



BLUE MARINE  
FOUNDATION

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# LYME BAY RESERVE CASE STUDIES

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BLUEPrint for Marine Protected Areas:  
A guide to establishing and managing MPAs

## The Lyme Bay Fisheries and Conservation Reserve is a marine protected area (MPA) spanning the Dorset and Devon coast that demonstrates the value of collaboration between local fishermen, NGOs, regulators and scientists.



The Lyme Bay 'model' has shown that effectively managed MPAs can restore ecosystems and give a voice to the communities that live and depend on them.

Lyme Bay, known as England's coral garden, is a marine biodiversity hotspot with rich reef habitats that are home to over 1,300 species of marine fauna and flora, including the largest colony of pink sea fans (*Eunicella verrucosa*) in the UK, and the extremely rare sunset coral (*Leptopsammia pruvoti*); Lyme Bay being one of only five areas where this species is found in the British Isles.

In 2008, 206 km<sup>2</sup> (60 square nautical miles) of the bay was closed to bottom towed fishing (trawling and dredging) to protect the reefs, while allowing continued fishing using static gear (pots, nets, scallop diving, rod and line). Over the years, the area protected from trawling

increased to 312 km<sup>2</sup> (90 square nautical miles) with designation as the Lyme Bay and Torbay Special Area of Conservation in 2017.

However, an unforeseen consequence of the bottom towed fishing restrictions was a significant increase in the number of pots and nets. Local fishermen feared for their future and expressed a desire for better management to safeguard fish stocks and livelihoods. In 2012, Blue Marine Foundation facilitated the formation of the Lyme Bay Fisheries and Conservation Reserve Working Group, bringing together fishermen, regulators and scientists to manage the MPA. The group set out to achieve the establishment of a multiple use MPA where fishing is sustainable and well-managed, important habitats and features remain protected, and the fishing communities receive benefits from fishing responsibly.

Pink sea fans by Colin Munro Photography



The Reserve has its own voluntary code of conduct agreed among the fishermen to manage fisheries within sustainable limits. Scientists from the University of Plymouth have collaborated with local fishermen to monitor recovery of marine life since 2008, providing one of the world's best documented evidence of the value of MPAs. The 'Reserve Seafood' brand was created to help market sustainably caught fish from the Reserve, and investment in facilities such as chiller units, ice boxes and ice machines ensured the best quality for the catch.

Areas within the Lyme Bay Reserve have seen a 52 per cent increase in the number of species since 2008, and 370 per cent more commercial species abundance inside the MPA than in the area outside. Local static gear fishermen reported increased catches, better routes to market and higher job satisfaction.

The results from Lyme Bay have shown that when protected from trawling, marine ecosystems can recover and become more resilient to other pressures, and that fisheries and conservation can coexist within protected areas to bring benefits for marine life and local fishing communities.

**Areas within the Lyme Bay Reserve have seen a 52 per cent increase in the number of species since 2008**

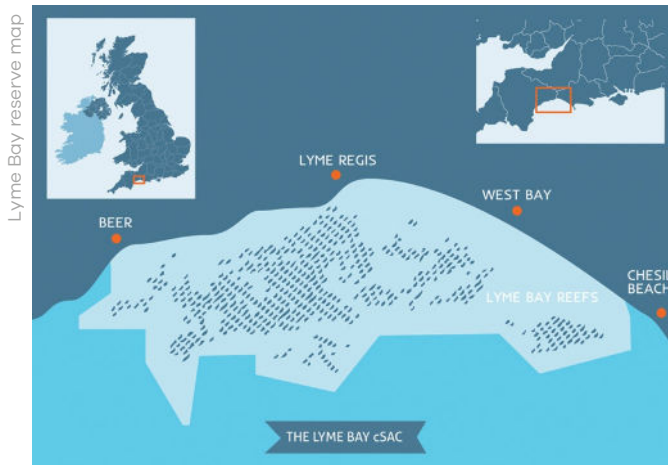
© Saeed Rashid



# INFORMATION: MONITORING

## Fisheries- science partnerships for long-term monitoring

The Lyme Bay Reserve is one of the UK's most intensely studied MPAs, with annual monitoring undertaken by the University of Plymouth since bottom trawling was first prohibited in 2008. Over a decade of research has shown a remarkable revival of the reefs, rare species, and commercial fish stocks within the protected area. Ecological and socio-economic surveys of the MPA have been carried out in partnership between the University, fishermen, Blue Marine and regional Inshore Fisheries and Conservation Authorities (IFCAs), with funding from Defra, Natural England, and the European Maritime and Fisheries Fund (EMFF).



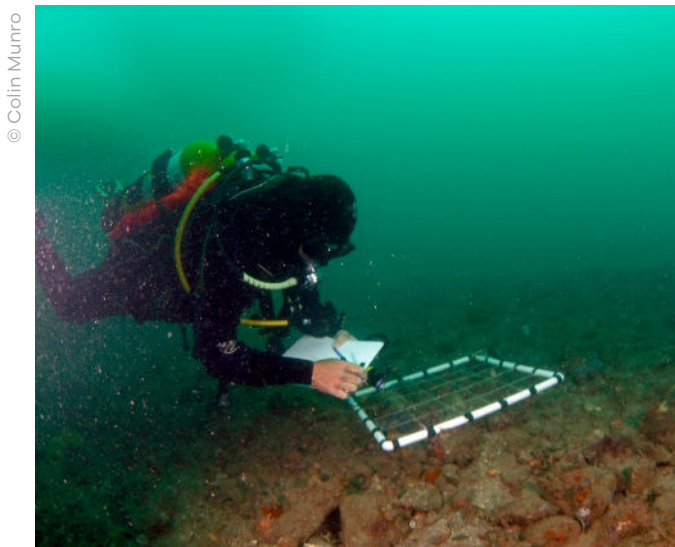
Local fishermen were closely involved from the outset, taking researchers onboard to carry out surveys, providing vital local knowledge and consequently building up a strong level of trust between fishermen and scientists.

### The long-term research programme has included:

- Monitoring the recovery of the subtidal reefs and protected species within the Reserve since the ban on mobile fishing gear;
- Establishing evidence for a threshold potting density for crab and lobster that is compatible with a marine protected area;
- Measuring the social and economic impact of the Lyme Bay Reserve on local fishermen;
- Assessing the impact of the storms in 2013/2014 on biodiversity within and outside the reserve, and how the Reserve increased the resilience of the ecosystem to such events.

Over 25 reports and peer-reviewed scientific papers have been published on the results and are shared via the **Lyme Bay Reserve website** along with videos summarising the findings.

The results have provided evidence of significant recovery of the reefs and commercial fish stocks, and informed management measures both within the Lyme Bay Reserve and other sites in the UK. The collaboration between scientists, fishermen and regulators results in better decision-making, buy-in from fishermen and local stakeholders, and an established dataset to inform future management within the Reserve and other protected areas.



POTENTIAL ISSUE	SOLUTIONS/CONSIDERATIONS
<b>Surveying a significant area of seabed</b>	<p>Surveying a large area of seabed requires consideration of different techniques for maximum efficiency. Historically, diver surveys would have been the norm, but this can be expensive and in areas where diving may be limited by weather or depth, the use of technology such as underwater cameras and video have become increasingly cost effective. Baited Remote Underwater Videos (BRUVs) have been used by Blue Marine in monitoring Lyme Bay, Berwickshire and Jersey. After the initial outlay on cameras or video equipment, this can be used for many years and the video footage once captured can be stored and analysed by multiple people in future years. If possible, partner with other organisations or agencies who might make use of the equipment as it may only be needed for a short period of time each year.</p>
<b>Identifying what to monitor</b>	<p>It's worth spending time (and money) at the start of the research on identifying the key indicators to monitor that will provide a measure of recovery or change. As well as abundance and diversity, it might be useful to measure biomass for which stereo BRUVs are needed. Identify the factors that are important for the health and condition of the key indicator species - sea temperature, turbidity, spawning grounds, substrate type, habitat complexity etc.</p> <p>Identification of control sites is vitally important to be able to compare changes in biodiversity within the MPA versus unprotected areas. Control sites need to have similar overall characteristics in terms of substrate type, complexity and depth.</p> <p>Gathering data on the social and economic value of the marine protected area will allow you to measure the benefits of marine protected areas to people and local economies.</p>
<b>Accessing data on fishing locations and effort</b>	<p>Fishermen will often be reluctant to share the locations of where they fish, as they may have spent many years finding the best fishing grounds, and be concerned about this knowledge being used to establish protected areas or further restrict their fishing activities. Building trust with fishermen is vital and can be earned by spending time with fishermen, carrying out research whilst on board and maintaining a presence in port. Communicating the results from research with fishermen first helps build up trust and acknowledges their close relationship with the marine environment. When considering the use of any tracking or effort data, ensure that the fishermen are aware of how the data will be used and who will have access by putting in place data access agreements at the outset.</p>

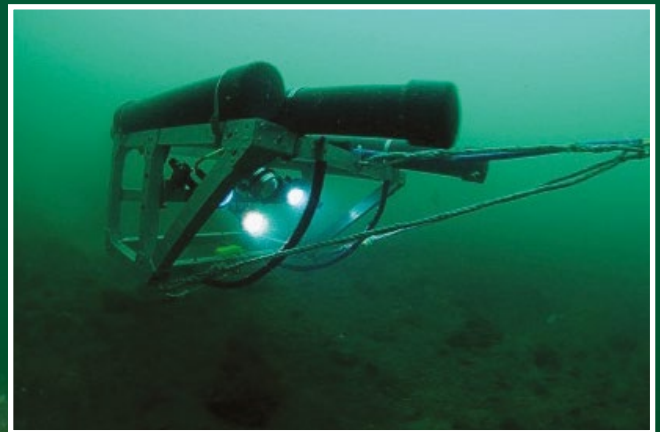
POTENTIAL ISSUE	SOLUTIONS/CONSIDERATIONS
<b>Analysis of large volumes of data</b>	Surveys, whether by divers or remote underwater videos, can generate huge quantities of data. Unless there are significant funds available to pay consultants to analyse this data, a partnership with a university is the most effective approach. Data once captured can be analysed over several years by different researchers. This also ensures that the results are published in the peer-reviewed literature which will often give it additional credibility and visibility.
<b>Engaging fishermen in MPA monitoring</b>	Involving fishermen in monitoring helps build trust between fishermen, scientists and managers, and acknowledges the enormous local knowledge fishermen have about the marine environment. Paying fishermen for the use of their boats, rather than hiring a charter or research boat, puts tangible benefit back into the fishing community. Fishermen have a natural interest in the marine life in the area in which they fish, and will be keen to hear and see the results of monitoring surveys. Providing videos, DVDs or presentations on the results and camera footage collected will be well received and provide a sense of shared understanding and knowledge.
<b>Managing expectations about the pace of recovery and the factors that may affect recovery</b>	<p>The rate of recovery of marine habitats and species following protection varies and may take much longer than anticipated. It's important to manage expectations and be clear from the outset that recovery may take 5-10 years not 1-2 years. Consider the growth and reproduction rate of the key species of interest to assess how long it might take for a noticeable change in abundance and biomass to take effect.</p> <p>Consider other factors that might impact the recovery rate. If certain types of fishing have been restricted within an area, what other factors might reduce the ability of a habitat or species to recover, such as pollution, climate change, increased predation, competition from other species. Identify these and monitor accordingly.</p>

**It's important to manage expectations and be clear from the outset that recovery may take 5-10 years not 1-2 years**

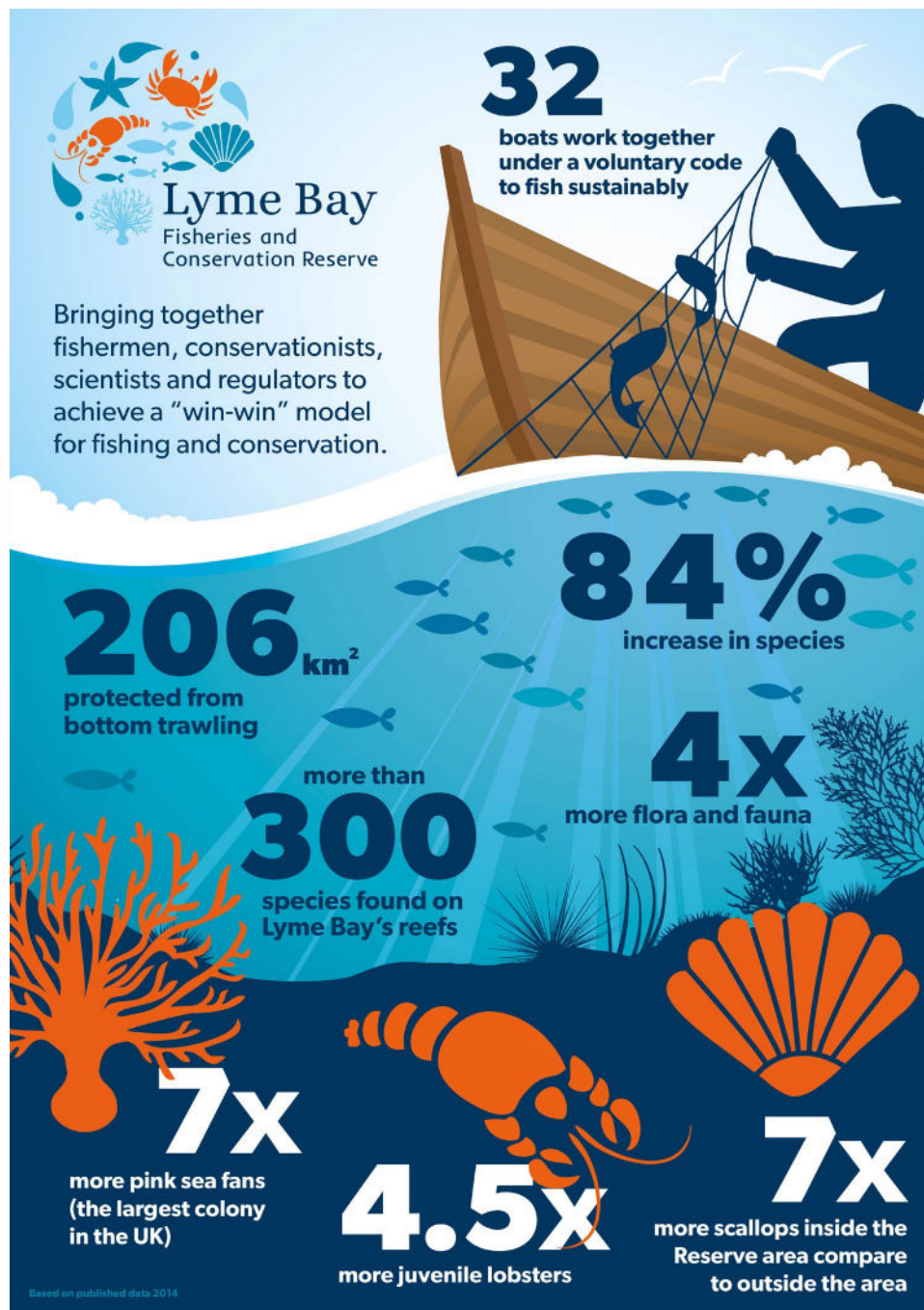
## Benthic Recovery Monitoring of the Lyme Bay Reserve (2008-2020)

University of Plymouth initiated a long-term monitoring programme to assess how the Lyme Bay reefs recovered following protection from damaging bottom towed gear and over what timescales. Annual surveys involve towing a high-definition camera above the seabed to capture video footage of the reef communities from which species presence, abundance and species diversity (richness) can be quantified. This method, carried out annually each summer, is non-destructive and cost and time effective when monitoring vast areas of the seabed in Lyme Bay. The surveys are complimented with Baited Remote Underwater Video surveys which quantify the species presence, abundance and species diversity of reef associated mobile animals and communities.

Over a decade of research has shown a remarkable recovery of marine habitats and rare species, with an 84 per cent increase in species diversity, and 7-fold increase in abundance of pink sea fans, within six years of protection (2008-2014). While severe storms in 2014 set this recovery back, recent research shows that the reef ecosystem is bouncing back far quicker within the MPA, indicating increased resilience as a result of protection. Of significance for local fishing communities, many commercial fish stocks have also thrived within the Reserve. In 2020, the abundance of commercially exploited fish was 370 per cent higher inside the MPA than the trawled area outside.



Towed camera array flying over the Lyme Bay seabed © Adam Rees



Within six years of protection, a remarkable recovery of marine habitats and rare species was recorded, with an 84 per cent increase in species diversity, and 7-fold increase in abundance of pink sea fans between 2008–2014. While severe storms in 2014 set this recovery back, more recent research shows that the reef ecosystem is bouncing back far quicker within the MPA, indicating increased resilience as a result of protection.

## Sustainable thresholds for potting

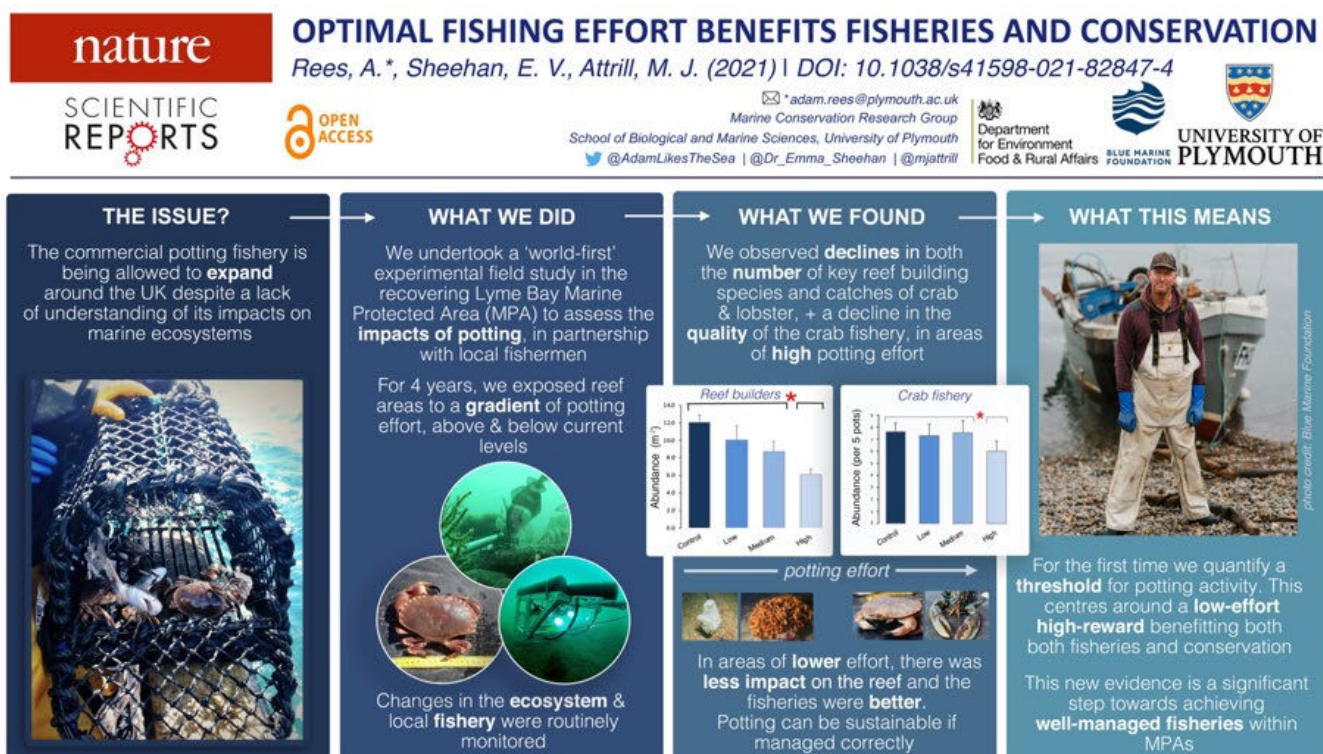
The Lyme Bay Experimental Potting project was carried out by the University of Plymouth, commissioned by Defra, and funded by Blue Marine, to assess the impact of static potting on benthic reef habitats as well as commercially targeted species within the Lyme Bay Reserve. The project was set up partly in response to concerns raised by local fishermen about the potential for an increase in static potting after mobile fishing was banned from inside the Lyme Bay Reserve.

Starting in 2013, the project manipulated potting densities across sixteen experimental treatment areas to create a gradient of potting effort from no potting through to low, medium and high levels. Inside these areas, towed and baited video data were collected to assess changes in benthic and mobile assemblages in response to increasing potting pressures. Additional quantitative catch data was collected to monitor

the commercial catch composition of mainly brown crab and lobster – the species primarily targeted by potting in Lyme Bay. The work was carried out in partnership with local fishermen, who took researchers onboard their vessels from 2014-2017.

This pioneering research revealed that sustainable levels of pot fishing can be used within UK waters, benefitting both fisheries and conservation with a low-impact, high-reward strategy. It showed that the number of pots used by fishermen under a voluntary code of conduct had little impact on the marine environment. However, if commercial intensity were to increase above a measurable “threshold”, the study revealed that the reef building species and commercially targeted species that had started to return following the ban on trawling could be negatively affected.

The final report was published in the journal **Scientific Reports**.



This project was funded by the Department for Environment, Food and Rural Affairs and Blue Marine Foundation

# PEOPLE: STAKEHOLDER GROUPS

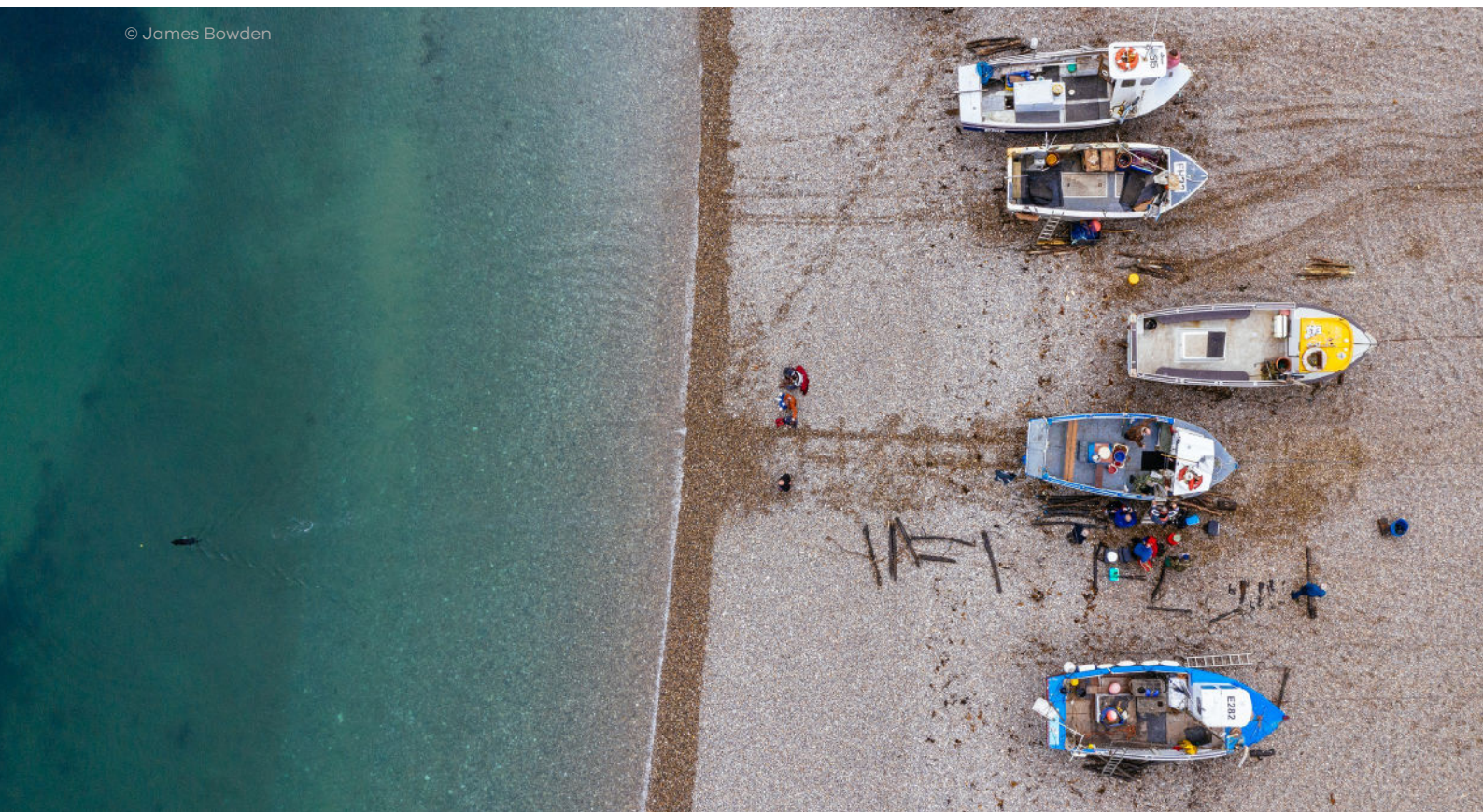
To manage the changes that came with the MPA designation, Blue Marine brought together fishermen, conservationists, scientists and regulators, and recreational interests to establish what different interest groups wanted to happen and what could actually be done. Armed with much information and fired by often divergent, but passionate, views, a feasibility scoping study was carried out and a detailed management plan created, funded by national retailer, Marks and Spencer (M&S). Having reviewed the management plan, local stakeholders agreed to form the Lyme Bay Fisheries and Conservation Reserve Working Group in 2011.

The Working Group agreed a **Memorandum of Understanding** with the purpose: “to develop, promote and implement best practice in fishery and conservation management within the Lyme

Bay Fisheries & Conservation Reserve in order to protect important habitats and features and maximise socioeconomic benefits for local coastal communities.”

The Working Group was formalised in 2013 as the Lyme Bay Fisheries and Conservation Reserve (LBFCR) Consultative Committee with a Terms of Reference that set out the governance structure and ways of working for the Committee. The Committee has nominated members representing fishermen from the four ports operating within the Reserve, fishing organisations, statutory authorities, conservation bodies, research institutes and local councils. There is one representative from each stakeholder organisation, and two fishermen from each fishermen’s association or port, to ensure that the fishermen have a proportionate voice.

© James Bowden



The Committee meetings provide a forum for: updates from all stakeholders about proposed fisheries management measures, results from research, and an annual review of the voluntary Code of Conduct. Meetings are held two to four times a year, depending on need, and are open to invited guests. Even during the Covid pandemic meetings were maintained, albeit less regularly, via Zoom to maintain the flow of information.

Information and dialogue facilitated by the Committee has informed the development of the voluntary Codes of Conduct and statutory regional fisheries management measures to manage fishing effort whilst being sensitive to the needs of local low-impact fishermen to sustain their livelihoods. The Committee is considered an important sounding board for both Southern and Devon & Severn IFCAs to

inform regulations, and for fishermen to share their knowledge and concerns about future measures, thus facilitating a collaborative and balanced approach to fisheries and conservation management.

Whether a Working Group or a Committee, the value of a multi-stakeholder group, able to regularly debate and discuss issues in an open forum, is invaluable. Many Lyme Bay fishermen have voiced their support for the regular opportunity to meet face to face with marine regulators and government agencies to discuss proposed fisheries management measures, and all stakeholders believe that this is a strong element of the MPA management process.

Links: Lyme Bay Reserve Committee  
**Memorandum of Understanding.**

POTENTIAL ISSUE	SOLUTIONS/CONSIDERATIONS
Identifying the most appropriate governance structure	The governance structure needed will depend on the range and number of stakeholders involved. If mainly community groups and individuals are involved, a looser, less formal governance structure may be appropriate, supported by a simple agreement or Memorandum of Understanding. If government authorities are involved, or stakeholders with potentially conflicting views and interests, then a more formal structure and terms of reference may be needed to establish ground rules for decision making. A sample terms of reference template can be found on the next page.

# TERMS OF REFERENCE TEMPLATE

This template is designed to help you develop terms of reference for a group such as a project advisory group or panel. The suggested headings and questions are not intended to be prescriptive but will give you some ideas based on what other people have included in their terms of reference.

## **Name of group:**

**Title:** Terms of reference (followed by date terms of reference written / revised)

## **Purpose / role of the group:**

for example

- what is the broad purpose / role of the group?
- when was the group established and by whom?
- what are the aims / responsibilities of the group?

## **Membership:** for example

- who is membership of the group open to?
- are there any restrictions on numbers?
- how long is the period of membership and can it be extended?
- do all members have voting rights?
- are there different categories of members e.g. Voting members and Affiliate members (with no voting rights)?

## **Working methods / ways of working:** for example

- what principles will underpin the ways of working? – e.g. transparent, democratic, sharing knowledge
- how will conflicts of interest be addressed?
- will any subgroups be needed?

## **Meetings:** for example

- how many meetings will be held each year and where will they be held?
- who will chair the meetings?
- who will organise meetings, papers and provide the secretariat for the group?
- how will topics for the agenda be agreed?
- how and when will meeting papers be circulated?
- will non-members be invited to group meetings and if so, under what circumstances?

## **Communications / sharing of information and resources (including confidential materials):**

For example

- how will group members share information and resources?
- how will confidential materials, data and copyright issues be dealt with?
- will there be a web space for the group and if so, who will be responsible for facilitating it?

## **Accountability:** for example

- are individual group members responsible for reporting back on activities of the group and if so to whom?

## **Review:** for example

- how often will the group review the terms of reference?

## **Definition of terms**

- provide definitions of any key terms.

# PEOPLE: EDUCATION

## Schools outreach and fisheries ambassador programme

To engage school children in learning about the importance of protecting marine areas and sustainable fisheries, a Schools Outreach Programme was established in 2014 with funding from the Rita Lila Howard Foundation. The programme involved funding 'ambassadors' from within the Lyme Bay fishing community to visit primary schools, secondary schools and colleges, delivering fun activities and presentations about marine life, fishing methods and their own experience of the ocean.

The programme proved highly popular, and with further funding from Marks & Spencer and FLAG, a part-time Education Co-ordinator was appointed to co-ordinate the school visits and create a comprehensive set of resources tailored for different year groups from Key Stage 1 to higher education. Between 2014 and 2019, over 129 schools and colleges in Dorset and Devon were visited, engaging over 7,400 children and students.

While funding was not available to continue the programme beyond 2019, the resources were made available online so that teachers could download the lesson plans, PowerPoint presentations and activity sheets.



Ambassadors from the Lyme Bay fishing community visited schools delivering fun activities about marine life, fishing methods and their own experience of the ocean.

In 2023, the newly formed Lyme Bay Fisherman's Community Interest Company secured funding to relaunch the education outreach programme, informing the next generation about how fish is caught and inspiring them to be ocean guardians.

**Resources | Lyme Bay Fisheries & Conservation Reserve** ([lymebayreserve.co.uk](http://lymebayreserve.co.uk))

# PEOPLE: COMMUNICATIONS

## Using multiple media to communicate MPA development and benefits

A wide range of communication channels are used to promote the Lyme Bay Reserve and the sustainable fishing practices of the fishermen that support it. A dedicated website was created in 2013, supported by Twitter and Facebook pages, providing regular updates on research and outreach, but also news and photos from the fishermen of their sightings of marine life and fishing activities. Over the years, the Reserve has attracted extensive media coverage by local and national news including TV, radio and printed press, reaching an audience well beyond the local southwest community.

2020 marked ten years since the Lyme Bay MPA was designated. This landmark was celebrated with the launch of a short documentary-film – ‘**Lyme Bay: The Road to Recovery**’. The film showcases how listening, learning and finding common ground between fishing communities and conservationists can create a win-win model for sustainable marine management. The film provides an engaging way to share the experience and learnings from the Lyme Bay Reserve and has been viewed over 10,000 times on YouTube since its launch in November 2020.

Local community engagement initiatives also include attendance and presentations at regional Seafood Festivals and events. Where possible, a display of freshly caught fish from the Reserve is set up to attract attention and spark conversations about the fish that the public rarely see before they’ve been skinned

and filleted. More in depth conversations often lead on to explain how the Reserve has protected marine life and local sustainable fisheries.

When considering communications to promote an MPA and engage a wide audience, ongoing costs as well as initial set up costs need to be factored in. For example, producing a website is a significant upfront cost for which funding can often be secured, but the ongoing maintenance and update of the site also needs to be costed and covered, and is less easy to find funding for. The most cost-effective approach, if there is insufficient staff capacity or expertise to manage the communication outputs, is to outsource the work to a communications specialist as a retainer for a day a month, or a day a quarter, to ensure the website and other communication outputs are kept up to date. You could also approach a local communications business to provide their services pro bono as a way to contribute to their local environment and community.



# ECONOMICS AND FINANCING: REVENUE FOR SUSTAINABLY MANAGED FISHERIES

## Improved infrastructure for responsible fishermen

One of the aims of the Lyme Bay Reserve is to help fishermen achieve best quality and price for their low-impact, sustainable catch. When assessing how best to achieve this, it became apparent that the quality of the fish was of paramount importance – no-one will buy even the most sustainably caught fish at a premium price if the fish isn't of the freshest quality. Putting the fish on ice as soon as possible after being caught was identified as the most important way to ensure the best prices could be achieved.

So, to improve the quality and shelf-life of the fish landed by the fishermen who were abiding by the conservation measures within the Lyme Bay Reserve, Blue Marine, with the aid of the European Maritime Fisheries Fund, invested in infrastructure over the period 2013-2015, including chiller rooms, ice making equipment and insulated fish boxes.



Lyme Bay fish box

These facilities allow the catch to be immediately iced on the boat, landed that day and stored in chiller units ready for transport to market. The catch is kept fresh from the moment it lands on the deck to the moment it arrives at market, offering a guaranteed way to source extremely fresh and sustainable seafood within hours of being caught.

It was always planned that the units would ultimately be owned and managed by the fishermen in each port, and, after initial support from Blue Marine, the running costs were covered by the fishermen who used the facilities.

**“Before the scheme, I would cut up many white fish I caught for bait or would have to drive two hours to market as they would not keep. Being able to get fish on ice the minute it's caught and stored in the chiller unit until it can be picked up has increased the amount I can earn and taken time off my working day.”**

Reserve Fisherman, October 2016

# ECONOMICS AND FINANCING: REVENUE FOR SUSTAINABLY MANAGED FISHERIES

## Sustainably caught seafood branding and marketing: Reserve Seafood

Installation of the ice machines and chiller facilities ensured the quality of the fish caught by fishermen within the Reserve, but creating local markets for their sustainable catch, and transportation to market and customers, were further challenges for the small-scale fishermen.

In 2014, Blue Marine created the Reserve Seafood brand to help market the low-impact, sustainable, premium quality, provenanced seafood caught within the Lyme Bay Reserve. The Reserve Seafood brand and the associated market uplift aimed to reward fishermen for their efforts in adhering to environmentally responsible fishing practices and providing valuable data.

The Reserve Seafood brand aimed to represent the very best in locally caught sustainable seafood with three core principles:

- Premium quality – with freshness guaranteed using insulated fish boxes, ice making facilities, quayside chiller and storage units – all designed to optimise freshness and condition at the market.
- Sustainably caught – using only low-impact static gear such as pots, static nets, rod and line or hand-dived; caught within limits set by the **Lyme Bay Reserve Voluntary Code of Conduct**; and ensuring no fish are red-rated (Fish to Avoid) by the Marine Conservation Society.
- Provenance assured – landed by fishermen from Beer, Axmouth, Lyme Regis and West Bay who support the principles and management of the Lyme Bay Reserve, and support research to ensure their fishing effort causes minimal damage to the environment.



Installation of the ice machines and chiller facilities ensured the quality of the fish caught by fishermen within the Reserve

To provide evidence of the location of capture, Blue Marine provided a phone and vessel tracking App to all participating fishermen in 2016. However, this proved challenging due to the sensitivity about data being collected on where fish were being caught, and access to commercially sensitive information, so use of the App was stopped in 2020.

In July 2018, the 4Ports Transport scheme was set up, with support from Blue Marine, to collect fish from the four ports operating within the Lyme Bay Reserve and transport them to Brixham and Plymouth fish markets, and other distributors. Blue Marine's early partners in the Reserve Seafood brand initiative, Direct Seafoods, generously donated a van when the partnership ended, and Blue Marine funded van maintenance and employment of a driver between 2018 - 2022. The scheme proved highly successful, with over 1,940 boxes of seafood transported in the second year of the scheme between July 2019 – June 2020.

The intention had always been for the scheme to be taken over by the fishermen, so to build up a fund that could be used to support the scheme when handed over from Blue Marine, an annual fee and charge per box collected through the 4Ports Transport Service was introduced in May 2019. A new Community Interest Company run by the fishermen in the four ports was established in 2022, and Blue Marine gifted the van to the fishermen who have taken on the ongoing costs and running of the operation.

While initial interest and take up of the Reserve Seafood brand was strong – supported by social media, materials such as stickers, and the initial partnership with Direct Seafoods – it became increasingly difficult to maintain. Many fishmongers, restaurants and hotel chains as far afield as London expressed interest in sourcing Lyme Bay Reserve Seafood, but they needed certainty of supply in terms of quantity

and species and could not absorb the transport costs. Due to weather conditions, the small day boats that fish within the Reserve are limited to when they can go out, and so could not guarantee a regular supply of the particular fish that the chefs needed to plan their menus.

Although the Reserve Seafood brand proved challenging to maintain, the chiller and ice facilities ensured that the fishermen's catch was of the best quality and could therefore command the best market price. Together with the initial support for the fish transport service, this investment allowed the Lyme Bay fishermen who supported the Lyme Bay Reserve to continue to operate a viable fishery within the environmental thresholds set by the voluntary Code of Conduct.

Reserve Seafood van



# ECONOMICS AND FINANCING: SOCIO-ECONOMIC ASSESSMENTS



Jim Newton, Beer

**An evaluation framework was designed with indicators for ecosystem services**

## **Socio-economic impact and benefits of the Lyme Bay Reserve for commercial fishermen**

To assess the social and economic value of the Lyme Bay Reserve for fishermen that continue to fish within the Reserve, a socio-economic assessment was undertaken by Plymouth and Exeter Universities, in partnership with CEFAS. The study aimed to quantify the wider ecosystem services and socio-economic impacts of the management measures implemented within the Reserve and the impact of partnership activities associated more broadly with the Reserve.

An evaluation framework was designed with indicators for ecosystem services (e.g. food and recreation) and measures of human wellbeing based on a literature review and input from a multi-stakeholder workshop with fishermen and stakeholders in the Lyme Bay Reserve. Data on fishing activity and landings in Lyme Bay from 2005-2015 taken from Marine Management Organisation landings data was analysed. A survey of fishermen operating within the Reserve and outside was undertaken to assess the impacts of the management measures associated with the Lyme Bay Reserve on landings and income, and how involvement in the Lyme Bay Reserve Committee affected human wellbeing.

The survey of fishermen included questions under ten sections: A) Description of fishing activity; B) Job satisfaction; C) Income and income satisfaction; D) Investment; E) Demand and sales; F) Conflict; G) Health and wellbeing;

H) Support and trust (for MPA management and partnership activities); I) Compliance (with management regulations); J) Benefit of partnership activities. Each section contained both closed and open questions, using a mixed methods approach to combine quantitative and qualitative data collection.

Fishermen were interviewed individually face-to-face in pre-arranged meetings following initial contact by email and phone, or approached on the quayside in local harbours. Interviews lasted between 30 and 60 minutes and were recorded where permitted by the respondent. Prior to each interview, respondents were assured that the data would be reported anonymously, and they had the right to withdraw their information from the study following the interview. Prior to conducting interviews, ethical clearance had been sought through the University's Research Ethics Committee. The target sample was between 20-30 respondents to provide a fair representation of fishermen in Lyme Bay, including representatives of mobile and static gears, all ports inside and outside the Reserve, and fishermen who did and did not participate in the Lyme Bay Reserve Committee.

A key finding was that management measures for the Reserve had led to increases in mean monthly landings (weight and value) for crab and scallops, which are both associated with the protected reef habitat, suggesting management had been beneficial for both the reefs and the associated fishery.

In terms of income and well-being, static gear fishermen involved in the Lyme Bay Reserve Committee reported high job and income satisfaction, and perceived levels of stress and conflict were low and had decreased over the last ten years. This group of static gear fishermen identified the closure of the area to mobile gear and their involvement in Committee activities as the two most beneficial events, with



© James Bowden

gear conflicts prior to 2008 and poor weather in 2014-2015 as the two most negative events. This group were strongly supportive of the Reserve and the Committee, and ranked the perceived benefits of partnership activities very highly, in particular the additional icing infrastructure and the 'Reserve Seafood' brand.

This study has helped policy makers and MPA managers better understand the economic, social and ecological benefits of protecting marine areas, and helped inform a model for socio-economic assessments to be undertaken in other MPAs. Defining those beneficial ecosystem services and links to indicators of human wellbeing has become a highly influential tool in conservation planning and management both at a UK level and internationally.

Full report: **Measuring Socio-Economics | Lyme Bay Fisheries & Conservation Reserve** ([lymebayreserve.co.uk](http://lymebayreserve.co.uk))

# MANAGEMENT: CODES OF CONDUCT

## Voluntary codes of conduct for commercial and recreational fisheries

In 2012, the Lyme Bay Fisheries and Conservation Reserve Committee assessed the measures that might improve the management of the Reserve. From an early point in the discussions, the difficulty of introducing statutory regulations within a reasonable time frame was identified. A byelaw, for example, can take up to two years, including public consultation, and with the Reserve spanning two separate fisheries authority districts, measures would have to be introduced through two separate processes. The Committee, therefore, agreed that the best approach was to start with voluntary measures.

The first Voluntary Code of Conduct for commercial fishermen was agreed by the Lyme Bay Reserve Committee in 2012, committing fishermen to engage with managers and scientists to improve knowledge and understanding of fisheries and wildlife, and to respect experimental and monitoring areas within the Reserve. The Code has since been adapted to reflect research and knowledge on the sustainable levels of fishing and practices that are compatible with the Reserve, with the addition of:

- A limit of 250 crab or lobster pots per vessel with no more than 10 pots in each string
- A limit of 500 whelk pots per vessel with no more than 30 in each string

- A limit of 4,000 yards total net length with a mesh size of less than 7.5 inches
- A limit of 8,000 yards total net length with a mesh size greater than 7.5 inches

Adherence to the Code was a requirement for any fishermen who wished to participate in the Reserve Seafood marketing scheme.

A Voluntary Code of Conduct for Recreational Sea Anglers was agreed in 2014 and promoted, with support from the Angling Trust, to fishing clubs and tackle shops.

A voluntary agreement such as a code of conduct is difficult to enforce and relies primarily on trust and an element of self-management amongst the fishermen - this is the approach that has been taken in the Lyme Bay Reserve. However, without any legal enforcement, there is no incentive for vessels from outside the local area to fish within the limits set by the agreement. This can lead to increased conflict and losses for the local fishermen that support the principles of the Reserve. Ultimately, while a voluntary approach can be a very useful way of introducing measures that are agreed by the local fishing community, if the area is accessible to fishermen from further afield, a formal legal route may be needed.

The full Codes of Conduct can be downloaded from: [www.lymebayreserve.co.uk/about/code-of-conduct](http://www.lymebayreserve.co.uk/about/code-of-conduct)

## Lyme Bay and Torbay MPA Fisheries Management Plan

The Lyme Bay Reserve sits within the wider Lyme Bay and Torbay Special Area of Conservation (SAC). Management of activities within the SAC, which spans the coast across Dorset and Devon, is the responsibility of two Inshore Fisheries and Conservation Authorities (IFCAs) – Southern IFCA and Devon & Severn IFCA.

To provide clear and accessible information on the Lyme Bay and Torbay SAC and its management, a Fisheries Management Plan was developed. This was part of a 'Community Planning in MPAs' Project, carried out in partnership between the two IFCAs and the Dorset Wildlife Trust, and funded by the East Devon Fisheries Local Action Group.

The project aspiration was to engage Dorset's local communities in the development of the UK's Marine Protected Area network and the management of fisheries practices that

simultaneously enables small-scale sustainable fisheries to continue to thrive alongside the environmental and cultural benefits of MPAs.

The Fisheries Management Plan was developed through a series of workshops in 2018 and the final plan was published in November 2019. The plan covers the key features of the site, the evolution of the Lyme Bay and Torbay MPA through community led and regulatory management, and a summary of ongoing fisheries management within the MPA. It details the role of partners in MPA management and opportunities for the community to complement the governance of the site, ensuring not only the integrity of conservation objectives, but also the sustained promotion of thriving communities across Lyme Bay as a direct result of collaborative management initiatives and active community engagement, and ownership, within the MPA.

Download the **Lyme Bay and Torbay MPA Fisheries Management Plan**



## Lyme Bay Fisherman's Community Interest Company

Blue Marine facilitated the Lyme Bay Reserve project for over a decade, working together with fishermen, regulators and scientists to demonstrate that conservation and fishing can co-exist and deliver benefits for nature and people.

In 2022, Blue Marine supported the establishment of a new Lyme Bay Fisherman's Community Interest Company (CIC) that represents fishermen across the Lyme Bay area and engages with regulators and others to promote sustainable fishing. The CIC is overseen by a representative from each of the four ports and has 47 members from across the Lyme Bay fishing community.

The objective of the CIC is to "carry on activities which benefit the community and, in particular, to implement best practice in protecting the biodiversity of Lyme Bay, to implement best practice in managing fish and shellfish stocks, and to create long term benefits for coastal communities around Lyme Bay."

These reflect the objectives of the Lyme Bay Fisheries and Conservation Reserve MoU, and the CIC will take forward many of the initiatives developed in collaboration with Blue Marine and partners over the past decade, including:

- Improvements to transportation for low-impact fishermen
- Collaboration with Universities, regulators and NGOs to monitor the impact on fish stocks and the marine environment
- Schools and outreach programme
- Website to engage and inform the public
- Develop relationships with ethically minded businesses, both locally and nationally, to supply and sell Lyme Bay branded fish and shellfish

The CIC is a pioneering approach, representing a fishing community that has fully embraced – and promotes – conservation and sustainable fishing practices within the MPA to safeguard fish stocks and the marine environment for future generations.



# LYME BAY RESERVE JOURNEY

## 1988

- Lyme Bay inshore reefs identified as an area of marine nature conservation interest in 'A Coastal Directory for Marine Conservation' compiled for the Marine Conservation Society by S. Gubbay

## 1993-1997

- A series of studies and reports highlight the nature conservation value of Lyme Bay Reefs, including a list of 27 important areas for marine wildlife

## 1998

- Devon Wildlife Trust initiates Lyme Bay Reefs Project, involving local fishermen in project steering group
- 86 dive sites surveyed showing that Lyme Bay hosts a large number of important and fragile habitats

## 2000-2001

- Southern Sea Fisheries Committee (SSFC) investigates feasibility of byelaw to protect reef features
- Faced with opposition, SSFC conclude voluntary approach more likely to succeed

## 2001

- Devon Wildlife Trust, South Western Fish Producers' Organisation and local fishermen develop a voluntary agreement to protect the reefs, closing two small areas, Lanes Ground and Saw Tooth Ledges to bottom trawling and scallop dredging

## 2005

- Number of scallop boats increased from 9 to 20, with boats travelling from other UK ports to take advantage of scallop stocks and high prices, leading to a breakdown of voluntary agreements

## 2006

- Natural England applies for a Ministerial Stop Order to close 206 km<sup>2</sup> of Lyme Bay to dredging

## 2008

- The Lyme Bay Designated Area (Fishing Restrictions) Order 2008 closes 206 km<sup>2</sup> to scallop dredgers and bottom trawls

## 2011

- Designation of Lyme Bay and Torbay as a candidate Special Area of Conservation (cSAC) covering 312 km<sup>2</sup> (trawling ban applies to 236 km<sup>2</sup>)
- Lyme Bay Reserve Working Group set up by Blue Marine

## 2012

- Lyme Bay Reserve Working Group Memorandum of Understanding signed
- Code of Conduct agreed for commercial fishermen

## 2013

- Southern IFCA and Devon & Severn IFCA introduce spatial closure restrictions for all methods of bottom towed fishing gear, increasing the area protected to 236 km<sup>2</sup>

**2014**

- Code of Conduct agreed for recreational sea anglers
- Integrated Fisheries Management Plan published
- Chiller unit and ice machine installed in Beer
- Fishermen's exchange visit to California

**2015**

- Chiller unit and ice machine installed in Axmouth
- Reserve Seafood launched
- Fully Documented Fisheries project report published
- Socio-economic study completed
- Schools Outreach programme launched

**2016**

- Lyme Bay Reserve exhibit opens in Seaton Jurassic Centre

**2017**

- Lyme Bay and Torbay Special Area of Conservation formally designated
- Chiller units in Lyme Regis and West Bay installed

**2018**

- 4Ports Transport van scheme set up

**2019**

- Lyme Bay hosts visit from Mediterranean fishing communities
- Lobster store installed in Axmouth

**2020**

- Lyme Bay - Road to Recovery film released

**2021**

- University of Plymouth publish paper on storm resilience of Reserve biodiversity following storm impacts
- University of Plymouth publish study of optimum potting thresholds

**2022**

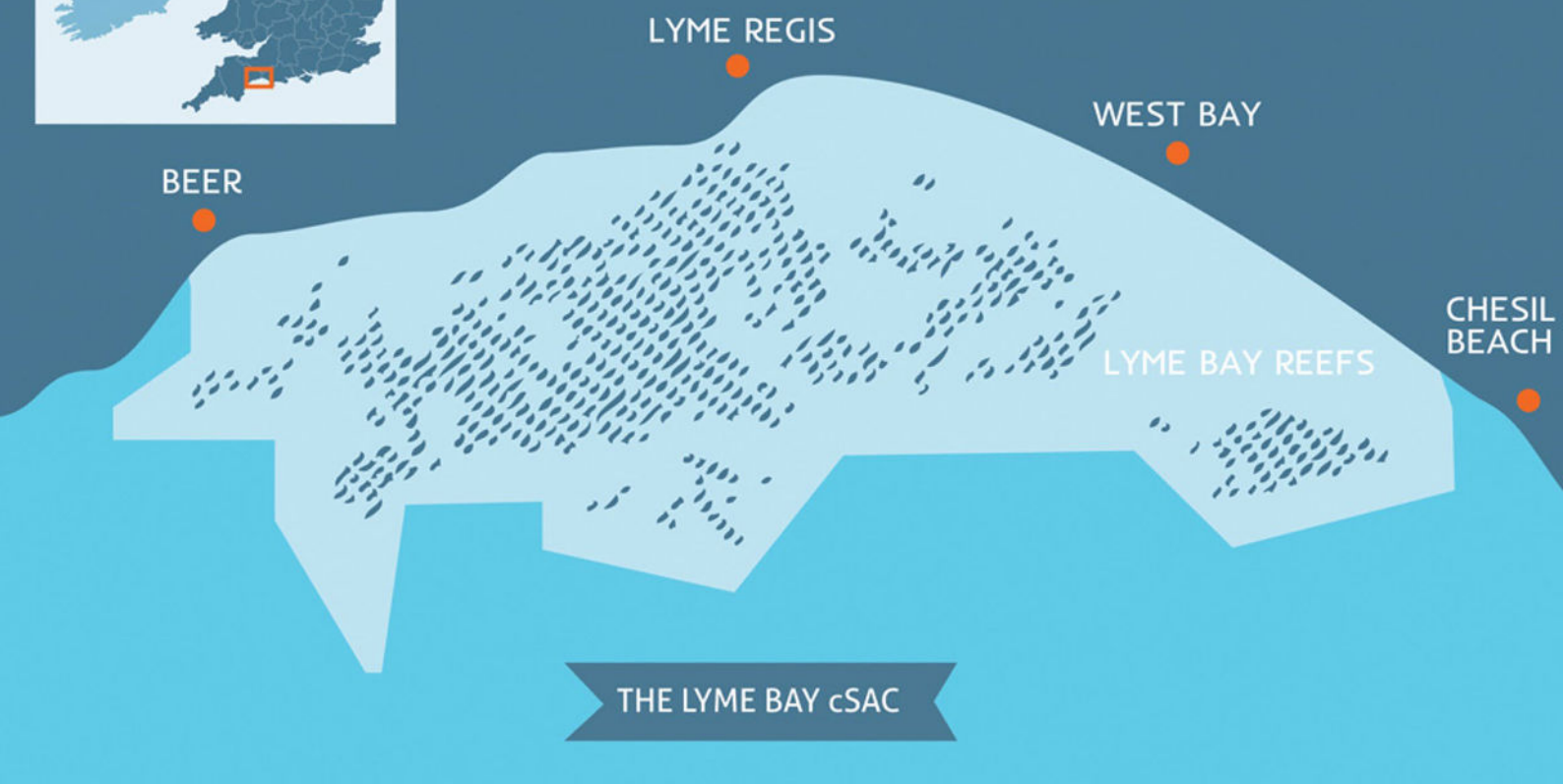
- Lyme Bay Fisherman's CIC established

**2023**

- Lyme Bay Reserve special session at International MPA Congress, Vancouver

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