BLUE MARINE FOUNDATION

BLUEPRINT
FOR MARINE PROTECTED AREAS

A guide to establishing and managing marine protected areas

CONTENTS

A BLUEPRINT FOR MPAs
– purpose of the guide

This BLUEprint provides guidance for groups and communities planning or developing a marine protected area (MPA) through a framework of questions. The guidance is supported by case studies drawn from projects where Blue Marine Foundation has had years of involvement. It is designed to be used by anyone championing the establishment of a new MPA or involved in its management and we hope it provides some useful insight to support long-term success.

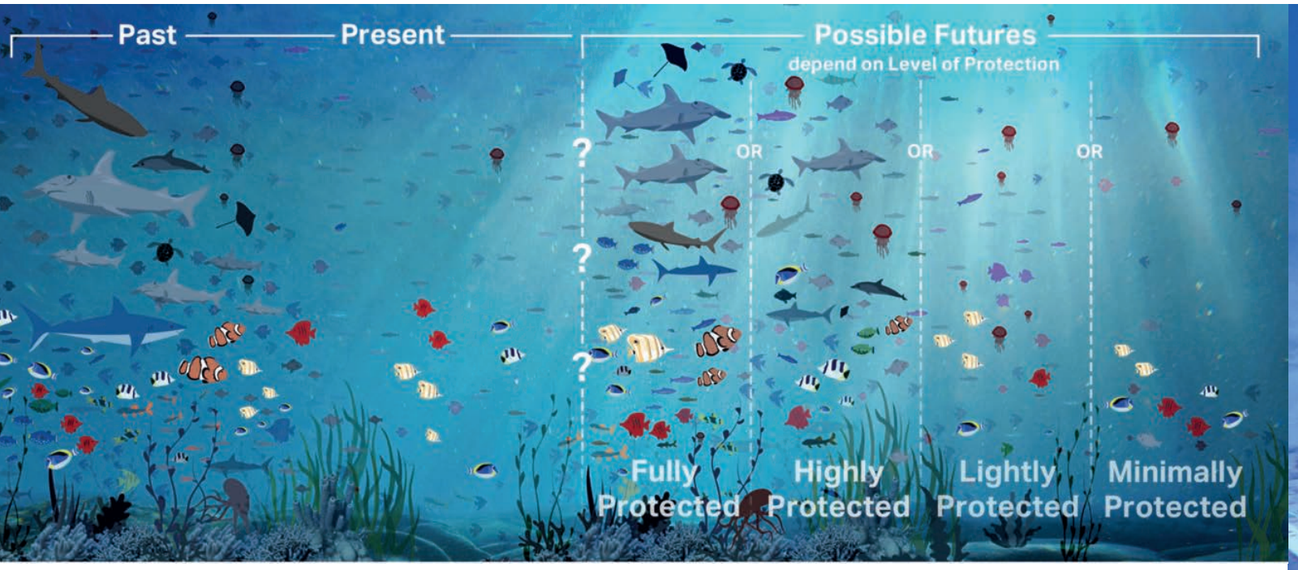
Ocean protection requires a suite of approaches, including the establishment of effective MPAs, sustainable management of fisheries and other extractive industries, climate abatement, and control of many types of pollution including agricultural and human waste, invasive species, noise and plastic. Blue Marine's approach frequently involves collaboration between governments, regulators, fishermen, scientists and conservationists, and has shown that by understanding the issues and working closely with governments and marine users, people's livelihoods can be improved alongside conservation of critical marine biodiversity and ecosystems.

Creating MPAs is a complex process, with every situation and location different, requiring a variety of tools and techniques to research, engage, finance and deliver. However, four key elements are applicable in almost all situations: information that is available or should be obtained; people who are intrinsically linked to the area; the economics of establishing and financing the long-term success of the protected area; and appropriate management measures required. Lack of engagement in any one of these critical areas will reduce the effectiveness of the conservation efforts or could cause the MPA to fail altogether.

Blue Marine has worked with governments and local stakeholders in locations in the UK, the Mediterranean, the UK Overseas Territories and internationally, to develop collaborative and sustainable approaches to management of MPAs. From developing a model of sustainable fishing in the Lyme Bay marine reserve on the South Coast of England, to delivering an endowment fund to support a fully no-take large MPA in Ascension, Blue Marine has experienced many challenges and successes through the evaluation, consultation and implementation process.

Blue Marine's approach frequently involves collaboration between governments, regulators, fishermen, scientists and conservationists.

Blue Marine staff complete coral reef surveys in the Maldives.



Left: Grorud-Colvert et al (2021) describe different biodiversity outcomes relating to four levels of MPA protection. **Above** Gathering data on conch stocks to inform development of sustainable fisheries practices in St Vincent and the Grenadines

THE GLOBAL NEED FOR MARINE PROTECTION

Scientists agree that, in order to conserve marine biodiversity, avoid runaway climate change, protect blue carbon habitats and ensure food security, we need to place at least 30 per cent of the ocean under meaningful protection. To achieve this 30 per cent target, the establishment of MPAs needs to be an attainable and practical option for coastal and island communities.

Currently, only approximately 7.7 per cent of the global ocean is under some kind of protection (https://mpatlas.org/). Of this, only 2.9 per cent of the world's oceans are fully protected, so establishing more highly or fully protected MPAs as defined by the framework in Grorud-Colvert et al. (2021) is a critical global necessity. Many so-called MPAs either allow industrial-scale fishing or are beset by illegal, unregulated and unreported fishing, and lack the necessary management and enforcement to be effective. To deliver worthwhile levels of protection and be more than 'paper parks', MPAs must ban all destructive fishing methods, prohibit deep-sea mining and dumping at sea, and reduce impacts of other activities to ensure the desired biodiversity outcomes and climate-resilience potential of an MPA are achieved. This does not mean that all MPAs should be no-take or no-access areas: acceptable types and levels of activity for effective protection are detailed in Grorud-Colvert et al. (2021). There are many examples where activities such as low-impact, selective or artisanal fishing and recreational access are managed at a sustainable level considered compatible with MPA goals.

Based on data from a comprehensive literature review of MPAs, the UK government is leading a Global Ocean Alliance (GOA) of countries who wish to see at least 30 per cent of the global ocean protected as MPAs or Other Effective area-based Conservation Measures (OECMs) by 2030 as part of the UN Convention on Biological Diversity – the 30by30 initiative (https://www.gov.uk/government/topical-events/global-ocean-alliance-30by30-initiative). There is also an international High Ambition Coalition (HAC) of countries that have committed to protecting 30 per cent of their own lands and ocean by 2030.

Meaningful protection of our oceans is key to stemming global marine biodiversity loss. With 83 per cent of the global carbon cycle circulated through the oceans, MPAs also play a critical role in mitigating the impact of climate change.

Meaningful protection of our oceans is key to stemming global marine biodiversity loss.

They do this through building resilience and adaptation and safeguarding species that sequester and store carbon. MPAs also protect areas of stored carbon from disturbance. Marine protection can also support economic development by bringing employment back to local communities (Moeliono et al. 2013).

WHAT ARE MARINE PROTECTED AREAS?

Marine protected areas (MPAs) are areas of the ocean where fishing and other extractive activities are restricted to protect species, habitats, cultural heritage and ecosystems. A recent scientific publication (Grorud-Colvert et al. 2021) divides MPAs into four levels of protection: fully, highly, lightly or minimally protected, with fully protected MPAs being complete no-take zones, where all types of fishing and other destructive activities are prohibited and there are strict regulations on other human non-extractive activities within the area. This is equivalent to an International Union for Conservation of Nature (IUCN) Category I MPA). Lightly or minimally protected MPAs will allow fishing to continue at a managed intensity and/or with restrictions in place (in line with IUCN Category VI MPAs).

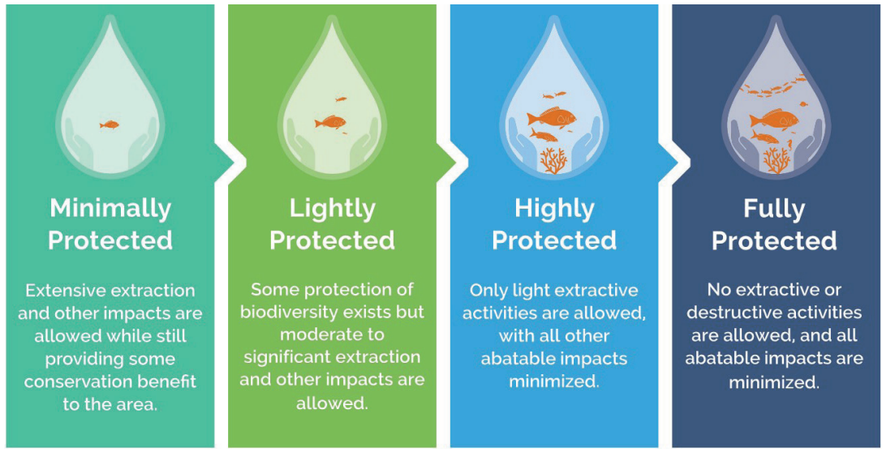
Within their MPA Guide framework, Grorud-Colvert et al. (2021) clearly define which activities are incompatible with MPAs. They scientifically demonstrate why it is imperative that the activities within the multi-use MPAs should be managed sustainably and that destructive activities (e.g. dredging, bottom trawling, mining, dynamite fishing, fishing with monofilament nets, etc.) should be banned, so that these MPAs can or will function as per their primary purpose to conserve and restore marine ecosystems. Otherwise, they are an MPA in name only – a 'paper park'.

The Grorud-Colvert MPA Guide framework, which strategically complements the IUCN Protected Area Categories, has four components:

1. Stages (Proposed/Committed, Designated, Implemented or Actively Managed)
2. Levels (Fully Protected, Highly Protected, Lightly Protected or Minimally Protected)
3. Conditions (key conditions that must be in place for the MPA to achieve its goals)
4. Outcomes (the ecological and social outcomes expected from different types of MPA).

The Grorud-Colvert MPA Guide framework can be used to link stage and the level of protection with expected outcomes and can be used to accompany this BLUEprint throughout the MPA process.

Fully protected MPAs are complete 'no-take', where all types of fishing and other destructive activities are prohibited.



Left: Grorud-Colvert et al (2021) describe four levels of management for MPA protection

CAN A FISHERY AND MPA CO-EXIST?

Fully no-take MPAs offer the highest level of protection and are the most effective in protecting ecosystems, helping provide climate change resilience and allowing stocks to recover from overfishing. However, if fully protected MPAs are not achievable (due to the need to support local livelihoods through fishing), highly protected areas can still deliver considerable conservation gains while helping benefit local communities. MPAs are also reconcilable with highly selective, low-impact sustainable fisheries, but only if the fisheries are strictly and effectively managed, with a clear plan of measures to control the amount of fishing and thus allow the marine ecosystem to thrive and fulfil the purpose of the MPA. Destructive fishing methods (e.g. bottom-trawling, dynamite-fishing, gill nets etc.) and targeting endangered species or vulnerable stocks are not under any circumstances compatible with MPAs, and would render them ineffective.

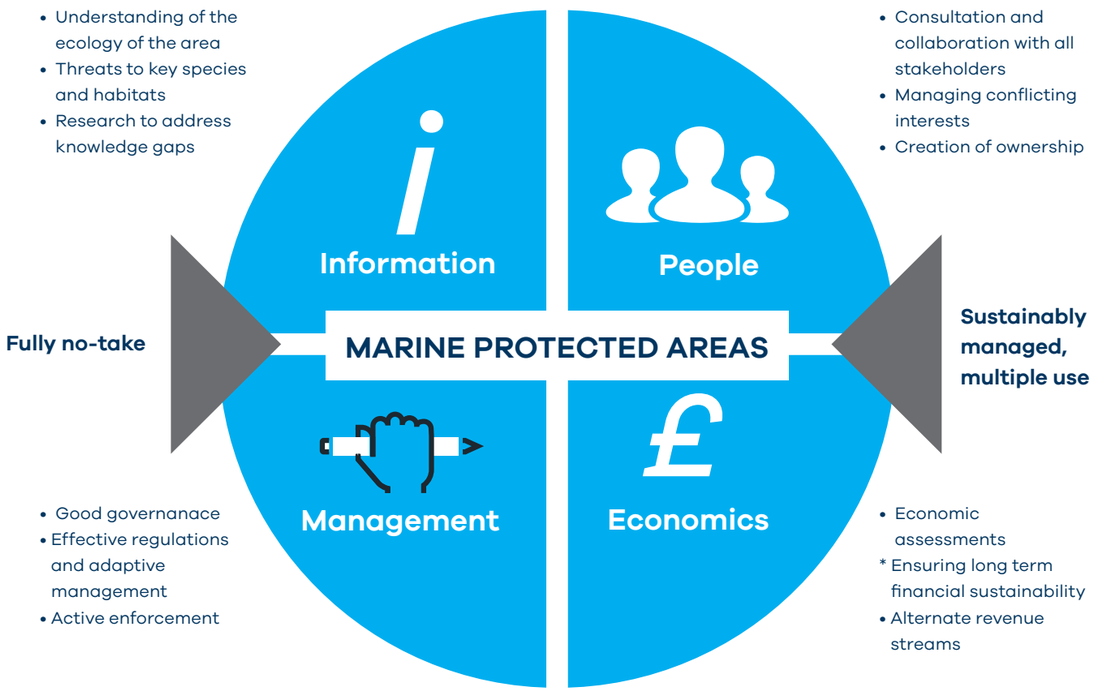
There is often resistance to the creation of MPAs when fishing activity is restricted and when stakeholders are not fully engaged in the process or made aware of the potential benefits. Consideration of alternative livelihoods and ensuring a managed and just transition from destructive to sustainable fishing methods needs collaboration and understanding from all parties. The development of approaches that engage all interested parties from the outset and highlight how MPAs can deliver economic, cultural and social benefits to communities is an effective and enduring way of achieving effective protection.

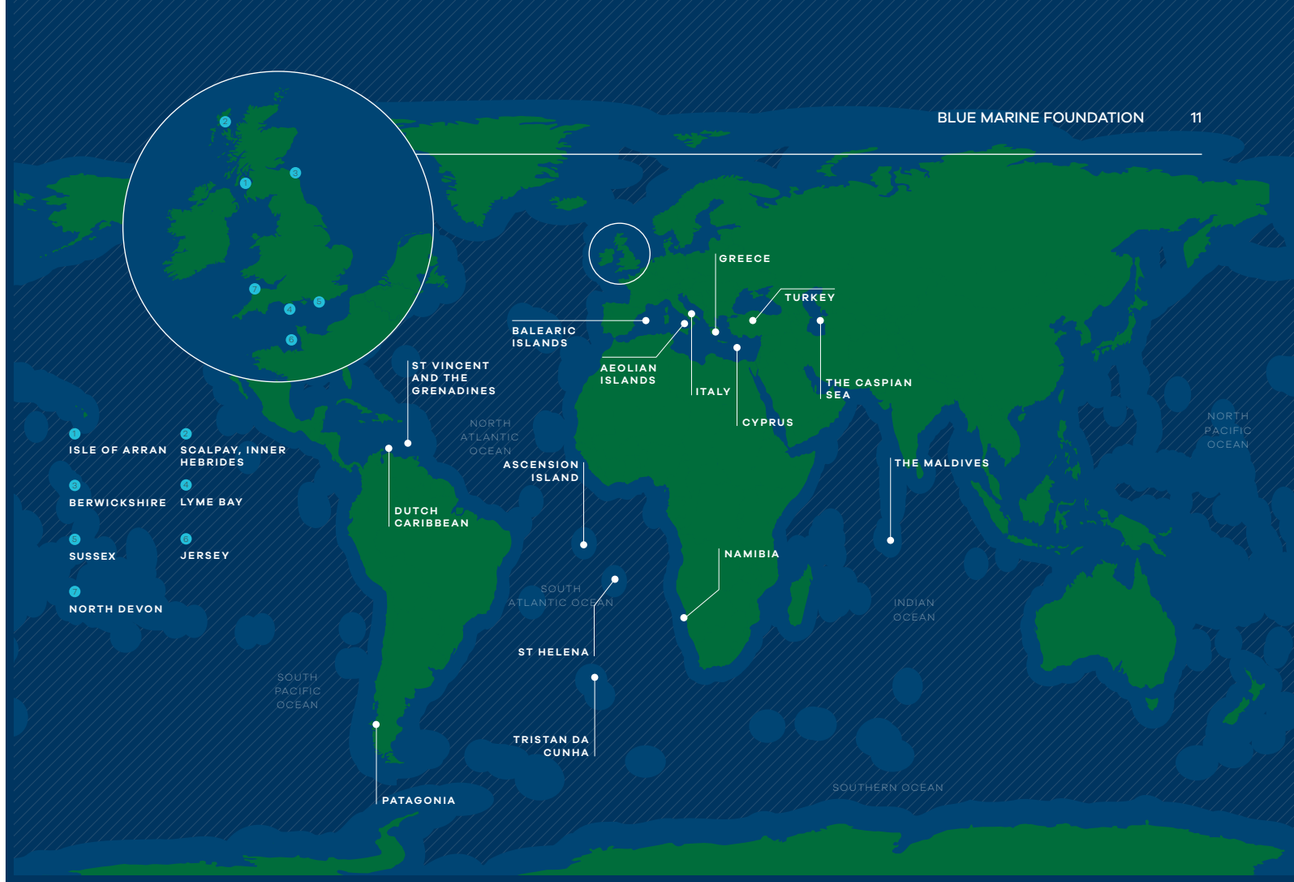
Establishing and managing MPAs, especially where there are fisheries or multiple-use interests, is a complex process and requires detailed understanding of the ecology of the area, threats to key species and habitats, engagement with all interested stakeholders, economic evaluation to ensure long term financial sustainability and development of management measures that will effectively protect marine ecosystems while supporting sustainable, low-impact activities. Delivering effective marine conservation in conjunction with sustainable use is very site-specific. We have tried as far as possible to outline questions which are universal, along with the information that needs to be gathered to determine appropriate next steps.

HOW TO USE THIS BLUEPRINT GUIDE

This BLUEprint provides a framework of questions and information that should be considered in the scoping and implementation process. It is designed to be used by NGOs, government bodies, policy makers, community groups or other stakeholders involved in establishing and managing an MPA.

The steps and tools for developing fully protected MPAs and those that involve collaborative management of fisheries and conservation interests fall under four key themes: Information, People, Economics and Financing, and Management, from the concept stage (before), through active management (during), to review (after designation and during ongoing management). Questions prompt consideration of the specific situation, challenges or opportunities within the proposed MPA. This framework can be applied to all types of initiatives from locally-led, low-impact fishing models for inshore MPAs, through to large-scale, no-take MPAs.





Case study examples from Blue Marine's projects and initiatives are provided as separate documents online (www.bluemarinefoundation.com/MPABlueprint) alongside the general framework, drawing on the successes and lessons learnt from Blue Marine's involvement in establishing and supporting MPAs and sustainable models of fishing around the world including:

- Lyme Bay Reserve, Dorset, UK
- Berwickshire, UK
- Marine Pioneer North Devon, UK
- Jersey, UK
- Aeolian Islands, Italy
- Ascension, mid-Atlantic
- St Helena, south Atlantic
- Turkey, Eastern Mediterranean

There is no "one size fits all" model for managing MPAs so this BLUEprint aims to provide a "toolbox" of ideas which can be customised by local community stakeholders to establish a framework for the development and management of their MPA.

Through sharing our experiences Blue Marine aims to help others:

- Foster community support for MPAs;
- Support recovery of sustainable and viable low-impact inshore fisheries;
- Provide policy makers with the information necessary to make effective and enduring decisions regarding marine conservation;
- Consider financial models for long-term sustainability of the MPA;
- Give all stakeholders a voice and platform to share ideas and concerns;
- Bring together stakeholders to develop common goals and management plans;
- Provide opportunities for fishermen, sailors, divers, tourists and other users to identify, design and take part in research.

Above: Blue Marine has supported the establishment and management of MPAs in over 30 locations worldwide

Information

Scoping studies are critical prior to engaging in discussions on the introduction of an MPA.

Understanding the ecology of the area, and the threats and current impacts on species and habitats through examining information and data allows clear objectives for the MPA (and any sustainable fisheries within it) to be formulated. Evidence-based decision making ensures management measures are robust and justified, helps establish management changes that reduce the threats and improves the marine ecosystem and helps fisheries become truly sustainable. It is important to establish a baseline and indicators against which to measure changes and the success of the MPA, such as increased habitat range, species abundance, diversity, commercial landings, or reduced levels of bycatch or disturbance.

Blue Marine staff undertake fish surveys on coral reefs in the Maldives

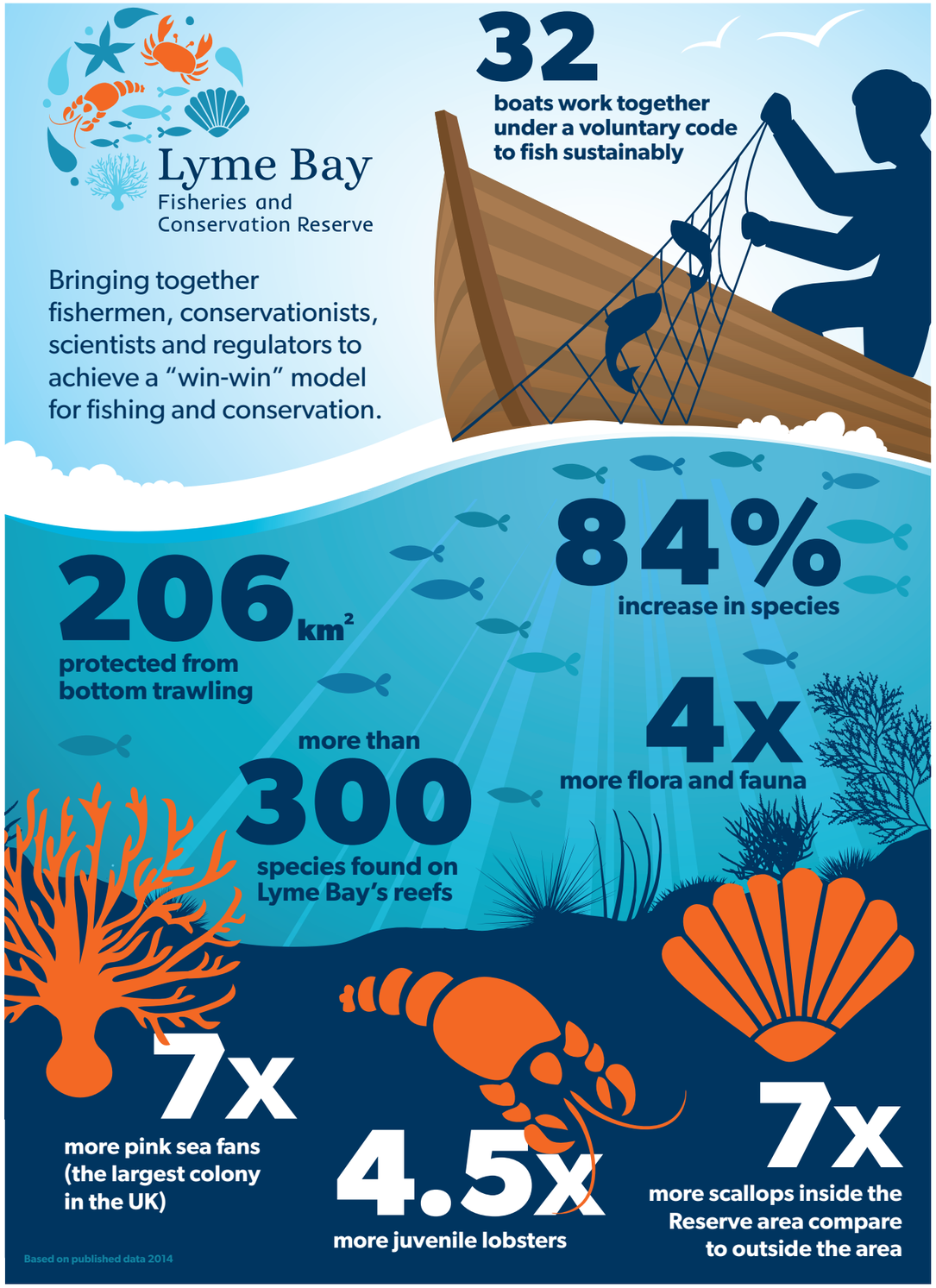
Information on the current situation and dynamics within the area can initially be gathered through desk-based study, alongside engagement with locals who understand the area (e.g. boat operators, divers, fishermen, regulators and researchers). Care should be taken during the scoping phase, as people can quickly jump to the wrong conclusions, so time should be spent seeking to understand and appreciate people's use of the area. Stakeholders should be asked to identify any changes observed in the marine environment and any concerns or stories fishermen and other users have about changes in their catch (e.g. which species are most abundant and where they are caught).

It is important to identify the most vulnerable species or habitats and the greatest threats to them, while taking into consideration which of these threats could be tackled with a specific action. Where direct evidence is lacking, anecdotal information or personal records, such as fishermen's log books, can be valuable in establishing which species and habitats are in decline, as they can provide insight into issues in the area and potential solutions. Data and information from elsewhere can also be used where local information is lacking.

The initial scoping of available information, consultations and engagement with key marine users of the MPA or proposed protected area can take several months, but ensures comprehensive understanding of the ecosystem, fisheries, history and community dynamics to inform the answer to the vital question: 'what problems are we trying to solve here?' Once the main issues have been identified, research and management strategies can be developed - strategies that should be adapted as new data becomes available.

Formulation of a long-term research master plan is essential to focus resources on gathering the evidence to best inform management actions. Identify and prioritise knowledge gaps and spell out the projects needed to deal with them. Any information gathered must be targeted to what is required by policy makers in order to take evidence based decisions on how to deliver effective MPAs and any sustainable fisheries that operate within them, and to prove success to stakeholders of any measures introducedInformation about the purpose, benefits, measures and progress associated with an MPA needs to be communicated throughout the process to a wide range of stakeholders, particularly those directly affected.

Identify the most vulnerable species or habitats and the greatest threats to them, while taking into consideration which of these threats could be addressed by a management action.



FRAMEWORK FOR INFORMATION GATHERING:

BEFORE

i) Why is a MPA necessary in this location?

What are the main environmentally important features of the area?

Consider:

- Whether any rare, endangered or nationally important species use the area?
- Is the area critical for any sensitive life stage (e.g. spawning) of rare, vulnerable, or commercially important species?
- Any ecologically significant habitats in the area (e.g. carbon sequestering habitats, seamounts, nursery areas, spawning grounds etc.)?
- Any nationally or internationally important habitats within the area?
- Any particularly fragile ecosystems?

What would be the main advantages of protecting or increasing protection for the area?

Consider:

- Will protection increase species numbers?
- Will protection increase resilience to climate change?
- Will protection increase fish stocks to support local fisheries?
- Will protection improve water quality or reduce pollution?
- Will protection improve carbon storage and/or oxygen production?

What are the greatest threats to the marine environment being considered for protection?

Consider:

- ***Fishing***: commercial inshore/offshore (consider any particularly damaging fishing methods e.g. bottom trawling, fishing with monofilament nets etc. and any specific fishing locations), sport fishing, spearfishing, subsistence, recreational, main species targeted (and main bycatch species), any evidence or anecdotal information on species or habitats in decline or threatened, any illegal fishing reported?
- ***Tourism***: numbers of visitors (high, medium or low), land-based or cruise-ship tourism, seasonal with peaks of high impact, localised or widespread?
- ***Recreation:*** diving, snorkelling, kayaking, sailing, jet-skis, other water sports and their potential interaction / disturbance of nesting, breeding or resting animals
- ***Boating***: anchoring (are these damaging habitats), visiting yachts/vessels (could they lead to influx of invasive species), pollution from boats, marine mammal interactions. Are there any moorings at well-used sites, e.g. for diving, sailing boats?
- ***Anchoring and transit*** of large vessels, issues with dumping or ballast water, what are current transit routes/usage?
- ***Coastal development***: how much and location? Industrial, local housing or for tourism?
- ***Extractive operations***: sand and aggregate extraction, deep-sea mining
- ***Aquaculture operations***: fish, shellfish, crustacean, seaweed farming – consider feed/antibiotic inputs, pollution outputs, eutrophication, escapes, non-native species introductions
- ***Invasive species***: lionfish, non-native species of seagrass and seaweed
- ***Water quality issues***: industrial discharges, pollution reports, waste disposal, sewage outflows, agricultural run-off, coastal erosion and sedimentation
- ***Sedimentation from land runoff*** (agricultural/overgrazing), dredge spoil dumping, river dredging
- ***Climate change and natural events/ disasters***: hurricanes that cause regular, or large-scale damage, increased sedimentation due to increased rainfall and storms, changes in water temperature

ii) What current baselines exist or are needed?

Establishing a baseline for all data is vital. What baseline data is required to determine management measures needed and to monitor and evaluate the impact of any protection implemented?

Suggested baseline data:

- Species (including threatened or vulnerable): abundance, diversity, range, dominance of predators or grazers
- Habitats: diversity, area and range
- Fisheries catch data: species, volume, value, gear types, areas fished
- Commercial species stock data
- Bycatch species and quantity
- Recreational marine use and income
- Tourism numbers and income
- Shipping traffic/routes
- Social perceptions of how the marine space is used
- Perceptions and attitudes towards existing or potential management
- Marine awareness amongst local communities
- Economic data (see economics and financing section)

What sources of data are there?

- Published scientific papers and reports
- Published and unpublished Government and industry reports
- Anecdotal evidence and interviews from long-term local marine users and residents
- Personal records, e.g. log books, diving records, photographs
- Historical newspaper articles

For the data that is available

Consider:

- How long has this been established?
- How accurate is data collection?
- Has the data been or is it being analysed?
- Is the data published in peer-reviewed literature (this carries more weight with decision makers)?
- What does this data show – stable/increasing/decreasing trends?
- Are there any gaps in the data?
- Is the data collated in a database or easily accessible format?

Blue Marine is establishing a baseline of ecological conditions and the pressures from different marine stakeholders on the Berwickshire MPA

iii) What are the key research and data shortfalls and questions?

Consider:

- Critical habitats – extent, health, use as spawning or breeding areas
- Vulnerable species or species of commercial importance - stock size, spawning periods, key spawning or nursery habitats, predation
- Bycatch species – biology, impact of fishery on populations

What needs to be monitored to prove the success of, or issues with, any existing or new management measures?

Consider:

- What questions are the long-term data looking to answer – what is the goal to attain? For example, recovery to historic extent of habitat, recovery to previous abundance levels, percentage increase in abundance?
- What are the priority, reference or indicator species and habitats to monitor - nationally or commercially important, endangered, vulnerable to specific pressures?
- What quantity of data is needed to ensure scientific robustness?
- Are there appropriate control sites where management or protection is not in place against which to assess relative impact of protection and management measures?
- Who will analyse the data – what skills or capacity are needed to do so?
- What frequency of data collection is needed to detect seasonal or temporal changes?
- How frequently should the data be reviewed and presented to inform management and policy allowing for natural variability?
- What resources are available to ensure long-term affordability (financial and human)?

Formulation of a long-term research master-plan is essential to focus resources on gathering the evidence to best inform management actions.

iv) How will data be collected?

What data collection methods would work in this area?

Consider:

- Stakeholder interviews, surveys and questionnaires to assess the usage, values and income associated with the area
- Diver surveys to monitor species and habitat diversity – carried out by volunteers, management organisation or NGO
- Static or towed video camera units to monitor benthic species
- Fisheries-pressure mapping
- Technology – Vessel Monitoring Systems, onboard cameras, blockchain, satellite telemetry, drones
- Links with research organisations
- Collaboration with government and regulatory bodies
- Can similar data from other areas be used as a proxy?

What is the level of scientific expertise and capacity available locally and who will carry out the research?

Consider:

- Local expertise within the organisation leading MPA implementation
- Local/regional research institutes, Universities and colleges – MSc and PhD students
- Government bodies and enforcement agencies
- Stakeholders – fisheries/scientist partnerships lead to greater understanding of the value of data and buy in to the results
- Could local fishermen be paid to support research?
- NGOs and community nature groups
- Divers, sailors, anglers
- Marine aquarium and wildlife park/zoo staff and volunteers
- Is training available to upskill staff and volunteers? Local/regional/online?
- What resources are available e.g. research vessels, charter boats?

DURING

i) Keeping stakeholders informed

How do you ensure the data collected provides acceptable evidence to inform management decisions?

Consider:

- Ensure research agreements allow for open sharing of data
- Engage stakeholders, especially policy makers, in the design and prioritisation of research
- Involve fishermen or charter boats in data collection, paying for boat hire
- Ensure results feed into management plans and recommendations
- Build trust with local stakeholders through regular open and transparent evaluation and publication of data

How do you ensure stakeholders are kept informed?

(See also People section)

Consider:

- Regular communications through public workshops, newsletters, video reports/films, presentations, scientific papers, government memos, press releases, school talks
- Working groups with representative members that commit to feedback to their stakeholders
- Education and outreach programmes
- Different formats tailored for different stakeholders
- Frequent updates - regular communications help ensure stakeholder ownership

Scientific research provides baseline data for the Ascension MPA

ii) Quality, continuity and consistency of data and data ownership

How do you ensure data is recorded regularly?

Consider:

- Create stakeholder ownership (see People section)
- Reward schemes e.g. tag return payments, prize draw for catch returns
- Incorporate data collection within fishing licence and permit requirements
- Collection by staff/volunteers
- Citizen science initiatives involving visitors and local residents

How do you ensure accurate and reliable data?

Consider:

- Training for fishermen/marine users/local residents
- Simple repeatable forms and methods for data collection
- Online forms with selection options rather than free text

How do you ensure correct legal use and protection of any data?

Consider:

- Setting up a data agreement with any institutions, fishermen or other stakeholders involved in research or data collection
- Is there a system in place for processing and protection of personal data, ensuring no risk to infringement of rights and freedoms?
- Is credit needed for any photographs/ images used; data/information correctly referenced, permissions for usage sought?

AFTER

i) Reporting results

How do you present scientific data and information on progress?

Consider:

- Show clear trends against established baseline
- Publish consolidated research results frequently (at least every four to five years) to show trends
- Partner with research institutions to publish results in peer-reviewed literature
- Identify areas with similar ecology where different MPA management measures have been implemented to compare results for each management strategy
- Celebrate successes, such as the sighting of a particular species or recovery of a habitat
- Disseminate results via different media e.g. film, social media, newspaper articles (see also People section)

Engaging stakeholders and monitoring are key to effective management in the Laamu Atoll MPA, Maldives

ii) Long-term research planning

What knowledge gaps still exist or what new avenues of research are needed?

Consider:

- What is the long-term threshold or goal that will signify success?
- Has initial research identified new avenues of research, new threats to investigate?
- Prioritise further research on data that will inform management decisions
- Establish a long-term research plan to keep focus and funding directed at priority areas
- Identify research that could benefit marine users directly, for example alternative commercial species, alternative fishing methods

People

Stakeholder engagement is a major component of collaborative management from the outset and at every stage of the development and delivery of the MPA. Government commitment to the area is also imperative so everyone from grass roots level through to decision makers is invested in the MPA.

Failure to consider the social and cultural needs of the area and local community will prevent local ownership - which is critical to effective MPA management. Ensuring that the purpose and benefits of any regulations or levels of protection to local fisheries and communities are understood from the outset is key, as it is often harder to get approval down the line, especially if stakeholders perceive that the protected area was established without their agreement.

Research shows that because MPAs are at the interface between social and ecological systems, short-term biological gains associated with MPA designation may be compromised unless social issues, specifically notions of equity resulting from the impact of the MPA designation, are addressed in the planning and management process (Rees et al., 2013). This local sense of ownership and pride in any

MPA, and any sustainable fisheries management measure within it, by the local community and maritime users is the very foundation of its long-term effectiveness and success.

As each stakeholder will have their own objective, gaining approval from all marine users is one of the most challenging aspects of establishing any new marine management measure. It is important to consider everyone who may have an interest in the marine area, while remembering the environmental threats and the necessity for a conservation organisation to represent the voice of nature. It is often wise to engage with those who are more outspoken early on (even though they may only represent a minority group) - firstly, to understand their issues and if they are real or perceived and to dispel any myths they have about the restrictions or the process; and secondly, to demonstrate willingness to listen to their concerns and instil confidence that it will be an open and transparent process. It is important to convey from the outset that a collaborative approach is being taken and that people will be actively encouraged to express their thoughts, ideas and concerns.

Establishment of a stakeholder group or forum is beneficial to bring stakeholders together to discuss the proposals, share their concerns and ideas, and develop an ongoing relationship built on trust and shared ownership. Having a forum where contentious issues can be discussed is an important part of the collaboration process, helping develop common ground and understanding of the requirement for marine protection and the development of an effective management plan (see Management section). The stakeholder group should be as inclusive and transparent as possible, meet regularly, and be properly resourced to ensure that discussions are recorded, communicated and acted upon. To ensure continued support, think long term, keep people updated and share the good news stories that will make people proud of their marine environment and feel invested in its protection.

Inshore fishing is often one of the most challenging areas. People may have been fishing, possibly completely unregulated, for centuries and see it as a way of life whether for recreational, subsistence or commercial fishing (both fishing and sport fishing). This is a complex group to engage effectively and there are often issues within and between the different fishing groups. One approach is to establish an inshore fishery sub-group as early as possible with representatives from each sector to openly discuss their concerns as well as the potential economic and environmental benefits that the MPA might create. For example, no-take zones can increase fish catches outside the closed area as a result of spill-over (Lorenzo et al. 2016), seafood branded as caught sustainably within MPAs can command higher prices. Discussions should include: the rationale and process for managing the area; what the information shows and why this is important; the social and potential financial benefits to individuals, businesses and the community; the different options available in terms of management actions; and how any changes in practices required to support management actions will be supported.

Above: Fishermen from different regions share their knowledge at a Lyme Bay- Mediterranean exchange event

To ensure continued support, think long term, keep people updated and share the good news stories.

Even if fishermen are the most vocal sector of the coastal community, they are not the only people who value and rely on the sea. Engaging the broader community, including residents, recreational users and visitors is also important.

BEFORE

i) Stakeholder mapping

Who are the main stakeholders that have an interest in or could be affected by any new protection measures?

Consider:

- Fishery representatives - commercial and recreational, local fishermen, fisherman associations, fish merchants
- Marine user groups – divers, anglers, sailors, snorkellers, kayakers, charter boat owners, those who rely on it for their leisure or health, tourists and other recreational visitors who aren't represented by an official body
- National/regional Government bodies and regulators - with responsibilities for fisheries management, nature conservation, marine development and planning
- Local government officials – Councillors, parliamentary officials
- Local communities
- Tourism operators and hoteliers
- Port and harbour authorities
- Science and research institutes
- Conservation and natural history groups

Are there any cultural sensitivities in terms of use of the marine environment?

Consider:

- Any culturally important areas
- Any traditional fishing grounds
- Any previous conservation initiatives which failed

How does the local community use the environment?

Consider:

- Commercial
- Subsistence
- Recreation
- Tourism
- Military

NGOs Blue Marine, Healthy Seas and the Aeolian Preservation Fund collaborated with local fishers and the coastguard to remove tons of lost fishing nets from Posidonia meadows and shallow reefs around the Aeolian archipelago

Are there any NGOs working in the area?

Consider:

- What is their focus/scope in the area?
- How are they connected?
- Local or international?
- Any controversial objectives?
- Any historic conflicts to be aware of?

ii) Stakeholder engagement

What should be considered for each of the stakeholders?

Consider:

- Values
- How their activity currently interacts with the proposed area
- Potential financial loss or gain
- Potential changes in their access to the area
- Any options for transition to alternative sustainable use of the area
- Recreational use
- Cultural/historic value
- Number of people represented
- Priorities for area use
- Pressures created by change in area use
- Spatial and temporal use of area
- Perceptions of existing or proposed management

What are the best ways to communicate with the stakeholders?

Consider:

- Working groups
- In-persons meeting
- Public meetings
- Radio/newspaper
- Social media
- Website
- Surveys and opinion polls
- Information/notice boards
- Newsletters (print/online formats)
- Communicating at the appropriate level for the audience
- All of the above

iii) Establishing a stakeholder group/ forum

Who should have a representative on the stakeholder group?

Consider:

- Fishermen (commercial and recreational) - consider having more than one fisherman from each port/ sector within the area
- Regulators
- Government bodies
- Local officials
- Environmental conservation representatives
- Scientists
- NGOs
- Recreational users
- Tourism representatives

How should the stakeholder group operate?

Consider:

- Whether the group is a consultative forum to review management plans developed by a lead organisation, or a working group that leads on development of management plans
- Governance structure setting out purpose and objectives for the group to be agreed by all
- Clear responsibilities and commitment from all representatives to support agreed objectives
- Transparent decision-making process
- Independent chair
- Minutes from meetings shared publicly
- Regular meetings to provide forum for discussion and sharing of ideas, building a relationship and bridge communication gap between groups
- Representation of all stakeholders equally to balance the interests of those who operate within the area with those who manage it to address the conservation threats
- Topics to be discussed - research, management, policy and funding. Problems faced in the area and potential solutions

iv) Setting marine management objectives

How do you establish the marine management goal? (More on management plans in Management section)

Consider:

- Public workshops to capture input from the wider community beyond the working group
- An independent facilitator to objectively collate and report views from all stakeholders
- The main issues the management plan aims to address
- Each stakeholder's priorities and concerns
- Impacts of the outcome on each of the stakeholder groups
- Benefits delivered by successful implementation of the management objective and how this impacts each stakeholder
- Timeframes for positive benefits of management objectives to be realised

Laamu Atoll Council on a knowledge exchange facilitated by Blue Marine to one of the few protected sites in the Maldives with a management plan

Fishermen in Sussex, UK, map out a potential voluntary conservation area

DURING

i) Resolving stakeholder conflict

How do you prevent or deal with conflicts between stakeholders?

Consider:

- Real or perceived threats from new management measures
- Evidence that can be provided to ease concerns of stakeholders
- Examples from other locations where similar management measures have worked or benefited marine users
- Invite speakers at meetings from other initiatives (representing fishing or marine stakeholders) to talk about their experiences and how they overcame conflict
- One-to-one meetings, if required, to give opportunities to understand and resolve issues outside a public forum

ii) Knowledge exchanges

How do you share knowledge between stakeholders?

Consider:

- At working group meetings
- At public meetings to celebrate milestones, e.g. five years, ten years
- Public access to information on the MPA through website or displays in local centres
- Videos sharing the story from different stakeholder perspectives
- Hosting fishermen and stakeholders from other areas

Engaging school children in the Maldives with Blue Marine's interactive Makerzine to learn about the importance of protecting their local waters

AFTER

i) Training

What training is needed to ensure long-term delivery of management actions and successful stakeholder engagement?

Consider:

- Online training, for example: Massive Open Online Courses (MOOC) on MPAs or NOAA National MPA Centre
- Universities (national and international)
- Workshops
- Secondments
- Apprenticeships

ii) Education

What education opportunities are there to inspire interest in the marine environment and its protection?

Consider:

- What is currently included in school curricula?
- What is current level of knowledge amongst the local community about the marine environment and its importance?
- Targeting both schools and activity groups (e.g., Scouts/girl guides/conservation groups)
- In-class sessions given by fishermen and marine users
- Development of resources for use in class
- Regular events - marine awareness week, monthly newspaper columns
- Talks from local or international experts
- Practical engagement opportunities - dive, snorkel, boat trips
- Scholarships

iii) Communications

What are the main means of communication to your different stakeholders?

Consider:

- Newspaper
- Radio
- Community meetings
- Peer to peer
- Social media
- Website
- Videos

Who can help generate positive media?

Consider:

- Establish links with large organisations e.g., Universities, NGOs
- Influential or well-known individuals connected to the area or the conservation issue
- Cultivate a champion who will help with promotion, e.g. someone linked with the local paper

What are the features you can use to promote the marine management strategy and its benefits?

Consider:

- Charismatic species
- Charismatic/well respected individuals
- Globally significant species and habitats
- Unique features
- Stakeholder testimonials
- Terminology used – world leading, largest, novel

Economics and financing

MPAs, and any sustainable fisheries within them, will only be adopted, and then endure, if they are economically viable. Stakeholders often have concerns that expanding protected areas will reduce food security and lower income for fishing communities, or that environmental concerns should be secondary to economic development.

However, multiple studies have shown that marine protection increases fish stocks and improves livelihoods. When managed properly, MPAs can turn around declining fisheries, create jobs and increase prosperity (RPA 2020). Fully protected MPAs alongside sustainably managed fisheries can help replenish local fisheries. Fish stocks become more abundant within fully protected MPAs, and they also grow larger, producing a disproportionately larger number of eggs (Marshall et al. 2019).

Critical to success is a realistic sustainable financial plan that will create ownership and a self-sustaining partnership for the long term.

Effectively managed MPAs can provide significant economic benefits to local fishermen due to the 'spill-over effect', whereby more and larger fish spill out from the protected area into the surrounding fishing grounds, increasing fishermen's catch and income compared to before the MPA existed (Roberts et al. 2001, Goñi et al. 2010).

Identifying and working with communities to develop tangible financial and commercial support initiatives is extremely important in persuading fishing communities that adopting conservation and sustainable fisheries management measures will bring them long-term gains. Alternative revenue streams unlocked due to the presence of the MPA (other than sustainable fishing) may also benefit local communities, for example, from increased tourism, Blue Marine carbon funding and philanthropic support (WWF 2009). An example from an economic valuation in 2017 demonstrated that the Cabo Pulmo MPA in the Sea of Cortez, Mexico, creates more than US$15 million for local residents each year due to the growth in tourism.

The level of success and sustainability of MPAs depends on the budget available to support the conservation measures, such as hiring staff, managing, monitoring and enforcing the protected area, investing in infrastructure, and conducting research on local habitats and species (Blue MarineSeeds 2020).

Long-term budgets and funding requirements should be based on the fully-costed activities detailed in the Management Plan. Funding needs to be secured to support the initial time period before any economic gains from an MPA or development of sustainable fish markets are realised. This may include government and foundation grants, corporate and private donations and fundraising events. However, if the MPA is to succeed in the long term, a sustainable financing plan should be developed as early as possible. It is best to avoid a single organisation assuming full responsibility for project finance and delivery or creating any dependence of local stakeholders on funding. Critical to success is a realistic sustainable financial plan that will create a sense of ownership and a self-sustaining partnership for the long term.

A Lyme Bay Reserve Seafood label promotes fish caught sustainably within the Reserve under a voluntary Code of Conduct

BEFORE

i) Costing the initial MPA set-up

What are the initial funding requirements for establishing the MPA and any sustainable fishing models within it?

Consider:

- Staff to co-ordinate stakeholder engagement
- Meeting costs – venue, printing, refreshments
- Communications – website, displays, public events
- Research and monitoring - equipment, boat hire, data analysis
- Infrastructure support for fishermen - improved storage facilities, data collection equipment e.g. weighing scales
- Staff to implement and enforce management measures

ii) Current marine management funding systems

Where does the funding come from for any current management?

Consider:

- Is this a sustainable or ongoing source?
- Is this likely to increase or decrease over time?
- Options for sharing resources - sharing staff, expertise and equipment between conservation organisations, fishermen and Government bodies
- Are there any economic assessments completed or underway? Would management benefit from undertaking one?

What is the funding shortfall for any organisation responsible for marine conservation and fisheries management?

Consider:

- Essential work and personnel versus "nice to have"
- Any alternative cheaper management techniques e.g. technology based

iii) Understanding current financial gains from area use

What are the key economic activities in the marine environment?

Consider:

- Commercial fishing, recreational fishing, charter boats, diving, coastal hospitality
- How many local direct, and indirect, jobs does each activity support?
- Is the activity seasonal?
- How much of the GDP does each activity account for?
- What per cent of the income from each activity stays within the community or country and how much goes overseas? Is there scope for this balance to shift?
- Are there charges for use of the marine environment by visitors and tourists, is there scope for an MPA entrance or usage fee?
- Do any activities provide a resource for local use e.g. food, building materials – if so, how much?

Sustainably managed tourism can provide revenue for protected areas.

iv) Investigating potential alternative financing streams

Is there potential to increase tourism revenue?

Consider:

- Are there any unique, charismatic or internationally important species or habitats?
- Would the tourism be land-based or from cruise ships?
- Where would the bulk of revenue go – within community or exported?
- Would revenue be seasonal?
- Would there be any negative impacts from increased tourism numbers - increased water use, increased pollution (sewage, noise, light), habitat damage from additional infrastructure, increased disturbance to nesting areas or marine habitats?

Is there potential to increase fisheries revenue?

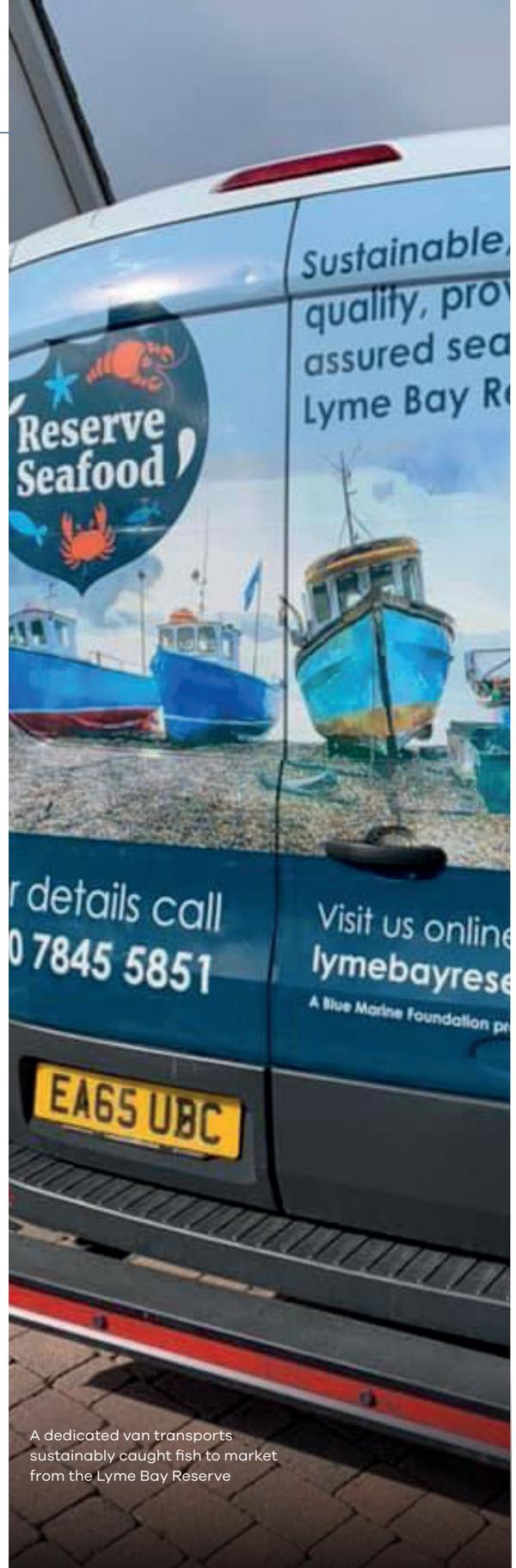
Consider:

- Development of sustainable seafood branding with associated increased market value
- Development of new markets for sustainably caught fish – pop-up fish stalls serving residents and tourists
- Increased catches from spill-over effect

Is there potential to generate revenue from Blue Marine carbon credits (especially mangroves, seagrass beds, tidal or salt marshes)?

Consider:

- Size of these areas
- Are they currently under threat?
- Are any management or restoration projects currently underway?



A dedicated van transports sustainably caught fish to market from the Lyme Bay Reserve

Are there other ecosystem benefits that would generate additional revenue in the long term?

Consider:

- Coastal protection
- Water quality improvement (filtration / nutrient removal) can support healthier fisheries for e.g. oysters and mussels
- Community benefits
- Protection of biodiversity

DURING

i) Establishing sustainable finance models

What model will provide long-term financial resilience?

Consider:

- Assess the costs associated with delivery of the Management Plan
- Are costs front-loaded or spread more evenly over time?
- Identify past, current and future funding sources – grants, donations, revenue generation and self-financing
- Spread the risk so income isn't all from one source
- Type of marine management – fully no-take or multi use/sustainable fisheries may influence options for revenue generation
- Ways to reduce costs

How will ongoing management be financed?

Consider:

- Minimum amount needed for essential work
- Government commitments to funding
- Percent of revenue from one of the MPA activities
- Licence fees for activities allowed within the MPA
- Cost savings, e.g. through data collection by fishermen as part of licensing

Are there other sources of long-term funding available?

Consider:

- Endowment funds
- Government funding - does the MPA help deliver Government commitments that they will support financially?
- Project-specific grants
- Funding for Blue Marine carbon credits
- Blue Marine bonds
- Blended finance
- Payments of ecosystem services
- Debt-for-Nature swaps
- Donations
- High-net-worth individuals that have a connection to the area
- Sponsored public activities
- Investing in professional fundraising support to write initial proposals

ii) Generating revenue for sustainable fisheries

Establish a financial model for sustainable fisheries

Consider:

- Infrastructure to improve quality and value of catch (chiller boxes, ice machines)
- Technology to ensure traceability of catch (Vessel Monitoring Systems/mobile tracking apps)
- Establish new routes to market
- Work with local restaurants and fishermen on the ground to promote sustainable seafood as a premium product
- Certification by a sustainable accreditation scheme
- Developing a bespoke sustainable seafood brand
- Finding value in bycaught species or unavoidable bycaught fish species

iii) Developing sustainable tourism revenue

Can extra revenue be generated from tourism?

Consider:

- Promotion of the area as an eco-tourism destination
- Accreditation schemes to identify conservation-minded businesses (who could potentially charge more)
- Levies or donation schemes through local hotels and marinas
- Access fees for visitors which can be collected at parking points
- Opting for high-end, low-volume tourism compared to low-income, high volume (higher impact) tourism
- Willingness to pay surveys to assess potential for generating revenue from tourists

AFTER

i) Continual assessment and review of funding streams

Consider:

- Building resilience by utilising multiple funding streams
- Avoiding reliance on one income type
- Sharing resources with nearby MPAs and organisations

Management

Management techniques can be very site or species specific.

While it is feasible to use tried and tested approaches from other locations, local adaptation should always be considered based on area-specific factors (including all three sections above – information available, stakeholders involved and local economic factors). Management measures can range from voluntary codes of conduct for marine users to the introduction of new legislation (to limit fishing effort and gear types or manage marine developments and/or recreation). The predominant management required for fully protected MPAs is monitoring and enforcement. In contrast, highly or lightly protected MPAs that allow various activities (including low impact fisheries, marine tourism) require a greater range of management techniques, and enforcement is often more complex. The practicalities of enforcement should be considered early on to ensure there is the capacity and resources in place to implement any new measures and ensure they are effective.

Key to successful management is a collaborative approach that brings together all the stakeholders involved

Any new management measures, whether voluntary or statutory, should be based on robust evidence, be adaptive, and be reviewed regularly in response to ongoing research and changes in species populations, fishing practices or environmental pressures. In some cases, management measures can be brought in over time as evidence is gathered and viable solutions are identified. In other cases where severe conservation threats are imminent, immediate management measures should be taken to preserve biodiversity, ecosystems and coastal livelihoods.

To ensure transparency and clarity about the actions and measures needed to protect an area and the roles of all involved, a Management Plan is an important component of successful MPA operation. A Management Plan is a document which sets out the approach, goals to be applied actions and a framework for decision making, to apply in a specific protected area over a given period. Critical to the plan is the widest possible consultation with stakeholders and the development of objectives that can be agreed and adhered to by all who have an interest in the use and protection of the area (IUCN 2003). There are no rules concerning the content or format of a Management Plan and there are many examples to draw from (WWF, 2017), but key is that it is written for – or at least have a version for - a public audience, are tailored to local circumstances and are regularly reviewed. The Management Plan is not an end in itself, but a tool that sets out the why, what, how, who and when for the range of activities involved in managing the area.

Worldwide, small-scale fishers account for nine out of ten people involved in capture fisheries - and provide approximately half of the 60 million tonnes of marine fish caught for direct human consumption each year (FAO, 2020). It is important to consider the impact of any management measures on local livelihoods and identify potential alternative sources of revenue and jobs that use the skills and knowledge of any displaced fishers. Local approval with the community taking ownership of the MPA is the best way to ensure management measures are actioned, enforced and successful in delivering their objectives.

Key to successful management is a collaborative approach that brings together all the stakeholders involved - from conservation, fisheries, marine users, government, research and local communities to work together towards shared goals. It is also important to celebrate the success of designations and the impact of any MPA such as: re-establishment of lost habitats or restoration of damaged ones; new species or populations discovered; sightings of the return of large schools of fish; success stories of alternative livelihoods created.

Worldwide, small-scale fishers account for nine out of ten people involved in capture fisheries. It is important to consider the impact of any management measures on local livelihoods

BEFORE

i) Establishing the highest level of protection possible

Consider:

- Fully protected (no-take) or highly protected - use the Grorud-Colvert MPA Guide framework (2021)
- Specific protection measures for key species and habitats
- Whole ecosystem approach
- Restricting fishing to highly selective, low-impact methods
- Accredited marine tourism activities

ii) Ensuring no incompatible activities are occurring within the MPA

What damaging activities are currently occurring?

Consider:

- High-impact fishing i.e. bottom-trawling, industrial-scale fisheries
- Any current or prospective deep-sea mining
- Any dredging or dumping licences
- High volumes of anchoring in sensitive areas
- Poor coastal management e.g. infrastructure, land run-off, outflows
- Large scale extractive activities e.g. sand mining

iii) Understanding current management measures

What restrictions (if any) are currently in place?

Consider:

- Any fully-protected species and areas
- Any temporal or spatial restrictions
- Any specific species restrictions – landing sizes, sex, quantity
- Any gear restrictions
- Any mitigation measures in place (e.g. to prevent bycatch)
- Any restrictions on marine developments, access or recreational use
- Any licensing or export regulations in place
- Any biosecurity measures e.g. for incoming ships
- Is there any sort of management plan?
- How up to date are any current management measures or policies?
- What further restrictions (gear, spatial planning, etc.) need to be put in place?

Who is currently responsible for marine management?

Consider:

- Who are the decision-making bodies?
- Who monitors fisheries landings and who issues licences etc?
- Who is responsible for biosecurity (harbour authority?)
- Is there any monitoring of the marine environment (see Information section) and if so, who is responsible?
- Are there any current marine response plans/ capacity for dealing with marine pollution incidents and who deals with this?
- Is there wide stakeholder engagement or a top-down approach?

iv Reviewing current legislation and policies

What legislation and policies are already in place for marine environmental protection and fisheries management?

Consider:

- Is current legislation sufficient?
- Is there provision to create protected areas?
- Protected species ordinance
- Fisheries regulations/licensing
- Fish export regulations
- Biosecurity regulations
- Tourism regulations, e.g. marine mammal interaction policies
- Coastal development regulations e.g. requirement for Environmental Impact Assessments
- Dumping at sea, harbours ordinance
- Any shortcomings in the legislation/policies

Is there currently any enforcement?

Consider:

- Who are the enforcing bodies?
- How frequent is enforcement?
- Is enforcement sufficiently financed?
- Any technology-based enforcement?
- How successful a deterrent is the current enforcement?
- What are the number of infringements – has this increased or decreased over time?
- Are infringements being successfully prosecuted?
- Do fishing vessels carry observers?

DURING

i) Defining a Management Plan

What needs to be included in a Management Plan?

Consider:

- Rationale and purpose for the management intervention
- Current status of key species, habitats and fisheries
- Current and future threats to the area
- Maps of the area including key features and activities
- Overall objective – what is the goal?
- Principles for collaborative management and decision making
- Conservation aims
- Fisheries management aims
- Socio-economic aims
- Current management, legislation and policy measures
- Proposed management, legislation and policy measures
- Social, economic and political considerations
- Governance structure and responsibilities
- Surveillance and enforcement
- Research and monitoring plan
- Stakeholder map and engagement plan
- Communications plan
- Finance/funding plan
- Risks to implementation and mitigation measures
- Timeline for delivery of activities/goals

ii) Fully protected area management

What management approaches will ensure a fully protected MPA is effective?

Consider:

- Enforcement strategies – satellite surveillance, use of patrol vessels, remote sensing
- Adaptive management to consider new threats
- Management of discharges from adjoining land areas - sewage, agricultural run-off through use of reed beds, wetlands, water treatment works
- Management of land use adjacent to the MPA through e.g. buffer zones, restrictions on damaging practices (chemical use, stocking levels)
- Regulation of non-extractive permitted activities - marine tourism/recreation policies

iii) Fisheries management

What fisheries management approaches will address the conservation issue and/or support sustainable low-impact fisheries within the MPA?

Consider:

- Spatial closures to protect specific species, allow fishing grounds to recover, or protect nursery grounds
- Temporal closure to protect species during breeding/spawning season
- Gear-type restrictions or modifications - pot limits, net length, mesh size, boat size
- Catch limits - daily limits, annual limits, commercial and recreational limits
- Species size restrictions – minimum and maximum landing sizes
- Prohibited species
- Bycatch management restrictions/ measures
- Measures to prevent bycatch of predatory species - bird scaring lines, marine mammal sound deterrents
- Measures to prevent/reduce impact of lost fishing gear (e.g. escape panels)
- Measures to increase survival rates of discards
- Diversification of species targeted
- Voluntary codes of conduct
- Phased introduction of limits/restrictions
- Observer coverage
- Vessel tracking to verify traceability
- Chain of custody management
- Reporting schemes
- Technology (e.g. social media and blockchain) to market sustainable, traceable seafood
- Sustainable accreditation / certification (e.g. Marine Stewardship Council)
- Net collection and recycling

What about species and habitats with insufficient data?

Consider:

- Use precautionary approach
- Trial different management measures
- Consider similar data from other locations

Enforcement of the South Georgia MPA prevents illegal fishing activities

iv) Codes of Conduct

Could codes of conduct be used to implement management measures?

Consider:

- Commercial and recreational fishing codes of conduct covering gear restrictions, maximum catch numbers, net lengths, mesh sizes, landing sizes
- Recreational fisheries good practice guides
- Incentivise compliance with voluntary codes of conduct through sustainable seafood marketing and price uplift
- Tourism accreditation

v) Adapting to new management measures

Any potential issues to consider?

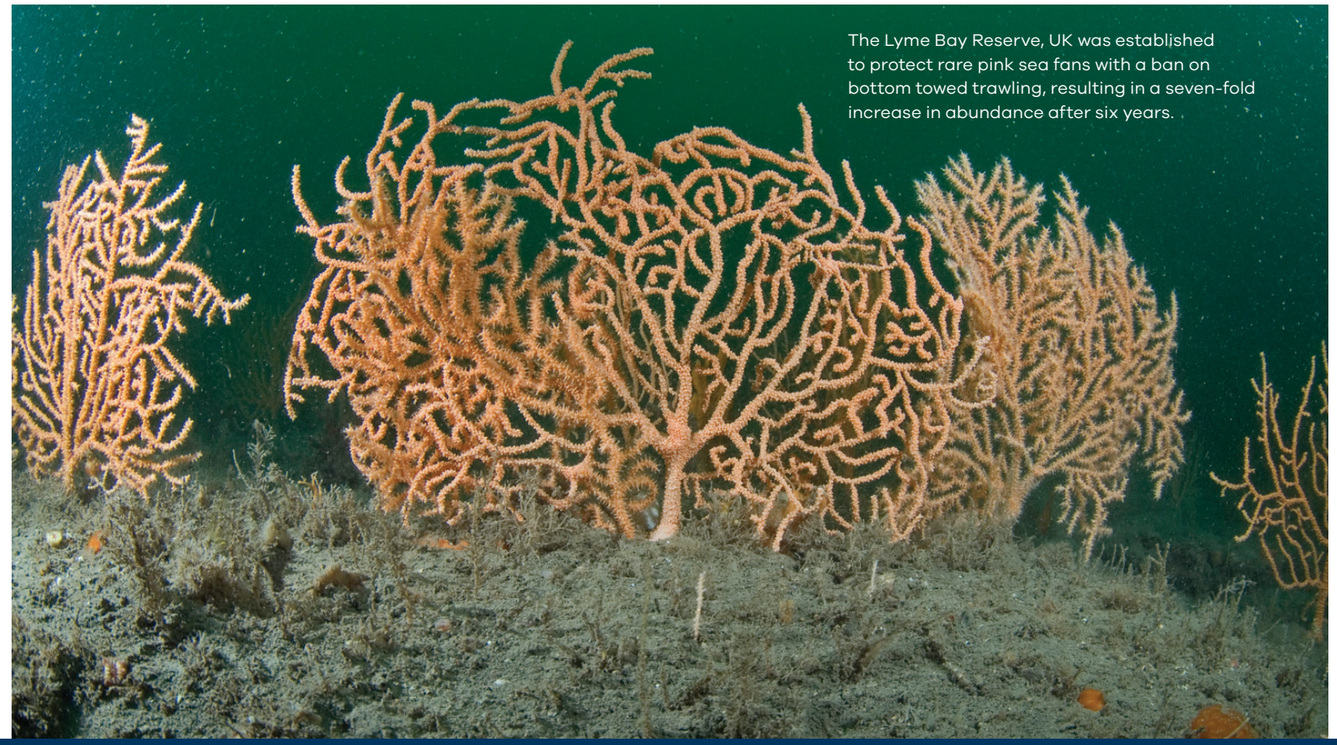
Consider:

- Cultural issues
- Political boundaries
- Traditional rights
- Existing long-term agreements
- Potential economic losses
- Displacement of damaging activity to other sensitive sites
- Diversification into new fishing practices with unknown impacts
- Enforcement in practice
- Time and finances needed to transition to alternative livelihoods

What alternative livelihoods could small-scale fishers implement to adapt to any reductions in income due to ecological changes, climate change, market changes and/or new fisheries management measures?

Consider:

- Diversification - fishing livelihood tourism, wildlife tourism
- Adaptation/changes to target alternative species (e.g. target invasive species)
- Responsible aquaculture or mariculture
- Retrain as protected area rangers



The Lyme Bay Reserve, UK was established to protect rare pink sea fans with a ban on bottom towed trawling, resulting in a seven-fold increase in abundance after six years.

AFTER

i) Reviewing progress

Are the new management measures proving successful?

Consider:

- Who will review the Management Plan and how often?
- Communicate progress, successes and challenges with wider stakeholders
- Are all relevant stakeholders engaged?
- What does the scientific data show?
- Long enough time series to allow change to occur/be detected
- Comparison with other areas
- Are other threats preventing recovery?
- What are the levels of compliance?
- Is enforcement working?
- Are fishermen and marine users self-policing? If not, how could they be encouraged to?
- Could positive messaging reduce level of enforcement needed?
- Is the legislation fit for purpose – what shortfalls/loopholes are identified?
- What are the levels of awareness of the MPA and associated regulations?
- Review management measures regularly based on research results and working group/stakeholder input

What are the success stories from the creation of the MPA/ sustainable fisheries model that can be used to build local and global support or advocate for further MPAs?

Consider:

- Return of charismatic species to the area
- Increased community awareness of the importance of their local marine environment
- Increased catch and markets for sustainable seafood from the area
- Recovery of species and habitats to historic levels

POTENTIAL PITFALLS

Information

- Waiting too long to implement conservation actions – remember the precautionary principle if data is limited and use information from other places
- Implementing restrictions without providing reasons – remember to justify the regulations based on evidence and threats identified
- Gathering incomplete baseline information or only planning short-term monitoring – remember that data on the initial status of species, habitats and income generated from the marine area, together with regular monitoring, is essential evidence of the impact and benefits of protection and management measures

People

- Delaying engaging with stakeholders – remember people want to know what is going on from the beginning
- Avoiding engagement with stakeholders who are against the proposed measures – remember these people need to be brought on board. Common ground can often be found and inaccurate assumptions corrected
- Stopping community engagement once the protection measures are in place – remember continued collaboration and communication is critical for long-term success

Economics and financing

- Only considering funding for MPA establishment – remember that if financing is only short term, and not sustainable, the protected area will likely fail in its remit
- Not having sufficient funding for monitoring and enforcement – remember preventing illegal activities is paramount to the MPA being more than a paper-park
- Limiting funding to one finance stream – remember there are many options, having multiple income streams makes an MPA more resilient

Management

- Overcomplicating management measures – remember the simplest approaches are often the most effective as they are easy to understand and follow
- Not reviewing MPA management on a regular basis – remember that new threats arise and more information becomes available, so regularly reassessing management actions ensures any MPA continues to be effective and adaptive
- Only implementing low levels of protection – remember fully or highly protected MPAs are the most effective (see Grorud-Colvert MPA framework)

Regular monitoring provides essential evidence of the impact and benefits of protection and management measures

FURTHER INFORMATION/ REFERENCES

Blue Marine Case Studies

It is helpful to learn from the experiences of others. Case studies based on Blue Marine's learning from involvement in establishing and supporting MPAs - and sustainable models of fishing around the world - are available online at **www.bluemarinefoundation.com/MPABlueprint**

Blue Marine has trained seagrass citizen scientists in the Maldives

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