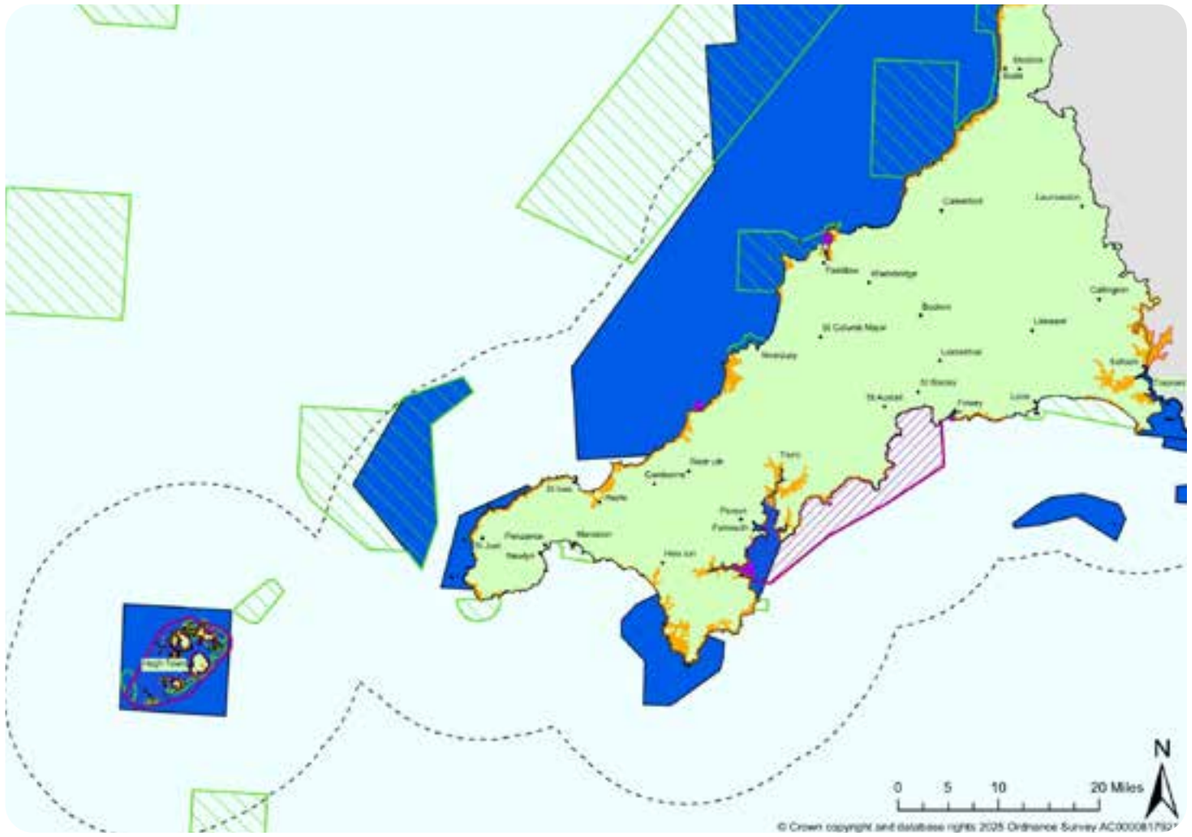
LOCALLY DESIGNATED

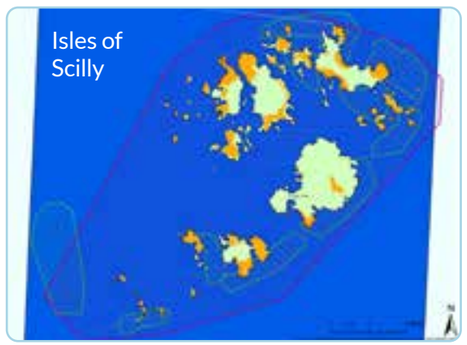
- **5 Voluntary Marine Conservation Areas (VMCA)**: located in Polzeath, St Agnes, Helford, Fowey and Looe.
- **1 National Marine Park**: located in Plymouth Sound.

ISLES OF SCILLY'S MPAs:

NATIONALLY DESIGNATED

- **1 Special Area of Conservation (SAC)**: protecting habitats such as seagrass and species such as the Trumpet Anemone.
- **1 Special Protection Area (SPA)**: designated to protect important seabird species and their habitats including European Storm-Petrel and Less Black-Backed Gull.
- **One Marine Conservation Zone (MCZ) Complex**: split over 11 sites and covering a total area of over 30 km².

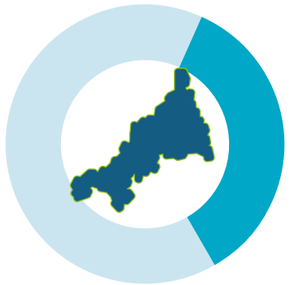




Coastal Site of Special Scientific Interest
VMCA
Special Protection Area
Marine Conservation Zone
Special Area for Conservation
12nm Boundary

Back to Contents

FACTS



34%

of Cornwall and the Isles of Scilly's inshore waters lie within Marine Protected Areas (MPAs) [1]

Currently,

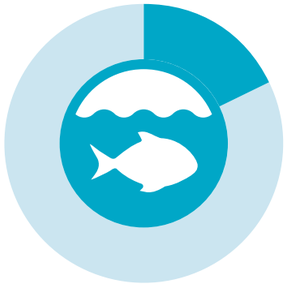
ONLY 8%

of Cornwall and the Isles of Scilly inshore waters are considered to be well managed for nature.

These are designated sites which do not allow the use of bottom towed gear.

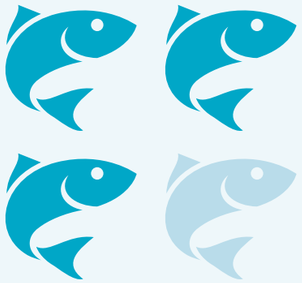
18%

of our Cornwall and Isles of Scilly MPAs are classed as recovered / recovering.



The condition of nearly a quarter of our designated features within MPAs are

UNKNOWN



Nationally, the Government has set a target for

70% of designated features in MPAs to be in favourable condition by 2042 with the remainder in recovering condition.

There is also an interim target of 48% of designated features to be in favourable condition by 31 January 2028.

All MPA sites within 6 nm of the shore have been assessed for interactions between fishing activity and their designated conservation features and management has been applied, or in the process of development.

HIGHLY PROTECTED MARINE AREAS (HPMAS)

are a new type of designation with the highest level of protection allowing marine life to recover.

Despite Cornwall and the Isles of Scilly's unique and vibrant marine areas, in 2025 not a single HPMA had been designated at the time of publication.

PRESSURES

Species and habitats continue to degrade

The Office for Environmental Protection[2] recognises that marine biodiversity and habitats continue to degrade and calls for a substantially increased pace and scale of management measures. It also recognises that MPAs can contribute more to nature by focusing beyond just the designated features and may need a new approach.

The state of our MPAs continues to be poor or even unknown

Data on how well our MPAs are doing is not readily available and is not always based on actual site monitoring. The Wildlife Trusts[3] have devised a way of categorising MPAs based on a target of 80% of designated features within each MPA either being in / or having recovered to favourable status.

Irreplaceable habitats remain unprotected

Another challenge is the length of time it takes to designate new sites. One local example are maerl beds, the extent of which have recently been discovered in St Austell Bay. Whilst St Austell Bay forms part of an SPA, maerl is not a protected feature of the site and as such this irreplaceable habitat is exposed to damaging activities i.e. bottom towed gear.

Offshore Development

Offshore wind is a vital component of the UK's transition to net zero but the fast development in the south west must be nature-positive and consider ecologically sensitive areas, including Marine Protected Areas (MPAs). To balance this development with biodiversity protection, we need strategic marine spatial planning based on robust ecological evidence to identify locations that minimise environmental and socio-economic impacts, whilst also unlocking opportunities for co-location with other marine uses. In doing so we will ensure MPAs remain effective.

Feature based approach remains inadequate

Currently, MPA management is designed to protect individual named features in static non-changing locations and does not reflect the dynamic and changing nature of the marine environment[4]. With this inflexible approach effective management, conservation and recovery will not be supported.

Coordination is lacking

Many MPAs lack a coordinated management body to bring together all the relevant agencies. This is particularly important for coastal sites which experience numerous pressures and activities, many of which are unlicensed. This can lead to inefficient approaches and strategic failings in how we manage the coastal and marine environment.

Lack of public awareness and engagement

Sites with overlapping designations can cause confusion, particularly where restrictions are implemented for parts of a site but not others. It is common to find local communities unaware of what protections exist in their surrounding marine environment or confused as to the purpose of the designations in place. This lack of clarity can lead to action at sea which puts the natural environment and the wildlife that exists there at risk.

Consideration of climate

The Office for Environmental Protection[2] has identified the lack of consideration of the impact of climate change on our protected site designation and management, and the need for stronger enforcement to ensure there are resilient and deliver long term ecological benefits.

Back to Contents

INSPIRATION

TAMAR ESTUARIES CONSULTATIVE FORUM

A single management body for the Plymouth Sound and Tamar Estuaries MPAs. The 2025-2030 management plan includes the nature-based solutions that the features provide.

FIND OUT MORE

Management Plan | Plymouth Sound & Tamar Estuaries Marine Protected Area

PROTECTED SITE STRATEGIES

Natural England is exploring which MPAs to prioritise for their new 'Protected Sites Strategy' which is designed to address complex management issues by bringing together the key responsible organisations. Critically, they can consider how a site can deliver wider benefits, so these will be very important in driving management actions should they come forward.

MMO NON-LICENSABLE ACTIVITY REVIEW

The Marine Management Organisation (MMO) is undertaking a review of non-licensable activities such as sailing and diving within the Fal and Helford and the Isles of Scilly to understand whether more management measures are needed. This work will support the existing Special Area of Conservation and its programme of works which looks to mitigate the impacts of recreational activities on the designated features of the site.

FIND OUT MORE:

Managing marine non-licensable activities in marine protected areas - GOV.UK

ISLES OF SCILLY FISHING GEAR PERMIT BYELAW (2021)

This bylaw embodies a 'whole site approach', regulating mobile gear and controlling the use of towed fishing gear (like trawls and dredges) across the entire Isles of Scilly Inshore Fisheries and Conservation Authority (IFCA) District. It applies to the whole site, rather than just protecting specific features or habitats, including Special Areas of Conservation (SACs) and Marine Conservation Zones (MCZs).

FIND OUT MORE:

Byelaws: Isles of Scilly IFCA

TAKING ACTION FOR MPAS

OUR VISION FOR MARINE PROTECTED AREAS

By 2030, our Marine Protected Areas network will have met the national target with 48% of their designated features in favourable condition. They will be playing a key role in underpinning wider marine restoration and will be managed using a whole-site approach including additional new protections for newly identified features such as maerl as well as for species insufficiently protected such as seals and cetaceans.

ACTIONS

In order to meet global conservation targets and adapt to climate change it is recognised that the way Marine Protected Areas (MPAs) are managed needs to change. This change, however, will most often require national policy and cannot be delivered through this voluntary Framework.

The following actions for Marine Protected Areas reflect local ambitions.

ACTIONS A1 REVIEW AND ENHANCE THE MPA NETWORK

- **Review existing MPA designations** to ensure they are fit for purpose and able to transition away from a features-based approach.
- **Assess the feasibility** of designating a new Special Area of Conservation (SAC) for marine mammals in Cornwall and the Isles of Scilly, due to the region's importance for cetacean and seal populations on a European level.
- **Advocate for and progress an application for the designation of a new Highly Protected Marine Area (HPMA)** in Cornwall and the Isles of Scilly, building on earlier proposals.
- **Conduct a Special Protection Area (SPA) sufficiency review** to ensure colony extensions and foraging areas for seabirds are adequately covered across the UK. This may have relevance for Balearic Shearwater and Manx Shearwater which use south west waters in significant numbers.

ACTIONS A2 TRANSITION TOWARDS ACTIVE, WHOLE-SITE MANAGEMENT OF MPAs

- **Work with regulators to transition towards 'Whole Site Management' of MPAs**, using an ecosystem-based approach looking at the integrity of the site in its entirety rather than just for the designated features. This will deliver maximum benefits to nature restoration and increase the value of nature-based solutions.
- **Pilot the whole site management approach** on a range of local MPAs using the Fal to St Austell Bay SPA as a demonstration area.
- **Support efforts to increase the active management of the MPA network**, including the introduction of byelaws where necessary such as banning bottom towed gear.
- **Support Natural England in their piloting of 'Protected Site Strategies'** for at least three sites within Cornwall and the Isles of Scilly's waters and establish associated site management groups.

Back to Contents

ACTIONS A3 IMPROVE OUR UNDERSTANDING OF THE BLUE NATURAL CAPITAL BENEFITS OF THE MPA NETWORK

- **Identify the nature-based solutions that will be delivered from the restoration of the marine environment** within MPAs and use this data to support decision-making.
- **Assess the barriers and opportunities for delivering wider marine restoration measures** within each MPA.
- **Utilise the recommended monitoring, targets and indicators** to measure marine nature recovery success.[5]

ACTIONS A4 INCREASE OCEAN LITERACY AROUND MPAs

- **Support efforts to increase ocean literacy** across decision-makers.
- **Scope the potential to create National Marine Parks to improve ocean literacy around MPAs**.

HOW CAN MPAs SUPPORT THE MNRF SPECIES AND HABITAT PRIORITIES?

- Many of the MNRF priorities are found within the MPA network, and so better and more effective MPA management will directly lead to recovery of the MNRF priorities.
- Some of our Cornwall and Isles of Scilly MNRF priorities, such as maerl and Native Oysters, have identified a Marine Protected Area as the key boundary of Focused Action Areas to deliver measures to enable recovery. For instance, the Focused Action Area for Native Oyster is within the Fal & Helford Special Area of Conservation.
- Better management of our Marine Protected Area network will also have indirect impacts on many of our priorities. For mobile species such as seabirds and cetaceans, improved management within our MPAs will have a spillover effect into non-designated sites.

FINDING OUR LOCALLY IMPORTANT SPECIES AND HABITAT PRIORITIES

Whilst many marine species and habitats in Cornwall and the Isles of Scilly are under pressure, it was important to create a list of focus species and habitats that this Framework could support and which are important locally. This process also aligns with the method used it our associated Cornwall and the Isles of Scilly Nature Recovery Strategy.

The process to finding our locally agreed priorities started with a long list of marine species and habitats taken from survey results involving nearly 3,000 people. The Cornwall and Isles of Scilly Marine and Coastal Partnership reviewed the long list to create our top ten marine priorities.

These are:

- Seagrass
- Maerl
- Kelp Forests
- Native Oysters
- Polychaetes (marine worms)
- Cetaceans
- Seals
- Tuna
- Sharks and rays
- Seabirds
- Intertidal

THE FOLLOWING CHAPTERS REVIEW EACH OF THESE MARINE PRIORITIES, THE KEY REGIONAL PRESSURES THEY FACE IN CORNWALL AND THE ISLES OF SCILLY, AND THE TOP ACTIONS THAT CAN BE TAKEN LOCALLY BY ALL WATER USERS TO SUPPORT THEIR RECOVERY.

HOW TO INTERPRET THE PRIORITY MAPS

Maps embedded in each chapter show both:

- **The current known or probable presence of each priority** using best available evidence, plus;
- **Focused Action Areas (shown in hashed lines) or Focused Action Locations (shown with clear point markers)** where actions should be delivered to provide the greatest benefits for nature. These Focused Action Areas and Focused Action Locations were developed by our expert Priority Working Groups.

WHERE CAN THESE MAPS BE FOUND?

The Marine Nature Recovery Framework maps will be available to view on the **Cornwall Coastal Data Hub**. The Nature Recovery Strategy maps are available via the **Let's Talk Nature Recovery Strategy Hub**.

Back to Contents

SEAGRASS

Seagrass is the only true flowering plant to survive in seawater and can be found across our region carpeting sheltered bays and forming underwater meadows.

RICH IN LIFE FROM ANEMONES TO SEAHORSES, THE MEADOWS GIVE SHELTER TO JUVENILE FISH AS THEY GROW SAFE IN THE ESTUARY NURSERIES.

Look closely and you'll find scallops, Cuttlefish, sharks and rays taking refuge amongst the plants. At low tide, our intertidal seagrass sites attract local visitors such as Brent Geese who forage along the shore.

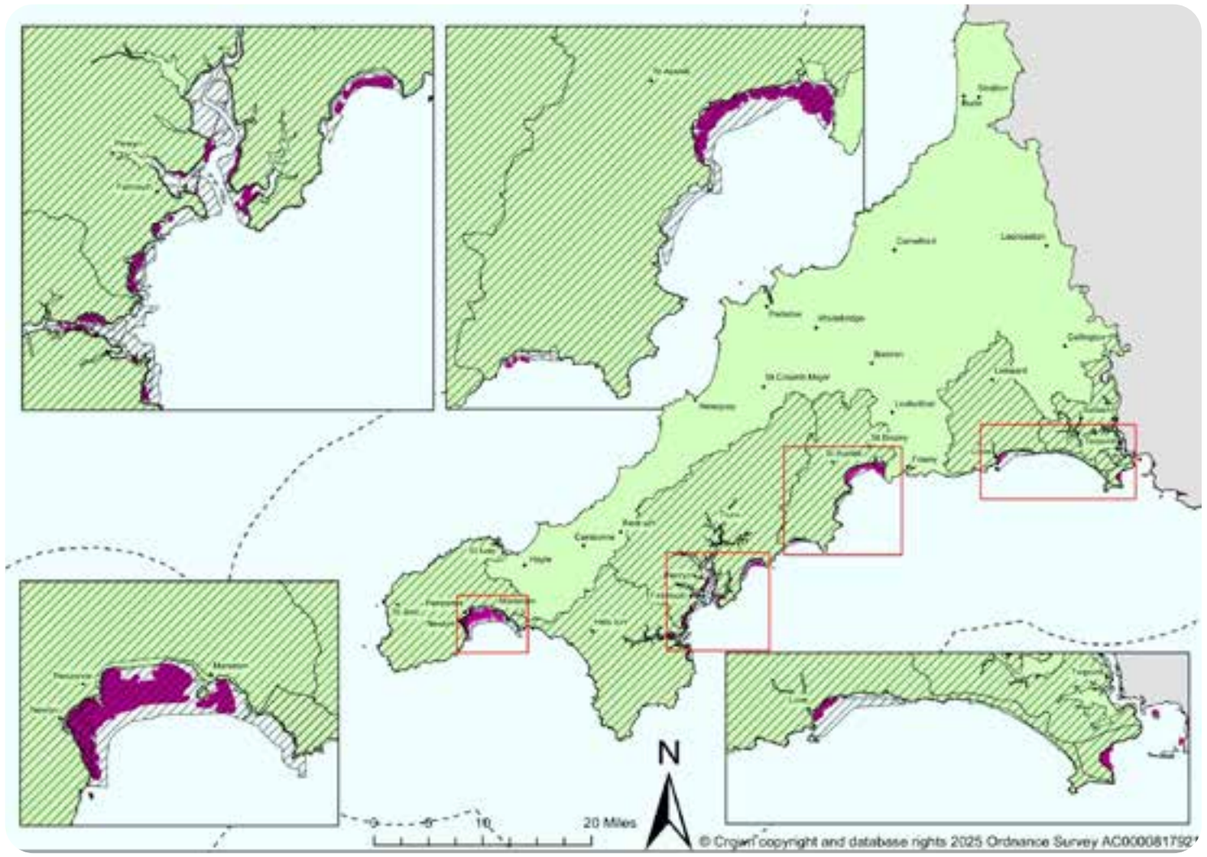
From extensive subtidal beds of Zostera marina in St Austell Bay, to the delicate Zostera noltii beds in the Fal river, Cornwall and the Isles of Scilly supports some of the best seagrass sites in England.

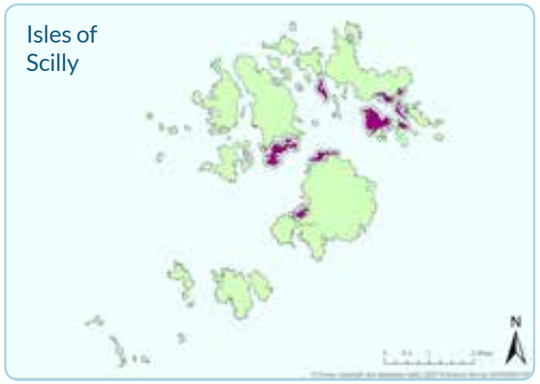
Seagrass provides us with nature-based solutions, processing and storing high levels of carbon. The plant's root systems help stabilise stretches of shore, stalling erosion and defending our coastline.

Decimated by a wasting disease in the 1930's, and now highly vulnerable to damage from boat anchoring or poor water quality, seagrass beds are a threatened habitat which need restoring within our South West coast and seas. Its conservation and restoration are paramount to the health of our marine environment, and it is vital we protect it.

MAPPING DATA SOURCES

The known seagrass extent presented in the map is derived from multiple mapping sources – see Appendix 1. The Focused Action Areas for seagrass were identified through environmental modelling conducted by the Environment Agency and University of Exeter and also include the major water catchments connecting the key seagrass sites.





Focused Action Areas

Known Seagrass Extent

12nm Boundary

Back to Contents

FACTS

St Austell Bay, in south Cornwall, supports England's largest known subtidal seagrass bed, measuring an astounding

359 HECTARES.

33%
of wild caught fish species in the Isles of Scilly are associated with seagrass[1]

PRESSURES ON SEAGRASS

Pollution

Affects water quality in our rivers and seas, harming marine habitats and coastal wildlife. Chemical run-off from agricultural fields disrupts the natural nutrient cycles within seagrass ecosystems. Pollutants from urban areas such as sulphides, heavy metals, and microplastics which get into water ways through drainage systems also cause seagrass loss[2]. Seagrass sites in Cornwall and the Isles of Scilly are often located in optimum sites for sailing and are associated with ports and harbours. This leads to pressures from blackwater (sewage discharge) and antifoulant from recreational vessels. Pollution pressures are likely to increase with climate change induced heavier and more frequent rainfall.

Sedimentation

Can occur from run-off from the land and sewage outfalls and results in increased cloudiness (turbidity). This decreases light levels and in turn the seagrasses potential to photosynthesise. In extreme cases, smothering of the seagrass bed can occur which in turn reduces the meadows health and associated biodiversity.

Seabed disturbance

Anchorage and moorings from boats can damage seagrass plants when they are dropped onto the seabed. Once in place, an anchor or mooring and its attached chain can scour the seabed as it is dragged with the wind and tide, causing complete loss of the plants in the immediate vicinity of the anchor or mooring site. Although found in shallower coastal waters, seagrass is still sensitive from fisheries pressure via any methods which creates contact with this sensitive seabed. For example, the placement of shellfish pots can damage plants and disturb the sediment. Although not frequently carried out directly within seagrass beds, bottom towed gear within a bay where seagrass exists can cause sedimentation, increasing turbidity and impacting the neighbouring meadows and biodiversity within it.

INSPIRATION

SEEDING CHANGE TOGETHER

This project, led by Cornwall Wildlife Trust, aims to learn more about Cornwall's Dwarf Seagrass beds by conducting on-site research, including aerial surveys and water quality tests, and restoration activities with the hope of expanding the size of the seagrass bed in the Fal Estuary.

FIND OUT MORE

Restoring Cornwall's Seagrass | Cornwall Wildlife Trust

MOUNTS BAY MARINE GROUP

After the discovery of a significant area of seagrass in Mounts Bay, a majority of which is located outside the designated Marine Conservation Zone, the Mounts Bay Marine Group has been leading hands-on conservation efforts by training community volunteers to snorkel and survey the seagrass beds, gathering valuable data while raising awareness locally.

FIND OUT MORE

www.mountsbaymarinegroup.com

EU LIFE RECREATION REMEDIES

Led by Natural England, the five-year EU LIFE Recreation ReMEDIES project focused on how sensitive seabed habitats, particularly seagrass, are impacted by recreational activities in five Special Areas of Conservation (SAC) including the Isles of Scilly, Fal & Helford, and the Plymouth Sound and Estuaries. Together, the partnership aimed to reduce recreational pressures, restore and protect, and promote awareness of these important sensitive habitats.

FIND OUT MORE

Home - Save Our Seabed

MANAGING MARINE NON-LICENSABLE ACTIVITIES (MNLA)

The MMO are completing site assessments in consultation with stakeholders and Natural England to review the impact that mNLA (within 0-12 nm) are having on MPAs, in particular the Fal & Helford and the Isles of Scilly Special Area of Conservation (SAC). These assessments may lead to management decisions to mitigate any impacts, for instance codes of conduct or an MMO byelaw, which will be developed through appropriate levels of engagement and consultation.

FIND OUT MORE

Managing marine non-licensable activities in marine protected areas - GOV.UK

TAKING ACTION FOR SEAGRASS

Nature-rich seascapes are mosaics of a mixture of habitats and species in an open system with connectivity from the coast out to sea. Make sure you look at **all** the other relevant sections of this Framework to inspire you when shaping your plans.

REFER TO

- Marine nature recovery principles
- All other priorities and actions

OUR VISION FOR SEAGRASS

Existing seagrass sites will be well mapped, understood, and recognised by local communities and water users. They will flourish towards historical levels through better protection, increased water quality and reduced pressures, with expansion of beds in locations which can support it, aided through active restoration schemes. These existing and new healthy beds will support commercial fisheries, be biodiverse, and capture carbon.

ACTIONS

ACTIONS A5 IMPROVED CATCHMENT WATER MANAGEMENT AND QUALITY

- **Funding for research into marine water quality** and to identify the exact sources of pollution which may be present in key seagrass locations.
- **Efforts to reduce pollution and improve water quality** are crucial for the health, sustainability and resilience of seagrass. Please refer to actions within the **Cornwall and Isles of Scilly Nature Recovery Strategy**:
  - Undertake regenerative livestock, arable and horticultural practices (A15).
  - Manage farmland near water courses sensitively (A35).
  - Reduce pollution from wormers (A39).
  - Manage habitats and activities to reduce pollution, including from run-off (A64).
  - Manage freshwater habitats for nature and other environmental benefits (A70).
- **South West Water to prioritise the installation of storm tanks** that increase capacity at the terminal point to prevent outflows from discharging raw sewage into rivers and coastal waters in areas where seagrass is known to exist.
- **Funding for research into the level and impact of recreational boating blackwater on key seagrass sites**. Followed by a feasibility study to develop scoping options for the reduction and management of blackwater in areas where it is highlighted as a key risk.

Back to Contents

ACTIONS A6 ACTIVE RESTORATION

- **Deliver collaborative restoration projects** in locations identified by both modelled data from the Environment Agency's Restoring Meadows Marsh and Reef (ReMeMaRe) and local sources such as that created by the 2024 Blue Natural Capital Project by the University of Exeter and Cornwall Council.
- **Take a holistic approach to restoration** by mitigating pressures alongside active restoration.

ACTIONS A7 PROTECTING THE SEABED

- **Raise awareness of advice and tools** which help recreational and commercial vessels to anchor with care in areas where seagrass is present (e.g., Blue Meadows, RYA Blue Green, LIFE Remedies, Savvy Navvy). Share information through all available and relevant platforms (website, social media, newsletters, interpretation boards).
- **Ports, harbours and relevant organisations should consider deployment of 'Advanced Mooring Systems' (AMS)**. Mooring managers within the Fal & Helford Special Area of Conservation can work with the Cornwall Council Estuary Officer leading the recreational mitigation work to identify opportunities for AMS development, funded by the S106 SAC fund.
- **Develop collaborative projects** with marine managers, government bodies, and local businesses and communities to consider additional no-anchor zones in areas where seagrass is present, in particular Mounts Bay where a large proportion of seagrass is located outside of the Marine Protected Area designation.
- **Review the key pressures affecting unprotected seagrass beds** found in St Austell Bay, Gerrans Bay, Veryan Bay, and Mounts Bay to consider future action plans to ensure the protection and potential expansion of beds within these sites.

NATURE-BASED SOLUTIONS

- Carbon drawdown
- Clean water
- Clean air
- Good sediment status
- Recreation and sustainable tourism
- Heritage and culture
- Erosion control
- Health and wellbeing
- Jobs and investment
- Food supply
- Flood and drought resilience

ACKNOWLEDGMENTS

Thank you to our CIOS MNRF Seagrass Working Group for their support in the production of this chapter: Amelia Bridgers, Andy Cameron, Angela Gall, Chris Laing, Dan Barrios-O'Neil, Eric Holden, Hazel Selley, Jenny Wright, Jason Hall-Spencer, Julie Webber, Kaja Curry, Kenza Thomas, Luke Edwyn, Mark Parry, Matt Slater, Sophie Pipe, Tom Crawford, Trudy Russell, Victoria Spooner.

Back to Contents

MAERL

A carpet of deep pink, embedded with benthic life such as resting scallops, sheltering seahorses, and burrowed segmented worms, our Cornish maerl beds are one of the natural wonders of the South West.

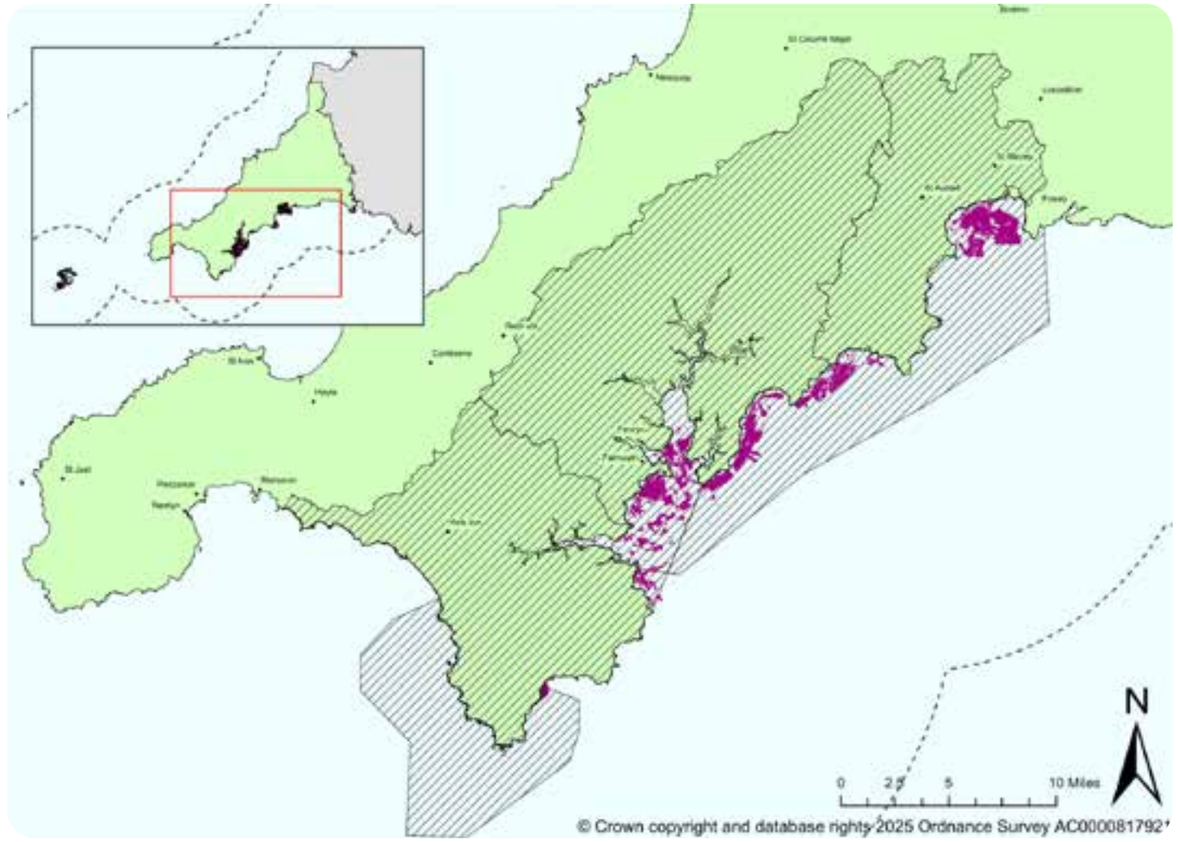
MAERL IS THE COLLECTIVE NAME FOR SEVERAL TYPES OF SLOW GROWING, UNATTACHED CORAL-LIKE RED ALGAE THAT CAN FORM EXTENSIVE BEDS UNDERWATER WHERE CONDITIONS ARE FAVOURABLE.

These beds may consist of live maerl, dead maerl, or a combination of both, and all hold ecological value. In some areas in the South of Cornwall the maerl beds are thought to be 4,000 years old, making them the marine equivalent of our ancient oak forests on land and deserving of the same admiration, respect and protection.

Maerl beds are rare throughout their UK range. In England, the majority of known maerl beds are within Cornwall and yet recent evidence highlights a far greater extent of maerl beds on the south Cornish coast than was previously recognised. These beds are largely unprotected by designations. As an irreplaceable habitat, it is vital to fully understand our Cornish maerl and the pressures it faces. We can then take action to reduce and remove impacts so it can continue to provide a flow of nature-based solutions and begin its slow recovery.

MAPPING DATA SOURCES

The known maerl extent presented in the maps is derived from multiple mapping sources (see Appendix 1). The south coast Marine Protected Area sites were identified as the Focused Actions Areas by our maerl working group as they encompass the known maerl beds. The water catchments connected to key maerl sites were also highlighted as Focused Action Areas.



Known Maerl Extent - Dead and Alive

Focused Action Areas

12nm boundary

Back to Contents

FACTS

Maerl is a diverse habitat which supports

OVER 500

plants and animals.[1]

Due to its rarity and biological value, maerl is classified as a

HABITAT OF PRINCIPAL IMPORTANCE

(Priority Habitats) under the Natural Environment and Rural Communities (NERC) Act 2006.

They are classified by the MMO as an

ESSENTIAL FISH HABITAT

and due to their fragility and very slow recovery times are defined as an **irreplaceable habitat** by Natural England.

The maerl beds of Falmouth, Helford and St Austell Bay are the largest in the UK outside of Scotland or Ireland.

The Fal and Helford alone supports over

1,000 HECTARES

of maerl, making it a key UK site for this irreplaceable blue carbon habitat.

3.7 MILLION CARS WORTH OF CARBON ABSORBED

each year by live maerl in the Fal and Helford Estuaries SAC. [2]

These calcareous algae form beds of both dead and alive matter, on which many species of seaweed and animals have been recorded.

Rarities include the red algae Cleaved Wart Weed *Gracilaria multipartita* and *Halymenia* species, and Couch's Goby *Gobius couchi* and endemic species such as *Gelidium calcicole*.

PRESSURES ON MAERL

Bottom towed gear

A fragile and complex seabed habitat, maerl is highly sensitive to direct impact and disturbance particularly in areas outside of designated Marine Protected Areas. Bottom towed gear, such as scallop dredging, can plough through the beds, displacing the algae and removing associated marine life such as molluscs and crustaceans[3]. As an example, a single pass of a scallop dredger in Newhaven reduced live maerl cover by over 70% with no sign of recovery after 4 years.

Pollution

From rural and urban areas affects the water quality in our rivers and seas harming marine habitats and coastal life. Run-off from agricultural fields and sewage outfalls disrupt the natural nutrient cycles within maerl ecosystems, upsetting the delicate balance and leading to increased algal cover (eutrophication), including that of non-native species like Wakame.

Sedimentation

Can occur from run-off and sewage outfalls and results in increased cloudiness (turbidity) which decreases light levels impacting maerls ability to photosynthesise. Bottom towed gear within a bay where maerl exists can cause sedimentation, increasing turbidity and impacting the beds and biodiversity within it.

Anchorage and moorings

The location of key known maerl beds in Cornwall coincide with Cornwall's biggest and most popular ports and harbours, including Falmouth. Anchors and moorings from boats, recreational or commercial, can damage maerl when they embed into the seabed. Once in place, an anchor or mooring and its attached chain can scour the seabed as it is dragged with the wind and tide.

Lack of data and awareness

Despite its rarity and value, maerl extent in Cornwall is still not fully understood, with new beds being discovered. It is also still a relatively unknown habitat within the wider population and sea users. Significant work is needed to raise its profile both with the public and other stakeholders, so that its value can be understood and solutions to its protection and recovery can be co-designed.

INSPIRATION

MAERL FORUM

This event brought together academics, marine managers, advisors, conservationists, and investors to share knowledge of current research and conservation efforts for maerl and to explore developing an Action Plan for the conservation and management of maerl in Cornwall.

FIND OUT MORE

Blue Carbon | Let's Talk Cornwall

SEASEARCH CORNWALL

Seasearch is a national citizen science project for volunteer divers and snorkellers, coordinated by Cornwall Wildlife Trust in our region. Its aim is to record marine habitats and species found around our coast and to use the information to identify sites of specific conservation concern. In recent years, Seasearch has collected vital biological records and condition assessments of maerl beds in south Cornwall.

FIND OUT MORE

Seasearch Diving & Snorkelling | Cornwall Wildlife Trust

ST AUSTELL BAY MAERL MAPPING

This study was commissioned by Natural England to assess the distribution, extent and range of subtidal maerl communities within the Falmouth to St Austell Bay Special Protection Area (SPA) from summer 2023 to May 2024.

FIND OUR MORE

NECR589 Falmouth Bay to St Austell Bay SPA Drop Down Video and Acoustic Survey Maerl Mapping - St Austell Bay 2023 - NECR589

TAKING ACTION FOR MAERL

Nature-rich seascapes are mosaics of a mixture of habitats and species in an open-source system with connectivity from the coast out to sea. Make sure you look at **all** the other relevant sections of this Framework to inspire you when shaping your plans.

REFER TO

- Marine nature recovery principles
- All other priorities and actions

OUR VISION FOR MAERL

Maerl beds will be identified, mapped and protected across the region with improved management within existing Marine Protected Areas, and additional designation (voluntary or statutory) elsewhere. In addition, the beds will flourish due to improved environmental conditions including improved water quality, and people with value and love this irreplaceable and slow growing habitat.

ACTIONS

ACTIONS A8 INCREASED PROTECTION AND DESIGNATION

- **Designation of maerl sites outside of existing designated areas as SACs**. An initial focus should be on those in south Cornwall outside of the Special Area of Conservation (SAC). This will ensure that the full range of maerl beds, conditions and associated wildlife are represented in the protected sites network.

ACTIONS A9 PROTECTING THE SEABED

- **Review the activity and current management of all activities** (such as anchoring and fisheries) outside of Marine Protected Areas which damages the sea floor in areas where maerl is present (both dead and alive). Develop a set of actions to prevent further impact and decline of maerl beds.
- **Raise awareness of advice and tools** which help recreational and commercial vessels to anchor with care in areas where seagrass is present (e.g., Blue Meadows, RYA Blue Green, LIFE Remedies, Savvy Navvy). Share information through all available and relevant platforms (website, social media, newsletters, interpretation boards).
- **Ports, harbours and relevant organisations should consider deployment of 'Advanced Mooring Systems'** (AMS). Mooring managers within the Fal & Helford Special Area of Conservation can work with the Cornwall Council Estuary Officer leading the recreational mitigation work to identify opportunities for AMS development, funded by the S106 SAC fund.

Back to Contents

ACTIONS A10 RESEARCH

- **Further research into the extent, quality and composition of maerl beds** and their communities in Cornwall is required.
- **Collect baseline knowledge of maerl lifecycle requirements** to understand what conditions are required to maintain healthy beds when a direct impact pressure, such as turbidity, has been removed.
- **Further research into the nature-based solutions delivered by maerl beds for carbon sequestration**, water quality, nutrient cycling, and fisheries.
- **Significant research is still required** to understand marine water quality in key maerl locations and the exact sources of pollution which may be present.
- **Continued monitoring and removal of invasive non-native species** within maerl beds, using existing schemes such as Seasearch and other public recording programmes, to inform future management such as the need for active removal of invasives from maerl beds.

ACTIONS A11 IMPROVED CATCHMENT WATER MANAGEMENT AND QUALITY

- **Efforts to reduce pollution and improve water quality are crucial for the health and sustainability and resilience of maerl beds**. Please refer to the land use and catchment management actions within the **Cornwall and Isles of Scilly Nature Recovery Strategy**;
  - Undertake regenerative livestock, arable and horticultural practices (A15).
  - Manage farmland near water courses sensitively (A35).
  - Reduce pollution from wormers (A39).
  - Manage habitats and activities to reduce pollution, including from run-off (A64).
  - Manage freshwater habitats for nature and other environmental benefits (A70).
- **Mitigate resuspension of sediment** which occurs during all coastal development, such as that experienced in port dredging, via techniques such as seasonal restrictions and/or mitigation technology such as silt curtains.
- **South West Water to prioritise the installation of storm tanks** that increase capacity at the terminal point to prevent outflows from discharging raw sewage into rivers and coastal waters in areas where maerl is known to exist.

ACTIONS A12 AWARENESS AND ENGAGEMENT

- **Educate the public and sea users about the importance of maerl and where it is found**, through initiatives to involve communities in local conservation efforts such as snorkel trails over maerl habitats.

NATURE-BASED SOLUTIONS

- Carbon drawdown
- Clean water
- Good sediment status
- Recreation and sustainable tourism
- Heritage and culture
- Erosion control
- Health and wellbeing
- Jobs and investment
- Food supply

ACKNOWLEDGMENTS

Thank you to our CIOS MNRF Maerl Working Group for their support in the production of this chapter: Amelia Bridgers, Andy Cameron, Angela Gall, Chris Laing, Dan Barrios-O'Neil, Eric Holden, Hazel Selley, Jenny Wright, Jason Hall-Spencer, Julie Webber, Kaja Curry, Kenza Thomas, Luke Edwyn, Mark Parry, Matt Slater, Sophie Pipe, Tom Crawford, Trudy Russell, Victoria Spooner.

Back to Contents

KELP FORESTS

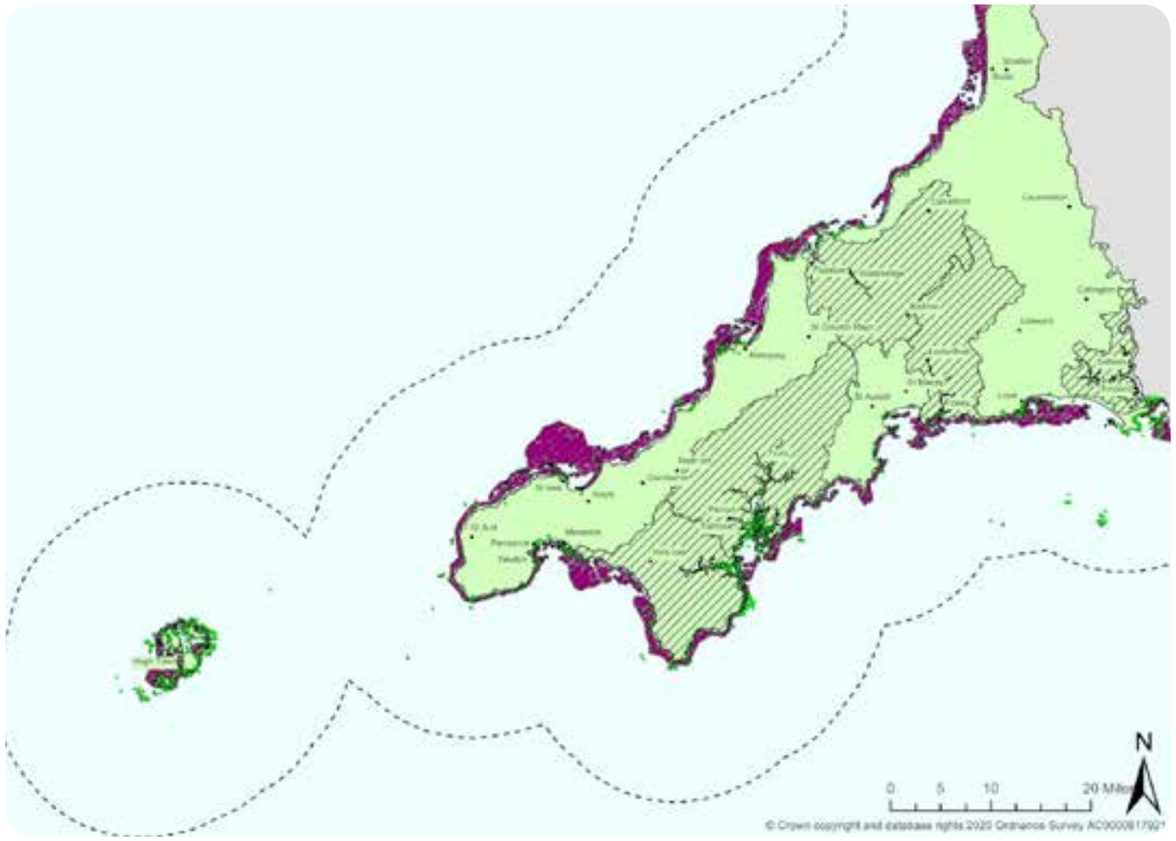
Kelp, a collective term used here for a number of different kelp species, is one of the most productive and diverse habitats in our region.

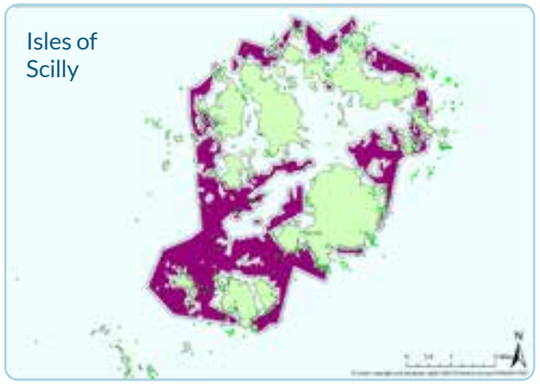
IT CAN FORM DENSE UNDERWATER FORESTS ACROSS OUR EXPANSIVE ROCKY REEF IN THE SHALLOW SUNLIT WATERS OF CORNWALL AND THE ISLES OF SCILLY.

It provides shelter and food for a range of marine life., From top marine predators such as seals, to the invertebrates which live amongst the kelp holdfasts which glue the plant to the rocks on which it sits. Kelp is classed as an 'essential fish habitat' because it supports many fish species at key life stages. It is also an environmental regulator and buffer, controlling coastal temperatures, reducing pH, and improving oxygenation, within the kelp forest area. It also weakens wave energy, helping to offset coastal erosion and protect shorelines from storm damage. Kelp is recognised by our communities as a common seaweed off our shoreline, often as a result of the mass of kelps stranded on our beaches after a storm event. It was thought to be so abundant that on the Isles of Scilly kelp was collected and burnt in 'kelp pits' located throughout the islands to create potash which was used in glass making. However, there is still much work to be done in understanding its current distribution and health in the South West, and to raise the profile of its many benefits to us as humans.

MAPPING DATA SOURCES

The map presents both the known location of kelp records (green data points), and the probable kelp extent (pink shading) made up of areas of benthic rocky reef to a 20-meter depth profile (see Appendix 1 for data sources). This proxy for probable kelp extent was decided by our kelp working group, as kelp is found on all intertidal and subtidal rocky reefs in Cornwall and the Isles of Scilly, yet kelp records are biased by survey effort. The depth profile boundary of rocky reef was set by the working group at 20 meters as a sensible average depth for the presence of kelp in our region. As such, the working chose the 20 m rocky reef area, as well as Cornwall's major water catchments, as the Focused Action Areas for kelp.





Focused Action Areas
Kelp Record
Probable Kelp Forest Extent
12nm Boundary

FACTS

Historically, kelp was
HARVESTED
along the English coast for use in agriculture as a fertiliser. Today, kelp is used in various industries, including food, cosmetics, and pharmaceuticals. It is also being explored as a sustainable resource for biofuels and bioplastics.

It helps
REGULATE
the seas pH levels, reducing ocean acidification.

Kelp plays a key role in helping to mitigate the effects of climate change. It
ABSORBS CARBON DIOXIDE
from the water during photosynthesis and stores the carbon within the plant.

IT REDUCES WAVE ENERGY,
buffering the coastline and our coastal communities.

Kelp in the UK can grow quite rapidly and has been known to grow up to
2.3 CM A DAY! [1]

PRESSURES ON KELP FORESTS

Pollution and sedimentation

Pollution from rural and urban areas affects water quality in our rivers and seas harming marine habitats and coastal life. Runoff from intensively managed agricultural fields disrupt the natural nutrient cycles within these kelp reef ecosystems, upsetting the delicate balance and impacting the whole food chain. Excessive nutrients can lead to harmful algal blooms that block sunlight and deplete oxygen. The discharge of pollutants such as sulphide, heavy metals, and microplastics caused by human activities in urban areas are also identified in studies as important reasons for kelp loss reducing growth rates and reproductive success[2]. Sedimentation can occur from run off from the land and sewage outfalls and results in increased turbidity. This in turn decreases light levels and kelps potential to photosynthesise, inhibiting their growth.

Climate change

Brings about multiple pressures in our marine environment, particularly to cool-water dwelling species like kelp. Rising sea temperatures reduce growth rates and increase susceptibility to disease, whilst marine heatwaves can cause mass die off events as have been seen in other countries. Non-native kelp species which thrive in warmer seas, such as Wakame (*Undrain pinnatifida*), can outcompete native kelp for space and resources, changing the ecosystem and associated species.

Lack of understanding

In contrast with other areas of the world, our understanding of kelp and its distribution in the UK is relatively poor, as is the public perception about kelps value to both wildlife and people. Public engagement is critical to bridge the gap between science and action, therefore involving communities in kelp science, protection, regeneration and restoration is vital.

Seaweed Aquaculture

The interest in marine seaweed aquaculture, particular around that of kelp, has increased in recent years as people understand seaweeds versatility and use, and it is considered a growth sector both here in the South West and across the UK and Europe. Whilst seaweed aquaculture has many potential benefits such as habitat creation and nutrient update to improve water quality, the impact on marine ecosystem, such as existing wild kelp, is unknown.

Wild harvesting

Seaweed harvesting faces several challenges and pressures, including ecological concerns such as habitat disruption and biodiversity loss, as well as economic and regulatory pressures to balance sustainable practices with growing market demand. Lack of data on seaweed biomass and distribution around the English coast also means sustainable management of wild harvesting is challenging.

INSPIRATION

THE UNDERWATER FOREST SURVEY

A community science project organised by the Natural History Museum. It aims to monitor and record kelp forests along the British coastline. It is part of the wider Community Science for Healthy Coasts project; a collaborative effort involving coastal enthusiasts, researchers, and organisations to promote healthier and more resilient coastlines across Britain.

FIND OUT MORE

Community science for healthy coasts | Natural History Museum

SEASEARCH SNORKEL SURVEYS

Cornwall Wildlife Trust (CWT) have trained over 40 specialist seagrass and kelp snorkel surveyors alongside their co-ordination of Seasearch Cornwall. These surveys are designed to map the shallow extent, condition and biodiversity of blue carbon habitats, as well as involve the community in vital data collection and conservation. Currently being piloted in the Mounts Bay and St Austell Bay area, CWT hope to bring this project to other areas around Cornwall.

FIND OUT MORE

At Sea | Cornwall Wildlife Trust

ENVIRONMENT AGENCY'S KELP PROGRAMME

This work is being developed under the Natural Capital and Ecosystem Assessment (NCEA) programme and aims to address the critical evidence gap in kelp distribution and health through the development of a long-term surveillance network in England to inform a national kelp asset inventory.

FIND OUT MORE

Natural Capital and Ecosystem Assessment Programme - GOV.UK

REWILDING THE SUSSEX SEABED

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. The project has created a suite of inspirational outputs to raise awareness of the value of kelp, and project learnings to support vast partnership buy in to help protect and restore it.

FIND OUT MORE

Rewilding the Sussex seabed | Sussex Kelp Recovery Project

TAKING ACTION FOR KELP FORESTS

Nature-rich seascapes are mosaics of a mixture of habitats and species in an open-source system with connectivity from the coast out to sea. Make sure you look at **all** the other relevant sections of this Framework to inspire you when shaping your plans.

REFER TO

- Marine nature recovery principles
- All other priorities and actions

OUR VISION FOR KELP FORESTS

Our kelp forests will be resilient to a changing climate and multiple stressors through ecosystem-based management and creation of new habitat at a seascape scale. They will support complex biodiversity, from invertebrates to marine mammals, and provide multiple ecosystem benefits including nutrient and carbon cycling, environmental buffering, and fisheries provision.

ACTIONS

ACTIONS A13 MANAGE SURROUNDING LAND AND SEASCAPES TO REDUCE POLLUTION

- **Efforts to reduce pollution and improve water quality are crucial for the health, sustainability and resilience of kelp forests**. Please refer to the land use and catchment management actions within the **Cornwall and Isles of Scilly Nature Recovery Strategy**;
  - Undertake regenerative livestock, arable and horticultural practices (A15).
  - Manage farmland near water courses sensitively (A35).
  - Reduce pollution from wormers (A39).
  - Manage habitats and activities to reduce pollution, including from run-off (A64).
  - Manage freshwater habitats for nature and other environmental benefits (A70).
- **Mitigate resuspension of sediment which occurs during all coastal development**, such as that experienced in port dredging, via techniques such as seasonal restrictions and/or mitigation technology such as silt curtains.
- **Water companies to prioritise the installation of storm tanks** that increase capacity at the terminal point to prevent outflows from discharging raw sewage into rivers and coastal waters in areas where kelp is known to exist.

Back to Contents

ACTIONS A14 RESEARCH

- **Collect baseline data on the extent and health of kelp beds** in Cornwall and the Isles of Scilly, working alongside the Environment Agency's kelp monitoring programme. Utilise citizen science to engage local communities. This data can be used to measure environmental change and as an indicator of the health of our seas.
- **Conduct a condition assessment of seabed type**, particularly infralittoral rock, alongside other local environmental data to help develop better predictive distribution models.

ACTIONS A15 ENGAGEMENT AND AWARENESS

- **Expand the Seasearch Snorkel Observer programme to involve other local marine groups** around the entire coast of Cornwall and the Isles of Scilly, to engage communities on the value of kelp whilst also gathering valuable shallow subtidal survey data.
- **Develop a 'Kelp Forests for Cornwall' project at sea**, to compliment the 'Forest for Cornwall' project on land. Aim to demonstrate the land-sea connection whilst collecting data and raising the profile of kelp with residents and visitors alike. Engagement activities could include kelp snorkel trails, social media campaigns, films, art exhibitions, and festivals.

ACTIONS A16 SEAWEED AQUACULTURE AND WILD HARVESTING

- **Implement tight regulations for and monitoring of wild native seaweed harvesting** to avoid depleting local kelp forests and to ensure sites remain resilient to pressures including climate change and water quality.
- **Use best available evidence on wild kelp forests to identify potential marine aquaculture sites** to enable farms to consider impacts on existing wild kelp sites.
- **Create a gold-standard marine seaweed aquaculture development framework** to guide licence applicants and onward operations, which considers environmental, social and economic assessments. This would include consideration around mitigating against genetic pollution, disease and pests, and biosecurity for wild kelp sites.

ACTIONS A17 ACTIVE RESTORATION

- **Embed Nature Inclusive Designs (NID) aligning with PAS 1401:2025 into coastal developments**, and/or kelp restoration efforts, to manage Biodiversity Net Gain obligations and provide suitable substrate for kelp.
- **Conduct further research into extent, pressures and mitigation** in Cornwall and the Isles of Scilly to support UK wide knowledge base of kelp restoration which could support future active restoration projects in the event of an extreme event. Use global case studies and learnings where active restoration has been a vital tool in restoring kelp forests decimated by storms, marine heatwaves, and disease

NATURE-BASED SOLUTIONS

- Carbon drawdown
- Clean water
- Clean air
- Recreation and sustainable tourism
- Heritage and culture
- Erosion control
- Health and wellbeing
- Jobs and investment
- Food supply
- Medicines

ACKNOWLEDGMENTS

Thank you to our CIOS MNRF Kelp Working Group for their support in the production of this chapter: Angela Gall, Cat Wilding, Eric Holden, Erin Laes, Ian Hendy, Jenny Wright, Kaja Curry, Kenza Thomas, Matt Slater, and Tom Crawford.

Back to Contents

NATIVE OYSTERS

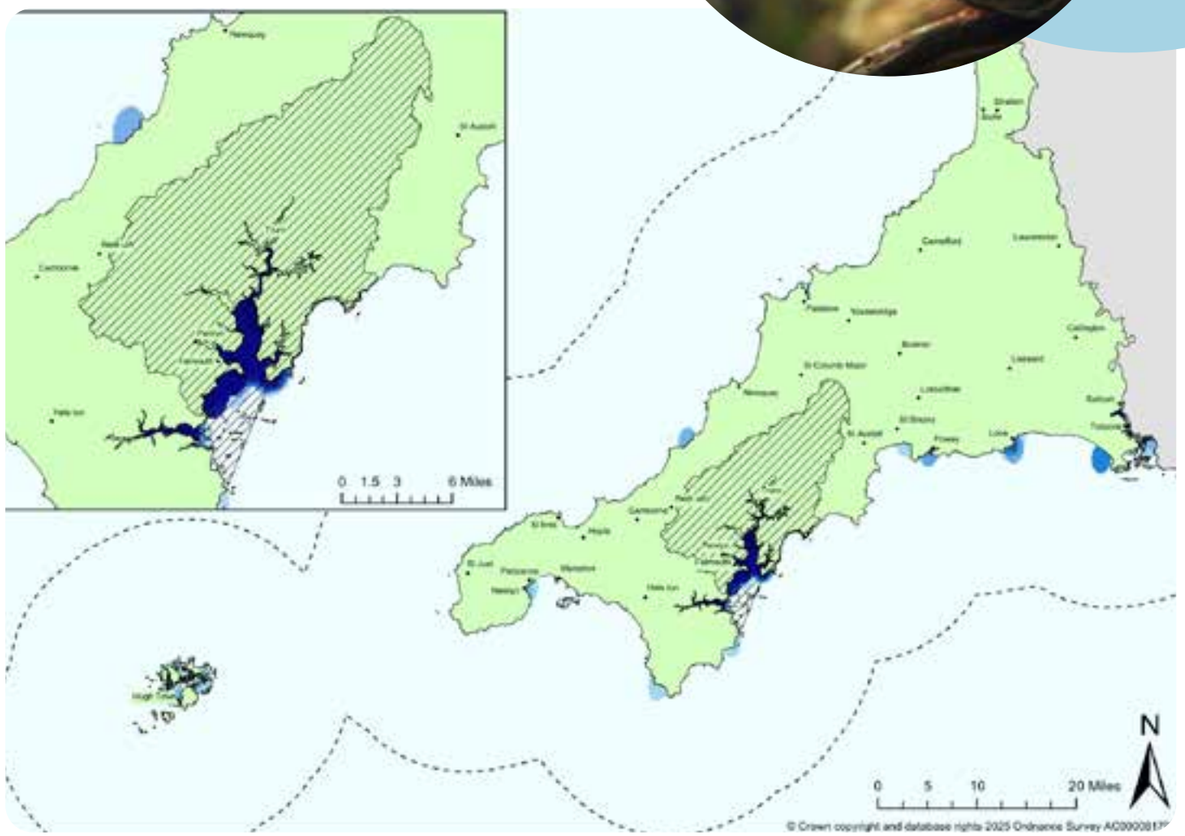
Carpeting the seabed in shallow coastal waters and estuaries, the unassuming yet fascinating Native Oyster (*Ostrea edulis*) sits on the seabed playing a vital role in our estuaries. Native Oysters filter feeder on plankton, filtering litres of sea water every day.

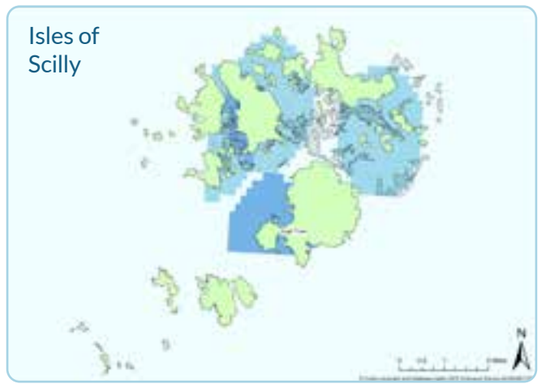
THEY ARE ECOSYSTEM ENGINEERS, ACTIVELY CLEANING OUR SEA WATER, WHILST ALSO STABILISING SEDIMENTS AND PROVIDING A HABITAT FOR AN ARRAY OF SEA LIFE INCLUDING FISH, CRABS AND OTHER INVERTEBRATES SUCH AS WORMS.

Native Oysters are also well-known as a delicious and nutritious food source and are commercially harvested in the region. Native Oyster reefs were once widespread and ecologically dominant along the coasts of the UK and Europe[1] but are now isolated to a few key locations in the UK. The main Native Oyster beds in Cornwall are found in the Tamar and Fal estuary, both supporting the oyster as a feature of their Marine Conservation Zone (MCZ). Oyster beds in the Fal are recognised as one of the last wild Native Oyster beds in the UK. In recognition of the rarity and uniqueness of this population, local fishermen sustainably harvest the stock using traditional methods via vessels with sail and oar, guided by specific management from the Cornwall Inshore Fisheries and Conservation Authority (IFCA). However, the population remains vulnerable, therefore more work is to be done to protect and restore Native Oysters to secure the future of this vital animal in Cornwall.

MAPPING DATA SOURCES

Native Oyster records are presented as a density heat map. The Focused Action Areas have been identified by the Native Oyster Working Group as the Fal and Helford Special Area of Conservation (SAC) and the Fal Water Catchment.





Focused Action Areas

12nm Boundary

High

Low

FACTS

Although usually up to 11 cm long, the largest Native Oyster found in Cornwall was
17.8 CM AND WEIGHED 1.3 KG

Native Oysters can live as long as
20 YEARS

Like many marine species they demonstrate gender fluidity, being
HERMAPHRODITES,
meaning they can change their sex from male to female and vice versa during their lifetime.

The harvesting of Native Oysters and Pacific Oysters in the Fal estuary is the
LAST REMAINING
commercially viable Native Oyster fishery in the UK.

Oysters here have been harvested for commercial purposes for more than
TWO CENTURIES[2]

Native Oyster reefs are among the most threatened marine habitats in Europe; in the UK and Ireland populations have
DECLINED BY 95%

PRESSURES ON NATIVE OYSTERS

Infectious diseases

Are seen as the species greatest threat, exacerbated by a changing climate and warmer seas which increase the risk of diseases. Bonamia, a microorganism which infects oysters, causes lethal diseases and increased mortality. Intensive aquaculture of Pacific Oysters and lack of proper management at aquaculture sites can increase the likelihood of disease outbreaks and disease transfer to Native Oyster populations.

Water quality and sedimentation:

Pollution from farms (excess nutrients), sewers, private septic tanks, mine waste, built areas and roads all affects the water quality in our rivers and seas - harming marine habitats and coastal life. Chemical and sewage pollution is particularly damaging to filter feeding bivalves such as Native Oysters, where the pollutants build up (bioaccumulate) within the organism and then are ingested by animals that eat them. Run-off into water catchments and our estuaries increases sedimentation, which decreases light availability and can smother the seabed, causing major loss of suitable oyster habitat, particularly impacting the larval stages.

Management of fisheries

Can have both positive and negative impacts on Native Oysters. Practices such as intensive fishing of a site and mobile fishing gear used in areas outside of estuaries may have prevented survival of offshore oyster populations and is likely responsible for the decimation of Native Oyster populations over the centuries. Conversely, too little seabed disturbance can lead to siltation and habitat degradation. In this situation, therefore, appropriate oyster husbandry can support maintenance of the beds.

INSPIRATION

CORNWALL GOOD SEAFOOD GUIDE (CGSG)

Developed and managed by Cornwall Wildlife Trust, the CGSG provides clear and accurate information to help consumers and businesses make environmentally informed decisions when purchasing Cornish seafood. Included in the guide is a comprehensive chapter on Native Oysters giving information about their biology, management, and sustainability.

FIND OUT MORE

Cornwall Good Seafood Guide

THE NATIVE OYSTER NETWORK

The Native Oyster Network is a community of academics, conservationists, oyster fishers and NGO's who are working to restore self-sustaining populations of Native Oysters. The network has created a comprehensive European Native Oyster Habitat Restoration Handbook to support other projects.

FIND OUT MORE

Native Oyster Network – Facilitating the restoration of Native Oysters across the UK and Ireland

CORNWALL INSHORE FISHERIES & CONSERVATION AUTHORITY

The Fal oyster fishery (producing the Protected Designation of Origin awarded Fal Oyster) is probably the last active wild capture oyster fishery in England. It is unique in its management thanks to the Fal Fishery Order 2016, the Regulating Order granted to Cornwall IFCA. The Order implements a comprehensive management plan that prohibits the use of mechanical or powered equipment in the fishery, among other technical measures. The Fal Fisheries Management Committee has a membership from a broad cross section of interests in the fishery including the fishers, marketing and regulatory functions. Cornwall IFCA carries out an annual oyster fishery survey, providing a long-term data set for oyster abundance and population dynamics in the fishery. The evidence and data collected by this programme is nationally unique making this one of the best understood and managed Native Oyster stocks in the UK.

FIND OUT MORE

Fal Fishery: Cornwall Inshore Fisheries and Conservation Authority (CIFCA)

TAKING ACTION FOR NATIVE OYSTERS

Nature-rich seascapes are mosaics of a mixture of habitats and species in an open-source system with connectivity from the coast out to sea. Make sure you look at **all** the other relevant sections of this Framework to inspire you when shaping your plans.

REFER TO

- Marine nature recovery principles
- All other priorities and actions

OUR VISION FOR NATIVE OYSTERS

We will restore and create key Native Oyster sites towards historic levels whilst also reducing pressures, so that beds are self-sustaining and provide biodiversity, nature-based solutions, sustainable fisheries, and cultural benefits.

ACTIONS

ACTIONS A18 ACTIVE RESTORATION

- **Establish a collaborative Native Oyster restoration project** in the Fal estuary using guidance such as the European Native Oyster Habitat Restoration Handbook.
- **Develop a Native Oyster hatchery**, ensuring restoration stocks are bio-secure and sustainable. Use brood stock from the existing Fal fishery, starting on a small scale and building up efforts over the life span of the project. Multiple hatchery methods could be considered and trialled, such as spatting ponds and suspended oyster cages, or artificial surfaces for brood stock to encourage growth.
- **Embed Nature Inclusive Designs (NID) aligning with PAS 1401:2025 into coastal developments and infrastructure** to increase stability of oyster restoration efforts or provide a substrate in itself. NID may also offer suitable brooding substrates to encourage growth.

ACTIONS A19 MANAGE SURROUNDING LAND AND SEASCAPES TO REDUCE POLLUTION

- **Efforts to reduce pollution and improve water quality are crucial for the health and sustainability of Native Oysters**. Please refer to the land use and catchment management actions within the **Cornwall and Isles of Scilly Nature Recovery Strategy**;
  - Undertake regenerative livestock, arable and horticultural practices (A15).
  - Manage farmland near water courses sensitively (A35).
  - Reduce pollution from wormers (A39).
  - Manage habitats and activities to reduce pollution, including from run-off (A64).
  - Manage freshwater habitats for nature and other environmental benefits (A70).
- **Mitigate resuspension of sediment which occurs during all coastal development**, such as that experienced in port dredging, via techniques such as seasonal restrictions and/or mitigation technology such as silt curtains.

ACTIONS A20 RESEARCH AND MONITORING

- **Research historic Native Oyster populations and distribution** across Cornwall and Isles of Scilly to inform where restoration efforts should be focused.
- **Research the best substrates for successful restoration**, including options for artificial or substrate alternatives if the natural habitat is limited. If considering artificial, embed the principles of Nature Inclusive Design (NID) aligning with PAS 1401:2025.

ACTIONS A21 BIOSECURITY MEASURES

- **Implement clear biosecurity measures to prevent the introduction and spread of diseases** in Native Oysters using techniques from the report 'Understanding Biosecurity in Native Oyster Restoration'[3]. These include: controlling the movement of oysters between different areas, disinfecting equipment, and monitoring water quality; breeding programs focusing on selecting oysters that show resistance to specific diseases; and regular health monitoring of oyster populations which can help detect diseases early and take prompt action to mitigate their spread.
- **Manage Pacific Oysters** (*Crassostrea gigas*), an invasive non-native species that has established itself in the Fal Estuary. Although not currently outcompeting Native Oysters, Pacific Oysters bring a risk of disease to native populations, and management practices such as active removal should be considered.

ACTIONS A22 FISHERIES MANAGEMENT

- **Create comprehensive management plans** using appropriate evidence and data to ensure that commercial fisheries benefit the species as a whole and operates in balance with the local environment. Use the Fal Fishery Order and its Regulation as a guide.
- **Consider sensitive bed rejuvenation techniques** such as harrowing Native Oyster beds and adding cultch (shell substrate) as practical steps, especially in areas with previous management success (e.g., Fal oyster beds).

NATURE-BASED SOLUTIONS

- Carbon drawdown
- Clean water
- Good sediment status
- Recreation and sustainable tourism
- Heritage and culture
- Erosion control
- Health and wellbeing
- Jobs and investment
- Food supply

ACKNOWLEDGMENTS

Thank you to our CIOS MNRF Native Oyster Working Group for their support in the production of this chapter: Matt Slater, Angela Gall, Colin Trundle, Chris Sharpe, Jenny Wright, Kaja Curry, Keith Hiscock, Hazel Selley, Eric Holden, Tom Crawford, Dan Barrios-Oneill, Henry Short, Kenza Thomas.

Back to Contents

POLYCHAETES IN MUD AND REEF

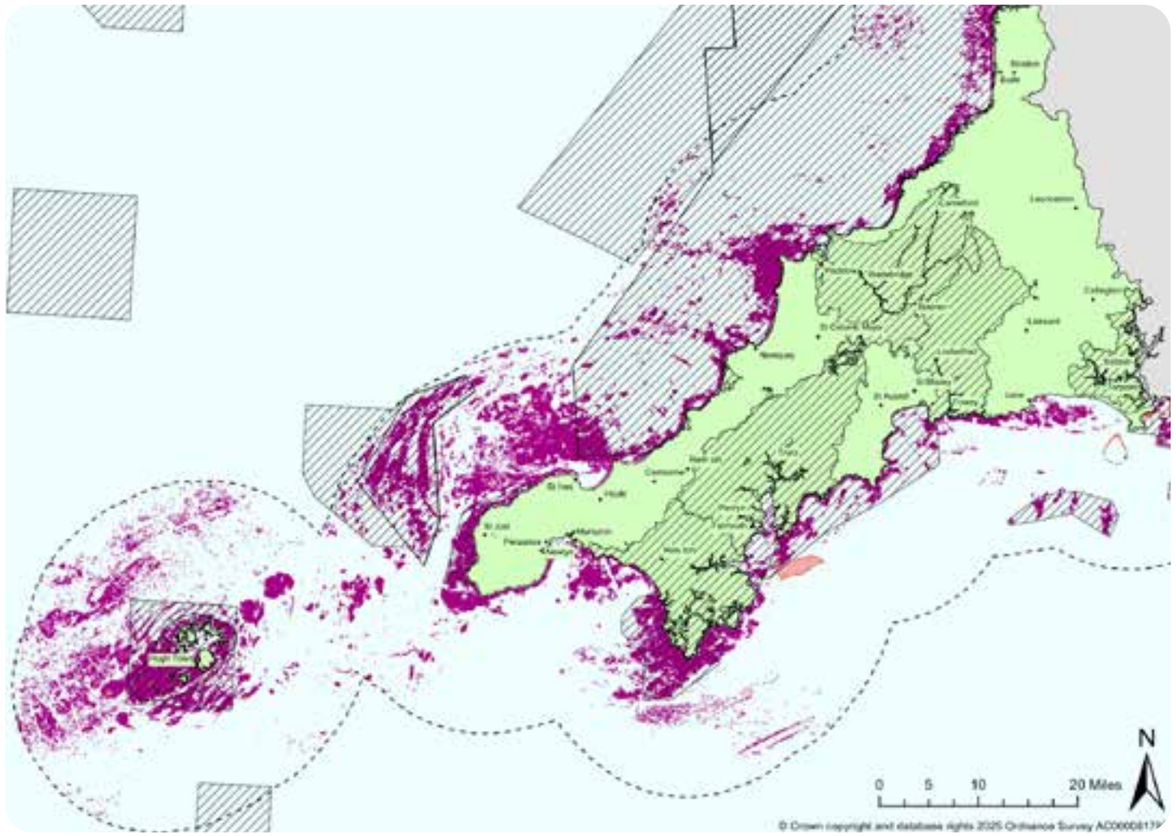
Polychaetes, such as ragworms and lugworms, are a group of marine bristle worms. They may be the most undervalued of our marine species and habitats, acting like the earthworms of the sea.

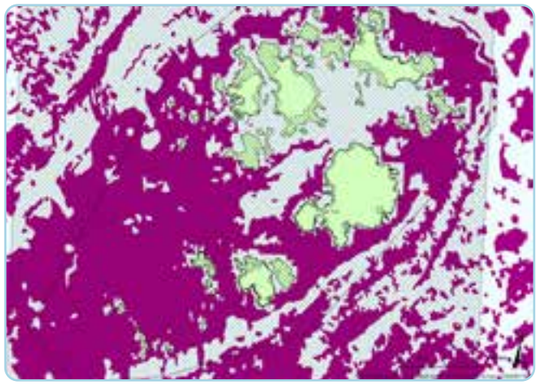
MANY TYPES OF POLYCHAETES EXIST IN DIFFERENT SEA HABITATS.

However, it is on rocky reef and in muddy seabed habitat where these highly diverse animals thrive and play a vital role in the ocean's web of life. Polychaetes on rocky reef are an important food source for many marine animals, including fish and birds. In muddy sediment they play a crucial role in the ecosystem by burrowing and mixing sediments and breaking down organic matter, which aids decomposition and helps in nutrient cycling and maintaining the health of the seabed. Being sensitive to environmental changes such as pollution, this group of marine worms are an indicator species of the state of our seas. Ultimately, flourishing populations of marine polychaetes signify a healthy marine ecosystem. Ongoing research and conservation efforts are crucial to monitor the health of polychaete populations and their habitats so that we can use that knowledge to better manage our marine environment for the worms and all species which depend on them.

MAPPING DATA SOURCES

Due to bias in polychaete records and polychaetes' known widespread distribution, it was decided that mapping efforts should focus on sediment types, in this case polychaetes on rocky reef and in mud. The Focused Action Areas were decided by the Polychaete Working Group to be our Marine Protected Area Network and Cornwall's major water catchments.





Isles of Scilly

Focused Action Areas
Probable Polychaetes on Reef
Probable Polychaetes in Mud
12nm Boundary

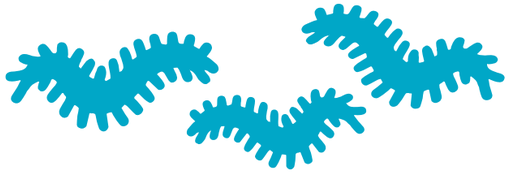
Back to Contents

FACTS

Like earthworms on land, some polychaetes live in mud in the seabed and play a crucial role in

BIOTURBATION,

which is the process of mixing and aerating sediments.



Polychaetes come in all shapes and sizes.

THE PEACOCK WORM

(*Sabella pavonina*) is a beautiful worm which lives in muddy sediment in Cornwall and the Isles of Scilly and has a daisy like crown of tentacles that are visible when feeding.

As demonstrated in Julia Donaldson's enchanting book, Sharing a Shell, some polychaetes have a

SYMBIOTIC RELATIONSHIP

with other marine organisms such as molluscs and crustaceans.

PRESSURES ON POLYCHAETES

Chemical pollutants

From urban areas such as via sewers, private septic tanks, mine waste, built areas, and roads all affects the water quality in our rivers and seas harming marine habitats and coastal life. Heavy metals from industry, chemicals used in agriculture, and even pesticides in our pet flea and tick treatments are particularly damaging to polychaetes. Pollutants build up in the worms (bioaccumulate) and lead to toxic effects such as reduced growth and even death. Tributyl tin, historically used in antifouling paints and now present in and around our ports and harbours in the sediments, has harmful effects on polychaetes such as impaired growth, reproduction, and burrowing behaviour.[1] Organic pollutants once used in developments, such as polychlorinated biphenyls (PCBs) and polycyclic aromatic hydrocarbons (PAHs), still exist in our coastal seabed sediments and can disrupt the worms functioning and cause developmental abnormalities. Pharmaceuticals are a current and concerning form of pollutant, particularly antidepressants, which enter the sea through our human wastewater and even at a low dose are highly effective at causing physiological and behaviour changes.

Microplastics

Pose a serious threat to polychaetes, as once ingested can cause physical blockages, disrupt feeding, and lead to energy depletion. Microplastics can also transfer pollutants, which are adsorbed to the surface of the plastic, into the worms themselves.

Sediment disturbance

Can have significant impacts on polychaetes, affecting their distribution, diversity, and ecological roles. In Cornwall and the Isles of Scilly, there are very few areas of inshore muddy seabed which are not disturbed by humans through boating, fishing and other recreational activities. Infrastructure for offshore activities such as wind farms can disturb the seabed, for example through pipe laying. High levels of disturbance can reduce the number and types of worms in an area, or impact on burrowing activity which impacts their ability to influence nutrient cycling. This particularly affects reef-building worms, which are slow growing.

Lack of knowledge and understanding

Poor environmental monitoring efforts around water quality, specifically looking at chemicals such as pharmaceuticals, makes it difficult to assess the extent of this contamination and its impacts on the marine environment and species such as polychaetes. This can hinder the development of effective management and mitigation strategies to help protect and restore polychaete populations in the UK. In addition, there is little public awareness about the existence of polychaetes in our marine environment, and the important role they play in the health of our seas.

INSPIRATION

THE CONVEX SEASCAPE SURVEY

The Convex Seascape Survey is a comprehensive research project that aims to understand the role of the ocean floor in carbon storage and climate change mitigation. While the survey primarily focuses on carbon sequestration, it also provides insights into the ecological roles of marine organisms, including polychaetes.

FIND OUT MORE

Convex Seascape Survey | Blue Marine Foundation

SHORESEARCH

Shoresearch is a national citizen science survey coordinated locally by Cornwall Wildlife Trust. It focuses on the intertidal shore, where volunteers are trained to identify and record wildlife found during surveys. The data collected helps experts monitor sea life and understand the effects of pollution, climate change, and invasive species. Over the years it has collected valuable information about polychaetes such as our special Honeycomb Worm on reef.

FIND OUT MORE

Shoresearch Cornwall | Cornwall Wildlife Trust

FAL & HELFORD SPECIAL AREA OF CONSERVATION (SAC)

Subtidal Sediment Data Analysis Report 2017

This study recorded the sediment types and wildlife within the sediment to explore changes in community composition within the Fal & Helford SAC. This helps us to better understand the wildlife that lives in the sediment and informs conservation efforts in the Fal and Helford area. The report emphasises the importance of ongoing monitoring and improved data.

FIND OUR MORE

Fal & Helford Special Area of Conservation Subtidal Sediment Data Analysis Report 2017 - NECR387

TAKING ACTION FOR POLYCHAETES IN MUD AND ON REEF

Nature-rich seascapes are mosaics of a mixture of habitats and species in an open-source system which connects the coast to the sea. Make sure you look at **all** the other relevant sections of this Framework to inspire you when shaping your plans.

REFER TO

- Marine nature recovery principles
- All other priorities and actions

OUR VISION FOR POLYCHAETES

Polychaetes in mud and on reef will be thriving thanks to increased awareness of their value, improved water quality, reduced disturbance, and better management of Marine Protected Areas, so that they can continue playing a vital role in our oceanic food web.

ACTIONS

ACTIONS A23 MANAGE SURROUNDING LAND AND SEASCAPES TO REDUCE POLLUTION

- **Efforts to reduce pollution and improve water quality are crucial for the health, sustainability and resilience of polychaetes**. Please refer to the land use and catchment management actions within the Cornwall and Isles of Scilly Nature Recovery Strategy;
  - Undertake regenerative livestock, arable and horticultural practices (A15).
  - Manage farmland near water courses sensitively (A35).
  - Reduce pollution from wormers (A39).
  - Manage habitats and activities to reduce pollution, including from run-off (A64).
  - Manage freshwater habitats for nature and other environmental benefits (A70).
- **Water companies prioritise the installation of storm tanks** that increase capacity at the terminal point to prevent outflows from discharging raw sewage into rivers and coastal waters in areas where polychaetes are known to exist.
- **Install and where possible retrofit storm drains with filtration features** (e.g., pebble and moss guards).
- **Develop and run a public campaign around urban pollution** co-designed with local communities. Raise awareness of best practise to improve water quality via events, publications, and media releases. Encourage better waste management for pharmaceuticals and chemicals, such as the Yellow Fish programme, plus urban litter picks.
- **Mitigate resuspension of sediment and associated toxins** which occurs during all coastal development, such as that experienced in port dredging, via techniques such as seasonal restrictions and/or mitigation technology such as silt curtains.

Back to Contents

ACTIONS A24 PREVENT DISTURBANCE OF, AND RESTORE, BENTHIC MUD

- **Remove abandoned boats** from the intertidal areas within the upper creeks of estuaries to reduce pollution and restore the benthic mud habitat on which they sit.
- **Identify and map opportunities** for intertidal Biodiversity Net Gain (BNG).
- **Implement habitat restoration projects for estuarine mud**, potentially as a Biodiversity Net Gain opportunity, to improve degraded areas and support recovery of polychaete populations.
- **Identify and manage areas of subtidal sediment** in Marine Protected Areas to reduce all seabed disturbance and restore a fully functioning seabed community.
- **Create and implement recreational mitigation strategies** which consider the impact of activity on the benthic environment, particularly mud sediment.

ACTIONS A25 INCREASING OUR RESEARCH AND UNDERSTANDING

- **Implement and support regular citizen science recording programmes**, such as Shoresearch, in more areas around Cornwall and the Isles of Scilly to gather vital data on polychaete populations.
- **Conduct further research into polychaetes contributions to carbon sequestration** and nature-based solutions to improve our understanding and value of polychaetes.

ACTIONS A26 ENGAGE THE PUBLIC TO INCREASE AWARENESS AND UNDERSTANDING

- **Develop and deliver a polychaete awareness campaign** to educate the public about the ecological and economic importance of the various species. Utilise learning and resources from the Convex Seascape programme and include conservation activities such as beach clean-ups and habitat restoration to foster a sense of stewardship.

NATURE-BASED SOLUTIONS

- Carbon drawdown
- Good sediment status
- Heritage and culture
- Food supply

ACKNOWLEDGMENTS

Thank you to our CIOS MNRF Polychaete Working Group for their support in the production of this chapter: Angela Gall, Ceri Lewis, Jenny Wright, Kaja Curry, Keith Hiscock, Matt Slater, and Susan Scott.

Back to Contents

CETACEANS

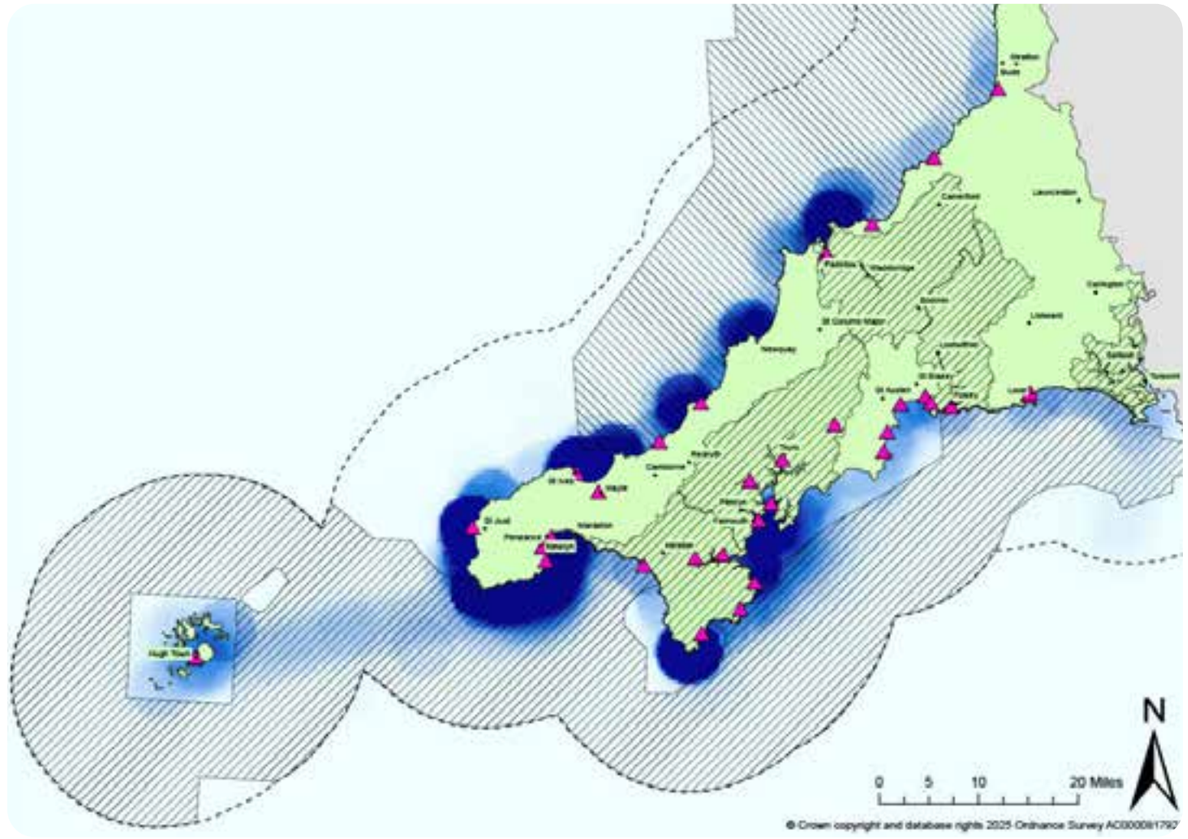
Cornwall and Isles of Scilly are a global hotspot for cetaceans (the group of animals containing whales, dolphins and porpoises).

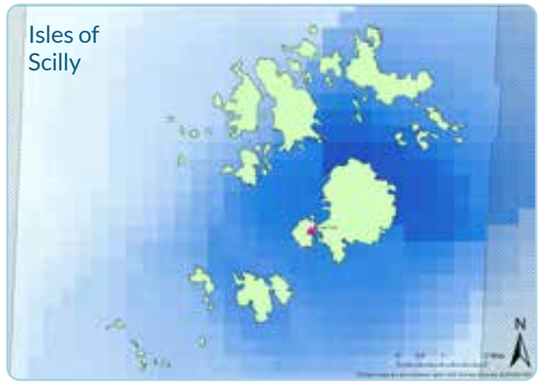
STANDING ON A CLIFF LOOKING OUT TO SEA, IT IS COMMON TO WATCH DOLPHINS SOCIALISING OFFSHORE OR HARBOUR PORPOISE BREAKING THE SURFACE TO CATCH A BREATH BEFORE DIVING DOWN TO FEED NEAR THE SEABED.

Humpback Whales now visit our shores annually over the winter months, feeding on bait fish such as Anchovies and Herring as they continue on their migratory route. Risso's Dolphins, with their bulbous heads and large dorsal fins visit during the summer months to feed on the Common Cuttlefish that come into the shallow waters to breed. These charismatic animals are the top of their food chains and symbolic of the health of our seas, bring multiple benefits to our environment, our society, and our economy including a fast-growing ecotourism industry.

MAPPING DATA SOURCES

Cetacean records are presented as a density heat map, and based primarily on citizen science sightings schemes (see Appendix 1) which come with limitations but are the most comprehensive data sets available for this priority. The Focused Action Areas were decided by the Cetacean Working Group as the existing Special Area of Conservation (SAC) on the north coast, and an additional area in the south of the region associated with the recommendation of an extension to the Marine Protected Area (MPA) designation for this priority. The major water catchments of Cornwall were also identified as Focused Action Areas, and ports as Focused Action Locations.





Ports (Focused Action Locations)
Focused Action Areas
High
Low

Back to Contents

FACTS

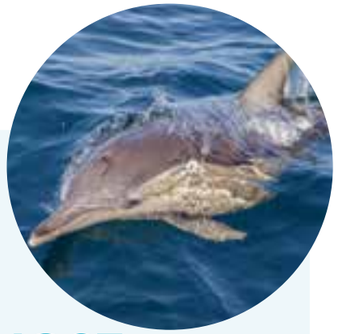
28 DIFFERENT SPECIES

of cetacean have been recorded in Cornwall and the Isles of Scilly, from the rare Pygmy Sperm Whale to the most frequently sighted Common Dolphin.

The second largest whale on this planet, the

FIN WHALE,

is regularly sighted throughout the year, particularly in deeper waters.

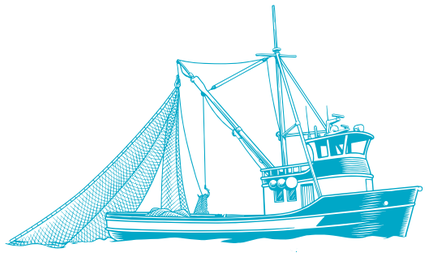


The South West supports one of the UKs three residential inshore pods of

BOTTLENOSE DOLPHINS

which travel from the north of Cornwall all the way along the south coast of England as far as Sussex.

Sadly, this pod is in **serious threat of decline** due to their low numbers, lack of statutory protection and increased vulnerability to disturbance owing to their proximity to human populations.



AROUND 27%

of reported strandings of cetaceans around Cornwall and the Isles of Scilly show signs of definite or probable bycatch

PRESSURES ON CETACEANS

Fisheries bycatch

Accidental capture (bycatch) is one of the most significant threats to cetaceans in our South West waters. Bycatch is a result of the level of inshore and offshore fishing activity experienced in our region, the non-selective nature of commonly used fishing gear, and the fact that our coastal waters support significant cetacean populations.

Pollution

Cetaceans are under pressure from a variety of pollutants, including PCBs, plastics, chemicals, sewage, and noise pollution. Persistent organochlorines from development continue to contaminate the marine environment when coastal development, dredging and bottom towed gear causes resuspension of the sediments in which they are trapped. This allows them to enter the food chain and build up (bioaccumulate) within the blubber of the cetaceans. This impacts the animal's health by increasing susceptibility to disease and reducing fertility. Plastic pollution, such as from discarded fishing gear can cause entanglement but is also eaten by some species, causing damage to internal organs, blockages and leading to starvation. Finally marine noise, particularly boat sonar in our bustling sea full of recreational and commercial vessels, is of significant concern.

Recreational disturbance

Many of us love to spend time in, on and by the sea. Unfortunately, if not done responsibly, this can negatively impact cetaceans. Interacting with or avoiding humans can disrupt their communication and use up vital energy. Engine and propeller noise can confuse or drown out echolocation which can disorientate the animals and disrupt their communication and feeding. All cetaceans can be injured or killed in collisions with boats and propellers. The increase in wildlife-watching boats along the UK coast, including the south and South West, has led to growing concerns about marine wildlife disturbance and makes this pressure one of the most significant risks facing cetaceans in our region's waters.

Marine development

Offshore projects, such as offshore wind development and associated subsea electricity cables, can create a range of long-term and short-term pressures, such as marine noise both during construction and throughout operation, to increased marine traffic for the maintenance and management of the infrastructure. The lack of high-quality data available to effectivity consider these impacts on cetaceans is a barrier to mitigation.

INSPIRATION

CORNWALL'S MARINE AND COASTAL CODE GROUP

A partnership of organisations whose aim is to minimise the effect to marine and coastal wildlife from encounters with people by, on and in the sea.

FIND OUT MORE

Wildlife First - Making your marine & coastal encounter great for wildlife

SEAQUEST SOUTHWEST

Seaquest Southwest is a citizen science marine recording project run by Cornwall Wildlife Trust's Living Seas Team. It uses public events, surveys and activities to engage volunteers and members of the public with the marine environment, collects data on marine wildlife including cetaceans, and helps us better understand and conserve them.

FIND OUT MORE

Seaquest South West | Cornwall Wildlife Trust

CLEAN CATCH

Clean Catch is a program funded by the UK Government that aims to monitor and minimise the bycatch of sensitive marine species in UK commercial fisheries. It promotes collaborative working and knowledge exchange globally. Currently, Clean Catch is running a cetacean bycatch mitigation trial with small-scale gillnet fishers in South West England.

FIND OUT MORE

Home - Clean Catch UK

FATHOMS FREE

A Cornwall-based marine conservation group, part of the Global Ghost Gear Initiative, is focused on removing ghost gear via divers recovering gear from wrecks and reefs, and raising awareness via beach cleans, public education, and gear reporting tools for the public.

FIND OUT MORE

fathomsfree.org

TAKING ACTION FOR CETACEANS

Nature-rich seascapes are mosaics of a mixture of habitats and species in an open-source system with connectivity from the coast out to sea. Make sure you look at **all** the other relevant sections of this Framework to inspire you when shaping your plans.

REFER TO

- Marine nature recovery principles
- All other priorities and actions

OUR VISION FOR CETACEANS

Cetaceans will be thriving in our coastal waters with high numbers recorded across the region and growing numbers in depleted areas, thanks to improved conservation efforts including a decline in disturbance and a significant reduction in bycatch.

ACTIONS

ACTIONS A27 MITIGATE BYCATCH

- **Undertake research into bycatch mitigation monitoring** through collaborative projects between conservation and fisheries bodies, in line with the Marine Wildlife Bycatch Mitigation Initiative. Explore alternative technology and techniques such as gear modification and innovative fisheries methods.
- **Encourage uptake of Remote Electronic Monitoring** and cameras to enable fully documented fisheries which can in turn improve the monitoring of bycatch of cetaceans.
- **Deploy pingers on a small scale** in under 12-meter fishing vessels and/or implement voluntary short term gill net restrictions in areas with high cetacean activity to significantly reduce bycatch of inshore populations of cetaceans. By using this dual approach, we can avoid any potential displacement impact of pingers if they were deployed on a large scale.
- **Undertake community beach cleans** to remove fishing gear from local beaches and encourage the use of the Fishing for Litter facilities (currently located at 16 South West ports and harbours engaged with the scheme) or collection schemes through charities such as Fathoms Free and companies such as Waterhaul. This will help reduce entanglement in ghost gear.
- **Encourage all water users to sign up to Clean Cornwall's Blue Litter Project**, a marine litter collection campaign that will be running across Cornwall throughout the tourist season to help track and collect litter from Cornwall's remote marine spaces.

Back to Contents

ACTIONS A28 MANAGE SURROUNDING LAND AND SEASCAPES TO REDUCE POLLUTION

- **Efforts to reduce pollution and improve water quality are crucial for the health, sustainability and resilience of cetaceans**. Please refer to the land use and catchment management actions within the **Cornwall and Isles of Scilly Nature Recovery Strategy**;
  - Undertake regenerative livestock, arable and horticultural practices (A15).
  - Manage farmland near water courses sensitively (A35).
  - Reduce pollution from wormers (A39).
  - Manage habitats and activities to reduce pollution, including from run-off (A64).
  - Manage freshwater habitats for nature and other environmental benefits (A70).
- **Undertake beach cleans to remove plastic pollution from our shorelines**, and work in partnership with coastal businesses and communities to reduce usage of single use plastics. Support and replicate initiatives such as Plastic Free Falmouth across Cornwall and the Isles of Scilly.
- **Mitigate resuspension of sediment** which occurs during all coastal development, such as that experienced in port dredging, via techniques such as seasonal restrictions and/or mitigation technology such as silt curtains.

ACTIONS A29 REDUCE WILDLIFE DISTURBANCE

- **Reduce wildlife disturbance** as per guidance in Action 65 in the **Cornwall and Isles of Scilly Nature Recovery Strategy**;
  - Limit dog and human disturbance to shorebirds, seals and wader nesting areas using zoning, seasonal restrictions, education and signage especially during breeding seasons (A 65.1)
  - Develop plans for managing buffer zones around sensitive wildlife sites in partnership with landowners, NGOs and communities, to support rare species of plants, waders, nesting seabirds and seals. (A 65.2)
  - Encourage understanding and compliance with Coastal Wildlife Codes such as the Seashore Code for rockpooling, dogs on leads and managed footpaths to help walkers to stick to defined paths, and exclusion zones to protect birds and seals from disturbance. (A 65.3)
- **Encourage all water users to act responsibly around wildlife** at sea through promotion of Defra's Marine and Coastal Wildlife Code on all available platforms (websites, social media, newsletters, interpretation boards).
- **Use signage at key sea access points**, like public slipways, to highlight best practice behaviour at sea around cetaceans such as slowing down and staying at least 100 meters away from wild animals at all times.
- **Encourage all sea users (recreational and commercial) to be Wildlife Safe** (WiSE) certified to ensure they understand wildlife law, can interpret wildlife and bird behaviour, understand safe watching practices and know the threats wildlife face, as well as providing access to the latest scientific studies. WiSE to be reviewed and updated to ensure it is as effective as possible.
- **Report wildlife crimes against cetaceans by calling 101** to report crimes that have already happened (or for general enquiries) and 999 if you suspect a wildlife crime is in action. Cetaceans are protected by law via the Wildlife and Countryside Act. Crimes on cetaceans include intentional or reckless harassment, injuring, and disturbance.

ACTIONS A30 IMPROVE KNOWLEDGE AND EVIDENCE

- **Establish a specialist cetacean conservation and research group** for the South West region to manage the reporting of sightings, strandings, and acoustic monitoring findings and trends. Via this group, develop a framework for annual reporting of trends in cetacean species, working collaboratively with the South West Marine Ecosystems initiative to report annual changes in cetaceans and their management in the South West.

ACTIONS A31 DYNAMICALLY ASSESS AND MITIGATE PRESSURES AND RISKS

- **Create a proposal for the designation of a Special Area of Conservation** (SAC) for marine mammals in Cornwall and the Isles of Scilly, to recognise its importance for cetacean populations on a European level. Work collaboratively with the cetacean conservation and research group and wider partners.
- **Mitigate against and prevent impacts from at sea development** via appropriate environmental impact assessments for each and every activity, which considers the entire lifecycle of the project from planning to decommission. This assessment must include detailed baseline surveys of cetacean activity to understand initial trends and to track effectiveness of mitigation and prevention.

NATURE-BASED SOLUTIONS

- Carbon drawdown
- Recreation and sustainable tourism
- Heritage and culture
- Health and wellbeing
- Jobs and investment

ACKNOWLEDGMENTS

Thank you to our CIOS MNRF Cetacean Working Group for their support in the production of this chapter: Brendan Godley, Dan Jarvis, Duncan Jones, Jade Roberts, Jenny Wright, Joe Dennett, Kaja Curry, Nick Tregenza, Rebecca Allen, and Simon Ingram.

Back to Contents

SEALS

Cornwall and the Isles of Scilly are a global hotspot for cetaceans (the group of One of our iconic and beloved marine mammals, the Atlantic Grey Seal is regularly sighted around our Cornish and Isles of Scilly coastline.

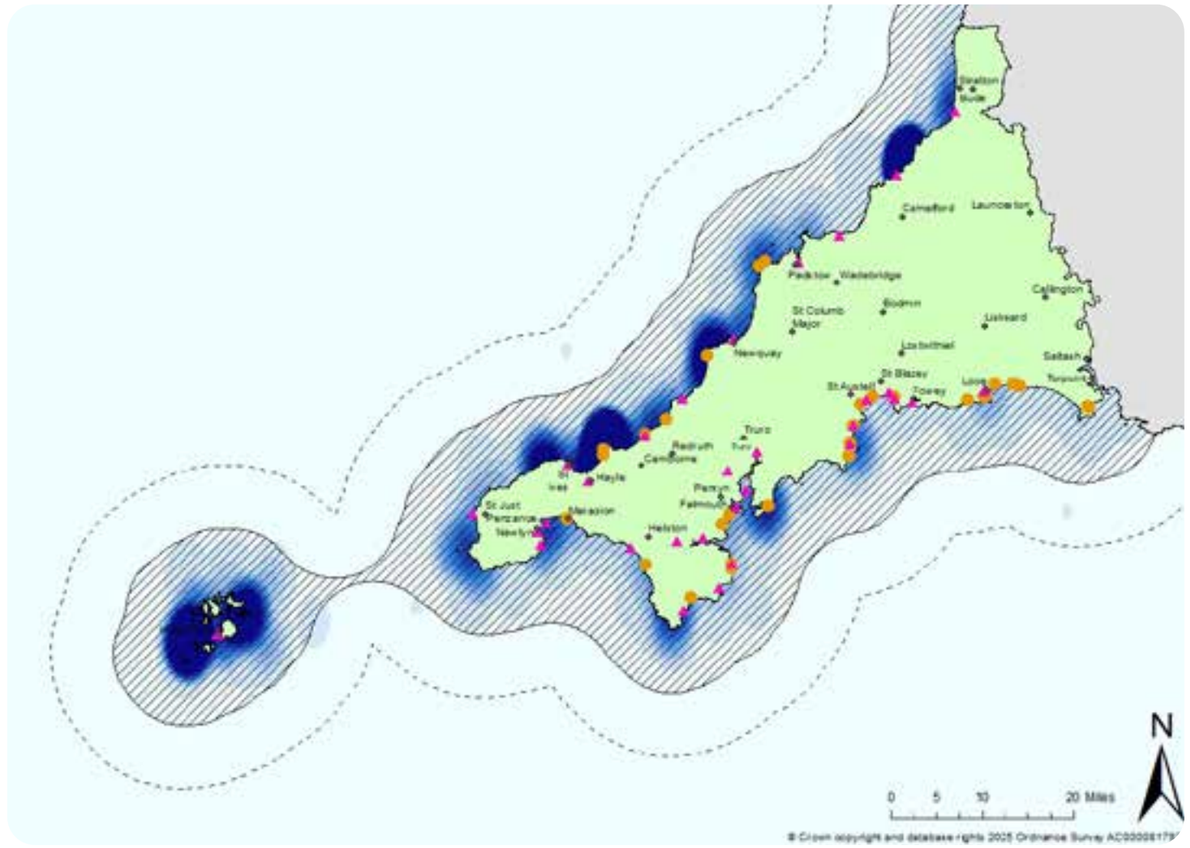
WHETHER HAULED OUT ON OUR SHORELINE, OR SWIMMING AND PLAYING IN THE OCEAN SWELL, SEALS ARE A MUCH-LOVED SIGHT FOR RESIDENTS AND VISITORS ALIKE.

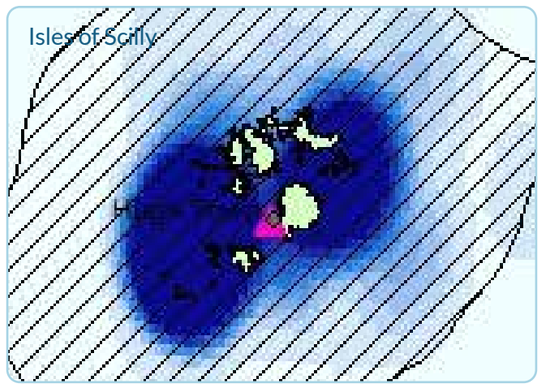
Each Grey Seal has a unique fur pattern enabling skilled researchers to identify individual seals to learn about their lives in a non-invasive way. Researchers use these patterns to track seal movements across the Celtic Sea. Thousands of different seals have been identified at 79 sites across Cornwall and the Isles of Scilly.[1] Seals routinely link Cornwall and the Isles of Scilly to sites in Devon, Dorset, the Isle of Man, Wales, Ireland and France (north and south). Cornwall and the Isles of Scilly is an important place for seals to feed, digest, rest, socialise and pup and is a vital hub supporting seals as they move across the Celtic Sea which is crucial for the survival of this species.

MAPPING DATA SOURCES

Seal records are presented as a density heat map and based on extensive and comprehensive citizen science sightings schemes (see Appendix 1). The Focused Action Area covers the entire inshore area of Cornwall and the Isles of Scilly to 6nm, connecting to key seal haul out sites around our coastline.

The Focused Action Locations are ports, harbours, and launch sites as key access points to the water by commercial and recreational water users.



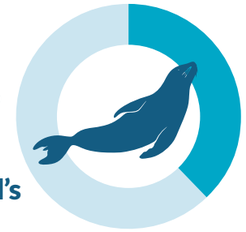


Legend

Focused Action Locations
- Ports and Harbours
- Launch Sites
- Focused Action Areas

Estimated seal density
- High
- Low
- 12 nm

FACTS



The UK is home to
38%
of the entire world's population of Atlantic Grey Seals.

Grey Seals are on the
IUCN RED LIST
for endangered species (Least Concern) **and are protected by retained EU law** (The Conservation of Habitats and Species Regulations 2017, the Conservation of Offshore Marine Habitats and Species Regulations 2017) **and the UK Conservation of Seals Act making it illegal to take, injure and kill a seal.**

Incredibly adapted for life at sea, Grey Seals can swim at speeds of up to
25 KM AN HOUR
and can travel 100 km a day for at least four consecutive days.

Seals have a designated
SPECIAL AREA OF CONSERVATION (SAC)
in the Isles of Scilly and five Sites of Special Scientific Interest (SSSI) **in Cornwall and the Isles of Scilly** (where it is an offence to disturb seals).

They can dive to depths of
300m
by slowing their heart rate and using oxygen stored in their blood and muscles.

They can detect a fish from
180m
away, and they forage on the seabed for their preferred prey species – Sand Eels and Dragonets.

PRESSURES ON SEALS

Recreational disturbance
Many of us love to spend time in, on and by the sea. Unfortunately, if not done responsibly, this can negatively impact seals. Disturbance can occur on land, sea or air and is one of the greatest threats to seals in our region. Over two thirds of interactions between humans and seals leads to disturbance, whether this is watching them from a clifftop, a boat or in the water[2]. Seals scared into the sea from their resting spots use up vital energy and have raised stress levels, making them more vulnerable to illness and disease. Mothers may be unable to feed their pups enough for them to survive their first winter or, if repeatedly disturbed, a mother may be forced to abandon her pup. Seals stampeding into the water (flushing) can injure themselves on sharp rocks, and pregnant females may incur injuries fatal for both mother and pup.

Fisheries and bycatch
Accidental capture (bycatch) is a significant threat to seals, with 85% of the UK's seal bycatch recorded in South West waters[3]. This results from the non-selective nature of fishing gear and a high level of inshore and offshore fishing activity in our region.

Climate change
Climate change has multiple effects on seals, from warming seas affecting prey distribution, to extreme weather events such as storms disturbing pupping beaches and separating pups from their mums. More frequent storms increase coastal erosion with rockfalls directly killing, injuring and disturbing seals. Storms also increase lost fishing gear (ghost gear) at sea[4], adding to entanglement rates. Rising sea levels flood sea caves and haul outs.

Marine development
Offshore projects, such as renewable wind development with subsea electricity cables and seabed mining create a range of long and short-term pressures. These include marine noise during construction and operation with more marine traffic to maintain infrastructure. Seals are benthic feeders, so development reduces available habitat and can prevent access to feeding grounds. We need a better understanding of key seal offshore foraging areas.

Pollution
Seals are under pressure from a variety of pollutants, particularly light, noise, chemical and physical. Plastics can cause entanglement, with Cornwall having the second highest rate of entanglement for any seal species anywhere in the world[4]. Marine noise, in our bustling sea full of recreational and commercial vessels, is of significant concern. Persistent organic pollutants such as Polychlorinated Biphenyls (PCBs) and dioxins have a serious impact on seal health, causing reproductive impairment, immune suppression, and endocrine disruption.

INSPIRATION

DEFRA MARINE AND COASTAL WILDLIFE CODE

A website for the public with information and advice on how you can help minimise disturbance to wildlife when you visit the coast.

FIND OUT MORE

Marine and coastal wildlife code - GOV.UK

SEAL RESEARCH TRUST (SRT)

SRT is a multi-award winning, evidence-based marine conservation charity who support seal conservation groups across the UK. SRT coordinate a large network of active citizen scientists routinely surveying seals around the South West and beyond. They give seals a voice and enable us to better protect seals and their ocean home.

FIND OUT MORE

www.sealresearchtrust.com

LOOE ISLAND SENSITIVE SEAL SITE MARKERS

The Looe Marine Conservation Group have worked closely with partners and statutory agencies to create a system of eco-friendly moorings and marker buoys to communicate best practice around sensitive wildlife sites and a marine nature reserve, particularly for hauled out seals.

FIND OUT MORE

Looe Marine Conservation Group

THE SUBSEA SOUNDSCAPE (S^3) PROGRAMME

Led by Celtic Sea Power, this programme is delivering first-of-a-kind research to produce a regional subsea soundscape model combining new and existing acoustic data. This highly innovative project includes audio visual monitoring seal vocalisations using innovative Seal Spy Solution Technology. These devices will detect and locate marine mammals including Grey and Harbour Seals in the area, using vessel and aerial surveys and underwater footage to ground truth results.

FIND OUT MORE

Home - Celtic Sea Power

TAKING ACTION FOR SEALS

Nature-rich seascapes are mosaics of a mixture of habitats and species in an open-source system with connectivity from the coast out to sea. Make sure you look at **all** the other relevant sections of this Framework to inspire you when shaping your plans.

REFER TO

- Marine nature recovery principles
- All other priorities and actions

OUR VISION FOR SEALS

Atlantic Grey Seal welfare, abundance and distribution will have increased thanks to a reduction in pollution, bycatch, entanglement, and disturbance. Resulting in a healthy marine ecosystem supporting biodiversity, health and well-being, and the economy alike.

ACTIONS

ACTIONS A32 REDUCE WILDLIFE DISTURBANCE

- **Create and manage 100 m buffer zones** in partnership with landowners, NGOs and communities around sensitive wildlife sites using best practice buffer buoys at sea, and signage with community engagement where feasible inland along the coastal wildbelt (see Nature Recovery Strategy Coastal Wildbelt section and Intertidal action A65).
- **Use zoning, seasonal restrictions, education and signage to limit human and dog disturbance** to seals especially during moulting and pupping season (See Nature Recovery Strategy action A65).
- **Encourage understanding and compliance with Coastal Wildlife Codes**, including exclusion zones to protect seals from disturbance (See Nature Recovery Strategy action A65.3).
- **Investigate the potential of an Automatic Identification System** (AIS) requirement and licensing for all wildlife operators in Cornwall and the Isles of Scilly, working in partnership with Cornwall ports and harbours and the Maritime and Coastguard Agency.
- **Implement Air Avoidance Areas above sensitive seal sites** for the use of drones and other aircraft in our coastal and marine area, following the example of Ministry of Defence.

ACTIONS A33 MITIGATE BYCATCH

- **Develop collaborative projects** between conservation partners and fisheries bodies to mitigate, monitor and research bycatch. Explore alternative technology, gear modification, responsive husbandry and innovative fisheries methods.
- **Encourage uptake of Remote Electronic Monitoring and cameras** to enable fully documented fisheries which can in turn improve the monitoring of bycatch of seals.
- **Undertake community beach cleans** to remove fishing gear from local beaches and encourage the use of the Fishing for Litter facilities (currently located at 16 South West ports and harbours engaged with the scheme) or collection schemes through companies such as Waterhaul. This will help reduce entanglement in ghost gear.
- **Encourage all water users to sign up to Clean Cornwall's Blue Litter Project**, a marine litter collection campaign across Cornwall in the tourist season to help track and collect litter from Cornwall's remote marine spaces.
- **Continue to campaign for and implement the banning of plastic flying ring toys** to help protect seals in Cornwall and the Isles of Scilly from injury and death.

ACTIONS A34 IMPROVE EDUCATION AND ENGAGEMENT

- **Increase the number and distribution of best practice resources** at popular access points for a range of water users including drone users, swimmers, snorkellers, anglers, boat users, kayakers, SUP users, divers and swimmers. Materials may include information boards, leaflets and stickers (See Nature Recovery Strategy action A66)
- **Use appropriate methods to improve land-based management of visitors** to sensitive seal sites, such as interpretation, fencing, signage and where possible on-site engagement volunteers, supported by landowners.
- **Set up proactive annual Operation Seabird events** in partnership with the Cornwall Marine and Coastal Code Group to raise awareness of best practice for cetaceans, seals and seabirds with all water users (residents and visitors).
- **Encourage all sea users (recreational and commercial) to be Wildlife Safe** (WiSE) certified to ensure they understand wildlife law, can interpret wildlife and bird behaviour, understand safe watching practices and know the threats wildlife face, as well as providing access to the latest scientific studies. WiSE to be reviewed and updated to ensure it is as effective as possible.

ACTIONS A35 IMPROVE KNOWLEDGE AND EVIDENCE

- **Undertake recreational pressure assessments** around sensitive seal sites to inform the creation of Recreational Mitigation Strategies, regional action plans and engagement.
- **Support the continuation of long-term citizen science monitoring** of sensitive seal sites via the Seal Research Trust and programmes such as Seaquest Southwest or via drone survey work on the Isles of Scilly following best practice to limit disturbance.
- **Continue to gather knowledge on seal health and mortality** via the Cornwall Wildlife Trust Marine Strandings Network , Cornwall Marine Pathology Team and the Cetacean Stranding Investigation Programme (CSIP) and postmortem examinations, to inform further management and conservation opportunities.

ACTIONS A36 IMPROVE PROTECTION FOR SEALS IN CORNWALL AND THE ISLES OF SCILLY

- **Create a proposal for the designation of either a Special Area of Conservation** (SAC) for marine mammals in Cornwall or the extension of the existing south coast Important Marine Mammal Area (IMMA) to include Cornwall's north coast, to recognise its importance for cetacean and seal populations on a European and global level. Work collaboratively with key organisations involved in seal conservation action and research.
- **Support statutory agencies and regulators to deliver effective compliance and enforcement** of all environmental regulations and encourage the reporting of infringements to protect wildlife in SSSIs where they are a monitored feature by ringing 101 or outside of these areas, reporting via the Cornwall Marine and Coastal Code Group 24-hour hotline 0345 2012626.
- **Designate sensitive seal sites as County Wildlife Sites**, following the existing criteria applied in Devon.
- **Support the amendment of the Wildlife and Countryside Act 1981** to make the intentional or reckless disturbance or harassment of seals an offence and to make further provision about the protection of seals.

NATURE-BASED SOLUTIONS

- Carbon drawdown
- Recreation and sustainable tourism
- Heritage and culture
- Health and wellbeing
- Jobs and investment

ACKNOWLEDGMENTS

Thank you to our CIOS MNRF Seal Working Group for their support in the production of this chapter: Andy Rogers, Dan Jarvis, Gareth Richards, Grace Jones, James Barnett, Jenny Wright, John Peacock, Kaja Curry, Kate Williams, Peter Perkins, Rebecca Allen, Sarah Millward and Sue Sayer.

Back to Contents

TUNA

The return of Bluefin Tuna to the coastal waters of Cornwall and the Isles of Scilly[1] is one of the most remarkable comebacks of our marine natural history in the last 100 years.

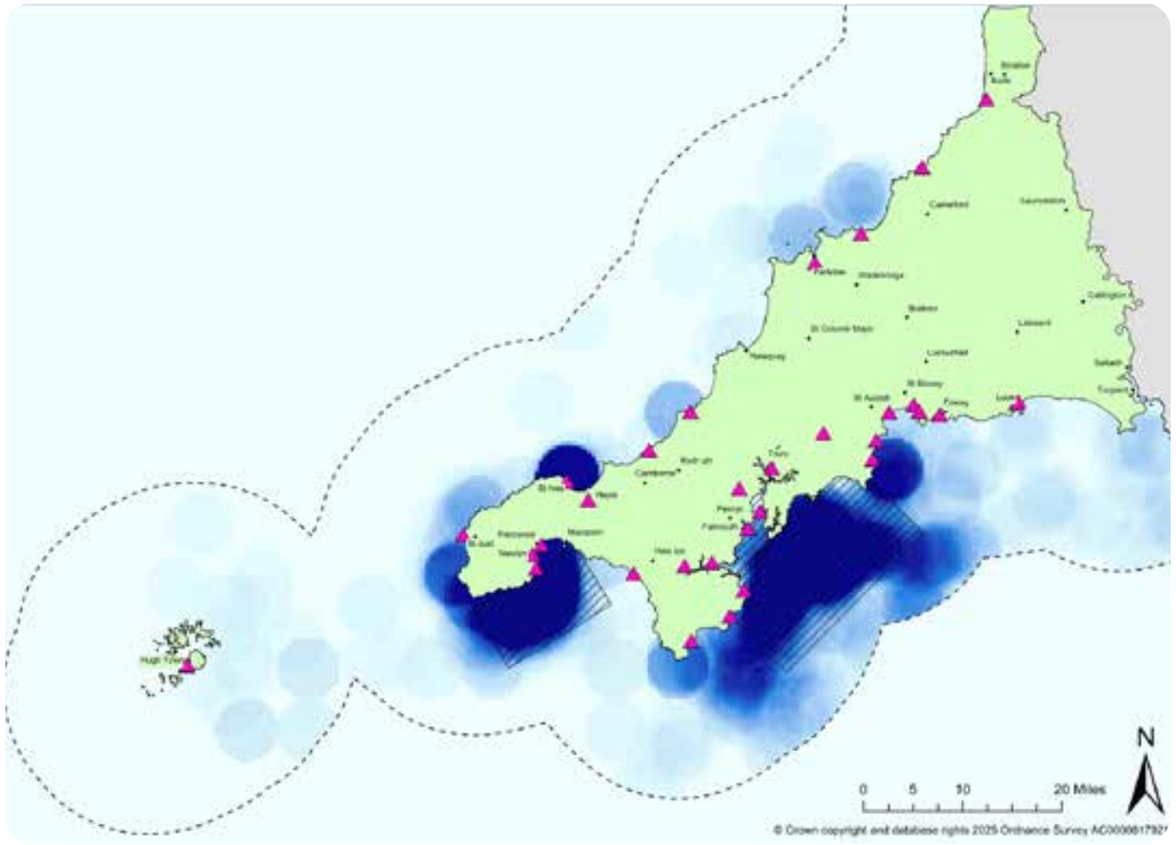
LIKELY DUE TO IMPROVED CONSERVATION EFFORTS AND THE RISING POPULATIONS OF SMALL PREY FISH SUCH AS SARDINES, TUNA CAN NOW BE SEEN BETWEEN THE MONTHS OF AUGUST TO DECEMBER[2].

Sometimes even seen leaping out of the water only meters from the cliffs, much to the awe and delight of onlookers. Regardless of significant numbers of tuna being sighted in our waters, commercial catch of the species is highly regulated to prevent overfishing of this iconic species, with strict quotas and promotion of sustainable fishing practises such as the use of rod and line.

Much work is still to be done in understanding the ecology of tuna to help develop effective conservation strategies to include mitigation against pressures, such as disturbance. What is clear, however, is that the presence of Bluefin Tuna in Cornwall and the Isles of Scilly indicates a healthy marine ecosystem, and that their return is both a positive sign for the overall health of the region's waters and a beacon of hope for marine nature recovery across all priorities.

MAPPING DATA SOURCES

This map displays sightings data currently available through a variety of regional schemes (see Appendix 1). Although there is effort bias with this approach, it was confirmed by the MNRF Tuna Working Group that it did effectively represent the key seasonal sites for tuna in Cornwall and the Isles of Scilly. The Focused Action Areas are mapped to overlap with these key sites, as well as Focused Action Locations at our ports and harbours.



Ports (Focused Action Locations)
Focused Action Areas
12nm Boundery

Value
High
Low

Back to Contents

FACTS

Living for up to
40 YEARS,
Bluefin Tuna can grow up to
3.5 METERS
long and weigh up to
680 KILOS.

Bluefin Tuna are built for speed, swimming at up to
60 MPH,
with retractable fins and eyes set flush to their body.

Unlike most fish, Bluefin Tuna can
RAISE AND REGULATE

their body temperature above the surrounding water, thanks to a specialised blood vessel structure.

THEY NEVER STOP SWIMMING,
as they rely on the forward motion to push sea water over their gills to extract the oxygen they need.

PRESSURES ON TUNA

Recreational angling

Angling in Cornwall is a popular activity around the entirety of our coastline, both by independent fishers and fishing charter services. Angling can have positive impacts on tuna such as for research, however if not regulated it can contribute to overfishing, particularly for juvenile tuna, which can affect population recovery. The process of being caught and released can cause significant stress to tuna, affecting their health and behaviour. Improper handling and release techniques can also injure tuna, reducing their chances of survival after being caught.

Lack of data and awareness

Despite significant attention and interest from both the local community and conservationists, more data is needed on Bluefin Tuna ecology. This includes their dietary habits and critical habitats that support them throughout their life stages. Alongside this, a lack of public understanding about this animal and its ecology can lead to poor practise at sea, such as that around angling or wildlife watching, which in turn can impact tunas' ability to thrive in our coastal waters.

Food availability

Tuna are apex predators with complex interactions within their ecosystems. The key prey species for each life stage is still largely unknown, however understanding these interactions is crucial for sustainable management of both tuna and their prey. Underpinning the recovery of this species is ensuring their prey stock is managed sustainably and not depleted by overfishing.

Back to Contents

INSPIRATION

BLUEFIN TUNA TAGGING PROGRAMME

Thunnus UK, an electronic tagging programme led by the University of Exeter and the Centre for Environment, Fisheries and Aquaculture Science (CEFAS), involved tagging and tracking Bluefin Tuna to study their migration patterns and behaviour. The data collected helps inform conservation strategies and sustainable management practices. Over the course of the project, it yielded vital information on the seasonal occurrence of Bluefin Tuna off the UK, which can be read in Open Access publications and on their website.

FIND OUT MORE

www.thunnusuk.org

MARINE MANAGEMENT ORGANISATION (MMO) TRIALS

In 2021 the MMO initiated trials for a small-scale commercial fishery to explore the economic benefits of Bluefin Tuna while ensuring sustainable fishing practices. At the time of writing, the trial is ongoing into 2025. This project aims to balance conservation efforts with economic opportunities for local communities.

FIND OUT MORE

Bluefin tuna commercial trial fishery 2023 - GOV.UK

BLUEFIN TUNA CATCH AND RELEASE RECREATIONAL FISHERY (CRRF)

The CatcH And Release Tag (CHART) is a UK initiative to support sustainable recreational fishing while contributing to scientific research and conservation. The programmes large scale plastic FLOY tagging programme has provided valuable insights on regional distribution and size classes of tuna commonly encountered in the South West. This is in addition to providing training to the recreational angling sector on best practices for catching and releasing Bluefin Tuna safely.

FIND OUT MORE

CatcH And Release Tag (CHART) Scientific Data Collection Programme for Atlantic Bluefin Tuna (BFT) - Cefas (Centre for Environment, Fisheries and Aquaculture Science)

TAKING ACTION FOR TUNA

Nature-rich seascapes are mosaics of a mixture of habitats and species in an open-source system with connectivity from the coast out to sea. Make sure you look at **all** the other relevant sections of this Framework to inspire you when shaping your plans.

REFER TO:

Marine nature recovery principles. All other priorities and actions.

OUR VISION FOR TUNA

The South West will be re-established as a seasonal hotspot for Atlantic Bluefin Tuna, a sentinel species bringing socio-economic and ecological benefits to Cornwall and the Isles of Scilly. Recovering Atlantic populations will be supported through encouraging sustainable fishing practises and active research and education highlighting what the return of this emblematic predator means for our South West coast and seas.

ACTIONS

ACTIONS A37 ENHANCED STEWARDSHIP AND PUBLIC AWARENESS

- **Create and run a public awareness campaign** to increase support for sustainable fishing practices through highlighting the South West's critical role in supporting the seasonal presence of tuna.
- **Develop improved codes of conduct** for recreational angling for tuna.
- **Establish a South West tuna stewardship group,** made up of experienced representatives from tuna conservation and fishing communities, who can advocate for best practise, promote codes of conduct, and deliver training opportunities on sustainable techniques for fellow fishers, anglers and angling businesses.
- **Increase the number and distribution of best practice resources** at popular access points for a range of water users including swimmers, snorkellers, anglers, boat users, kayak and SUP users and swimmers. Materials may include information boards, leaflets and stickers (See Nature Recovery Strategy action A66)
- **Encourage all sea users (recreational and commercial)** to be Wildlife Safe (WiSE) certified to ensure they understand wildlife law, can interpret wildlife and bird behaviour, understand safe watching practices and know the threats wildlife face, as well as providing access to the latest scientific studies. WiSE to be reviewed and updated to ensure it is as effective as possible.

Back to Contents

ACTIONS A38 EXPAND MONITORING AND RESEARCH

- **All tuna projects to embed research on ecosystem drivers**, including food type and availability, and climate influences to help inform future conservation strategies.
- **Create a tuna citizen science programme** to help monitor our seasonal population, their health, and the impact of conservation measures through engaging community members, particularly from the angling community.

ACTIONS A39 CONTINUE CAUTIOUS APPROACH TO FISHERIES MANAGEMENT

- **Ensure that our tuna fishing plan continues to meet international conservation obligations**, including those set by the International Commission for the Conservation of Atlantic Tunas (ICCAT), to prevent overfishing and ensure its local population remains sustainable. Do this through taking a precautionary approach to commercial fishing of Bluefin Tuna, using the most current research and evidence.
- **Encourage uptake of Remote Electronic Monitoring** and cameras to enable fully documented fisheries which can in turn improve the monitoring of bycatch of tuna.

NATURE-BASED SOLUTIONS

- Carbon drawdown
- Recreation and sustainable tourism
- Heritage and culture
- Health and wellbeing
- Jobs and investment
- Food supply

ACKNOWLEDGMENTS

Thank you to our CIOS MNRF Tuna Working Group for their support in the production of this chapter: Angela Gall, Emily Theobald, Harriet Allen, Jenny Wright, Jeronen van der Kooij, Kaja Curry, Simon Thomas, Tom Brereton, and Tom Horton.

Back to Contents

SHARKS AND RAYS

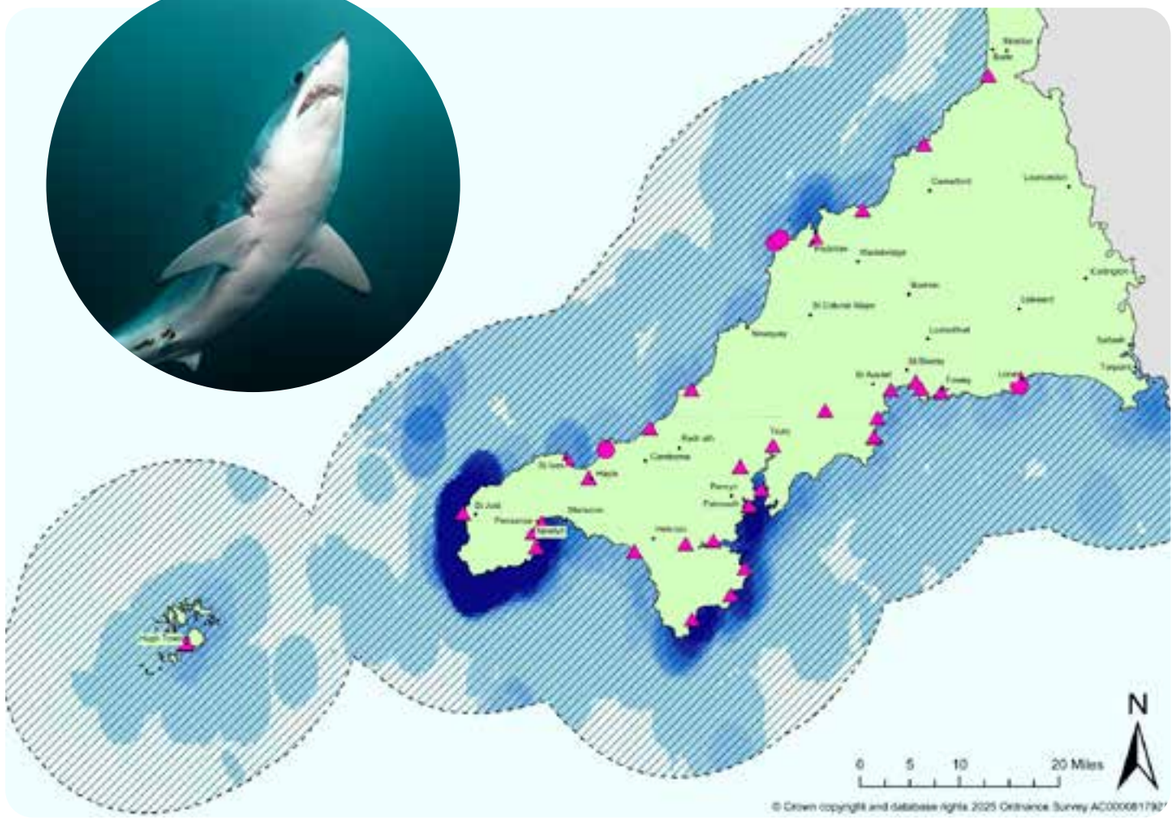
Over millions of years, sharks and rays (collectively known as elasmobranchs) have evolved to live in almost all marine ecosystems across the planet: from the cold waters of the Arctic to the tropical seas of Indonesia.

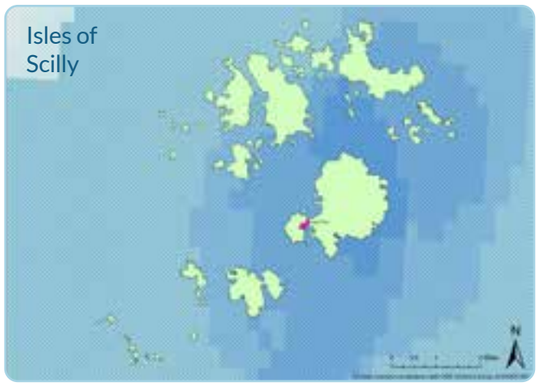
HERE IN THE TEMPERATE SEAS OF CORNWALL AND THE ISLES OF SCILLY, YOU CAN FIND A PLETHORA OF SHARK AND RAY SPECIES. FROM THE SECOND LARGEST SHARK ON THE PLANET, THE BASKING SHARK, TO THE MUCH SMALLER LESSER-SPOTTED DOGFISH.

These keystone animals maintain ecosystem health, upholding a balance of marine life by controlling the populations of their prey. They are also a group of animals which ignite the imagination and fascination of people of all ages, so play an important role in marine education programs, helping to raise awareness about ocean conservation. Although viewed as a fierce marine predator, sharks and rays are in fact highly vulnerable and, in some cases, threatened with extinction primarily due to overfishing and bycatch. Although fisheries management is key to this group of animal's survival and restoration, much is still needed to be done particularly around public awareness and education to ensure their survival and in turn preserve the health and diversity of our ocean.

MAPPING DATA SOURCE

This map displays sightings data density currently available through a variety of regional schemes (see Appendix 1) as a heat map. It was decided by the Shark & Ray Working Group that the entire 12 nm area should be mapped as a Focused Action Area given that these species are mobile, and fisheries play a critical role. Focused Action Locations were also identified at our ports and harbours.





Beaches (Focused Action Locations)

Ports (Focused Action Locations)

12nm boundery

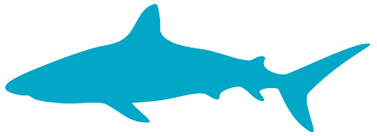
Focused Action Areas

High

Low

Back to Contents

FACTS



Sharks have lived on this planet for over

450 MILLION YEARS,

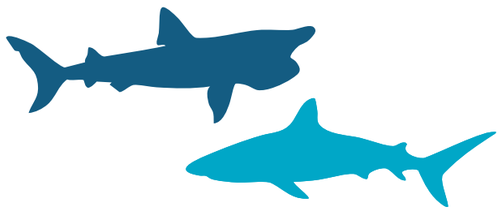
surviving several mass extinctions and outliving dinosaurs!

ANGEL SHARK, BASKING SHARK AND WHITE SKATE

are protected species under the UK Wildlife and Countryside Act 1981, which makes it illegal to intentionally kill, injure, or harass them in British waters.

The UK is home to

OVER 40 SPECIES OF SHARKS,



including some of the fastest, rarest, and most migratory sharks in the world. 21 of these live in British waters all year round[1].

PRESSURES ON SHARKS AND RAYS

Fisheries and bycatch

Accidental capture (bycatch) and overfishing are significant threats to sharks and rays in our South West waters. Bycatch and overfishing are a result of the level of inshore and offshore fishing activity experienced in our region, and the non-selective nature of commonly used demersal fishing gear. Porbeagle Sharks, listed as vulnerable on the IUCN Red List, are particularly at threat, specifically from our Cornish Hake fisheries. Blue Shark pupping sites have potentially been identified off the Isles of Scilly[2], raising concerns around bycatch and entanglement in this area. Spurdog, now deemed a recovering population after decades of overfishing, is vulnerable to population crashes if not managed appropriately, particularly when large females are captured. Self-reporting of bycatch in fisheries is proving poor, which results in a lack of data and understanding of shark and ray populations, hindering the development of effective conservation strategies.

Recreational Angling

Angling in Cornwall and the Isles of Scilly is a popular activity around the entirety of our coastline, both by independent fishers and fishing charter services. Angling can have positive impacts on sharks and rays, such as for research. However, poor catch and release practises can impact the species by causing injury, stress and reducing their survival after the animals have been caught, including pregnancy loss in females.

Climate change

has multiple effects on sharks and rays, with warming seas and increasing sea surfacing temperatures impacting oxygenation levels, prey distribution, and causing habitat compression. Directly, warmer waters may affect metabolism, growth rates, and reproduction. Indirectly, sharks and rays may need to migrate to cooler waters which in turn impacts the animal's natural behaviour.

Pollution and marine litter: Sharks and rays can be affected by entanglement in marine debris such as discarded fishing nets and other waste. According to a study by the University of Exeter, there have been over 1,000 reported cases of sharks and rays entangled in marine debris globally[3]. Specific data for Cornwall and the Isles of Scilly is limited, but shark and ray entanglement are recognised as a threat within the UKs marine wildlife bycatch mitigation initiative.

Back to Contents

INSPIRATION

THE SHARK TRUST

A global charity with a base in Plymouth, Devon, the Shark Trusts mission is to safeguard the future of sharks through positive change: using science, education, influence and action. From influencing policy to citizen science and community engagement, the charity supports a suite of programmes to achieve its vision.

FIND OUT MORE

https://www.sharktrust.org

SHARKGUARD

SharkGuard is an electric pulsed device designed to mitigate shark and ray bycatch in longline fisheries. It has been developed by fisheries and engineering consultancy Fishtek, providing innovative solutions to the problems facing fish populations in both freshwater and marine environments.

FIND OUT MORE

SharkGuard - Prevent Shark Bycatch & Ray Bycatch in Longline

TAKING ACTION FOR SHARKS AND RAYS

Nature-rich seascapes are mosaics of a mixture of habitats and species in an open-source system with connectivity from the coast out to sea. Make sure you look at **all** the other relevant sections of this Framework to inspire you when shaping your plans.

REFER TO

Marine nature recovery principles. All other priorities and actions.

OUR VISION FOR SHARKS AND RAYS

Thanks to increased education and awareness, shark and ray populations will be understood and valued in the South West, with education leading to stewardship and positive action through commitment to best practises at sea. Shark and ray populations will also be rebuilt thanks to increased research, effective fisheries management and appropriate protections for all elasmobranch species which visit and use our South West coast and seas.

ACTIONS

ACTIONS A40 MITIGATE BYCATCH AND ENTANGLEMENT

- **Develop new and continue existing collaborative projects** between conservation partners and fisheries bodies to mitigate, monitor and research bycatch. Explore alternative technologies, gear modification, responsive husbandry and innovative fisheries methods, such as SharkGuard.
- **Encourage uptake of Remote Electronic Monitoring** and cameras to enable fully documented fisheries which can in turn improve the monitoring of bycatch of sharks and rays.
- **Undertake community beach cleans** to remove fishing gear from local beaches and encourage the use of the Fishing for Litter facilities (currently located at 16 South West ports and harbours engaged with the scheme) or collection schemes through organisations such as Fathoms Free and companies such as Waterhaul. This will help reduce entanglement in ghost gear.
- **Encourage all water users to sign up to Clean Cornwall's Blue Litter Project**, a marine litter collection campaign across Cornwall in the tourist season to help track and collect litter from Cornwall's remote marine spaces.

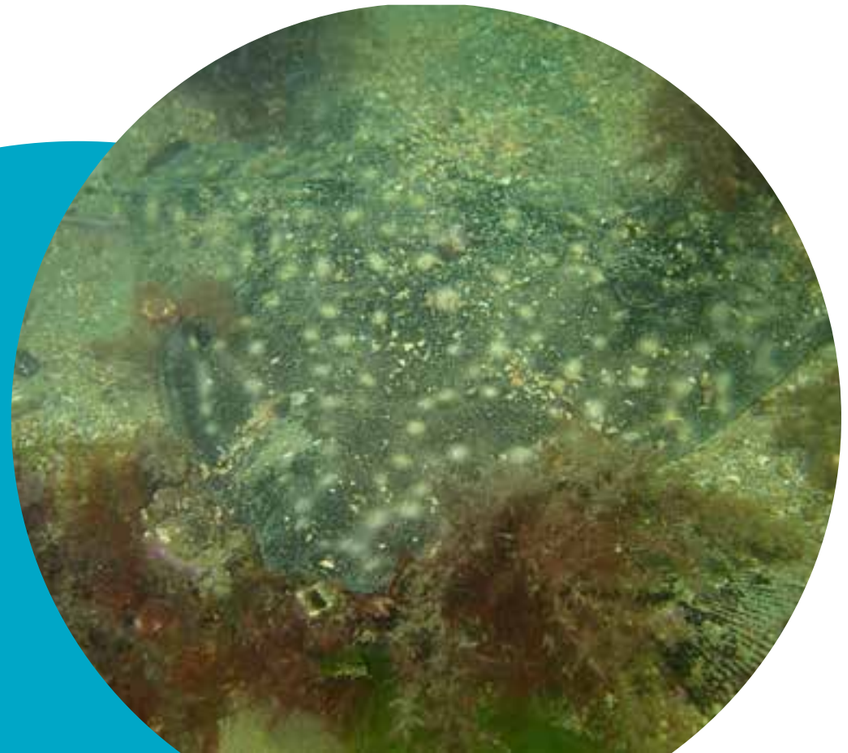
Back to Contents

ACTIONS A41 INCREASE STEWARDSHIP AND PUBLIC AWARENESS

- **Establish and deliver a shark and ray public awareness campaign** around the ecological importance of the species, existing codes of conduct and handling practises.
- **Increase the number and distribution of best practice resources** at popular access points for a range of water users including swimmers, snorkellers, anglers, boat users, kayak and SUP users and swimmers. Materials may include information boards, leaflets and stickers (See Nature Recovery Strategy action A66)
- **Encourage all sea users** (recreational and commercial) to be Wildlife Safe (WiSE) certified to ensure they understand wildlife law, can interpret wildlife and bird behaviour, understand safe watching practices and know the threats wildlife face, as well as providing access to the latest scientific studies. WiSE to be reviewed and updated to ensure it is as effective as possible.
- **Support statutory agencies and regulators** to deliver effective compliance and enforcement of all environmental regulations and encourage the reporting of infringements to protect wildlife via the Cornwall Marine and Coastal Code Group 24-hour hotline 0345 2012626.

ACTIONS A42 IMPROVE KNOWLEDGE AND EVIDENCE

- **Encourage community members,** particularly from the angling community, to participate in the Shark Trusts Angling Project to improve monitoring and data collection. This will help fill data gaps due to the difficulty in studying elasmobranchs and can inform effective conservation strategies.
- **Undertake research** to identify and work to protect key breeding grounds in the coastal waters of Cornwall and the Isles of Scilly, similar to what has been done for the Flapper Skate in Scotland[4].



NATURE-BASED SOLUTIONS:

- Recreation and sustainable tourism
- Heritage and culture
- Health and wellbeing
- Jobs and investment
- Food supply

ACKNOWLEDGMENTS

Thank you to our CIOS MNRF Shark and Ray Working Group for their support in the production of this chapter: Angela Gall, Emily Theobald, Harriet Allen, Jenny Wright, Jeronen van der Kooij, Kaja Curry, Simon Thomas, Tom Brereton, and Tom Horton.

SEABIRDS AT SEA

Cornwall and the Isles of Scilly is an internationally important region for seabirds, from those breeding along our rugged coastline to the populations feeding in our waters during their annual migratory travels.

EVERYWHERE YOU LOOK WHEN BY THE COAST OR ON THE SEA, YOU WILL SPOT SEABIRDS OF DIFFERENT FORMS, FROM CRUISING SHEARWATERS TO FLAPPING FULMARS. HIGH ABOVE THE WILD WAVES, GANNETS SOAR ELEGANTLY, THEIR PRISTINE WHITE PLUMAGE GLOWING AGAINST THE DARKER SKY.

The sound of gulls calling on the ocean breeze brings enormous joy and wellbeing to many of us who live by or visit the coast. Seabirds are not merely creatures of the coast; they are the spirit of Cornwall and the Isles of Scilly, embodying the beauty and strength of this ancient and wild land.

Seabirds are an unequivocally important priority both in our Cornwall and Isles of Scilly Nature Recovery Strategy and the Marine Nature Recovery Framework. As a result, they demonstrate the urgent need for us to deliver measures for recovery and protection on land and at sea for these iconic and beautiful creatures.

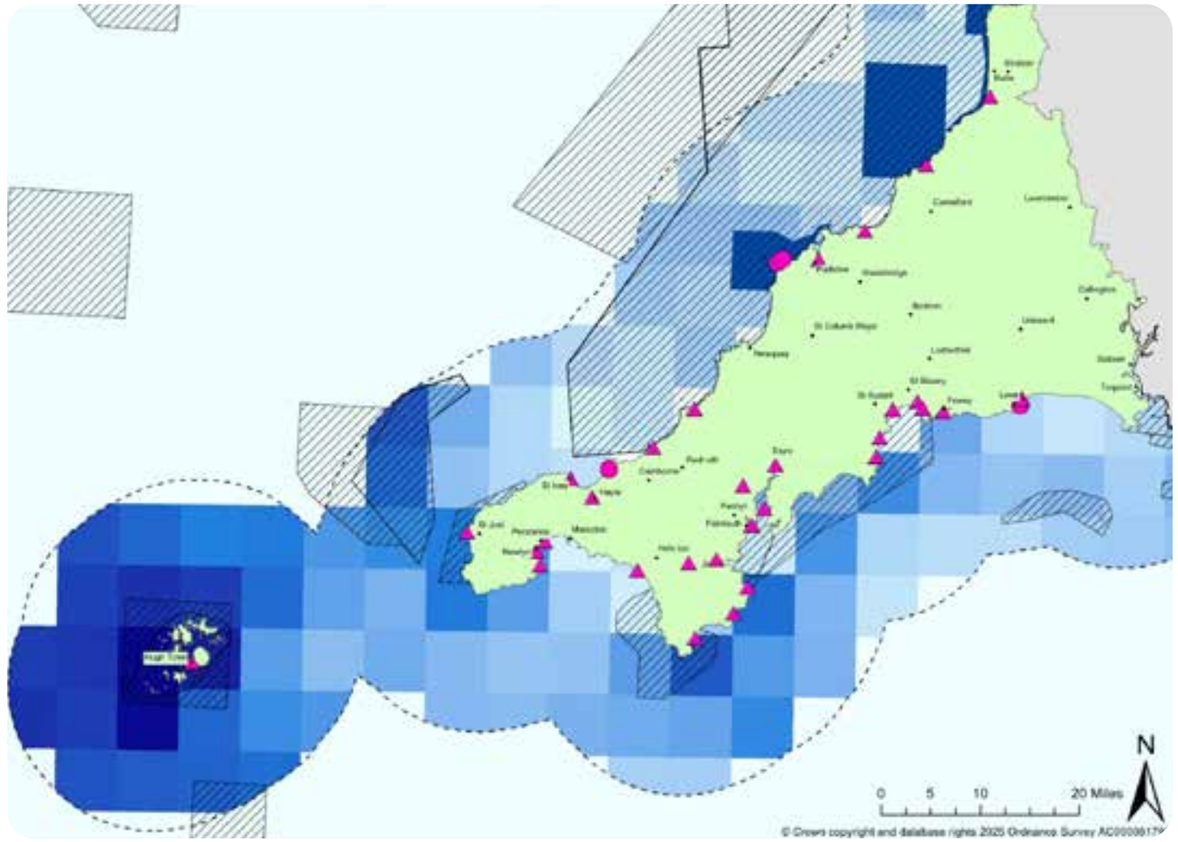
This section of the Framework is looking specifically at seabirds at sea. For information about seabirds on land, particularly actions around giving them space to breed and thrive, free from predators and disturbance, please reference the **CIOS Nature Recovery Strategy** particularly;

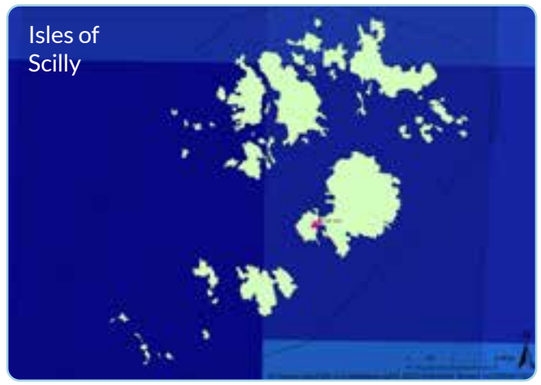
- Nature on the Isles of Scilly and its included 'Species Spotlight: Seabirds'
- Priority 20 - Grow Scilly's Seabird populations.
- Priority 21 - Create and better manage intertidal habitats

Significant work has been done nationally to address the decline of seabird populations in England, such as the 2024 Natural England English Seabird Conservation and Recovery Pathway initiative[1]. There is still significant work to be done regionally, however, particularly around our understanding of how seabirds are using the marine areas in Cornwall and the Isles of Scilly, as well as tackling significant impacts such as disturbance, all of which is addressed in this priority chapter.

MAPPING DATA SOURCE

Seabird records are presented as a density heat map and based on extensive and comprehensive sightings schemes (see Appendix 1). Focused Action Areas were decided by our Seabird Working Group as the Marine Protected Area (MPA) network, and Focused Action Locations as our ports and harbours.





Beaches (Focus Action Locations)
Ports (Focus Action Locations)
12nm Boundary
Focused Action Areas
High
Low

Back to Contents

FACTS

The Falmouth to St Austell Special Protection Area (SPA) is a Marine Protected Area (MPA) covering approximately 259 km². It was designated specifically to protect overwintering waterbirds, including

BLACK-THROATED DIVERS, GREAT NORTHERN DIVERS, AND SLAVONIAN GREBES.

The Isles of Scilly is one of only two sites in England where

MANX SHEARWATER AND STORM PETREL

breed (the other being Lundy).

Seabird assemblages on the Isles of Scilly have

DECLINED BY MORE THAN 27%

since the SPA designation in 2000.

The Isles of Scilly are of national and international importance for

STORM PETREL, EUROPEAN SHAG, LESSER BLACK-BACKED AND GREAT BLACK-BACKED GULLS.

THE BALEARIC SHEARWATER

is a medium-sized seabird that is critically endangered. However, many can be seen feeding in the waters between Cornwall and the Isles of Scilly from August to end of October.

PRESSURES ON SEABIRDS AT SEA

Climate change

Significantly impacts seabirds, affecting their habitats, food sources, and breeding success. Increased frequency and severity of extreme weather events can disrupt feeding, breeding and even lead to increased mortality at sea. This was seen in 2014 when a single storm washed up 1,657 dead seabirds around Cornwall[2]. Warming seas and a shift in ocean mixing and nutrient distribution influences ocean stratification which in turn has profound implications for the marine ecosystems on which seabirds depend. Changes in fish stocks distribution affects seabird feeding behaviours, a particular problem in restricted-range feeders like Kittiwakes. If seabirds are unable to feed and build up fat reserves this can impact breeding success, leading to eggs and chicks which are prone to predation, and migration success.

Fisheries management gaps

Although bycatch of seabirds continues to remain a threat, the reduction in food source for seabirds is deemed more of a priority pressure in Cornwall and the Isles of Scilly. Seabird distribution is strongly influenced by local and regional food resources. Fisheries targeting forage fish like Anchovy and Sand Eel compete directly with seabirds, impacting their breeding success and survival rates[3]. Fisheries Management Plans (FMP) offer the opportunity to ensure the sustainable use of fishery resources while balancing ecological, economic, and social objectives, however data used in the assessments is often outdated or incomplete. FMP are not yet established for important seabird prey species or are not site specific enough to ensure effectiveness for those that are. Finally, damage to benthic habitats through certain fishing practises can significantly impact seabirds that are reliant on them for feeding. Protecting from disturbance, such as fishing or development, and managing key spawning and nursery areas for forage fish will be important for seabirds.

Disturbance

Recreational activity at sea is increasing, particularly pursuits such as kayaking, coasteering, wild swimming and boating. Unfortunately, if not done responsibly, this can negatively impact seabirds. A particular problem for seabirds at sea is disturbance of rafting birds. Rafting is a crucial resting behaviour for seabirds and any disruption can cause the birds to waste vital energy as they take flight, which in turn can affect their overall health and breeding success.

Pollution

While records of oiled birds are declining in Cornwall and the Isles of Scilly[4], plastic pollution, entanglement in discarded fishing nets and gear, and other toxins absorbed and concentrated in plastics are increasing threats. Direct impacts cause death, poor productivity, or injury to birds. Nutrification and other human pollution can cause hypoxic conditions, especially in sheltered bays, damaging habitats and food sources and can result in blooms of toxic algae causing deaths in seabirds.

Disease risks

Bird flu and other diseases pose significant potential threats to our seabirds, such as Botulism. Bird flu has caused significant declines in species such as Gannets and Great Skua. Although bird flu hasn't significantly impacted our breeding colonies in the South West significantly, it is still a threat to be considered.

Data gaps

Outdated forage fish data hinders understanding of spawning and nursery grounds in the South West, while seabird feeding patterns in the Celtic Sea remain unclear. An additional data gap is the natural capital value of seabirds to the economy in Cornwall and the Isles of Scilly. Bycatch continues to be a concern for seabirds, particularly in netting, although rates are poorly monitored and understood. This lack of research and understanding hinders effective management decisions to enable population recovery.

Back to Contents

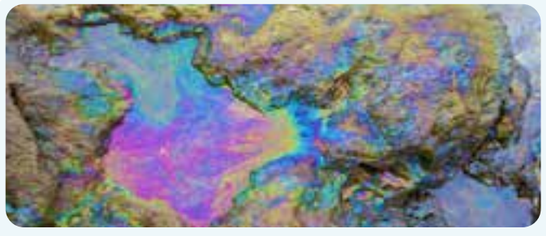
INSPIRATION

ST IVES BAY BYELAW

A spatial and temporal intervention measure developed by the Cornwall Inshore Fisheries and Conservation Authority (IFCA) to reduce bycatch and protect vulnerable seabird species. This important byelaw has helped to develop other bycatch measures, such as those delivered in the Falmouth Bay to St Austell Bay Special Protection Area (SPA).

FIND OUT MORE

St Ives Bay Gill net fishery.doc



OIL POLLUTION EMERGENCY RESPONSE PLANS

Oil pollution was once deemed a significant threat to seabirds in Cornwall and the Isles of Scilly. In recent years, however, that threat has lessened likely due to Cornwall's comprehensive Oil Pollution Emergency Response Plans which provides a strategic and effective response to address potential oil spills and minimise their impact on the environment.

FIND OUT MORE

Coastal Pollution Incidents - Cornwall Council

OFFSHORE BREEDING PLATFORMS

One of the strategic compensatory measures available to offshore wind developers are artificial nesting structures, specifically to mitigate against adverse effects on Kittiwakes. These platforms provide alternative nesting sites for these seabirds, potentially reducing competition and offering closer proximity to feeding areas. The installations have shown promising results[5], but ongoing research and careful management are essential to maximise their benefits and minimise potential drawbacks.

FIND OUT MORE

Offshore wind development: library of strategic compensatory measures - GOV.UK

ISLES OF SCILLY SPECIAL PROTECTION AREA (SPA)

The designation of the Isles of Scilly Marine SPA in 2001 is a good example of increasing the coherence of the network of protected sites due to its ecological significance, geographic and habitat connectivity, integration with other designations, and collaborative management.

FIND OUT MORE

UK9020288.pdf

TAKING ACTION FOR SEABIRDS AT SEA

Nature-rich seascapes are mosaics of a mixture of habitats and species in an open-source system with connectivity from the coast out to sea. Make sure you look at **all** the other relevant sections of this Framework to inspire you when shaping your plans.

REFER TO

- Marine nature recovery principles.
- All other priorities and actions.

OUR VISION FOR SEABIRDS AT SEA

Populations of seabirds at sea in Cornwall and the Isles of Scilly will recover thanks to a healthy functioning marine environment that provides adequate food and safe foraging and loafing areas, that will in turn increase their resilience to climate change. We will have a better understanding of the social and economic importance of seabirds through their contributions to nutrient cycling and the tourism industry, and champion their cultural importance.

ACTIONS

ACTIONS A43 REDUCE WILDLIFE DISTURBANCE

- **Undertake recreational pressure assessments around sensitive seabird sites** to inform the creation of Recreational Mitigation Strategies, particularly around non-regulated activities such as kayaking and recreational boating. These should include soft and hard measures to successfully reduce disturbance.
- **Encourage all sea users (recreational and commercial) to be Wildlife Safe (WiSE) certified to ensure they understand wildlife law**, can interpret wildlife and bird behaviour, understand safe watching practices and know the threats wildlife face, as well as providing access to the latest scientific studies. WiSE to be reviewed and updated to ensure it is as effective as possible.
- **Support partnerships** such as the Cornwall Marine and Coastal Code Group to set up proactive Operation Seabird annual events raising awareness of best practice for cetaceans, seals and seabirds with all water users.
- **Support statutory agencies and regulators to deliver effective compliance and enforcement** of all environmental regulations and encourage the reporting of infringements to protect wildlife via the Cornwall Marine and Coastal Code Group 24-hour hotline 0345 2012626. If the infringement relates to an incidence to a bird associated with a protected site (SSSI/ SPA) or a schedule1 breeding bird people should contact the police via 101 after the event or 999 if it is still occurring.
- **Investigate the potential of an AIS requirement and licensing for all wildlife operators** in Cornwall and the Isles of Scilly, working in partnership with ports and harbours and the Maritime and Coastguard Agency.

Back to Contents

ACTIONS A44 FISHERIES MANAGEMENT

- **Ensure a co-ordinated regional input** into developing Fisheries Management Plans for forage fish via regional fisheries stakeholder groups. Encourage a precautionary approach that considers the needs of seabirds (e.g., considering forage fish spawning habitats).
- **Identify target areas** to improve seabed habitat management or habitat recreation, with a focus on forage fish spawning and nursery areas, to improve the productivity of seabird food prey such as Sand Eels.
- **Consider the proposal for a Highly Protected Marine Area** (HPMA) within the Falmouth Bay to St Austell Special Protection Area (SPA) to support effective habitat protection for the associated seabird species for which the existing SPA has been designated.
- **Encourage uptake of Remote Electronic Monitoring and cameras** to enable fully documented fisheries which can in turn improve the monitoring of bycatch of seabirds.
- **Undertake research** into bycatch mitigation monitoring through collaborative projects between conservation and fisheries bodies, in line with the Marine Wildlife Bycatch Mitigation Initiative. Explore alternative technologies and techniques such as gear modification and innovative fisheries methods such as 'scarybird'.

ACTIONS A45 MONITORING AND RESEARCH

- **Support research which Is supporting the location of key areas for seabirds at sea** in Cornwall and the Isles of Scilly and why they are important, so that we have greater confidence in the sustainable use and development of our seas. This research will include identification of key foraging areas, and mapping and tracking seabird movements to inform offshore development, impact mitigation and marine protection plans.
- **Establish long-term monitoring of seabird food prey items** in the marine SPAs so they can be effectively managed. This should include appropriate spatial and temporal monitoring across the sea area to identify important spawning and nursery grounds.
- **Continue to support and encourage citizen science recording schemes** to expand research capability and engage wider communities. Champion schemes such as Cornwall Wildlife Trust's Seaquest South West project, British Trust for Ornithology (BTO) Seabird Monitoring Programme, Cornwall Birds surveys, and the Isles of Scilly seabird surveys.

ACTIONS A46 TACKLE POLLUTION

- **Continue to review and update Oil Pollution Emergency Response Plans** produced by both Cornwall and Isles of Scilly Councils and harbour authorities to reduce the impact of threats such as oil spills. Consider developing further plans and strategies to tackle other pressures such as pathogenic outbreaks.
- **Undertake community beach cleans** to remove fishing gear from local beaches and encourage the use of the Fishing for Litter facilities (currently located at 16 South West ports and harbours engaged with the scheme) or collection schemes through companies such as Waterhaul. This will help reduce entanglement in ghost gear.
- **Encourage all water users to sign up to Clean Cornwall's Blue Litter Project**, a marine litter collection campaign across Cornwall in the tourist season to help track and collect litter from Cornwall's remote marine spaces.

ACTIONS A47 DISEASE PREVENTION

- **Report suspected Avian Flu (HPAI) in wild birds** to Defra via https://www.gov.uk/guidance/report-dead-wild-birds or by phone: 03459 33 55 77
- **Monitor the impact of bird flu** by reporting dead seabirds to Cornwall Wildlife Trusts Marine Stranding Network via their hotline on 0345 2012626.

ACTIONS A48 MARINE PROTECTED SITES

- **Complete a Special Protection Area sufficiency review f**or protected sites at sea for seabirds to ensure that important loafing and foraging areas for seabirds are adequately.
- **Add seabird features to existing Marine Conservation Zones** (MCZs) where they are associated with seabird colony loafing areas or important foraging areas.

SPECIES

- Balearic Shearwater
- Fulmar
- Manx Shearwater
- Storm Petrel
- Cormorant
- European Shag
- Lesser Black-backed Gull
- Herring Gull
- Great Black-backed Gull
- Kittiwake
- Common Tern
- Roseate Tern
- Sandwich Tern
- Guillemot
- Razorbill
- Atlantic Puffin
- Black-throated Diver
- Great-northern Diver
- Slavonian Grebe

NATURE-BASED SOLUTIONS

- Recreation and Sustainable Tourism
- Heritage and culture
- Health and wellbeing
- Jobs and investment

ACKNOWLEDGMENTS

Thank you to our CIOS MNRF Seabird Working Group for their support in the production of this chapter: Alice Trevail, Bruce Taggart, Grace Jones, Jenny Wright, Katherine O'Brien, John Peacock, Jaclyn Pearson, Kaja Curry, Kristian Metcalfe, Mark Grantham, Paul St Pierre, Richard Sherley, Sabiya Sheikh, and Sarita Whitehead.

Back to Contents

INTERTIDAL

Our intertidal habitats are the interface between land, rivers and sea. Our estuaries, rocky shores, sandy and boulder beaches are home to an abundance of resilient wildlife living in some of the most extreme of conditions.

IN THE ISLES OF SCILLY, SHINGLE BEACHES OFFER IMPORTANT BREEDING GROUNDS FOR RINGED PLOVER. THESE RED LISTED BREEDING BIRDS HAVE BEEN LOST FROM MOST OF THE SOUTH WEST.

In Cornwall, our estuaries link shoreline habitats to our freshwater rivers, where migratory fish, like Salmon and Brown Trout come to spawn. Here the intertidal seagrass beds provide nurseries for many of our commercial fish species, whilst also storing carbon. As the tide goes out, saltmarsh and mudflats are exposed. Wading birds feed on the invertebrates that live in the mud. Where our estuaries are given space, mudflats make way into lush green saltmarshes filled with plants like Samphire and Sea Lavender. These habitats can store carbon and protect our farmland and communities from coastal erosion by acting as a buffer between us and stormy seas. Combined, these habitats are particularly important for our breeding and overwintering birds.

In the Cornwall and Isles of Scilly Local Nature Recovery Strategy (NRS), intertidal habitats are recognised as critical zones for both biodiversity and climate resilience and are a Local Priority. The full chapter for Intertidal can be found here.

CLICK HERE TO READ THE CIOS NATURE RECOVERY STRATEGY

Back to Contents

LOCATION PRIORITY - ISLES OF SCILLY

Found 28 miles off the South West tip of Cornwall, the remote Isles of Scilly is made up of five inhabited islands and roughly 195 uninhabited rocky islets covering 1,637 ha.

HOME TO AROUND 2,100 PEOPLE THE MARINE ENVIRONMENT IS INTEGRAL TO LIFE ON THE ISLE OF SCILLY, WITH BIODIVERSE WATERS UNDERPINNING THE LOCAL ECONOMY THROUGH A VIBRANT TOURISM AND FISHING INDUSTRY AND SHAPING THE CULTURAL IDENTITY OF THE ISLAND COMMUNITIES.

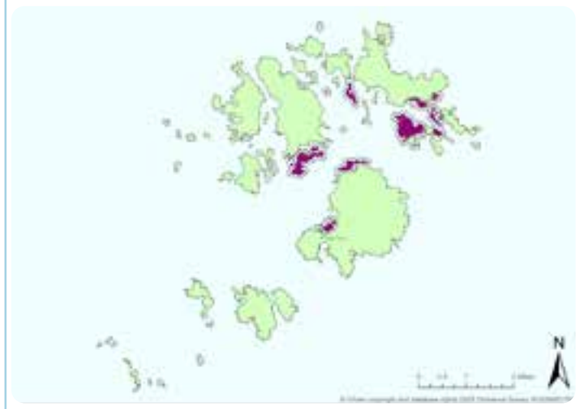
The Isles of Scilly is situated within the oceanic front of the Atlantic Ocean, English Channel and Celtic Sea, providing highly productive mixed currents and a unique environment where both warm-temperate and cold temperate marine species coexist. This makes the Isles of Scilly a marine biodiversity haven, supporting a distinctive mosaic of marine habitats and species.

Between islands, the Isles of Scilly has some of the richest shores, particularly the under-boulder communities and the reefs which are home to fragile sponge and anthozoan communities. Shallow sandy areas support extensive seagrass beds of predominantly eelgrass, providing a crucial nursery habitat for fish, molluscs and sea anemones. Additionally, subtidal sandbanks surround the archipelago supporting species such as bivalves and molluscs, whilst rocky reefs provide refuge for encrusting barnacles and anemones.

The productive waters and a robust food web allow for populations of cetaceans and sharks to populate pelagic waters. Uninhabited islands, such as Samson and Annet are vital seabird nesting areas for species such as Puffin and Manx Shearwater and provide undisturbed refuge for pupping and resting Grey Seals.

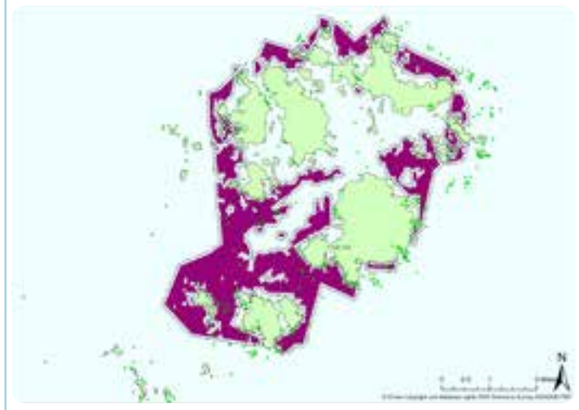
Recognised for their ecological significance the islands are protected through several conservation designations including a vast Special Protection Area (SPA), RAMSAR sites, Special Area of Conservation (SAC) and a Marine Conservation Zone (MCZ) made up of 11 sections. Due to their global importance to marine biodiversity, the Isles of Scilly is recognised as a priority location in its own right.

SEAGRASS



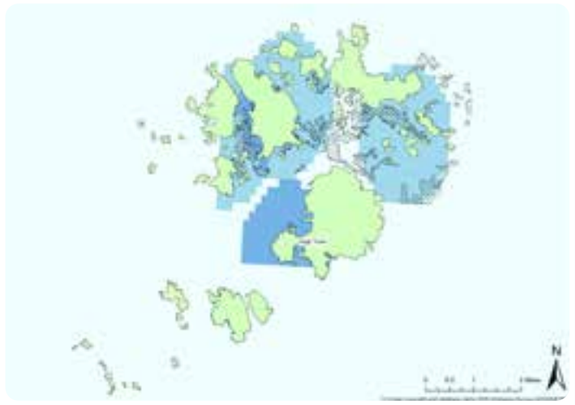
MAERL

KELP ON REEF

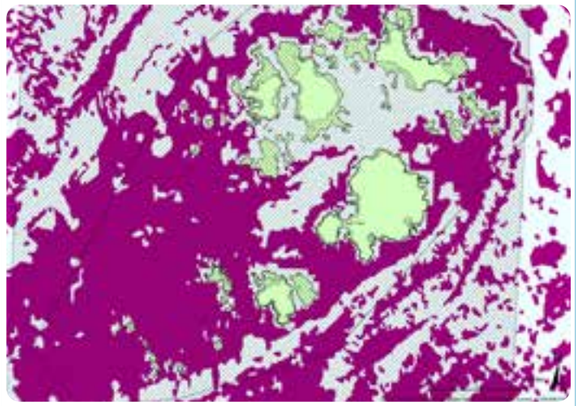


DUE TO THEIR GLOBAL IMPORTANCE TO MARINE BIODIVERSITY, THE ISLES OF SCILLY IS RECOGNISED AS A PRIORITY LOCATION IN ITS OWN RIGHT.

NATIVE OYSTERS

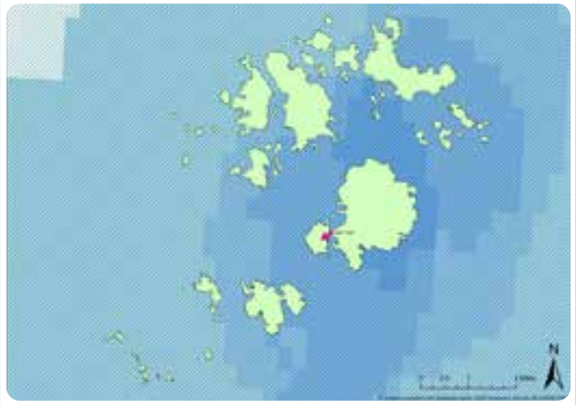


POLYCHAETES

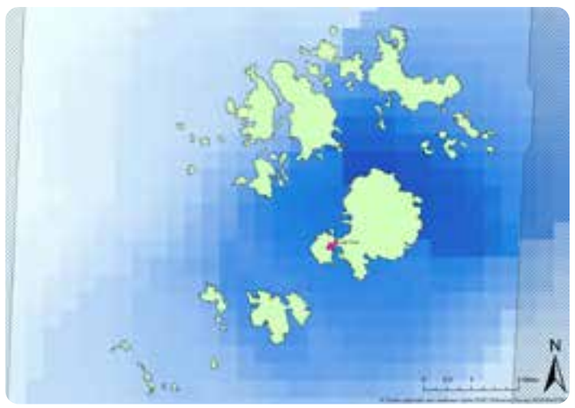


TUNA

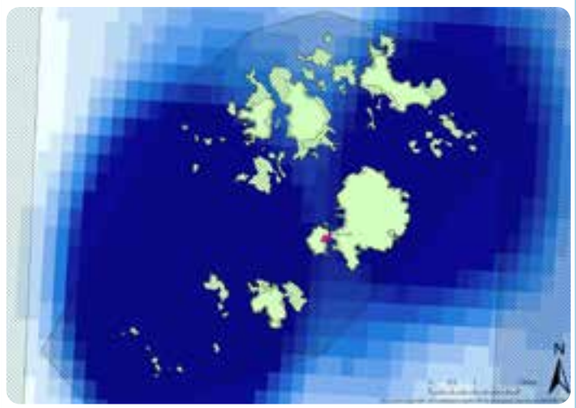
SHARKS AND RAYS



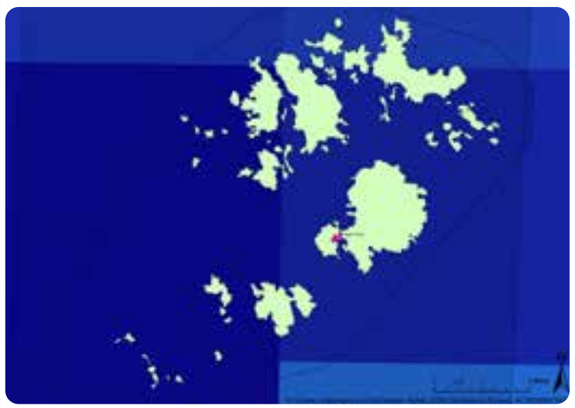
CETACEANS



SEALS



SEABIRDS



Back to Contents

FACTS

THE ISLES OF SCILLY SPECIAL PROTECTION AREA (SPA) COVERS THE ENTIRE ARCHIPELAGO

and is a vital habitat for rare and vulnerable seabird species, including the Storm Petrel and Lesser Black-backed Gull.

The area supports over 20,000 breeding seabirds, qualifying the area as an

IMPORTANT BIRD AND BIODIVERSITY AREA (IBA)

by BirdLife International.

13,333 HA ARE DESIGNATED AS A SPECIAL AREA OF CONSERVATION (SAC),

established to protect coastal and intertidal habitats, including sandbanks, mudflats, sandflats, reefs, and species like the Grey Seal.

5,800 HA ARE DESIGNATED AS A MARINE CONSERVATION ZONE (MCZ)

comprised of 11 sites around the islands. The MCZ aims to protect various subtidal habitats and species, such as sea squirts, the European Crawfish and Stalked Jellyfish.

Hosts some of the UK's most extensive seagrass meadows, primarily composed of

EELGRASS (ZOSTERA MARINA).

The Isles of Scilly is home to the incredibly rare and endangered

FAN MUSSELS (ATRINA FRAGILIS).

This mussel has one of the largest shells in Britain, growing up to 50 cm.

PRESSURES ON THE ISLES OF SCILLY

Pollution

Currently, there is no public wastewater network for collecting sewage on St Martins, St Agnes, and Bryher which instead rely on local private systems and septic tanks, which pose a threat to groundwater contamination. Cruise ships pose an unknown threat to the marine environment, water quality, and air quality. It is currently legal for cruise ships to dump untreated sewage into the ocean if disposed of at least 3 miles from the coastline[2]. With extreme weather events expected to continue, raw sewage could be washing back towards our fragile marine habitats during strong tides, currents and storms. Recreational boating also offers the risk of pollution, with small amounts of hydrocarbon spilt into the water every time a small outboard motor is started. Additionally, grey- and blackwater expelled from recreational boats may be a potentially significant source of pollution. With an estimated 100,000 people visiting the islands each year[1], what could be considered a relatively small effect will build to have a large-scale impact. Finally, as the Isles of Scilly is a popular holiday destination, increasing visitor numbers causes an increase in litter which can end up in the sea.

Disturbance

Every year thousands of people flock to Scilly to enjoy the rugged coastline, white sandy beaches, and crystal-clear blue waters. The Isles of Scilly holds the second highest annual vessel density (considered to 12 nm) in the South West[1]. Water sports are incredibly popular during the summer months with many tourists opting to hire small motorboats to get to some of the harder-to-reach places, which can unintentionally damage fragile habitats. Scilly is home to many vulnerable species ranging from seagrass beds to vulnerable breeding seabird colonies all of which are susceptible to disturbance - whether from commercial or recreational boating, or dog walkers.

Development

With increasing numbers of tourists visiting Scilly each year and the looming threat of sea level rise infiltrating local freshwater sources, there is a need for water security on the islands. The proposed development and construction of desalination plants on each of the off islands is undoubtedly important in sustaining the local population. However, there are some associated risks to the natural environment. Brine waste, a biproduct of desalination, contains incredibly high concentrations of salt and other minerals and can accumulate in and around disposal areas due to its high-density. This can smother bottom-dwelling species, potentially altering coastal ecosystems and impacting marine health.

PRESSURES ON THE ISLES OF SCILLY

Climate Change

poses a significant threat to island communities, increasing the risk of flooding and the risk of contamination of local freshwater resources. Climate change may also inflict more extreme weather events, consequently increasing coastal erosion and damage to fragile marine habitats such as seagrass. A rising concern is the impact of marine heatwaves as global sea temperatures continue to rise, causing serious impacts to the health of our marine ecosystems and wildlife. Marine heatwaves can disrupt the growth rate and reproductive systems of marine organisms, impact nature-based solutions, and cause large-scale changes to species densities and distribution. Whilst these events will potentially have devastating impacts on the local marine flora and fauna the indirect impacts these events will have on the local economy could potentially pose a real threat to the island communities.

Invasive Non-Native Species (INNS)

With a revolving door of commercial and recreational boating activities, there is a serious potential for invasive marine species to be introduced into our local environment. An INNS of particular concern is the commercially important Pacific Oyster, which is a growing threat to native marine ecosystems in the UK. Increasing sea surface temperature is a major factor in the growth and expansion of Pacific Oysters. Wireweed (Sargassum muticum), an invasive Pacific brown seaweed has also been observed at low levels in intertidal and subtidal habitats. INNS are known to out-compete species for the same food sources, predate native species, smother the seabed or other surfaces and physically alter the habitat through their activities or presence.

INSPIRATION

IOS INSHORE FISHERIES AND CONSERVATION AUTHORITY (IFCA) VOLUNTARY MARINE CODES OF CONDUCT

An integral management strategy for the Isles of Scilly are the voluntary measures that have been agreed within the Marine Conservation Zone (MCZ) boundaries. These include:

- No diving for shellfish or other marine species
- Anchoring restrictions for vessels over 10 m
- A three-month commercial fishing hiatus
- Voluntary v-notching of lobsters
- Two seagrass non-ground disturbance sites

FIND OUT MORE

Welcome to the Isles of Scilly Inshore Fisheries and Conservation Authority: Isles of Scilly IFCA

ISLES OF SCILLY SEABIRD RECOVERY PROJECT

A partnership initiative aimed at reversing the decline of seabird populations on the Isles of Scilly. Its primary focus is the removal of rats, a significant predator which poses a threat to ground-nesting seabirds such as the Manx Shearwater and European Storm Petrol. With the newest phase including the inhabited islands of Bryher, Tresco and St Martin's and surrounding uninhabited islands, the group focuses on local engagement and awareness of seabird conservation.

FIND OUT MORE

Isles of Scilly Seabird Recovery Project | Isles of Scilly Wildlife Trust

FOOTPRINT ECOLOGY RECREATIONAL DISTURBANCE REPORT

Commissioned by the Isles of Scilly Wildlife Trust, this study explored the potential interactions between recreation and nature conservation around the Isles of Scilly. The study highlighted the following as the main potential risks and impacts from recreational activity to marine wildlife:

- Disturbance to breeding birds including seabirds and beach-nesting waders
- Damage to seagrass beds, particularly from anchoring
- Risk of fire to heathland and dune habitats
- Risk of non-native species (predominantly rats) from islands otherwise currently clear of them
- Disturbance to Grey Seal
- Disturbance and boat collision risk to whales

The study outlines these key issues, the most sensitive locations and suggests future monitoring, research and adaptive strategies that may be implemented to achieve cohesive and effective solutions.

FIND OUT MORE

Recreation and the environment on the Isles of Scilly | Isles of Scilly National Landscape

Back to Contents

TAKING ACTION FOR THE ISLES OF SCILLY

OUR VISION FOR THE ISLES OF SCILLY

The Isles of Scilly remains a beautiful and wild collection of islands, where both marine and terrestrial flora and fauna thrive. The islands remain an area where residents and the environment work cohesively, allowing nature and the local culture to co-exist. As a pivotal part of the economy, tourists are welcome to enjoy and explore the scenic landscape sustainably. Together, we must continue to support a world class hotspot for biodiversity and allow the area to continue flourishing for future generations to enjoy.

REFER TO

- Marine nature recovery principles.
- All other priorities and actions.

ACTIONS

ACTIONS A49 REDUCE POLLUTION

- **Improve wastewater infrastructure and secondary treatment**, to reduce raw sewage discharges into the marine environment.
- **Develop and deliver a litter management plan**, which can work alongside the new Waste Management Plan, for all five inhabited islands to promote a better understanding of litter and plastic pollution hotspots.
- **Undertake community beach cleans** to remove fishing gear from local beaches and get a Fishing for Litter facility registered on the Isles of Scilly. This will help reduce entanglement in ghost gear.
- **Educate boat owners and seasonal tourists on the impact of expelling black and grey water** on the marine environment. Install facilities such as blackwater waste stations to manage localised expulsion.
- **Promote sustainable and inclusive ideas for mitigating oil pollution**, such as implementing drip trays, in-line bilge filters and closed toilet systems such as a holding tank or chemical toilet (RYA).

Back to Contents

ACTIONS A50 PREVENT DISTURBANCE

- **Encourage all sea users (recreational and commercial) to be Wildlife Safe (WiSE) certified to ensure they understand wildlife law**, can interpret wildlife and bird behaviour, understand safe watching practices and know the threats wildlife face, as well as providing access to the latest scientific studies. Implement a new 'gold standard' qualifying scheme specifically designed for the Isles of Scilly.
- **Increase the number of areas seasonally closed to protect nesting seabirds** and improve and promote community and visitor awareness of the sensitivity of such sites to increase support for and adherence to access restrictions.
- **Support the continuation of long-term citizen science monitoring** for sensitive seal sites and implement remote seal cameras for long-term monitoring in order to quantify key sites for pupping and resting that are most at threat.
- **Increase the profile of seagrass locations** and raise awareness for recreational and commercial boat users on the impacts of boat landing, anchoring and sediment disturbance on sensitive areas.
- **Raise awareness and support for, and ensure residents and visitors adhere to, current codes of conduct for dog owners**. This currently includes a seasonal dog ban on Porthcressa and Porthmellon beaches on St Mary's and the use of leads on certain streets in Hugh Town between 8 am and 6 pm. Expand these to other sensitive wildlife locations across all islands. Consider a range of interventions such as set beaches that are promoted as 'non-dog' beaches, highlight dog friendly areas for walking both on and off leads and implement dog rangers in sensitive areas. When dogs are transported on small boats to islands off St Mary's, ensure each dog owner is given advice on requirements for dogs off lead.
- **Promote wildlife codes of conduct and other educational materials at strategic locations**. This could include key vessel landing and access points, such as toilet/shower blocks, food and drink outlets etc. Visitors bringing kayaks, stand-up paddleboards and similar equipment (including inflatables) on the ferry or by air should receive targeted messaging at booking and when collecting their equipment.

ACTIONS A51 RESEARCH AND MONITORING

- **Identify and map potential high integrity investment ready projects** to capitalise on private investment and funding.
- **Support the MMO non-licensable activity assessment**.
- **Consider the use of designations** such as National Marine Parks to connect communities and water users with the multiple protected area designations and the wildlife they are protecting.
- **Encourage better data gathering** to measure hotspots of disturbance, such as through citizen science programmes like Seaquest.
- **Establish a Shoresearch and Seasearch programme for intertidal and subtidal marine areas** to continue to gather extensive and long-term monitoring data sets in partnership with local communities. Surveys could build knowledge of less understood habitats such as maerl which is found in the island waters. Use the findings to improve communication about the richness of these beautiful habitats, such as via VR headsets.
- **Funding for research into marine water quality** in key seagrass locations and the exact sources of pollution which may be present.
- **Conduct research into historical Native Oyster populations** and distribution across the Isles of Scilly through establishing a citizen science monitoring programme to inform where restoration efforts could be focused.
- **Undertake better monitoring** to gain an understanding of cruise ship discharges (either ballast water or sewage) and their impact on the marine environment.

ACTIONS A52 INVASIVE NON-NATIVE SPECIES

- **Promote education on invasive species management for recreational boat users** including boat washing with biodegradable detergents and where possible removing attached matter and disposing of it effectively when travelling between the Isles of Scilly and other countries.
- **Continue to support the seabird recovery project**, expanding rat removal to more islands whilst continuing efforts and monitoring of existing rat-free islands. Engage islanders and visitors with seabird recovery, and ensure biosecurity is embedded within the culture of local communities and businesses.

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REFERENCES

MARINE NATURE OF CORNWALL AND THE ISLES OF SCILLY

1. Cornwall Wildlife Trust and Natural England (2023) Blue Carbon Mapping Project. URL: **https://www.cornwallwildlifetrust.org.uk/news/one-uks-largest-known-seagrass-beds-discovered-st-austell-bay**
2. Cornwall Good Seafood Guide, 2024; Marine Conservation Society, 2025
3. Cornwall Council, Blue Natural Capital Project; Cornwall Council Fal and Helford SAC Recreation Mitigation Progress Report, 2023
4. Cornwall Birds (2024) Cornish choughs break new record this summer. URL: **https://cbwps.org.uk/choughs-2024**

STATE OF OUR SEAS

1. Hiscock, K and Earll, B (2023) South-West Marine Ecosystems (The State of South-West Seas) Report for 2023URL: **https://swmecosystems.co.uk/annual-reports**
2. Oceana in the UK (2023) Taking Stock: The state of UK fish populations 2023. Report produced by Macalister Elliott and Partners Ltd. for Oceana. St Austell, UK. DOI: 10.5281/zenodo.8312508
3. Exeter, OM, Axelsson, M, Branscombe, J, et al. (2020) A synthesis of the current state of marine biodiversity knowledge in the Isles of Scilly, UK. Journal of the Marine Biological Association of the United Kingdom. 104:e84. DOI: 10.1017/S0025315424000699
4. Cornwall Good Seafood Guide, 2024; Marine Conservation Society, 2025
5. Cornwall Seal Group Research. About seals. URL: **https://www.cornwallsealgroup.co.uk/about-seals**
6. Cornwall Wildlife Trust (2023) Seaquest Southwest Annual Report 2023. URL: **https://www.cornwallwildlifetrust.org.uk/what-we-do/our-conservation-work/at-sea/seaquest-southwest**
7. Heaney, V, Cowen, J, St Pierre, P, and Odgers, H, (2024) The status of seabirds breeding in the Isles of Scilly 2023. Isles of Scilly Wildlife Trust, Isles of Scilly National Landscape, Natural Capital Ecosystem Assessment, RSPB, Natural England
8. Nelms, S, et al., (2020) Investigating the distribution and regional occurrence of anthropogenic litter in English marine protected areas using 25 years of citizen-science beach clean data. Environmental Pollution, Volume 263, Part B.
9. Cornwall Wildlife Trust and Cornwall Council (2020) State of Nature Cornwall 2020 Report.

FROM WHAT DOES THE SEA DO FOR US? – NATURE-BASED SOLUTIONS

1. Pye and Alexander (2018) Cornwall Marine and Maritime Growth & Innovation Report 2017-2018. University of Exeter Business School in Cornwall
2. Plunkett-Cole, J, and Curtis, H. (2023) Value of seafood to Cornwall & the Isles of Scilly. Cornish Fish Producers Organisation
3. Natural England (2025) Marine Natural Capital Assessment Guidance. 2025. Available from: Archive for Marine Species and Habitats Data (DASSH). (InteractiveResource). **DASSH - Marine Natural Capital Assessment Guidance**
4. Cornwall Council, Blue Natural Capital Project URL: **Blue Carbon | Let's Talk Cornwall**
5. The South-West Research Company Ltd (2012) South West Coast Path Monitoring & Evaluation Framework - Year 2 Key Findings Summary
6. Surfers Against Sewage. The economic impact of domestic surfing on the United Kingdom. URL: **SAS-Economic-Impact-of-domestic-surfing-on-the-UK-med-2.pdf**
7. National Coastal Tourism Academy, Wildlife and Countryside Link
8. Coastal Community Funds Annual Progress Report. URL: **Coastal Communities Fund: round 5 progress report (England)**
9. Cornwall Council Cornwall and the Isles of Scilly Nature Recovery Strategy. URL: **Cornwall and Isles of Scilly Nature Recovery Strategy | Let's Talk Cornwall**
10. Natural England 2024) Marine Natural Capital at Different Scales. Natural Capital Case Study: **Cornwall and Isles of Scilly URL: cornwall_and_the_isles_of_scilly_visual_summary.pdf**
11. Cornwall and Isles of Scilly Local Enterprise Partnership (2022) Ten opportunities towards a local industrial strategy.
12. University of Exeter (2020) One Coast Evidence Base: An Environmental and Economic Review of the Cornish Coastal Corridor

THE MARINE PROTECTED AREA NETWORK

1. Cornwall Council (2020) Cornwall and Isles of Scilly Environmental Growth Strategy 2020 – 2065. URL: **Environmental Growth Strategy | Let's Talk Cornwall**
2. HM Government The Office for Environmental Protection (2025) Progress in improving the natural environment in England 2023/2024 URL:(**https://www.theoep.org.uk/report/government-has-chance-get-track-meet-legal-environmental-commitments-window-opportunity**)
3. The Wildlife Trust Marine Platform. URL: **UK Marine Protected Areas Recovery Check**
4. Soldant, Mullier, Elliott & Sheehan (2019) Managing marine protected areas in Europe; moving from 'feature-based' to 'whole-site' management of sites. Marine Protected Areas 2020, pp 157 – 181. URL: **Managing marine protected areas in Europe: Moving from 'feature-based' to 'whole-site' management of sites - ScienceDirect**
5. Cornwall Council, Cornwall Wildlife Trust & Natural England (2021) Marine Nature Recovery- First steps towards MNR within Cornwall's inshore seas

SEAGRASS

1. Natural England (2021) LIFE Recreation ReMEDIES – Isles of Scilly Seagrass Survey (NECR358). Natural England Commissioned Reports. URL: **Isle of Scilly - Seagrass - Save Our Seabed**
2. Duarte CM. (2002) The future of seagrass meadows. Environmental Conservation. 2002;29(2):192-206.

MAERL

1. Birkett, D.A., Maggs, C.A. & Dring, M.J. (1998) Maerl. an overview of dynamic and sensitivity characteristics for conservation management of marine SACs. Natura 2000 report prepared by Scottish Association of Marine Science (SAMS) for the UK Marine SACs Project., Scottish Association for Marine Science. (UK Marine SACs Project, vol V.). URL: **http://ukmpa.marinebiodiversity.org/uk_sacs/publications.htm**
2. Cornwall Council, Blue Natural Capital Project URL: **Blue Carbon | Let's Talk Cornwall**
3. Hall-Spencer, J. M., & Moore, P. G. (2000) Scallop dredging has profound, long-term impacts on maerl habitats. ICES Journal of Marine Science, 57(5), 1407–1415.

KELP FORESTS

1. Canvin, M.C., Moore, P.J. & Smale, D.A. (2024) Quantifying growth, erosion and dislodgement rates of farmed kelp (Saccharina latissima) to examine the carbon sequestration potential of temperate seaweed farming. J Appl Phycol 36, 3091–3102. URL: **https://doi.org/10.1007/s10811-024-03323-w**
2. Meynard, A., Espinoza-González, C., Núñez, A. et al. (2021) Synergistic, antagonistic, and additive effects of heavy metals (copper and cadmium) and polycyclic aromatic hydrocarbons (PAHs) under binary and tertiary combinations in key habitat-forming kelp species of Chile. Environ Sci Pollut Res 28, 18300–18307 URL: **https://doi.org/10.1007/s11356-021-13261-6**

NATIVE OYSTERS

1. Thurstan, R.H., McCormick, H., Preston, J. et al. (2024) Records reveal the vast historical extent of European oyster reef ecosystems. Nat Sustain 7, 1719–1729 URL: **https://doi.org/10.1038/s41893-024-01441-4**
2. Cornwall Inshore Fisheries and Conservation Authority (CIFCA) Fal Fishery : URL: **Fal Fishery : Cornwall Inshore Fisheries and Conservation Authority (CIFCA)**
3. zu Ermgassen, P., van den Brink, A., Bromley, C., Brown, J., Colsoul, B., Fabra, M., Frankicc, A., Glover, A., Hansen, J. H., Khan, J., Alves Monteiro, H. J., Mortensen, S., Pogoda, B., Renton, D., Sanderson, W., & Strand, Å. (2020) Understanding Biosecurity in Native Oyster Restoration. In Z. E. P. S. E., G. C., D. A., C. B., F. M., S. W. G., S. Å., & P. J. (Eds.), European Guidelines on Biosecurity in Native Oyster Restoration (pp. 1-18). Zoological Society of London.

POLYCHAETES IN MUD AND REEF

1. D.W. Moore, T.M. Dillon, B.C. Suedel (1991) Chronic toxicity of tributyltin to the marine polychaete worm, Neanthes arenaceodentata, Aquatic Toxicology. Volume 21, Issues 3–4., Pages 181-198, ISSN 0166-445X

SEALS

1. Seal Research Trust Website URL: **Seal Research Trust**
2. Katie Bellman, Rebecca Allen, Michael Hunt and Sue Sayer (2022) Defra Green Recovery Challenge Fund URL: **People Protecting Precious Places 2022**
3. St Andrews University (2020) URL: **Sea Mammal Research Unit Special Committee on Seals Report 2020**

   Rebecca Allen, Dan Jarvis, Sue Sayer, Cheryl Mills (2012) Entanglement of grey seals Halichoerus grypus at a haul out site in Cornwall, UK. Marine Pollution Bulletin

   Volume 64, Issue 12, December 2012, Pages 2815-2819

TUNA

1. Horton, T.W., Block, B.A., Davies, R., Hawkes, L.A., Jones, D., Jones, H. Leeves, K., Maoiléidigh, N.Ó., Righton, D., van der Kooij, J. Wall, D., and Witt, M. (2021) Evidence of increased occurrence of Atlantic bluefin tuna in territorial waters of the United Kingdom and Ireland. ICES Journal of Marine Science, 78(5), pp.1672-1683. URL: **https://doi.org/10.1093/icesjms/fsab039**
2. Horton, T.W., Binney, F.C., Birch, S., Block, B.A., Exeter, O.M., Garzon, F., Plaster, A., Righton, D., van der Kooij, J., Witt, M.J. and Hawkes, L.A. (2025) Annual migrations, vertical habitat use and fidelity of Atlantic bluefin tuna tracked from waters off the United Kingdom. Scientific Reports, 15(1), p.293. URL: **https://doi.org/10.1038/s41598-024-80861-w**

SHARKS AND RAYS

1. URL: **The Shark Trust**
2. Anecdotal: MNRF Shark and Ray Working Group discussion
3. Parton, Galloway, Godley (2019) Global review of shark and ray entanglement in anthropogenic marine debris. Endang Species Res. Vol 39, 173-190.
4. Nature Scot. Flapper Skate Protection. URL: **Flapper skate protection | NatureScot**

SEABIRDS AT SEA

1. Natural England (2024) English Seabird Conservation and Recovery Pathway: Technical Report
2. Cornwall Wildlife Trust (2014) Marine Strandings Network report
3. S C Votier, R B Sherley, K L Scales, K Camphuysen, R A Phillips, (2023) An overview of the impacts of fishing on seabirds, including identifying future research directions, ICES Journal of Marine Science, Volume 80, Issue 9, November 2023, Pages 2380–2392 URL: **https://doi.org/10.1093/icesjms/fsad173**
4. Beach Bird Survey
5. Outer Dowsing Offshore Wind Part 7, Document 7.4: Offshore Artificial Nesting Structures Ecological Evidence & Roadmap Date: June 2023 Document No: 7.4

ISLES OF SCILLY

1. Exeter, O.M., Axelsson, M., Branscombe, J., Broderick, A., Hooper, T., Morcom, S., Russell, T., Somerfield, P.J., Sugar, K., Webber, J. and Metcalfe, K. (2024) A synthesis of the current state of marine biodiversity knowledge in the Isles of Scilly, UK. Journal of the Marine Biological Association of the United Kingdom, 104 URL: **A synthesis of the current state of marine biodiversity knowledge in the Isles of Scilly, UK | Journal of the Marine Biological Association of the United Kingdom | Cambridge Core**
2. Guidance on the Merchant Shipping (Prevention of Pollution by Sewage and Garbage from Ships) Regulations 2008 URL: **Microsoft Word - 385**

APPENDIX 1 – MNRF SPECIES AND HABITAT PRIORITY MAP DATA SOURCES

1848-1982 Lundy Field Society The Marine Fauna of Lundy (2019) Data Archive for Marine Species and Habitats, Marine Biological Association of the UK. Version 1.0. Dataset/Species occurrences. doi:10.17031/p4h11f

2004-2012 Bishop et al. Occurrence of non-native sessile invertebrates on the English coast by Marine Biological Association under licence CC BY.

28: Centre for Environment, Fisheries and Aquaculture Science, Lowestoft Laboratory; 2746: Joint Nature Conservation Committee - Peterborough Office (JNCC) (2021): 2012 Centre for the Environment, Fisheries and Aquaculture Science (Cefas) East of Haig Fras Marine Conservation Zone (MCZ) Survey. v2.0. Marine Biological Association. Dataset/Samplingevent. https://doi.org/10.17031/93ido6

Botanical Society of Britain and Ireland. 2024 Vascular plant records verified via iRecord.

Botanical Society of the British Isles (2024). BSBI data from several English counties, up to 2018. Occurrence dataset on the NBN Atlas

Capturing our Coast (2024) Data verified via iRecord.

Centre for Ecology and Conservation, University of Exeter, 15: University of Portsmouth Marine Laboratory (UPML)

Centre for Environment, Fisheries and Aquaculture Science (Cefas) (2018): 2012-ongoing UK Offshore Marine Conservation Zone (MCZ) Survey Data. v7.16. Marine Biological Association. Dataset/Samplingevent. https://doi.org/10.17031/ravlvw

Centre for Environmental Data and Recording (2024). Agri-Food and Biosciences Institute Marine Surveys. Occurrence dataset on the NBN Atlas

Centre for Environmental Data and Recording (2024). Centre for Environmental Data and Recording (CEDaR) Marine Species Data. Occurrence dataset on the NBN Atlas

Centre for Environmental Data and Recording (2024). Consultancy Contract Surveys - Marine Species Records. Occurrence dataset on the NBN Atlas

Centre for Environmental Data and Recording (2024). Department of Agriculture Environment and Rural Affairs (DAERA) Marine and Fisheries Division Marine Survey Data. Occurrence dataset on the NBN Atlas

Centre for Environmental Data and Recording (2024). Queens University Belfast Marine Research Data. Occurrence dataset on the NBN Atlas

Centre for Environmental Data and Recording (2024). Ulster University Marine Research Data. Occurrence dataset on the NBN Atlas

Conchological Society of Great Britain & Ireland (2024), Conchological Society of Great Britain & Ireland: marine mollusc records. Occurrence dataset

Conditions of use of dataset: No marina names (if deduced) should be published without the marinas explicit consent. Cite: Bishop, JDD, Wood, CA, Yunnie, ALE, Griffiths, CA. (2015) Unheralded arrivals: non-native sessile invertebrates in marinas on the English coast. Aquatic Invasions, 10.

DASSH Data Archive Centre Academic Surveys by Marine Biological Association under licence CC-BY

DASSH Data Archive Centre expert sightings records by Marine Biological Association under licence CC-BY

DASSH Data Archive Centre volunteer sightings records by Marine Biological Association under licence CC BY.

DASSH Data Archive Centre volunteer survey data by Marine Biological Association under licence CC BY.

David Fenwick Cornwall Ad-hoc Rock pooling Sightings (2024). 2009-2013 David Fenwick Cornwall Ad-hoc Rock pooling Sightings. Occurrence dataset on the NBN Atlas

Department for Environment Food and Rural Affairs (Defra) (2018): 1915-2016 Department for Environment Food & Rural Affairs (Defra), Marine Strategy Framework Directive (MSFD) Collation of invasive non-indigenous species. v2.3. Marine Biological Association. Dataset/Samplingevent. https://doi.org/10.17031/f0vfo3

Environment Agency (2024). England Non-Native Species records 1965 to 2017. Occurrence dataset on the NBN Atlas

Environment Agency (2024). Protected and Invasive Species Records Collected Through Environment Agency Survey 1995 - 2021. Occurrence dataset on the NBN Atlas

Highland Biological Recording Group (2024). HBRG Fungus, Lichen & Lower Plants Dataset. Occurrence dataset accessed through the NBN Atlas

iSpot (2024). iSpot British Isles observations. Occurrence dataset on the NBN Atlas

Johns D, Broughton D (2019): The CPR Survey. v1.2. Marine Biological Association. Dataset/Samplingevent. https://doi.org/10.17031/1629

Joint Nature Conservation Committee (2024). Marine Nature Conservation Review (MNCR) and associated benthic marine data held and managed by JNCC. Occurrence dataset on the NBN Atlas

Joint Nature Conservation Committee (2024). Marine Offshore Seabed Survey data held by JNCC. Occurrence dataset on the NBN Atlas

Lear D (2019): 2009 The Marine Biological Association of the UK (MBA) Wembury Bioblitz Survey. v3.0. Marine Biological Association. Dataset/Samplingevent. https://doi.org/10.17031/ppacwa

Malcolm Storey (2024). http://www.bioimages.org.uk/ Malcolm Storey personal records and images. Occurrence dataset on the NBN Atlas

Marine Biological Association (2024). 1984 University of Virginia Cornwall foraminifera and meiofauna on an intertidal mudflat core survey

Marine Biological Association (2024). 1999 UMBSM/ IUEM/ ICRAM/ MLA Clyde Sea Toothed Dredge Survey. Occurrence dataset on the NBN Atlas

Marine Biological Association (2024). 2001-2019 The Marine Biological Association of the UK (MBA) Shore Thing Survey. Occurrence dataset on the NBN Atlas

Marine Biological Association (2024). 2003 Royal Haskoning Ltd Fal Estuary marine ecological grab and core survey. Occurrence dataset on the NBN Atlas

Marine Biological Association (2024). 2016 Coastwise and North Devon Area of Outstanding Natural Beauty (AONB) Croyde Bay Bioblitz. Occurrence dataset on the NBN Atlas

Marine Biological Association (2024). 2017 North Devon Area of Outstanding Natural Beauty (AONB) Combe Martin Devon Bioblitz. Occurrence dataset on the NBN Atlas

Marine Biological Association (2024). 2018 Marine Biological Association of the UK (MBA) Yealm Bioblitz. Occurrence dataset on the NBN Atlas

Marine Biological Association (2024). 2018 North Devon Coast Areas of Outstanding Natural Beauty Northam Burrows BioBlitz. Occurrence dataset on the NBN Atlas

Marine Data from The Wildlife Trusts (TWT) Dive Team; 2014-2018

National Mammal Atlas Project, online recording (2024)

National Marine Aquarium, Plymouth (2018): 1743-2010 National Marine Aquarium (NMA) United Kingdom Marine Fish Recording Scheme. v3.0. Marine Biological Association. Dataset/Samplingevent. https://doi.org/10.17031/2x2hau

National Trust (2024). National Trust Species Records. Occurrence dataset on the NBN Atlas

Natural England (2024). Natural England Marine Monitoring surveys. Occurrence dataset on the NBN Atlas

Natural England copyright. Contains Ordnance Survey data Crown copyright and database right 2024

Natural History Museum (2023). Data Portal query on 1 resources https://doi.org/10.5519/qd.i4tk4lrk

Natural Resources Wales. (2024) Marine data from Natural Resources Wales (NRW) Technical Support (Research & Monitoring) Contracts, Wales. Occurrence dataset accessed through the NBNAtlas

Natural Resources Wales. (2024) Marine Intertidal Phase 1 Species Dataset from the Countryside Council for Wales 1996-2005. Occurrence dataset accessed through the NBNAtlas

Natural Resources Wales. (2024) Marine Records from Pembrokeshire Marine Species Atlas. Occurrence dataset accessed through the NBNAtlas

Natural Resources Wales. (2024) Welsh Invertebrate Database (WID). Occurrence dataset accessed through the NBNAtlas

North Devon Coast Area of Outstanding Natural Beauty (AONB) (2021): 2017-2018 North Devon Coast Area of Outstanding Natural Beauty (AONB) North Devon Species Census. v2.0. Marine Biological Association. Dataset/Samplingevent. https://doi.org/10.17031/y7r3y3

Porcupine Marine Natural History Society (2020): Porcupine Marine Natural History Society Dataset. v2.2. Marine Biological Association. Dataset/Samplingevent. Occurrence dataset on the NBN Atlas. https://doi.org/10.17031/zay9rc

Queen Mary University of London School of Biological and Chemical Sciences (2020): 1949-1998 Great Britain Non-Native Species Information Portal (GBNNSIP) United Kingdom Collated record of historic distributions of marine non-native species from literature. v2.0. Marine Biological Association. Dataset/Samplingevent. https://doi.org/10.17031/pffuus

Released under DASSH terms and conditions See www.dassh.ac.uk/terms-and-conditions

Seal Research Trust

Seasearch (2024). Seasearch Marine Surveys in England. Occurrence dataset on the NBN Atlas

Seasearch (2024). Seasearch Marine Surveys in Wales. Occurrence dataset on the NBN Atlas

SEWBReC (2024). NRW Regional Data: Southeast Wales Non-sensitive species. Occurrence dataset on the NBN Atlas

SEWBReC (2024). SEWBReC Worms (Southeast Wales). Occurrence dataset on the NBN Atlas

The Rock Pool Project database - www.therockpoolproject.co.uk - downloaded 2024 - 2024

The Scottish Shark Tagging Programme (2024). Capture Mark Recapture Data for Scottish Elasmobranchs: 2009-2018. Occurrence dataset on the NBN Atlas

The Wildlife Information Centre (2024). A.T. Sumner's Records. Occurrence dataset on the NBN Atlas

Ulster Wildlife (2024). Ulster Wildlife ShoreNI iNaturalist records. Occurrence dataset on the NBN Atlas

University of Plymouth (2021): 2009 University of Plymouth Wave Hub, Cornwall towed underwater video baseline benthic survey. v1.2. Marine Biological Association. Dataset/Samplingevent. 10.17031/1hrx-0s07

University of Plymouth (2021): 2011 University of Plymouth Falmouth towed underwater video maerl and associated epifauna survey. v1.6. Marine Biological Association. Dataset/Samplingevent. 10.17031/8a7e-s138

University of Plymouth (2021): 2012 University of Plymouth Falmouth towed underwater video maerl and associated epifauna survey. v1.1. Marine Biological Association. Dataset/Samplingevent. 10.17031/1711

University of Plymouth (2021): 2012-2013 University of Plymouth Falmouth maerl bed infauna and sediment survey using diver cores. v1.4. Marine Biological Association. Dataset/Samplingevent. 10.17031/1710

Verified marine records from Indicia-based surveys by Marine Biological Association and Biological Records Centre under licence CC BY. Released under DASSH terms and conditions See http://www.dassh.ac.uk/terms-and-conditions

West Wales Biodiversity Information Centre (2024). Seatrust Cetacean Records West Wales. Occurrence dataset on the NBN Atlas

West Wales Biodiversity Information Centre (2024). West Wales Online Records. Occurrence dataset on the NBN Atlas

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