

NORTH DEVON MARINE PIONEER PROJECT – OUTPUT 4

NDMP FISHERIES MANAGEMENT AND GOVERNANCE OPTIONS

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1. Fisheries management Review

Introduction

Most fisheries around the world operate under some form of management, whether it is administered through a local fishing cooperative, a regional or local authority, or national and international governments. These management regimes vary significantly in scale, organisation, legal standing, and enforcement powers. Many management systems are in a state of constant reform, some traditional systems used by Indigenous Peoples have been in place for many generations. What most management regimes have in common, however, is an attempt to constrain the amount of fishing that takes place as well as deciding who has the right to fish, i.e. the management of fishing opportunities.

Collective action is needed to prevent overfishing and protect essential fish habitats and sensitive areas, when fishing capacity is high and individual fishers' interests are geared towards maximising catch. Overfishing not only risks the collapse of the stock, but it also leads to lower yields for fishers. Overcoming this risk is the most fundamental issue in fisheries management and underlies the sustainability of the industry in any coastal area.¹ Managing common-pool resources such as fisheries is complex and involves trade-offs. Understanding these complexities, from ecological to socio-economic is essential for effective natural resource management globally.² There is not one specific solution to the 'tragedy of the commons' (*rational individuals in an open access context will seek to maximise their gains from the resource*) in fisheries management but several distinct approaches, all of which involve some form of collective action. These include common pool management, government management, and privatisation.³

[A full review of fisheries management regimes globally was undertaken by Cefas in 2017 and is available here.](#)

In EU waters, the responsibility for fisheries management is shared between the EU and its Member States. This system of multi-level governance extends to local levels as well, with regional governments, producer organisations and, in some cases, local fishing cooperatives, granted some management powers. Overarching regulations are stipulated by the EU's Common Fisheries Policy (CFP) and are implemented across all Member States. These regulations include the setting of EU-wide total allowable catches (TACs), technical regulations on fishing methods, data collection, subsidy schemes (the European Maritime and Fisheries Fund – EMFF), and nearly all other aspects of fisheries management. Whilst the EU provides some guidance, Member States decide how TACs and other fishing opportunities are subdivided and distributed at a national level, including what methods or criteria are used in this process. Regional authorities and associations (described below) have responsibilities over inshore, non-quota stocks such as shellfish.⁴

Fisheries management bodies in England

Defra – is the UK government department responsible for safeguarding the natural environment, supporting the UK's farming and fishing industries, and sustaining a thriving rural economy. Defra have defined roles in fisheries and environmental governance in relation to conservation. Specifically regarding the marine environment, Defra aim to protect bathing waters, shellfisheries, protected sites for wildlife and marine water quality.

With regard to marine fisheries, Defra aims to use resources from nature more sustainably and efficiently, and:

- Ensure all stocks of interest to the UK are fished sustainably, avoiding wider ecosystem effects, and UK fisheries, including migratory, are protected and well managed;
- Negotiate fishing opportunities for 2021 as a third country and independent coastal state outside the Common Fisheries Policy;
- Introduce the Fisheries Bill;
- Conserve and sustainably use the oceans, seas and marine at home and abroad.⁵

Defra also have a duty to regulate Producer Organisations (POs) which manage their members Fixed Quota Allocations (FQAs) as described in briefing 2: 'WHO GETS TO FISH IN THE NDMP AREA: FISHING OPPORTUNITIES AND MANAGEMENT'.)

Marine Management Organisation (MMO) - The Marine & Coastal Access Act (MACAA, 2009)⁶ created the MMO with the following responsibilities:

- Managing and monitoring fishing fleet sizes and quotas for catches (this includes the under 10m 'quota pool').
- ensuring compliance with fisheries regulations, such as fishing vessel licences, time at sea and quotas for fish and seafood
- managing funding programmes for fisheries activities
- planning and licensing for marine construction, deposits and dredging that may have an environmental, economic or social impact
- making marine nature conservation byelaws
- dealing with marine pollution emergencies, including oil spills
- helping to prevent illegal, unregulated and unreported fishing worldwide
- producing marine plans to include all marine activities, including those we don't directly regulate
- Enforcing wildlife legislation and issuing wildlife licences.⁷

IFCAs - MACAA (2009)⁸ replaced the Sea Fisheries Committees (SFC) with Inshore Fisheries and Conservation Authorities (IFCAs). The 12 SFCs of England and Wales

managed fisheries within six miles of the coast under originally under the Sea Fisheries Regulation Act 1888, and subsequently the Sea Fisheries Regulation Act 1966 (amended by the Environment Act in 1995). The Sea Fisheries (Shellfish) Act 1967 also gave the SFCs powers to manage shellfisheries by means of regulating orders and several orders. This gave SFCs overall powers to make byelaws for fisheries management and environmental purposes.⁹

The 10 IFCAs (there are no IFCAs in Wales or Scotland) enforce national and EC technical conservation sizes (e.g. net mesh sizes, gear configurations and fish/shellfish minimum landing sizes) in England, but have no responsibility for EU quota or licensing legislation (which are under the remit of the Marine Management Organisation – MMO – also set up under MACAA).¹⁰

Since taking on these functions in 2011, IFCAs have promoted stakeholder engagement, sustainability, access to local resources, and trying to ensure the health of the local marine environment. This has been achieved in the context of broad at a local level and well-developed consultation processes, committee structure and focus on stakeholder engagement.²

Fisheries management in England takes various forms, including;

- Spatial management (access to certain grounds / areas)
- Quota for certain species (tonnage per month), to regulate fishing mortality or catch
- Effort¹¹ based systems ('Days at Sea' or 'Hours KWH at Sea', or gear limits e.g. number of pots fished)
- Funding (subsidies and incentives).

2. Fisheries Management Options for the NDMP

Fishing opportunities can be grouped into quota management and effort management (*see output 2: who gets to fish in the NDMP for details on other management options*). The following options for the North Devon UNESCO Biosphere Reserve ('BR') could be considered for the NDMP:

- **Quota management:**
 - COMMUNITY QUOTA systems allocated to a collective unit such as a fisheries association, a producer organisation or a port.
 - *The NDMP fishers could form a PO, join the Coastal PO, or set up a community-quota scheme, where it is then up to the community organisation to determine how the quota is used by its membership.*
- **Effort management:**
 - TERRITORIAL USE RIGHTS FOR FISHERIES (TURF): In TURFs, use rights come in the form of a defined territory, e.g. the NDMP area. Fishers

managed through a TURF have exclusive access in the designated area, which is currently fished by vessels from ports outside of the area. TURFs are usually managed by membership organisations that limit entry and impose catch or effort controls on members. TURFs are regarded as rights based management, because a defined group of fishers receive exclusive and secure access rights.

- *This may be hard to deliver in the NDMP area because of established fishing activity from vessels outside the NDMP ports.*
- SPATIAL MANAGEMENT involves imposing restrictions on where vessels may fish. Restrictions are often based on gear type or vessel size and may also have a temporal component.
 - *These measures are usually put in place to protect biologically sensitive/valuable areas or to prevent gear conflict and would be deliverable in the NDMP area to protect particular features or Essential Fish Habitats¹² (feeding, spawning or nursery areas). The 'ray box' for example could be the subject of a research project to determine the extent and seasonality of eggs laying and determine whether this provides a suitable evidence base for the need to formalise the area for management or Byelaws. Lundy Marine Conservation Zone (MCZ) and other MCZs in the NDMP are spatial management measures brought in by D&SIFCA byelaws.*
- FISHING SEASONS determine the times of year when a fishery is open. In many cases, fishing seasons are combined with quotas – thus restricting the period in which a catch limit applies.
 - *Fishing seasons are usually applied to match migratory patterns and avoid fishing during the sensitive spawning season for a species, e.g. the closure of the offshore pair-trawl fishery for bass during the winter spawning season.*
- FISHERY CLOSURES are a ban all or specified gear classes from fishing a particular stock/area for a specified time. They are most commonly used in fisheries without quota limits when biological indicators suggest that overfishing could threaten spawning stocks or identify other ecological reasons.
 - *Fishery closures are also put in place once quotas have been exhausted or significantly depleted and for certain fisheries in the NDMP area fisheries closures may be necessary to protect vulnerable species such as spurdog, smooth-hound or undulate ray.¹³*

As shown in Annex 1, a number of these initiatives are already being discussed in the ongoing stakeholder workshops.

Figure 1: the NDMP area¹⁴

Fisheries Co-management

The UNCED suggested local-level solutions for natural resource management (lead by community initiatives) are the goal, which has the decentralisation of government, “*devolution to local communities...and community participation*” at its heart.¹⁵ Co-management is an alternative natural resource management approach that is popular within global fisheries management approaches. Co-management means sharing the responsibility between the state and resource-users, and frequently involves collaboration between a variety of stakeholders, which can include government agencies, NGOs, research organisations and academics, businesses and community members. Co-management shares features with any type of partnerships or co-operative environmental governance arrangements, which include multiple actors and multiple local interests. Co-management is a formal power sharing arrangement, although power sharing is the outcome, rather than the starting point in a process of joint problem solving involving negotiation.¹⁶ Co-management is considered different from community-based resource management (CBRM) because of government involvement.¹⁷

Early attempts at co-management from the 1980s onwards (mainly in a developing world context and relating to Marine Protect Areas – MPAs or coral reef fisheries) were seen to be failing when reviewed in academic publications^{18,19,20,21,22,23,24,25}. However, co-management is now a mainstream approach to managing small-scale fisheries across the developing world. A shared recognition of a resource use problem is crucial to successful cooperation between resource users.²⁶ Co-management schemes vary, but

participation, influence, compliance, control over resources, and conflict are key indicators for the process, with access to the fishery, stock health, fishery yield, household well-being, and household income being other key factors to consider. Overall fisheries co-management can improve both process and outcomes, but few generalisations can be made about the impact of fisheries co-management as a whole as data is hard to compare and success means different things in different places.²⁷

Co-management can lower transaction costs associated with fisheries management giving local fishers (and other users) the opportunity to participate in decision-making.²⁸ Co-management is not without its risks and has been cited to lead to regulatory capture in some instances, or the converse, co-opting community-based management to extend state powers.²⁹

Co-management may be considered a *knowledge partnership*, where different levels of organisation, from local to national come together to provide a forum to share knowledge, coordinate tasks and enable co-operation to solve management problems. The co-management groups may support users in accessing resources, bringing together different actors, building trust, resolving conflict, and networking – furthering social learning, which is essential for co-operation and meeting shared goals. As they mature, co-management schemes become *adaptive co-management*, which is effectively learning by doing.³⁰ Fishers are empowered when their capacity is developed to shape management decisions.³¹

There are various degrees of co-management, shown in Figure 2 below, ranging from:

Instructive (minimal exchange of information between government and users);

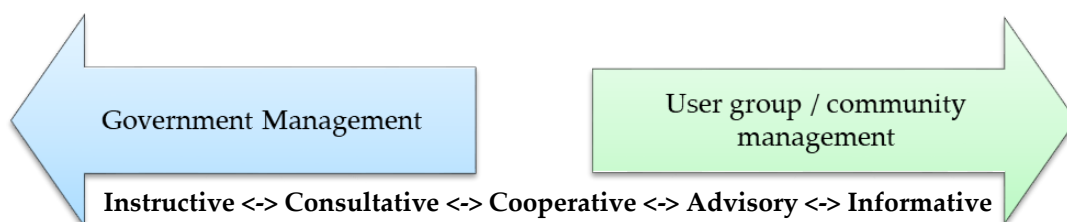
to *Consultative* (mechanisms for consultation but decisions taken by government);

to *Cooperative* (government and users cooperate as equal partners);

to *Advisory* (users advise government and government endorses decisions);

to *Informative* (Government delegates authority to user groups who make decisions and inform government) along a scale of devolved power from Government to Community management.³²

Figure 2: Spectrum of co-management arrangements adapted from Sen and Nielsen 1996)³³



Success factors for co-management at the community level have been described³⁴ and are applied to the NDMP context:

1. ***Appropriate scale and defined boundaries*** – Clearly defined boundaries have been agreed for the NDMP (as shown in Figure 1), but whether or not it is an appropriate scale for co-management is unclear, as there are a number of vessels from outside the boundaries of the NDMP which fish in its waters, especially from Cornwall. There may also be Welsh (and possibly French & Belgian) boats that fish within NDMP waters but do not land in the NDMP ports. The NDMP boundary was defined by fishermen in North Devon (on where they fish within English waters – but management may need to be D&S IFCA waters (and potentially MMO up to Welsh boundary). Further discussions about the appropriate scale and boundaries for fisheries management are needed for the NDMP. There are issues with the boundary from a human perspective (as sea users or managers) and there are ecological issues as well as the Celtic Sea, or Bristol Channel may be more appropriate in terms of scale to reflect the wider ecosystem.
2. ***Membership is clearly defined*** – this is met by the NDMP to some extent although not all fishers have engaged with the project to date and there is not a formal membership per se. Engagement with all fishers has not been achieved despite the effort put in. Engagement through NDFA is good but again this does not include all commercial fishers in the area. For real co-management, a clear definition of membership would be needed. Currently the attendance at meetings relies on Local Authority time and input to encourage people to participate, which is not a viable option for the long term. Membership of fishermen has to an extent been defined but requires support to develop this further.
3. ***Group homogeneity*** – The group currently covers central government, local government, industry, academia and third sector organisations: Defra, MMO, Natural England, D&S IFCA, Torridge District Council, North Devon District Council, Devon County Council, the North Devon Biosphere Reserve (BR), SWEEP (a collaboration of the University of Exeter, the University of Plymouth and Plymouth Marine Laboratory) as well as NGOs (WWF and Blue Marine Foundation) and the Devon Local Nature Partnership (through the BR /SWEEP). Even within the fisheries sector there are diverse views (e.g. mobile gear vs potting) and while for some issues there may be shared opinions it is difficult to get true consensus across all of these interests. Although fishermen are from the same area, they use different fishing methods, fish out of different ports. In terms of diversity, the group is predominantly male and white.
4. ***Participation by those affected*** – this is met to some degree by the NDMP via fishers' representatives, but as stated above not all fishers in the area participate. The University of Plymouth scientists and regulators (IFCA) participate in the group.

5. **Leadership** – The North Devon Biosphere (BR) are providing leadership for the North Devon UNESCO Biosphere Reserve, but with regard to fisheries, management leadership from within the NDMP fishery needs to be developed further. D&SIFCA are engaged, as fully as possible, as any additional time in North Devon, would need funding or mean funding from elsewhere in the district would need to be used, to the detriment of those parts, which raises equity issues (and need to be justified to do so). NGOs are taking an active role in much of the delivery at present. The MMO fisheries division have not engaged in this project to date.
6. **Empowerment, capacity building, and social preparation** - If the fisheries group becomes a subset of the North Devon Biosphere's Marine Working Group, some capacity building and education would be necessary within the Marine Working Group to enable a detailed understanding of fisheries management. Liaison between those that are part of NDFA and those that are not is also needed. The partnership agreement needs to be developed with a trusted third party moderator. Setting up a CBFM group under the Biosphere is going to need a special purpose group and its own legal entity, but still needs to be accountable to the wider partnership (who in term will need a different level of capacity building).
7. **Community organisations** – The North Devon Fisherman's Association (NDFA) and Porlock Bay Oysters CIC (Community Interest Company) are members of the NDMP group, as are Clovelly Shell Fishermen, Ilfracombe Fishermen's Association, D&SIFCA committee, the Biosphere Partnership and marine working group. The Coastal PO could be an important addition for fishers if the benefits can be clearly defined and communicated. Membership of the steering group is limited to those who can provide the expertise, as well and the resource to deliver and guide the Marine Pioneer. The stakeholder group is the Biosphere's Marine Working Group, which is a cross sector stakeholder group with a range of marine interests (such as, tourism, business, conservation, local authority, community groups and includes fishing industry representatives.
8. **Long-term support of the local government** – the time commitment beyond the initial stage is unclear and the long-term support is only possible given appropriate funding. Local government representatives sit on the BR partnership and has a longer term remit beyond the end of the pioneer.
9. **Property rights over the resource** – no TURFs or privatised quota is held within the NDMP
10. **Adequate financial resources/budget** – Funding has not been made available for anything beyond the status quo from Defra, the Local Authority are developing an EMFF bid to cover some of the work streams and time is being put into the project from Plymouth University and NGOs to support the outputs and steer of the project. It is widely felt this funding is inadequate for the scale of ambition. There are no specific NDMP funds (beyond an initial year of coordinator time

confirmed until March 2020). The 'budget' is the contributions from the Partners, including an EMFF grant for a 'marine natural capital plan', which is for coordination time and some stakeholder engagement and communication work. WWF are looking at methods of sustainable finance for North Devon,³⁵ but this has a MPA focus (although suitable for wider marine sustainable finance). It is hoped that this will help to provide the legacy of the Marine Pioneer – through the North Devon Biosphere's continued work in North Devon. The legacy of the Marine Pioneer will be realised by the North Devon Biosphere beyond the end of March 2020. In terms of other funding involved, WWF UK SEAS have a further 4 years, SWEEP has about 3 years. Blue Marine Foundation has its own funds for suitable projects.

11. ***Partnerships and partner sense of ownership of the co-management process*** - A clearly defined knowledge and dialogue process needs to be established, accompanied by full transparency, engagement and liaison along the journey. This will require all partners to help direct and take ownership of it. The Steering group has Terms of reference, but there is not anything formalised for the Fishing group/Marine Working Group yet. There is a need to enhance/develop this relationship through a fisheries scientist and manager partnership.
12. ***Accountability*** – The core steering group for the Marine Pioneer has representation from North Devon Biosphere, University of Plymouth, Plymouth Marine Laboratory, Natural England, Devon and Severn IFCA, MMO, WWF -UK and Blue Marine Foundation. This has meant that the NDMP has benefitted from the work that has been done in North Devon through SWEEP, UK SEAS and Blue/Swansea university collaboration for the herring project. More recently, we have representation from Defra. Membership of the steering group is limited to those that can provide expertise and resource to deliver and guide the Marine Pioneer. The stakeholder group is the Biosphere's Marine Working Group, which is a cross sector stakeholder group with a range of marine interests (such as, tourism, business, conservation, Local authority, community groups and includes fishing industry representatives).
13. ***Conflict management mechanism*** – Much of the conflict management to date comes from the liaison between the sectors (and sometimes vessel to vessel) although this is not always achieved. The opportunity for IVMS that could map the activity of all vessels within the NDMP could highlight the importance of certain areas to each sector and highlight possible conflicts. The NORTH DEVON BIOSPHERE RESERVE PARTNERSHIP AGREEMENT 2014-2024 sets the wider terms for the agreement and NDMP sits within that. Governance documents and conflict resolution are defined.³⁶
14. ***Clear objectives from a well-defined set of issues*** – The two aims of the NDMP are to explore how marine natural capital can best be managed for the benefit of the environment, economy and people, and; to test how local interests (environmental, social, business) can play their part in managing, monitoring and

communicating the benefits of a location's marine area and related coastal and terrestrial zones.³⁷ Issues have been defined by the local fishing industry; the objectives will be developed with the fishing industry over short and longer term. Further work will be developed through research and management plans. The BR has a defined strategy and there will be the Marine Natural Capital Plan, which fits under this strategy³⁸. *For more detail, see Annex 2.*

15. **Management rules enforced** - this is met by the NDMP area via national (MMO) and local (D&SIFCA) management measures and enforcement. There are limited resources to employ in enforcement and a risk-based approach is used regarding compliance.

3. Governance options for the NDMP

Governance of many kinds of common goods, such as fisheries or marine protected areas require joint action of multiple actors. Co-management shares power and responsibility between the government and local people. Successful co-management must be a knowledge partnership, bridging scientific and local ecological knowledge while simultaneously bridging different levels of organizations.³⁹

A steering group, led by Defra marine policy and including government marine representatives and evidence team members originally identified the two project areas and engaged the host organisations for the Pioneer projects. Short term funding for a project officer in each area was provided. In the case of the NDMP liaison was undertaken with the South West Partnership for Environmental and Economic Prosperity (SWEEP)⁴⁰ marine team and WWF to agree contributions to NDMP. Local steering groups were set up in March 2017 to agree work streams and demonstration projects. NDMP stakeholders collectively define their long-term goals for the area.⁴¹

The NDMP is a time-limited project. The NDMP was placed spatially in North Devon because of the UNESCO Biosphere Reserve (BR) and beyond the end of the Pioneer; any further works will be done through the BR partnership. Budgets are available, but there is very little directly for marine, hence the work with WWF on sustainable financing.

Governance systems need to clearly articulate answers (processes) to some fundamental questions in order to be viable. These include: a formal decision making process, clarifying how scientific information feeds into policy development, clarity on who makes the ultimate decisions, and how often the decisions are made. The participation of local people in governance structures has been shown to guide those answers, and thereby identifying opportunities to tailor local management.⁴²

Building trust is a key function of co-management and this requires collaboration and conflict resolution where trade-offs exist (e.g. between conservation and fisheries). Adaptive co-management can facilitate effective governance (reconciling public and private interests in cases of conflict) and adaptive management provides a process for mediating conflict.⁴³

Community-based natural resource management (CBNRM) holds vast potential for livelihoods and resource protection. Many CBNRM projects have failed to achieve goals, as they have not involved the local communities in the decision-making process, causing problems through non-compliance with regulations. The allocation of fisheries resources should be based on social, economic and environmental criteria, aiming to also prioritise a healthy marine environment and vulnerable inshore fishing communities to demonstrate what world leading fisheries management can deliver.⁴⁴

The IFCA model

IFCAs have demonstrated the value of working in partnership and working with bodies such as the Environment Agency, MMO, Natural England and sea users (both commercial and recreational) as well as independent committee members appointed by the MMO and Local Authority councillors. Opportunities exist for the IFCAs to expand and build these partnerships, and develop shared research to build knowledge to inform management, enforcement, and monitoring. Regionalised governance and local management solutions, which are co-developed lead to better and more effective fisheries management.⁴⁵ The existing IFCA localised governance structure and decision making model makes stakeholders accountable for management decisions in a transparent and accessible manner making those involved answerable to the local community. Marine fisheries and environmental management benefit from development at appropriate scales, community participation and transparent governance.⁴⁶ The existing governance structures within IFCAs, demonstrates the need for proportionate representation by those impacted directly by management decisions (commercial fishers, recreational anglers and charter boats) but also representatives from science and academia as well as conservation groups and NGOs, recreational divers and others who have a stake in the health of the marine environment.⁵

The IFCA model is open and combined with the top down steer from Defra (*consultative co-management*) and bottom-up stakeholder driven input, where stakeholders can propose management ideas and the IFCA can then in turn focus their research to test the feasibility of these proposals. This evidence base can then be developed and taken to the IFCA committee with all the representatives from different sectors to then determine whether the proposal should be implemented or not and this can then be further refined (if it proceeds) to a byelaw agreed and drafted by the IFCA. Byelaws are made by the individual IFCAs (sometimes with external legal advice) with varying degrees of input from the MMO. The MMO and Defra review the draft byelaw before

sign of by the Secretary of State (SoS). D&SIFCA⁴⁷ has a byelaw and permitting sub-committee who do much of the work deciding on the necessary management measures and drafting the byelaw. The byelaw then has to be passed by the Authority before it goes to MMO & DEFRA.

Natural Capital and the principles of *ecosystem-based management* should underpin and be central to the future fisheries and marine environmental management and this includes the human dimension - but this requires staff time and therefore increased funding.⁵

The current IFCA funding structure supports local accountability and has been shown to be cost-effective to deliver fisheries management, research and enforcement.⁴⁸ IFCAs are well-placed to meet their objectives, and understand the environmental and socio-economics context and reality, but this requires appropriate financial support. As the previous sections, show, management and all that comes with it is expensive and if the NDMP need bespoke management arrangements to suit their local needs there are no funds from Local Authorities or Defra to give stakeholders in the NDMP area preferential treatment. Stakeholders in other ports and areas would no doubt also like a stronger voice in management decisions, more fishing opportunities, engagement time and research to support sustainable fisheries, but the only means to achieve that is via funding from those industries which benefit from good management (see output 3 HOW THE EXPENSE OF NDMP FISHERIES MANAGEMENT CAN BE SUSTAINABLY FUNDED for more details of what options are available to increase available funds).

Figure 3 below shows the SWOT analysis for management at the scale of the NDMP.

Figure 3: SWOT analysis and policy barriers to applying management at the NDMP level⁴⁹

Strengths	Weaknesses
<ul style="list-style-type: none"> • Strong partnership potential • IFCA research projects • Fisher involvement in NDMP • IFCA involvement in NDMP and replicable model • Local Authority support and leadership • NGO support • Clear boundaries • Clear membership • Diverse stakeholders 	<ul style="list-style-type: none"> • NDMP boundaries (IFCA to 6nM and MMO 6-12nM) • Key stocks are mainly quota stocks, and these cannot be managed locally. • MMO data is not granular or accurate enough for local decision making • Ecological and management boundaries do not match • Unclear whether co-management appropriate at NDMP scale.

<ul style="list-style-type: none"> • Participation through NDMP is community based • No established property rights (TURFs, ITQs etc.) • Sense of local ownership • Accountability via IFCA and Local Authority • Conflict management mechanism • Enforcement of management rules • Engagement with fishermen • Linking conservation to added marketability of fish (added value not increased catches) • Bylaws, restrictive fishing (IFCA – inside 6nm) 	<ul style="list-style-type: none"> • Long term funding not confirmed and insufficient (reliant on NGO input) • Vessels from outside NDMP fish the area and are not involved in the project • Defra budget impacts of austerity • Vague ambition statement to test ‘Natural capital approach’ – i.e. lack of clear objectives • National fisheries policy / National MPA policy and legislation outside of NDMP control. • Financial implications of restricted fishing on fishermen • Resource for enforcement (IFCA and MMO) • Evidence gathering methodology for stock assessment (ICES) • Displacement of fishing activity • National MPA management • The location of CEFAS on east coast. • Reducing the efficiency of fishermen or effort • Confidence of habitat mapping • Under 10m reporting (or lack of) • Evidence of landing/exploitation particularly under 10m
<p>Opportunities</p>	<p>Threats</p>
<ul style="list-style-type: none"> • Community quota pool trials • Joining the Coastal PO • Brexit (quota shares increase for UK) • Capacity building especially regarding how research is used in fisheries management decisions • Adaptive co-management for the NDMP • Quota re-allocation 	<ul style="list-style-type: none"> • State of stocks in the Bristol Channel • Brexit (quota shares do not increase for UK) • Overcapacity on the shellfish fleet • Limiting spatial access to other fleets and vessels from other ports • Continued austerity impacts on Local Authorities • Lacking enforcement (budget)

<ul style="list-style-type: none"> • Shellfish (lobster and crab FIPs) • NDMP representative to D&SIFCA quarterly • NDMP representative on D&SIFCA • Shared knowledge creation through the IFCA • Feeding information and research into national research institutes • Fisheries research and management plans (the management of which species is useful at Bristol Channel level) • Outreach and education (e.g. guerrilla geographer) • IVMS on under 10m fleet 	<ul style="list-style-type: none"> • Perception that NDMP given preferential treatment (funding, research, IFCA time) from other stakeholders within the D&SIFCA district. • Public perception of mud vs fishermen • Link between local and national policy • Saltmarsh and coastal squeeze • Distrust and fatigue (meeting / survey requests) of fishermen.
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4. **Conclusions**

The Governance Structure of the North Devon Biosphere is the appropriate level for local decision-making and accountability. The Partnership is led by a non-executive Partnership body and supported by other groups established to ensure effective delivery of purpose. To support this governance structure, a small professional team is hosted by Devon County Council and jointly funded with North Devon Council and Torridge District Council.

The NDMP sits within a well-established governance framework (the North Devon Biosphere) and has made an impressive start building partnership and developing areas of work, which are needed.

Given the current state of the NDMP project the best option appears to be to formalise the roles within the NDMP groups and ensure they are represented at D&SIFCA level, both at the quarterly meetings and at the IFCA byelaw and permitting subcommittee, when discussing management measures, byelaws or research and enforcement for the North Devon coast.

Until the key criteria listed in section 2 are fulfilled, the implication is that co-management at the NDMP level is not likely to be the appropriate level, for ecological and socio-economic reasons as access is not restricted to vessels from the NDMP ports.

There are key strengths and opportunities identified in section 3 which can be built on for the NDMP but the uncertainty around Brexit, the Fisheries Bill and changes to

inshore management mean that some of the weaknesses and threats are serious barriers in the immediate future. Once these uncertainties are resolved, the SWOT should be updated by the NDMP fisheries steering group and considered by the project.

Funding going forwards is a barrier to the ability of the NDMP to deliver and also for any localised fisheries management, whether research, engagement or developing new cost recovery options and therefore the best solution at present is to make best use of the opportunity at IFCA level through co-management at a wider regional scale.

ANNEXES

Annex 1: Research proposals for the NDMP ⁵⁰

Note: this table is a work in progress and will be adapted following discussions within the steering group and as opportunities such as fisheries research and management plans arise.

No.	THEME	POTENTIAL RESEARCH
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1	Whelks	Multifaceted research into whelk fishery, and a review of current pressures associated with differing jurisdiction between the 6 and 12 nautical mile limit. Monitoring of changes in the whelk fishery, landings and localised populations in response to incrementally increasing MLS in the IFCA region.
2	Potting (crab and lobster)	Research into the potential for no potting area designations and monitoring of any voluntary agreements. Develop better data collection for data limited stocks. Link this data with current spatial and habitat data to understand interrelatedness. Trial potential methods to achieve effective potting management at a local scale. Gather data on recreational activity as well as larger commercial vessels coming into the Pioneer area. Historical re-stocking with hatchery juveniles have occurred in the region and could be explored following findings of local levels of lobster abundance.
3	Spiny Lobster	A regional assessment into the comeback of a spiny lobster population: where, why and how. Recovery of spiny lobster populations would further increase the occurrence of species of interest to divers and snorkelers, as well of commercial interest being a high value species. Investigate the socioeconomic worth of a stable population of spiny lobsters to marine users such as recreational divers.
4	Technology (iVMS)	Introduce iVMS systems on all under 10 m vessels. Availability of data from iVMS would enable not only more up-to-date information on inshore fishing effort, with greater spatial accuracy, but also with the added benefit of being more readily integrated with VMS data from the industrial fleet and data already collected through fishermap
5	Markets/Lack of access	Assess potential routes to local markets and investigate brand identities. Identify what port infrastructure is lacking. Investigate the potential for a smokery in Clovelly.
6	MPAs	Identifying habitat extents outside MPAs that enhance ecological connectivity and support key species and stocks that would benefit site level management approaches to sustain the development of ES and maintain NC
7	Essential Fish Habitat work	Development of research projects (PhD) that further our understanding of the essential fish habitats present in Pioneer area (Important spawning grounds, estuarine rearing sites)

8	Recreational fisheries of North Devon	Identify number of recreational fishermen within the region and gain insight into landings, target species and gear type. Use participatory mapping to identify key hotspots of fishing pressure Identify essential fish habitat for target recreational species
9	Spurdog management	Identify essential fish habitat for spurdog (spawning, breeding) and develop management measures to boost stocks to a stable level. Gather data from recreational fishermen who target spurdog as well as data coming from Cornwall who have been granted dispensations. Get fishermen part of the FSP involved in the avoidance scheme. Explore technology that detracts certain species (e.g. specifically designed lights for nets) - potential trial?

Annex 2: Aims and goals of the NDMP

“Pioneers are integral to Defra’s 25 year environment plan and are being asked to test approaches to integrated governance and management with regard to Natural Capital. There are four geographical areas covered by the pioneers: Urban in Greater Manchester; Catchment in Cumbria; Landscape in North Devon and the two marine pioneers, one in North Devon, hosted by the North Devon Biosphere, and another on the Suffolk coast, hosted by the Suffolk Coast and Heaths Area of Outstanding Natural Beauty (AONB).

Key aims of the Marine Pioneer

Aims:

To explore how marine natural capital can be managed better for the benefit of the environment, economy and people.

To test how local interests (environmental, social and business) can play their part in managing, monitoring and communicating the benefits of a location’s marine area and related coastal and terrestrial zones.

Why?

The Marine Pioneer should reflect the government’s vision to be the first generation to leave our environment in a better condition. To achieve this, the Pioneers have been asked by Defra to test the following approaches:

1. **Test new tools and methods as part of applying a natural capital approach in practice**
What this means: how can guidance, models, databases and plans be used to support the enhancement of marine natural capital, how effective are these tools and approaches and where and how can improvements be made?
2. **Demonstrate a joined-up, integrated approach to planning and delivery**

What this means: test new ways of governing the marine natural environment - how can partnership working, communication and collaboration with local people improve natural capital in a long term and sustainable way?

3. Pioneer and 'scale-up' the use of new funding opportunities

What this means: with a national reduction in public funding how can governance and research used to support the natural environment be funded in a sustainable way? Where are the gaps and how can they be met?

4. Grow our understanding of 'what works', sharing lessons and best practice

What this means: how can what will be achieved in the Pioneers be replicated elsewhere – what are the barriers to natural capital growth and what are the successes?

To provide useful lessons that inform the 25 Year Environment Plan at a national level, there is a need to understand how testing the four approaches (above) can be done for a specific place. In North Devon, this 'place' is the Biosphere which defines the boundary for both the Landscape and Marine Pioneers. Because of this it was essential that the stakeholders within the Biosphere area were involved in the Marine Pioneer process. In partnership with the South West Partnership for Environment and Economic Prosperity (SWEEP) and the Marine Ecosystems Research Programme (MERP), a workshop with local stakeholders (the Biosphere's Marine Working Group) was held, where the long-term vision for the North Devon Biosphere's marine environment was agreed. The goals that came out of this workshop are broad reaching and ambitious and it is intended that the work undertaken as part of the North Devon Marine Pioneer will provide the foundations for these goals to improve the natural capital of the marine environment and subsequently the human and social capital, as these cannot be seen independently. The goals for the North Devon Biosphere's marine environment which have informed the work of the Marine Pioneer are:

- *Goal 1: Improving local fisheries management and seafood sales*
- *Goal 2: Robust protection of biodiversity*
- *Goal 3: Increased local decision making*
- *Goal 4: Define and implement a response to climate change*
- *Goal 5: Job creation in marine industries*
- *Goal 6: Develop sustainable aquaculture*
- *Goal 7: Reduce marine litter*
- *Goal 8: Sustainable tidal stream energy*
- *Goal 9: Sustainable coastal tourism and leisure*

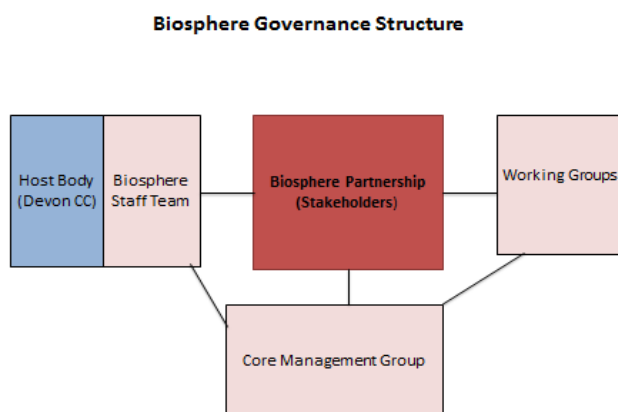
More information can be found in the 1st stakeholder workshop report on the North Devon Marine Pioneer events and workshops page

<http://www.northdevonbiosphere.org.uk/marinepioneerevents.html> both a summary and a full report can be downloaded.⁵¹

North Devon UNESCO Biosphere Reserve Governance Structure

Structure

The Partnership is led by a non-executive Partnership body and supported by other groups established to ensure effective delivery of purpose. To support this governance structure, a small professional team is hosted by Devon County Council and jointly funded with North Devon Council and Torridge District Council. All of the working groups are accountable to the Partnership via the Core Management Group and are described in Section 4 and shown in Fig 1 below.



Governing and Accountable Bodies

The partnership governing body is the Biosphere Partnership.

The accountable or responsible body for financial management of the Partnership is currently Devon County Council for the period of this Agreement unless the Partnership becomes a legal entity in its own right.

Membership

For the purposes of this Agreement, the membership refers to that of the Partnership body. Current membership bodies as at October 2015 members fall into the following three categories;

- i) Organisations that have a role in the management of the Biosphere, all of which are invited to send a representative. In the case of local authorities, representatives include officers *and* elected members, the voting right being with the elected member, or delegated to the officer if absent

- ii) Co-opted specialists, appointed by the Partnership
- iii) Chairs of any working groups or other sub-groups established by the Partnership

ENDNOTES

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