

Environment and Sustainability Committee
Marine Policy Inquiry
MP 19 Welsh Fishermen's Association Ltd

Dear Members,

Thank you for your kind invitation to provide evidence to your inquiry into Marine Policy in Wales.

The Welsh Fishermen's Association Ltd-Cymdeithas Pysgotwyr Cymru Cyf (WFA-CPC) is an organisation consisting of all seven of the Fishermen's Associations in Wales which respectively include the entire coastline of Wales.

The WFA-CPC Ltd was conceived as a result of the necessity for a body to represent the Welsh Fishing Industry for a body as one voice at the highest possible level.

The WFA was created by fishermen for the wider fishing communities in Wales.

We are currently a not for profit company operating on a voluntary basis.

Projects and initiatives that the WFA is currently involved in are:-
Bangor School Ocean Sciences : Scallop Fishing Intensity Trials
Bangor School Ocean Sciences : Scallop Gear Modification Trials
Bangor School Ocean Sciences : Sustainable Use of Fisheries Resources in Welsh Waters
CCW : Pilot Project Fishmap Môn.
Welsh Waters Scallop Strategy
Swansea University : Marine Ecological Surveys

For your records and future reference the WFA can be contacted at the following:-

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What progress has been made in relation to the development of marine spatial plans for Wales?

As far as we are aware there has been no progress towards developing a marine plan(s) in Wales. Wales is, of course, a signatory to the UK Marine Policy Statement, but we have not seen any further progress towards planning.

What is the current status of marine protected areas in Wales and what role should the new marine conservation zones have in this network of protected areas?

The WFA is not aware of any evidence to suggest that Welsh Marine Protected Areas (MPA's) are in an unfavourable condition. The WFA accepts that some forms of fishing may not be compatible with Special Area of Conservation (SAC) features, such as biogenic reefs and scallop dredging, over the last year, WFA has been working constructively with WG and CCW to protect, for example, horse mussel reefs from scallop dredging off the North Llyn coast.

The WFA believes some of the conservation objectives decided by CCW are inappropriate and have prevented the development of sustainable fisheries and aquaculture. For example, one of the conservation objectives for Pembrokeshire Marine SAC is 'populations of typical species subject to existing commercial fisheries are within safe biological limits'. Irish Sea stocks of commercial species such as of Cod, Dover Sole and Whiting are below safe biological limits and the Pembrokeshire Marine SAC will not be able to achieve favourable condition, which is clearly not associated with activities within the SAC. The WFA note an inconsistent approach to the establishment of conservation objectives in Wales' European Marine Sites (EMS) which is unacceptable.

Recent research undertaken by Bangor University in Cardigan Bay has revealed inaccuracies in the distribution of SAC features. For example, a significant part of the SAC reef feature in Cardigan Bay is not reef, but mobile gravel which does not qualify as a reef. This has had a profound effect on the local scallop industry that has fished some mobile sediment grounds within the SAC for decades, but prohibited in 2008 following what is now known to be unsubstantiated and inaccurate advice from CCW

Under the role of MCZs

The WFA believes the current network of EMS in Welsh waters provides more than is required to establish a coherent network of MPAs. Over 76% of the coastline is protected, 50% of waters out to 6 nautical miles and 36% of waters out to 12nm. The WFA is disappointed that WG & CCW haven't assessed the adequacy of the existing network before embarking on the MCZ process. Of the three objectives put forward by WG for MCZs, the WFA believes only one, the need for scientific research is plausible. The other two; ecosystem recovery and ecosystem resilience have not been substantiated. There is no evidence to

suggest any of the proposed inshore MCZs are in need of ecosystem recovery. Recovery from what? These areas support environmentally benign and sustainable static gear fisheries. In terms of resilience, which is a non-specific term, resilience from what? And would an area harvested in an environmentally and sustainable manner be any less resilient than one that wasn't. WG nor CCW have produced evidence to suggest otherwise.

The WFA accepts the need for no-take-zones for scientific research and as part of a wider Ecosystem Based Approach (EBA). However, given the uncertainty of the outcome of no-take-zones in temperate waters (note; recent studies demonstrate that only lobsters out of 20 species studied in Lundy NTZ have shown a significant increase) these areas should be relatively small, evidence based and consensus lead as part of an EBA management toolkit employed by local/regional management groups contributing to a wider adaptive management model incorporating a social ecological system.

During the recent Welsh government consultation into possible sites for marine conservation zones we produced documents called "Striking the Balance" and "Uncharted Waters" which detailed our opinions on the current and future network of marine protected areas in Welsh Waters.

For the interest of the Members we attach the following documents for information:-

1. Uncharted Waters
2. Striking the Balance

Both of the above documents were included in the WFA's Consultation response.

As the document says we are in favour of a much greater degree of cooperation with fishermen than currently exists resulting in an approach which allows conservation objectives to be met whilst not employing an over precautionary approach to unfairly restrict the fishing industry.

The development of the Welsh Government's functions in relation to marine licensing and fisheries and whether this has been effective?

Whilst we are aware that a new single body is being created which will encompass marine licensing and CCW we do not as yet understand fully how this body will operate and therefore what effect it will have on the functions. In the past we have found that although CCW's remit was to provide conservation advice, in many cases this advice was simply adopted without any appropriate balance being applied from an industry standpoint. This has led to considerable, and in our opinion unnecessary, difficulties for the industry in terms of sustainable use and development.

We hope therefore that this new body will facilitate a more balanced approach and therefore enable greater cooperation with industry in the future which will have considerable benefits both to industry and conservation.

What progress has been made by the Welsh Government in the implementation of key European Directives

It is our opinion that a great deal of progress has been made towards implementing key European Directives particularly in recent years. Wales has a large amount of its seas, especially in coastal areas, under some degree of protection and thus is in a strong position when considering requirements such as providing a network of protected areas under the Marine Strategy Framework Directive. The Habitats Directives although somewhat outdated now are complemented by national legislation to provide protection and the Water Framework Directive, whilst still requiring modification to encompass the requirements of the Shellfish Waters Directive appears to be working satisfactorily.

The Marine Strategy Framework Directive still presents a huge challenge as its scope and requirement for international cooperation are unprecedented. Here the industry has concerns because so much of the implications of this legislation are still unclear. For example a great deal of work has been done on the assessment, targets and indicators involved in the process towards achieving Good Environmental Status and not the monitoring or any measures deemed necessary. This in itself leaves the industry in a difficult and uncertain position. The documents published so far state that fishing is one of the major pressures on the environment and thus it can be inferred that when measures are contemplated they will impact on fishing, yet no indication as to the extent of these has been given. This is another uncertainty for the industry at the moment.

Not many years ago there was virtually no regulation in the marine area on environmental matters. Whilst clearly there was a need for some we are now at a point where the amount and type of legislation is confusing and has the potential to be contradictory, it is necessary to strike the right balance. We feel there is a need for clear links to be established between, for example, Habitats and Birds Directives, the Water Framework Directive, the Common Fisheries Policy, the Marine Acts etc, and for policy to determine exact purposes and scope for all of the different ones to avoid contradictory targets being set.

Whether there is sufficient cooperation and coordination between the Welsh Government and its neighbouring administrations in relation to the management of its seas?

A clear example of a lack of cooperation and coordination with neighbouring administrations would be the English regional MCZ process and the distinct and continued lack of consultation of Welsh stakeholders within the Irish Sea Conservation Zone Project and indeed the sister project Finding Sanctuary, however, the answer to this question depends largely on the specific piece of legislation and the interpretation of “neighbouring”. It has been evident that a good level of cooperation and coordination has been achieved in some areas such as the Marine and Coastal Access Act 2009 and in particular from that the Marine Policy Statement for the whole of the UK and those pieces of European legislation where the UK has worked together to produce implementing UK legislation. There are areas which have worked less well however, such as planning where the English administration is well into the process and where Wales is lagging behind unnecessarily resulting in less coordination than would be ideal. With regard to European legislation industry in the UK often feels that more coordination is needed amongst European countries to avoid the different approaches taken resulting in differing economic conditions.

Contained within the Marine Strategy Framework Directive there is a requirement for countries with common waters to work together in achieving the aims. Of course this makes perfect sense, and would ideally eliminate many of the difficulties which arise with European legislation from different application causing significant anomalies in the way in which legislation is applied across different countries. The UK should be congratulated for its efforts in this area so far, but these must continue in order to ensure a workable system is achieved which provides a level playing field for all. It is understandably difficult when different countries are at different points in the process of implementation however a fully integrated system must be agreed if this legislation is to succeed.

Whether the Welsh Government has sufficient financial and staff resource to deliver on its marine policy and legislation objectives

The WFA has no knowledge of the Welsh Government's financial or staff resources relative to the delivery of Marine Policy and Legislation objectives, however, general observations would indicate that a review may be necessary to deliver improvement in the following policy areas.

1. Fisheries management and enforcement
2. The Several Order process is economically unacceptable (no new SO's for six years)
3. The 2008 Welsh Fisheries Strategy
4. The adherence of conservation advisors to a prohibitive approach to economic development within the marine environment
5. Delivery of the European Fisheries Fund initially under resourced leading eventually to a structural change in March 2012 which has been hamstrung by a back log of enquiries resulting in frustration and missed opportunities.

Whether stakeholders have been sufficiently involved in the shaping of new policies and the development of legislation

The recent marine conservation zone consultation is a good example in answer to this question. In contrast to the process in England which was run by stakeholder groups from the beginning the process in Wales this was presented as a fait accompli in a formal written consultation. The English process has resulted in industry buy in, in Wales it has resulted in outrage throughout the coastal fishing communities and will need to be subject to fundamental modification as a result.

We hope that with the creation of the new single body industry can contribute at a much earlier stage and use its expertise to benefit the legislative process, but also that industry will be involved from the very beginning in the Welsh Government's legislation processes including the review of the "Welsh Fisheries Strategy" inshore and offshore Marine Spatial Planning together with European marine site designation, monitoring and management.

As legitimate stakeholders working in the Welsh marine environment the WFA would welcome the opportunity to positively engage in a co-management role with Welsh Government to include pre-policy, legislation development, fisheries, conservation, environmental management and the Welsh Fisheries Strategy.

The WFA-CPC Ltd wishes to thank the Committee members for the opportunity to provide evidence to the inquiry into Marine Policy in Wales.

Should the members require any further information we would be please to provide assistance.

Yours faithfully

Jim Evans

For and on behalf of the WFA – CPC Ltd

UNCHARTED WATERS



July
2012

The Welsh Fishermen's Association response to the
Welsh HPMCZ consultation

This document highlights the shortcomings of the current Welsh Highly Protected Marine Conservation Zone (HPMCZ) policy and outlines the serious cultural and economic impacts on coastal communities in Wales.

UNCHARTED WATERS

THE WELSH FISHERMEN'S ASSOCIATION RESPONSE

The Welsh Fisherman's Association (WFA) fully support the Welsh Government's (WG) commitment to the UK vision for clean, healthy, safe, productive and biologically diverse seas and the intention to frame all aspects of the WG marine programme within an ecosystem-based approach.

However, the proposal to achieve this commitment and fulfil the obligations to create a network of marine conservation sites under the Marine and Coastal Access Act 2009 through a network of highly protected marine conservation zones (HPMCZs), which are in effect no-take-zones (NTZs), in Wales is, in the WFA's opinion, flawed, disproportionate and inconsistent with the approaches taken in England and Scotland.

The WFA opposes WG's potential site options for all the MCZs put forward in this consultation for the following reasons:

1. There is no legal requirement for HPMCZs

The Marine and Coastal Access Act 2009 (hereupon referred to as the 'Marine Act') does not include any legal requirement for the implementation of HPMCZ's. Indeed, there is no mention of HPMCZs within the legislation. It is the WFA's understanding that the concept of an HPMCZ was invented by the Countryside Council for Wales (CCW).

Under Sections 116 & 117 of the Marine Act, MCZs can only be designated for the purpose of conserving marine habitats and species (termed features) and the management of which is charged solely with the duty of protecting them from threats to their survival, and assisting them to recover where necessary. Accordingly, where activities including fishing are not deemed to be a threat to the survival or recovery of those features – for example, pelagic and static gear fisheries do not threaten their survival or recovery – there is no legal requirement to prohibit them.

The WG MCZ consultation document¹ describes the purpose of HPMCZs as contributing to 'ecosystem recovery and resilience and improve our understanding of naturally functioning

¹ Marine Conservation Zones (MCZs) Potential Site Options for Welsh Waters. Welsh Government. 2012 – p. 131

ecosystems'. However, under the Marine Act there is no legal requirement for MCZs either to contribute to ecosystem resilience or to be designated for scientific study.

Moreover, in order to fulfil its duty under the Act, the WG must carry out an assessment of each MCZ to decide if its features are in a favourable or unfavourable condition, and if the latter, to determine whether and if so how the features can be recovered to favourable condition before deciding upon the appropriate management measures. The current approach has omitted these assessments and simply assumes that the features are already in unfavourable condition and that the appropriate management measure is to prohibit all extractive and depositional activities, we contest this.

2. An adequate MPA network already exists in Welsh Waters

The consultation document states that, 75% of the coastline and 36% of Welsh territorial waters has been already been designated for marine conservation, mainly in the form of European Marine Sites such as Special Areas for Conservation and Special Protection Areas (SACs, SPAs). **50% of territorial waters between 0-6 miles from the shore, where the majority of fishing and recreational activities take place, are already protected for conservation.** To put this in context, this is more than double the area currently designated in England (23% - Defra statistics).

Under the Marine Act, MCZs are designated to form a network of marine conservation sites which, taken together with existing conservation sites in UK waters, cover the range of features found in the UK seas. As all proposed MCZs in Wales are sited within existing European marine sites, and the habitats and species identified within the MCZs are constituents of the wide ranging marine features protected by the European marine sites, the WFA firmly believe that adequate coverage and protection already exists to provide a network of marine conservation sites in Welsh waters.

3. The HPMCZ policy in Wales is unreasonable

The term 'heterogeneity' is used by the WG as a criterion of ecosystem health, but it is an indiscriminate concept and in itself has no value; it appears to act only as a proxy for ecosystem resilience. There is no evidence that coastal areas lack resilience; CCWs own studies report concluded that following the *Sea Empress* oil spill, even the most vulnerable components of the coastal marine environment had recovered within 5 years². The use of heterogeneity

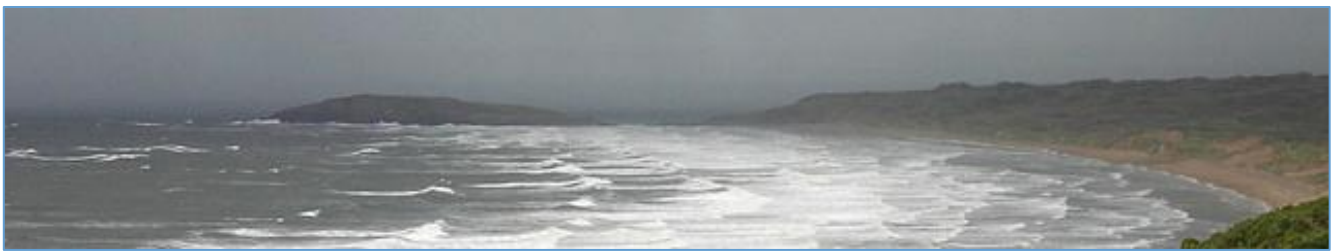
² State of the marine environment in SW Wales, 10 years after the Sea Empress oil spill. J Moore (CALM) report to CCW. 2006 – p.33

inevitably skews sites to be situated close to the shore along the coast, and these are areas which will have the greatest adverse socio-economic impact on coastal communities and sea-users. Moreover, the use of heterogeneity as a criterion is inconsistent with England and Scotland MPA criteria.

While it is in the nature of devolved government that different policies are pursued in different parts of the country, principles of EU good governance³ require that there should be at least a common touchstone that ensures there are not gross anomalies between the approaches taken by devolved administrations

The WFA views the Welsh MCZ designation process to be undemocratic and unfair, by contrast with England and Scotland where the MCZ designation process was inclusive of stakeholders. For instance, with regards to Highly Protected sites, Marine Scotland is taking an evidence-based and collaborative approach, working with the fishing industry to minimise social, economic and displacement impacts, and using No Take Zones only as a last resort, when there is no other way of protecting the conservation status of a vulnerable feature. The latest advice from Defra, is that management of 'Reference Areas' in England will reflect the potential risks to site features from activities rather than implement blanket prohibitions.

In Wales, the HPMCZ process appears to have been driven by the Countryside Council for Wales (CCW) since 2002 and centred around the advice of Callum Roberts and Sue Gubbay (both strong advocates of NTZ) who were employed to develop guidance on how to designate NTZs^{4,5}. It is true that one or two fishermen attended some MCZ workshops, but they were given no feedback nor were they involved in the development of NTZ policy within CCW. It appears that the Welsh HPMCZ policy has been as much advocacy led as based on selected scientific evidence. There is a growing realisation in academia that MPA policies are being driven as much by personalities as by science.⁶



³ [European Governance A White Paper. Commission of the European Communities. 2001 – p35](#)

⁴ Highly Protected Marine Reserves – Evidence of benefits and opportunities for marine biodiversity in Wales. Gubbay S. CCW Science Report. Report No: 762 2006 - p127

⁵ Selecting and implementing Highly Protected Marine Reserves in Wales. Roberts et al., CCW Policy Research Report No. 08/17 2008 – p124

⁶ [MPA policy: What lies behind the science? Caveen et al, Marine Policy \(in press\) 2012](#)

4. Disproportionate effect of HPMCZs on the inshore fishing communities

All but one of the proposed sites are coastal whilst the remaining site is a short distance from the shore. These sites will severely affect the inshore small-scale fishery which is widely acknowledged to be low in environmental impact. By contrast, the higher impact offshore fisheries will remain unaffected. Small scale, largely artisanal, inshore fishermen operate from under 10 m vessels and are restricted to working within a safe range of their port, beach or cove.

Welsh coastal communities have been seaward looking for more than 2000 years; their very existence was based upon access and sustainable use of coastal waters. The designation of HPMCZs based upon policies developed by CCW, an organisation only established in 1990 and due to be disbanded in 2013, could end at a stroke this long cultural and social heritage.

The environmental, social, cultural and economic damage inflicted by HPMCZs on Welsh coast communities could be far reaching:

- Communities could have their historic cultural links with the local fishing industry severed, thereby threatening their identity, social fabric and well-being.
- Many Welsh fishermen can trace their family history of fishing and making a living from the sea back many generations. These family traditions and the aspirations of the next generations are now threatened by the imposition of HPMCZs.
- Schools and school children in coastal fishing communities with a strong connection to their local fishing industry could lose an important part of their roots.
- Inshore fishermen have a unique understanding of the coastal marine environment forged through generations of productive fishing that maintained the biological and ecological diversity necessary to sustain the commercial stocks. If HPMCZs drive these fishermen out of business, this invaluable marine knowledge and stewardship would be lost forever.
- Businesses associated with the local fishing industry, including merchants, processors, engineering, chandleries, and fishing gear manufacturers could be terminally damaged.

- Chartered angling businesses, recreational shore anglers, and recreational boat anglers operating within the site may all be badly affected.
- The local tourist industry, especially businesses associated with accommodation (e.g. caravan and camping sites), marine wildlife trips, diving, hotels, restaurants, cafes and shops could take a considerable loss of income.

5. No guarantee that HPMCZs will benefit biodiversity or commercial fisheries

Studies on the effects of fishing exclusion on biodiversity and commercial species in UK waters and other temperate regions have not been conclusive, suggesting the outcome is site-specific. Whilst it may be true that MPAs in tropical and sub-tropical regions, which are characterised by reef-dependent commercial-fish communities, generally demonstrate increased ecological and fisheries benefits, we cannot assume similar benefits in temperate waters.

Two independent scientific surveys commissioned by DEFRA/Natural England (Lundy NTZ Bristol Channel)⁷ and the Crown Estate (Fife Coast Scotland)⁸ both concluded that the exclusion of static gear fisheries (fixed nets, shellfish traps and long lines) appear to yield no nature conservation benefit in terms of species abundance or diversity.

For example the Lundy study showed of the 20 species monitored only one, the lobster, appeared to have derived an unambiguous benefit from the NTZ. There were no significant changes in sessile animals in the NTZ throughout the four year period and it was therefore



⁷ Ecological effects of the Lundy No-Take Zone: the first five years (2003-2007). Hoskins et al, report to Natural England, DEFRA and WWF-UK. 2009 – p.160

⁸ An assessment of the potential impact of no-take zones upon benthic habitats: a case study from SE Scotland. Crown Estate. 2012 – p.40

concluded that they were generally insensitive to the forms of fishing that were excluded from the NTZ. This view was strengthened by the fact that there were no significant changes in sessile animals in nearby areas where the same fishing activities have continued. The study also showed a decrease in the abundance of velvet crab, which is a species of commercial interest.

A review of 37 temperate marine reserves (NTZ) by the Centre for Evidence-Based Conservation, School of Environment and Natural Resources, University of Bangor in 2009⁹, reported on the uncertainty of NTZ effects and whilst finding some evidence of increased biomass and richness within temperate NTZs, concluded:

'Our systematic review has revealed clear gaps in the evidence base regarding the effectiveness of temperate marine reserves for either biodiversity conservation or sustainable fisheries management.'

6. Welsh Government have not fulfilled their obligation to carry out Habitats Regulations Assessment on the negative effects of HPMCZs on existing European Marine Sites

We believe that the HPMCZ project constitutes a 'plan or project' under the EU Habitats Directive. As all of the proposed HPMCZs are either within or adjacent to existing European Marine Sites we believe that there is a requirement for Welsh Government to carry out a Habitats Regulations Assessment on the effects of designation on the EMS site features.

The effects of displacement of fishing effort and other activities from HPMCZs to other areas should be considered. We have recently witnessed the effects of displacement in Cardigan Bay with an influx of fishing vessels excluded from traditional fishing grounds in Lyme Bay.

From CCWs website: *"A plan or project cannot be given effect or consented unless it can be determined that it would not have an adverse effect on the integrity of European Sites or, where there are no alternative solutions, there are Imperative Reasons of Overriding Public Interest and compensatory measures are secured to ensure the coherence of the Natura 2000 network. Any plan or project which has the potential to affect a European Site, no matter how far away from that site, should be considered."*



⁹ Temperate marine reserves: global ecological effects and guidelines for future networks. Centre for Evidence-Based Conservation. 2007 – p. 11

Protecting marine biodiversity and fishermen

There are better ways of protecting marine biodiversity in Welsh waters. Internationally recognised best practice promotes a more integrated ecosystem-based approach to resource and conservation management. The ecosystem-based approach, combined with wider application of marine spatial planning and zonation, is considered by leading practitioners in marine management to be able to deliver far more meaningful gains in marine conservation and resource management whilst avoiding cultural, social and economic impacts¹⁰.

Fisheries and conservation management needs to be evidence led to avoid needless and overly precautionary restrictions which have in the past resulted in conflict and disengagement. Workable and effective management can only be possible with a more detailed understanding of the marine environment and how we interact with it. The current MCZ process has already collated great deal of ecological information about the proposed sites. The WFA would like to build upon this by supporting research and monitoring to increase our understanding and enable effective management. Welsh fishermen are already supporting marine research in Wales by participating in University research to inform conservation management. While there may be a case for some highly protected areas in Wales to improve our understanding of naturally functioning ecosystems, such studies do not have to be located in areas where they cause economic hardship to fishermen, and they would be more fruitful if they involved fishermen in their planning and survey work.

It is time for change and to provide real conservation and environmental benefits to Wales without social, cultural and economic impacts to local communities. The WFA, on behalf of the fishing industry in Wales would urge the Welsh Government to give serious consideration to WFA's alternative proposal "Striking the Balance"¹¹. This is a unique opportunity to develop Welsh fisheries and conservation management as an exemplar of what can be achieved by ecosystem-based co-management.

The WFA would respectfully recommend that Welsh Government abandon the 2nd and 3rd stages of the current consultation and focus on the delivery of a truly ecosystem-based solution for Wales's marine environment and the fishing and tourism communities that depend on it.

¹⁰ Agardy et al, 2011. Mind the gap: Addressing the shortcomings of marine protected areas through large scale marine spatial planning, *Marine Policy*, 35 (2) 226-232

¹¹ [Striking the Balance - An Ecosystem-Based Approach for MCZ Management in Wales](#). Woolmer A.P. report to Welsh Fishermen's Association 2012 – p.35

STRIKING THE BALANCE



July
2012

An Ecosystem-Based Approach for MCZ Management
in Wales

The current implementation of Highly Protected Marine Conservation Zones in Wales threatens the culture and economy of Welsh coastal communities by prohibiting traditional low impact fishing and recreational activities. This report outlines a viable alternative MCZ approach that will promote ecosystem recovery and resilience and better our understanding of the marine environment without adverse impact to fishermen and local communities.

Striking the Balance

AN ADAPTIVE CO-MANAGEMENT ECOSYSTEM-BASED APPROACH FOR MCZ MANAGEMENT IN WALES

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INSHORE FISHING VESSELS AT SOLVA

Striking the Balance

AN ADAPTIVE CO-MANAGEMENT ECOSYSTEM-BASED APPROACH FOR MCZ MANAGEMENT IN WALES

WELSH FISHERMAN'S ASSOCIATION VISION | EXECUTIVE SUMMARY

The Welsh Fisherman's Association (WFA) believes that a healthy and well managed marine environment is fundamental to the long-term sustainability of its industry and the communities from which they operate. With this aim the WFA are proposing an alternative to the current highly protected implementation of MCZs in Wales which will have serious economic, social and cultural impacts on fishermen, recreational sea users and coastal communities.

The WFA has developed an alternative adaptive co-management ecosystem-based model for MCZ management in Wales that will deliver the high level objectives and high levels of protection through adaptive and proportionate risk-based management rather than blanket prohibition of activities.

Our approach, based upon internationally recognised best practice in MPA management, has been conceived to promote ecosystem recovery and resilience, and improve our understanding of the marine environment and the role that MCZs, including no-take-zones, have in marine management. Importantly for the Welsh fishing industry and local communities, this approach will preserve their cultural and economic life, and secure traditional low-impact fisheries and recreational activities along with the related businesses.

The WFA believe that the adaptive co-management ecosystem-based model, once demonstrated successfully within the MCZs, could be applied more widely to other MPAs and wider Welsh seas where very real gains in terms of ecosystem recovery and resilience could be made.



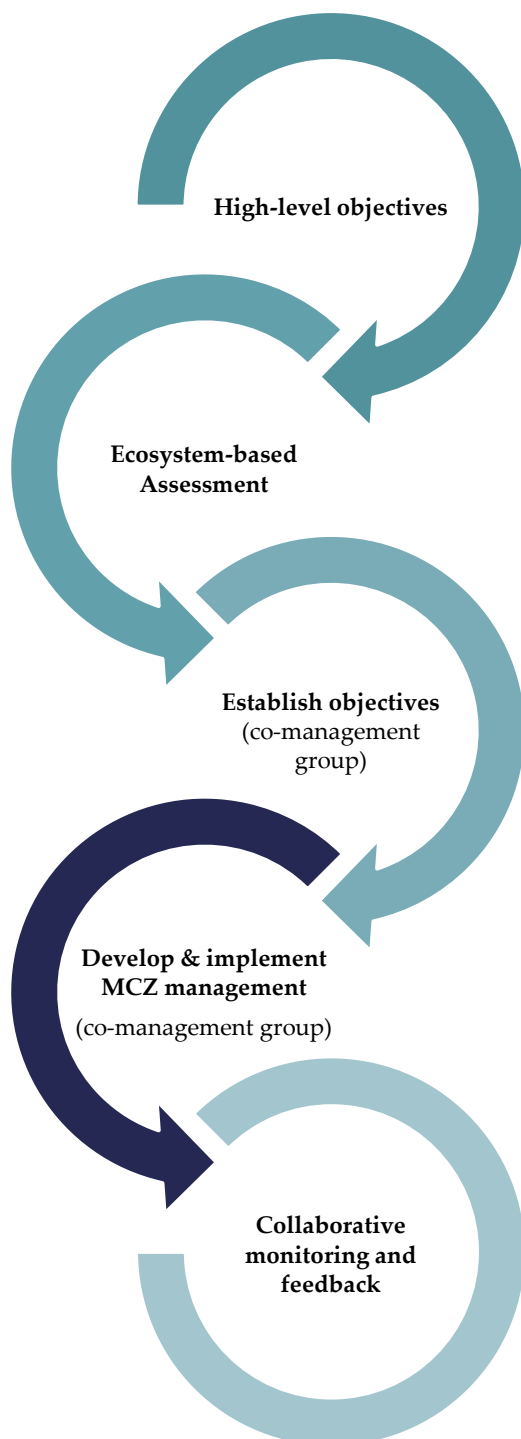
THE ECOSYSTEM-BASED MCZ CONCEPT

Key principles of the WFA Adaptive Co-Management Ecosystem-Based MCZ approach:

- 1. Welsh MCZs should be managed as multiple-use sites:** Multiple-use MCZs managed on ecosystem-based principles can deliver the win-win-win of environmental, fisheries and socio-economic gains for the sites and local communities.
- 2. Strong environmental protection but proportionate to risk:** WFA believes that sensitive habitats should be protected from damage and disturbance; it believes that the nature of this protection should be precautionary but proportionate to the risk.
- 3. Local solutions to local issues:** WFA proposes the establishment of MCZ adaptive co-management groups made up of relevant local sea users including fishermen, recreational anglers and conservation groups. The aim of these groups should be to develop locally applicable management in a bottom-up partnership process rather than a top-down imposition.
- 4. Management should be flexible and adaptive:** The natural world is highly variable and our understanding of it requires constant updating; MCZ management therefore needs to be adaptive and flexible to reflect this continuous change.
- 5. Evidence and knowledge-based management:** Fisheries and conservation management should be evidence-based rather than advocacy-led. Flexible and adaptive management will only be possible with a well-informed understanding of the marine environment and the ways in which we interact with it. The WFA stands ready to play a central role and accept its responsibilities in research and monitoring to provide the necessary data to management.
- 6. Compliance and enforcement:** WFA recognise that without widespread compliance with MCZ management measures, the protection of the marine environment would be jeopardised. Welsh fishermen are keen to embrace a new role as environmental stewards to ensure compliance within MCZs.

WFA Ecosystem-Based MCZ Management Model

The WFA adaptive co-management ecosystem-based MCZ model is best considered as a dynamic and iterative process that develops and adapts site-specific management over time. At the heart of the process are the MCZ site co-management groups made up of relevant statutory bodies and relevant sea users and stakeholders.



The role of the co-management groups is to develop and implement site specific management aimed to deliver high level objectives guided by Welsh, UK and EU policy.

WFA propose that an integrated environmental, fisheries and socio-economic assessment is carried out. This assessment will identify the risks to habitats and representative species from existing activities and the social, economic and cultural drivers that underpin these activities. The results from the assessment will provide the foundation upon which effective ecosystem management of MCZs can be developed.

The ecosystem-based assessment will highlight alongside the current good practice in the MCZ those activities that require better management. This information will enable the co-management group to set site specific management objectives for the MCZ.

The primary role of the co-management group is to develop locally applicable management measures aimed at achieving the site specific objectives.

MCZ management should be adaptive and flexible, constantly reviewed and revised in relation to feedback from monitoring and research. The WFA are willing to place a central role in monitoring and research so that researchers can take full benefit of our local ecological knowledge and expertise.



1. The principles of the WFA Welsh MCZ approach

This set of principles has been agreed by the 7 Welsh fishermen's associations and have guided the development of our proposals for an alternative approach to MCZ implementation in Wales.

Welsh MCZs should be managed as multiple-use sites: WFA believe that Welsh MCZs should be managed as multiple-use sites which reflect the traditional access to, and use of, the sites by commercial fishermen and other coastal stakeholders. At present in Wales, fisheries and conservation issues are managed in what often appears to be an uncoordinated and conflicting manner. There is also little management of recreational activities. The WFA believe that a joined-up or holistic approach, which acknowledges the high conservation value of these sites, but at the same time also acknowledges that current uses of the site are fundamental parts of the ecosystem, can deliver fisheries, environmental and socio-economic gains without serious economic and cultural impacts on local communities.

Multiple-use MCZs managed on adaptive co-management ecosystem-based principles can deliver the win-win-win of environmental, fisheries and socio-economic gains for the sites and local communities

Strong environmental protection but proportionate to risk: The WFA believes that the marine environment can be given high levels of protection without overly prohibited restrictions in many areas. The majority of current fishing activity within the proposed MCZs is predominately carried out using low-impact static gears and targeting mobile species that are not resident within them.

Whilst the WFA agrees that sensitive habitats and species should be protected from damage and disturbance, it believes that the nature of this protection should be proportionate to the risk, e.g. a fragile biogenic reef may require protection from mobile gears but the use of low-impact static gears should be able to continue.

A risk-based approach can provide high levels of environmental protection without overly-precautionary blanket closures

Local solutions to local issues: The adaptive co-management approach has been widely adopted to enable successful development and management of MPAs. The WFA proposes that local MCZ co-management groups are formed from relevant local sea users including commercial fishermen, recreational anglers and other relevant groups. The aim of these groups should be to develop locally applicable and flexible management strategy in a bottom-up partnership process rather than via a top-down imposition.

MCZ management that works in one area may not necessarily work in another; fishing, and other activities differ all around the Welsh coast and site management should reflect this

Management should be flexible and adaptive: The marine ecosystem is a dynamic system and subject to change and evolution. Management should not aspire to halt this process but should adapt to it. WFA believes that fisheries and environmental management should be flexible and reflect changes in the drivers of ecosystem dynamism whether these are in the natural environment, society and markets, or advances in our understanding of our effect on habitats and biodiversity.

Fishermen understand that inflexible management will not work in an environment that constantly changes in response to weather, climate and natural cycles in commercial species and wildlife.

The natural world is complex and variable, and our understanding of it is constantly improving. MCZ management therefore needs to be adaptive and flexible to reflect this

Evidence and knowledge based management: Fisheries and conservation management should be evidence-led to avoid needless and excessively precautionary restrictions which result in conflict, disengagement and non-compliance. Flexible and adaptive management will only be possible with a sound understanding of the marine environment and the ways in which we interact with it. The current MCZ process has already drawn together a great deal of ecological information about the proposed sites. The WFA would like to build upon this foundation by participating in research to increase our marine understanding and to play a lead role in the environmental monitoring and surveillance necessary to inform adaptive and flexible management.

Welsh fishermen are already supporting marine research in Wales by participating in University research e.g. the European Fishery Funded Welsh Fisheries Project at Bangor University. A number of fishermen have already demonstrated their ability to collect monitoring data to inform environmental assessments. The long-earned knowledge of their fishing grounds is gaining rapid acceptance as important information in our understanding of



TENBY HARBOUR, A TYPICAL BUSY SMALL WELSH PORT, HOME TO COMMERCIAL AND RECRATIONAL VESSELS

the marine environment. The WFA stands ready to play a central role in obtaining data and to accept its responsibilities for the conveyance of environmental information to management.

Adaptive co-management requires a comprehensive knowledge base of high quality information and data, and Welsh fishermen can play a central role in its development

Compliance and enforcement: WFA recognise that without widespread compliance with management measures, protection of the marine environment would be jeopardised. WFA believes that the local adaptive co-management approach proposed will promote high levels of compliance through the development of workable solutions and the development of a sense of ownership, and its members are keen to accept the role of stewards of the HPMCZs and to work closely with enforcement bodies to ensure such compliance within the industry and among other sea users.

Welsh fishermen support a new role as environmental stewards to ensure management measures are complied with inside Welsh MCZs



WELSH FISHERMAN USING HIS LOCAL KNOWLEDGE IN PURSUIT OF THE CATCH

2. WFA Ecosystem Based MCZ Management Model

The WFA have reviewed the literature on internationally adopted adaptive co-management (ACM) approaches and examples of best practice in fisheries and conservation management that are applicable in a Welsh context (see publications cited in the References below), and from this review, WFA have identified broad principles centred on an ACM ecosystem-based approach to MPA and fisheries management that recognize and balance societal requirements with conservation and environmental management.

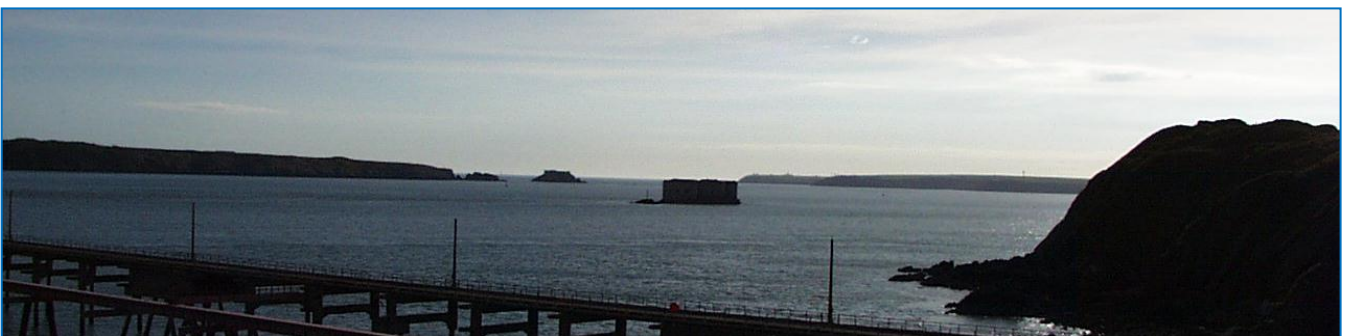
These include the following adaptive principles: complexity; uncertainty; diversity; resilience; adaptive cycle; adaptive capacity; self-organization; learning by doing; and experimentalism.

They also include the following co-management principles; participation; partnership; knowledge sharing; accountability; legitimacy; equity; empowerment; and transparency. These principles form the foundation of a pragmatic and balanced framework for managing a true network of MCZs in Wales.

The WFA propose a network of MCZs where high levels of protection are achieved through spatial management rather than prohibition of activities to achieve the aims of ecosystem recovery and resilience, and establishing a better understanding of the role that MCZs, including no-take-zones, have in marine management.

A great deal of work has been undertaken by Welsh Government agencies to collate physical environmental and ecological information that has been used to identify the proposed MCZ sites. The WFA acknowledge this effort and consider this body of work a valuable resource that can underpin evidence-led MCZ management. We want to build upon this database by working in partnership to ensure that Welsh MCZ management is securely founded on evidence .

We believe that our approach has the potential for wider application in Wales to deliver fisheries and biodiversity gains that promote ecosystem recovery and resilience not just inside MCZs but across the whole of Welsh seas. These approaches have the potential to contribute to the delivery of the Welsh Government's conservation and fishery policy commitments.



LOOKING TOWARDS DALE AND ST ANNES HEAD, MILFORD HAVEN

a. The international best practice MCZ management approaches applicable to Welsh MCZs

i. The ecosystem-based approach

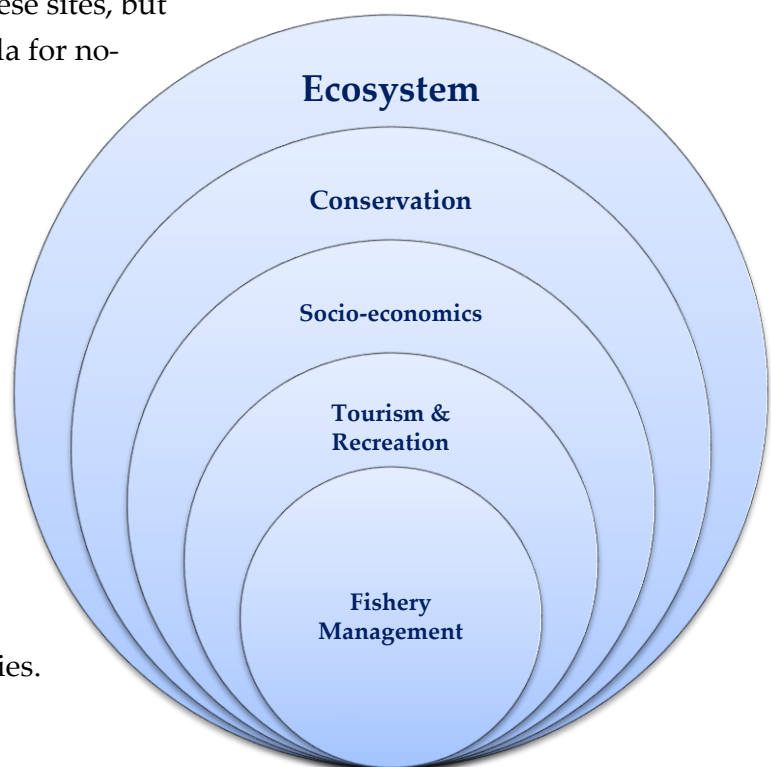
“An ecosystem approach is based on the application of appropriate scientific methodologies focused on levels of biological organization, which encompass the essential structure, processes, functions and interactions among organisms and their environment. It recognizes that humans, with their cultural diversity, are an integral component of many ecosystems.”

Excerpt from the definition of the ecosystem-based approach adopted by Convention on Biological Diversity 2000, and endorsed by World Summit of Sustainable Development in 2002

A social-ecological system (SES) approach to ecosystem-based management is a management approach that recognizes the need to consider the human dimension in managing the marine environment. This approach attempts to balance the requirements of resource use (e.g. fisheries and recreational access), the socio-economics of society and communities with those of environmental protection and conservation. The current implementation of MCZs in Wales does not adequately account for, or even acknowledge, the local or wider societal importance of these sites, but rather focuses on a narrow green agenda for no-take –zones.

Social-ecological system -based management has emerged as the primary approach for managing the natural environment and its resources. The SES ecosystem-based management approach is considered by many to be the basis of best practice in fisheries and conservation management, and is seen as the most viable model for the long-term management of sustainable fish stocks and environmentally sustainable fisheries.

Until recently coastal and marine management has been focused around specific uses such as fisheries, oil and gas extraction or nature conservation which



THE SOCIAL-ECOLOGICAL SYSTEM ECOSYSTEM-BASED MANAGEMENT CONCEPT

has resulted in separate governance regimes for each use. It has become readily apparent that this sectoral approach can result in conflicts among stakeholder groups and falls short in meeting the requirements for environmental protection. The shift away from the management of individual resources to an integrated SES approach is internationally recognised and promoted in the work of international organizations ranging from the International Oceanographic Commission, to the Food and Agriculture Organization, the United Nations Environment Programme, and the Global Environment Facility.

The FAO consider that the purpose of an SES approach to fisheries is:

“..to plan, develop and manage fisheries in a manner that addresses the multiple needs and desires of societies, without jeopardizing the options of future generations to benefit from the full range of goods and services provided by marine ecosystems..”¹

Without conflicting with nature conservation and natural resource objectives, SES ecosystem-based management considers at a fundamental level that the coastal communities and their related economic/social and cultural structures are integral parts of the ecosystem.

Perhaps most importantly from WFA’s perspective, SES ecosystem-based management addresses the varied processes of change within natural systems and resources that healthy ecosystems provide. As a consequence of our incomplete understanding of our marine environment and how we interact with it, SES ecosystem-based MCZ management will have to be fundamentally an adaptive, learning-based process that applies the principles of the scientific method to the processes of management. SES ecosystem-based management is an ongoing process and not an end-state and therefore requires a flexible organisational and governance framework to facilitate it. The WFA believes that a participatory and collaborative approach will deliver such a framework for managing MCZs in Wales.

The Convention on Biological Diversity has defined 12 principles for the SES Ecosystem Approach and the WFA asks that Welsh Government reflects on these when considering our proposals and in light of the likely impacts of the current MCZ policy (see next page). The CBD Principles are the keystone to the WFA’s proposals as they reflect and address many of the issues currently faced.

¹ The Ecosystem Approach to Fisheries. FAO Technical Guidelines for Responsible Fisheries 2003 – p.121

Convention on Biological Diversity has defined 12 principles for the SES Ecosystem Approach

Principle 1: The objectives of management of land, water and living resources are a matter of societal choices.

Principle 2: Management should be decentralized to the lowest appropriate level.

Principle 3: Ecosystem managers should consider the effects (actual or potential) of their activities on adjacent and other ecosystems.

Principle 4: Recognizing potential gains from management, there is usually a need to understand and manage the ecosystem in an economic context. Any such ecosystem-management programme should:

- Reduce those market distortions that adversely affect biological diversity;
- Align incentives to promote biodiversity conservation and sustainable use;
- Internalize costs and benefits in the given ecosystem to the extent feasible.

Principle 5: Conservation of ecosystem structure and functioning, in order to maintain ecosystem services, should be a priority target of the ecosystem approach.

Principle 6: Ecosystems must be managed within the limits of their functioning.

Principle 7: The ecosystem approach should be undertaken at the appropriate spatial and temporal scales.

Principle 8: Recognizing the varying temporal scales and lag-effects that characterize ecosystem processes, objectives for ecosystem management should be set for the long term.

Principle 9: Management must recognize that change is inevitable.

Principle 10: The ecosystem approach should seek the appropriate balance between, and integration of, conservation and use of biological diversity.

Principle 11: The ecosystem approach should consider all forms of relevant information, including scientific and indigenous and local knowledge, innovations and practices.

Principle 12: The ecosystem approach should involve all relevant sectors of society and scientific disciplines.

The policy drivers for SES ecosystem-based management

Welsh and UK Government are already committed to the implementation of an ecosystem-based management approach to natural resource and conservation management through a series of international, European and National policies and agreements. The UK's national commitment to marine ecosystem based management is through the Marine and Coastal Access Act 2009². The key European commitment is via the European Integrated Maritime Policy (IMP)³ via the Marine Strategy Framework Directive (MSFD)⁴ the reformed Common Fisheries Policy.

International agreements include the declaration of the Convention on Biological Diversity and the World Summit on Sustainable Development both of which promote the adoption of the ecosystem-based approach in resource management.

However, the ecosystem-based approach has often been interpreted too narrowly, applied only to the ecological elements of the ecosystem. What the WFA is claiming is that a true conception of the ecosystem-based approach must include the human as well as the ecological elements in the ecosystem. By using the term 'social-ecological system', this requirement is met.

Why is SES ecosystem-base management the appropriate model for managing fisheries and other activities within MCZs?

In Wales, as in the rest of the UK, due to a combination of societal, practical and jurisdictional factors, the majority of Marine Protected Areas such as Special Areas for Conservation, Special Protection Areas and Marine Conservation Zones are sited within 6 miles of the shore. Siting MPAs in these areas where the intensity of fishing (commercial and recreational) is high and where recreational activities are more common, brings into sharp focus the potential conflicts between human activities and nature conservation objectives. This is especially true when the MPA designation process does not



POT FISHING OFF THE LLYN PENNINSULAR

² Marine and Coastal Access Act 2009 http://www.legislation.gov.uk/ukpga/2009/23/pdfs/ukpga_20090023_en.pdf

³ An Integrated Maritime Policy for the European Union
<http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2007:0575:FIN:EN:PDF>

⁴ Marine Strategy Framework Directive 2008
<http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2008:164:0019:0040:EN:PDF>

adequately consider the potential economic impact on commercial stakeholders such as the fishing industry and on the adjacent coastal communities. Small scale fleets from ports in close proximity to an MPA are likely to bear the brunt of any loss of access to traditional fishing grounds as they are unable either to move to other areas or to access new fishing opportunities.

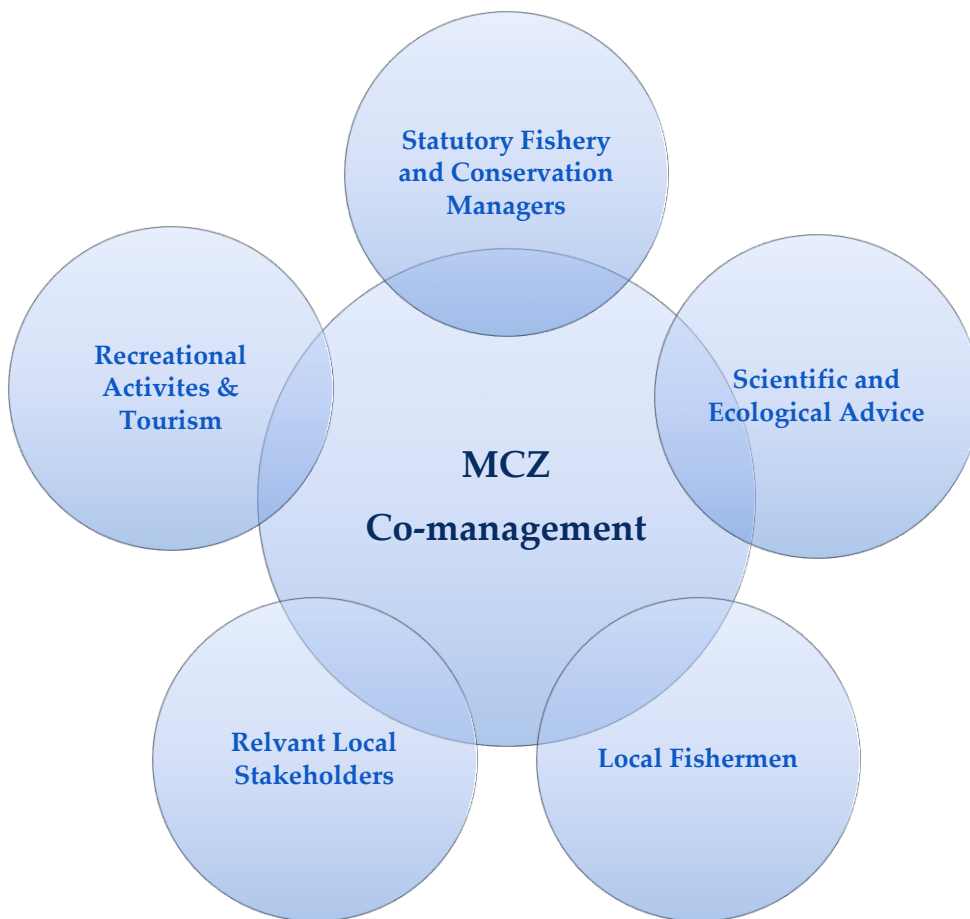
The consideration of fisheries, conservation and socio-economics explicit in SES ecosystem-based management makes it a viable approach for developing a framework for the management of Welsh MCZs. The application of the SES ecosystem-based management approach will enable managers and stakeholders to mitigate risk to sensitive sites, the wider ecosystem and commercial species and consequently maintain and secure the societal and economic services provided by the MCZ area. The SES ecosystem-based management model does not weaken or negate any of the conservation aims or objectives within the sites but ensures that appropriate management measures can be applied in a proportionate and focused manner thus reducing conflict with recreational and commercial sea users.

The WFA believe that an SES ecosystem-based management approach applied at a variety of spatial and temporal scales across Wales, can deliver significant biodiversity and fishery gains whilst minimising the all-too-common conflict between marine users.

ii. Co-management – partnership working

Co-management is widely considered by governments, environmental organisations and academics as central to the development and implementation of ecosystem-based management structures. The FAO and WWF both consider co-management to be a key tool in the delivery of the Ecosystem Approach to Fisheries.^{5,6} The UNEP describe participation and engagement as the cornerstones of effective ecosystem-based management.

Fisheries and conservation co-management is an organisational structure where the responsibilities of fishery and conservation management are shared between statutory managers and relevant coastal stakeholders. In the context of an MCZ these may include local commercial and recreational fishermen, tourism and recreational representatives and relevant local stakeholders including community groups and environmental interests.



A CONCEPTUAL MCZ CO-MANAGEMENT PARTNERSHIP

⁵ FAO Fisheries Department, 2003. The ecosystem approach to fisheries. FAO Technical Guidelines for Responsible Fisheries. No. 4, Suppl. 2. Rome, FAO. 2003. pp 112 <ftp://ftp.fao.org/docrep/fao/005/y4470e/y4470e00.pdf>

⁶ Policy Proposals and Operational Guidance for Ecosystem-Based Management of Marine Capture Fisheries www.panda.org/downloads/marine/WWF_EBMFisheries_FullDoc.pdf

What can MCZ co-management achieve?

Participatory Democracy: Fisheries and conservation co-management promotes a more democratic approach to management through placing fishery, community and conservation stakeholders at the heart of the decision making process that directly affects their livelihood and the economic and environmental concerns of their communities.

Shared Understanding and Compliance: The efficacy of site management is considered to be improved in co-management structures as management measures are more readily seen as legitimate and accepted when stakeholders have been involved in the decision-making process. Also, local knowledge of the site and activities leads to locally appropriate solutions, which engenders a better understanding within the group of the wider issues affecting all stakeholders and can act to reduce conflict and improve communication between disparate sectors. Compliance with management measures follows as a result of the process and development of better understanding of the issues.

Promotion of Evidence-Led Decision Making: A co-management structure is able to draw upon the capacity, expertise and knowledge of its fishery and conservation members whilst being supported by the scientific expertise and technical capacity of the statutory managers and scientific community involved. Very often resource constraints can hinder or prevent adequate data gathering to inform fisheries and conservation management. These constraints have resulted in overly-precautionary or poor decision making to the detriment of the fishery or conservation interests. Stakeholder participation, by providing information and assisting data gathering, can address data gaps and facilitate effective evidence-led decision making.



MUSSEL BEDS AT WHITEFORD POINT, GOWER

The co-management scale

There is no fixed formula or structure that describes a co-management framework; customized solutions and approaches can be developed to address local, regional or national requirements. Different co-management structures confer differing levels of responsibility and authority:

Instructive: There is minimal exchange of information between government and stakeholders in instructive systems. This type of co-management regime is only different from centralised management in the sense that the mechanisms exist for dialogue with users, but the process itself tends to be government informing users on the decisions they plan to make.

Consultative: Consultative systems have mechanisms for governments to consult with stakeholders but all decisions are ultimately taken by government.

Cooperative: This system is considered to be the definition of true of co-management. In cooperative management systems government and stakeholders cooperate together as equal partners in decision making.

Advisory: the balance of power and responsibility is weighted towards stakeholders who advise government of decisions to be taken and government endorses these decisions.

Informative: Government has delegated authority to make decisions to user groups who are responsible for informing government of these decisions. This is full self-governance.

State Control



iii. Adaptive management – “learning by doing”

“The ecosystem approach requires adaptive management to deal with the complex and dynamic nature of ecosystems and the absence of complete knowledge or understanding of their functioning.”

Excerpt from the definition of the ecosystem-based approach adopted by Convention on Biological Diversity 2000, and endorsed by World Summit of Sustainable Development 2002

The adaptive management concept is fast gaining ground as the best practice approach to the management of complex and dynamic systems. The marine ecosystem is, by its very nature, highly dynamic. Despite advances in our understanding of Welsh seas many questions remain about the linkages among species, habitats, oceanography and climate. In managing MCZs, therefore, even in those sites where we have most information, uncertainty is unavoidable. Adaptive management is an iterative process which addresses ‘uncertainty’ by developing understanding by trialling and adapting alternative management measures. In other words, adaptive management is learning by doing.

*“One must learn by doing the thing. For though you think you know it, you have no
certainly until you try”*
Sophocles 496-406 BC

Adaptive management is widely accepted by resource managers and is considered one of the most useful tools in dealing with climate change both in the sea and on land. Adaptive management is a central theme of the ‘Open Standards for the Practice of Conservation’⁷ published by the International Union for Conservation of Nature (IUCN), a partnership of environmental NGOs including WWF International. The United Nations Environment Programme considers an adaptive approach to be fundamental in marine and coastal ecosystem-based management⁸.

The EU Marine Strategy Framework Directive 2008 follows an adaptive management approach stipulating that Marine Plans are reviewed and revised on a 6-year cycle. Adaptive management is one of the five core principles of Defra’s Ecosystem Approach Action Plan, ‘Securing a healthy natural environment’⁹ which outlines Defra’s action plan for embedding an ecosystems approach into policy-making and delivery on natural environment matters (Defra, 2007).

⁷ Open Standards for the Practice of Conservation. The Conservation Measures Partnership 2007 – p. 40

⁸ Taking Steps toward Marine and Coastal Ecosystem-Based Management. UNEP 2011 – p. 68

⁹ Securing a healthy natural environment: An action plan for embedding an ecosystems approach. Defra 2007 – p. 60

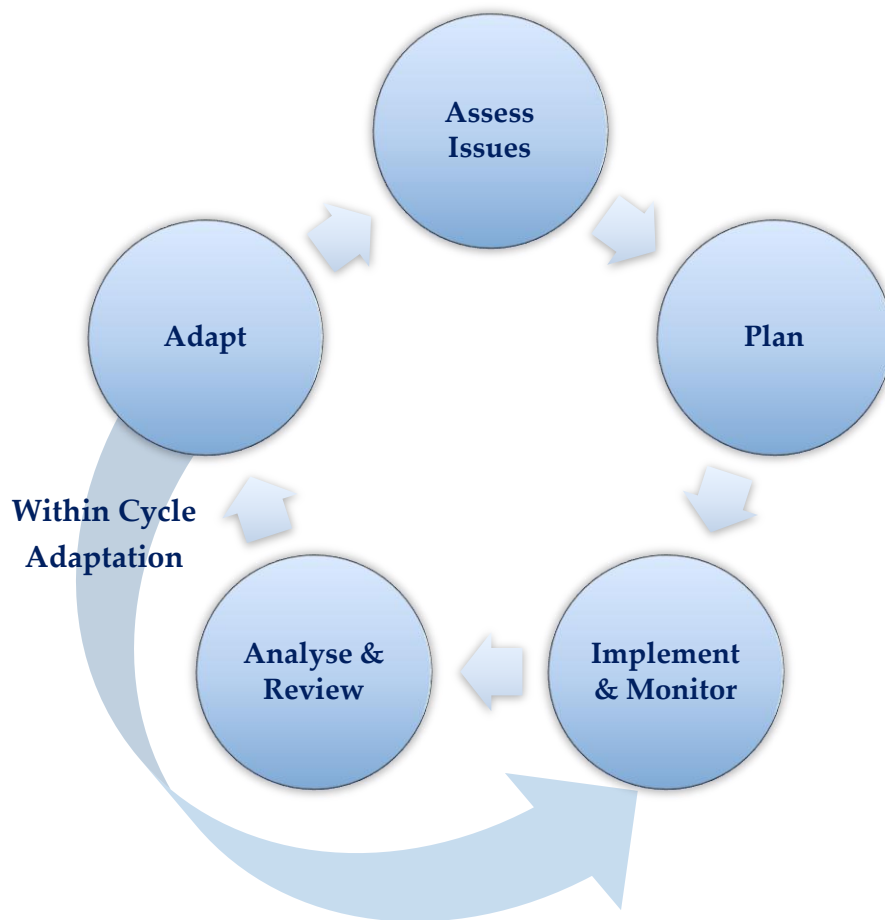
Striking the Balance

The WFA believe that if Welsh MCZs, and Welsh territorial seas beyond them, are to be effectively managed, an adaptive approach is necessary, one where policy decisions and management measures are monitored to assess their effectiveness and then altered to reflect the consequent advances in understanding.



FISHING VESSEL AT FERRYSIDE

The Adaptive Management Framework (in the context of an MCZ)



Assess Issues: MCZ management issues are identified and defined by statutory bodies working in partnership with stakeholders. At this stage of the adaptive cycle, existing knowledge about the site should be collated to inform the assessment of the potential effects or outcomes of alternative management or operational actions. The predicted outcomes of potential actions enable the co-management group to identify the most locally appropriate actions that will meet high level conservation MCZ management objectives. It is at this stage that key information gaps and sources of uncertainty are identified

Plan: an MCZ management and monitoring plan is designed and agreed by the co-management group. This plan should outline management objectives, establish goals and targets and identify performance indicators. The plan should outline the underlying management strategies and define the locally appropriate management measures.

A complementary monitoring plan should be developed by the group aimed at delivering accurate and robust information on the efficacy of individual management options. The monitoring plan is intended to address the main 'uncertainties' and information gaps, using a robust scientific approach.

Implementation & Monitoring: the MCZ management plan is implemented. The monitoring plan becomes operational and data is gathered in partnership with stakeholders to determine the efficacy of the management actions. The results of the monitoring programme are used to test predicted outcomes and to increase our understanding of ecosystem component interactions.

Analyse and Review: The results of the monitoring programme are used to evaluate the efficacy of the management plan and identify priorities for revision.

Adapt: Management actions, operational details and objectives are revised based on monitoring results, our growing understanding of the MCZ function and feedback from stakeholders. The adaptive cycle continues, acting to increase understanding of the system and long-term processes.

Although the adaptive management cycle usually follows a formal time-table, revision and adaptation can and should occur as information becomes available within the cycle.

iv. Collaborative science and monitoring

The Principles of the Convention on Biological Diversity emphasise that SES ecosystem-based management should consider all forms of relevant information, including scientific and indigenous knowledge. Closely linked to co-management and key to enabling the adaptive management of MCZs, participative science is a key element of the WFA's vision for Welsh MCZ management.

Adaptive management requires the timely provision of good quality information in order to assess and adjust MCZ management. This may be costly and logistically difficult in a network of sites, but collaboration with fishermen and other coastal stakeholders can help address these barriers to information and provide unlooked for benefits through access to information and understanding.

Until relatively recently, fisheries and conservation management structures have overlooked the hard-won expertise of fishermen and other stakeholders. There is however a growing recognition of the value of the Local Ecological Knowledge (LEK) held by fishermen.

This collective knowledge, based upon centuries of traditional use and more recent experience working at sea, often includes profound insights into natural cycles in species and the environment. In particular this local ecological knowledge can help to contextualize more formal scientific interpretations of natural phenomena to inform MCZ management. By working at sea all year round, fishermen observe the seasonal changes affecting their target species and wildlife and often have a deep knowledge of the habitats and wildlife in their traditional fishing grounds.



SWANSEA UNIVERSITY RESEARCHERS WORKING WITH FISHERMEN IN LUNDY MCZ

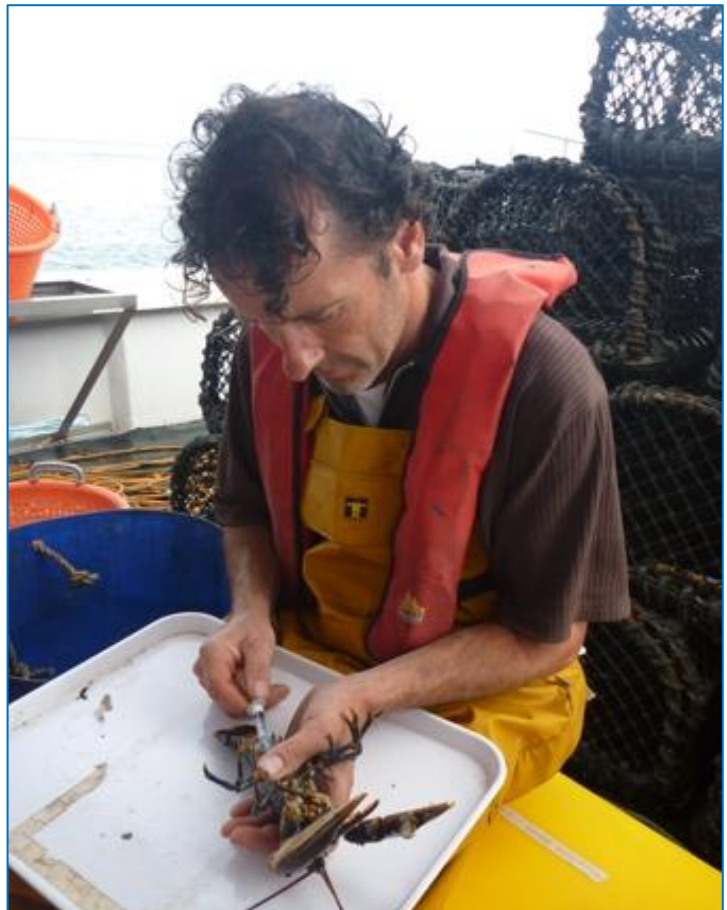
Striking the Balance

The California Collaborative Fisheries Research Program, established in 1999, is a good example of how participatory science can play an integral role in protected site management by delivering high quality science and monitoring information¹⁰.

Welsh fishermen already collaborate with scientists and researchers from Universities and government agencies in a number of projects. For instance, the School of Ocean Sciences (SOS) (Bangor University) are embarking on a £2 million project to assess Welsh fisheries resources in partnership with Welsh fishermen; fishermen are working in partnership with SOS to develop low impact scallop gears. The CCW FishMap Mon project relies on fishermen's information to map fishing activity and develop sensitivity assessments. Individual fishermen participate in seabird and marine mammal surveys with CCW and NGOs. A series of native oyster surveys is being carried out by students from Aberystwyth and Swansea Universities using Welsh fishing vessels and drawing upon local knowledge.

Researchers from the Susfish project at Swansea University are leading the way in collaborative MCZ research at Lundy which goes well beyond using local fishing vessels as sampling platforms. The researchers have been working side-by-side with fishermen who play an integral part in the data collection; they have even been trained to take blood samples from protected lobsters within the no-take-zone.

The importance and potential of MCZs as important sites for study is not lost on WFA members: on the contrary, a key aim of Welsh MCZs is to improve our understanding of the marine environment and human effects on it. The WFA wish to build upon the relationships it has already established with the research community to develop new projects and studies to develop this understanding. It is expected that as part of these studies, scientific areas of appropriate sizes could be set aside as de facto no-take-zones for specific experiments or studies.



FISHERMAN TAKING LOBSTER BLOOD SAMPLE

¹⁰ <http://seagrant.mlml.calstate.edu/research/ccfrp/>

v. Spatial management – zoning and geofences

Spatial management or zoning is viewed as a key management tool for use in multiple-use Marine Protected Areas¹¹. The WFA believe that spatial management through zonation is a valuable tool for management of Welsh MCZs particularly where there is a need to protect sensitive habitats.

When informed by sensitivity risk assessments, zoning can define which activities can and cannot occur in different areas of an MPA in relation to the site conservation and resource management objectives. The use of zoning establishes the footprint of acceptable use by different activities and of development within the site. By identifying those areas of a site that are important for particular purposes such as the protection of sensitive habitats or nursery areas, or for research, anchoring, fishing and tourism activities, zonation helps to reduce or eliminate disturbance to the environment and conflict between sea users.

Importantly, zoning enables traditional access to MCZs by commercial fishermen and recreational sea users to continue whilst affording protection to sensitive habitats.

A system of zoning is currently being trialled in the Lyme Bay and Torbay candidate SAC. The cSAC is proposed for designation for the protection of bedrock reef, biogenic reef and sea cave habitat feature and the related flora and fauna those features support including fragile sponge, coral, sea fan and bryozoan

species. These habitats have been identified as being highly vulnerable to physical damage from mobile fishing gears (trawls and scallop dredges).

In order to protect these habitats and enable fishermen to retain access to their traditional fishing grounds a spatial plan was



FV HARMONI, ONE OF THE WELSH FISHING VESSELS TRIALING INSHORE VMS TECHNOLOGY

¹¹ Guidelines for Management Planning of Protected Areas. IUCN 2003 – p.87

Striking the Balance

developed. A prerequisite for this plan being accepted by conservation managers was a means of ensuring high levels of compliance. This was provided by a newly developed inshore Vessel Monitoring System (iVMS) which can track permitted vessels in real time and alert management and enforcement bodies should a vessel cross into a prohibited area defined by a “geofence”.

This technology is currently being trialled by Welsh fishing vessels operating in Cardigan Bay and is considered by the WFA as a key tool in managing the valuable scallop fishery in operation there. The WFA believe that iVMS may be an important management mechanism to enable best practice spatial management within multiple-use Welsh MCZs.

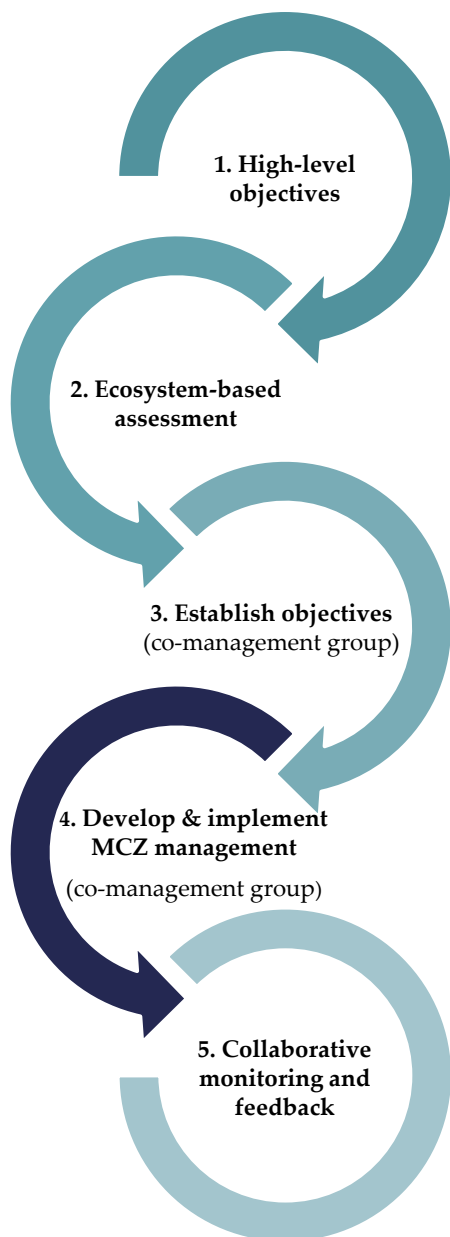


INSHORE FISHING VESSELS AT PORTHGAIN

b. Overview of the WFA SES Ecosystem-based MCZ management model

The intention of this section is to provide an overview of our model and explain the roles of each stage of the process and highlight the best practice approaches that have been applied. Detailed descriptions of best practice elements are provided in successive sections.

The WFA SES Ecosystem Based MCZ model is best considered as a dynamic and iterative process that develops and adapts site-specific management over time. At the heart of the process are MCZ site co-management groups made up of relevant statutory bodies and relevant sea users and stakeholders.



The role of the co-management groups is to develop and implement site specific management aimed to deliver high -level objectives guided by Welsh, UK and EU policy.

WFA propose that an integrated environmental, fisheries and socio-economic assessment is carried out. This assessment will identify the risks to habitats and representative species from existing activities and the social, economic and cultural drivers that underpin these activities. The results from the assessment will provide the foundation upon which effective ecosystem management of MCZs can be developed.

The ecosystem-based assessment will highlight alongside the current good practice in the MCZ those activities that require better management. This information will enable the co-management group to set site specific management objectives for the MCZ.

The primary role of the co-management group is to develop locally applicable management measures, including the use of zones, aimed at achieving the site specific objectives.

MCZ management should be adaptive and flexible, constantly reviewed and revised in relation to feedback from monitoring and research. The WFA are willing to place a central role in monitoring and research so that researchers can take full benefit of our local ecological knowledge and expertise.

1. High-level objective setting

It is important that the co-management groups are guided by a clear set of policy objectives and guiding principles. These should include high-level policy objectives laid out in Welsh, UK and EU legislation; these are the statutory drivers for MCZs and associated marine management. In future WFA hope that the interpretation and implementation of such policy drivers in a Welsh context can be done in partnership with stakeholders.

The existing conservation objectives for Highly Protected MCZs will need to be revised with stakeholders to reflect the proposed ecosystem-based approach for multiple-use MCZs.

Involvement of relevant stakeholders will provide an opportunity to develop a good level of general understanding and prevent situations where conflict might arise later in the process.

The co-management group should have an agreed set of Principles to guide its development and implementation of site specific MCZ management. It is envisaged by the WFA that these will reflect the SES ecosystem-based approach reflecting the shared aims of a healthy marine environment and a vibrant fishing industry and coastal economy.

2. Ecosystem-based assessment

A prerequisite for the development of effective management is a firm foundation of knowledge from which to identify management priorities and enable management objectives to be established. In order that MCZ adaptive co-management groups can develop effective site-specific management measures they first need to know which sensitive habitats and species are at risk from current commercial and recreational activities and where they are located. The co-management group also needs to understand the importance of these habitats and activities to the culture and economy of the local communities.

There are existing risk-based assessment approaches which focus on individual aspects such as habitat and species sensitivity or fishery sustainability. For example, the sensitivity matrix of pressures on MCZ/MPA features recently developed by MarLN/the Marine Biological Association of the UK for Defra¹² enables a rapid special assessment of seabed impacts of a variety of commercial and recreational activities within MCZs. Also, the Marine Stewardship Council pre-assessment framework¹³ measures individual fisheries against a set of conditions that it might be reasonable to expect a well-managed fishery to meet. Such assessments of fisheries occurring inside Welsh MCZs would highlight management shortcomings in need of attention and those fisheries that are already examples of sustainable best practice.

The challenge will be to organise these individual evaluations into an integrated (i.e. SES) ecosystem-based assessment. A potential solution may be to integrate the most suitable approaches into a fisheries Strategic Environmental Assessment (fSEA). A fSEA is a formalised

¹² Development of a sensitivity matrix (pressures-MCZ/MPA features). ABPMer, Southampton and the Marine Life Information Network (MarLIN) Plymouth: Marine Biological Association of the UK. 2011 – p.947

¹³ MSC Fishery Standard Principles and Criteria for Sustainable Fishing Vrsion 1.1. Marine Stewardship Council. 2010 – p 8

and structured way of assessing, and identifying appropriate mitigation, for the effects on the marine environment of a fisheries, in this context an MCZ, management framework. The wide-ranging focus of an fSEA enables assessment of a variety of factors such as the effects of management on biological populations of target species; the impacts on seabed features and wildlife; and the socio-economic effects on coastal communities. A number of Government and NGO organisations have suggested applying the SEA process to fisheries management in the same way that it has been applied to other marine industries such as offshore renewables and aggregates^{14,15}. The WFA are aware of an fSEA having been carried out in the UK; this work in the North Eastern Sea Fisheries Committee district may serve as a useful starting point for discussion¹⁶.

The WFA would like to work with the Welsh Government and relevant stakeholders to develop and agree a framework for an integrated ecosystem-based assessment to inform multiple-use MCZ management.

3. Establish objectives

The outputs of an SES ecosystem-based assessment will highlight issues that require management attention. Where the risk of impact is high the management should be precautionary in nature. The co-management groups then need to establish site specific management objectives (guided by the revised conservation objectives and high-level policy); establish goals and targets; identify performance indicators; and assign priorities to each objective.

This stage of the process enables the adaptive co-management group to focus its resources in an efficient and cost effective manner.

4. Develop and implement MCZ management

This can be considered to be the operational phase of the SES ecosystem-based MCZ management process. The adaptive co-management group is tasked to develop and implement locally applicable management measures aimed to achieve the agreed site management objectives along with corresponding monitoring. This may take the form of a management plan but given the adaptive nature of the process this would be a “live document” and subject to constant review and revision. It is at this stage that spatial management can be considered and implemented. It is envisaged that a typical MCZ management cycle will be annual or biannual depending on the management plan and urgency of priority issues. Nevertheless, the adaptive nature of the process should allow more timely adaptation to arising events or new information from monitoring or research.

¹⁴ The Application of Strategic Environmental Assessments in the UK Fisheries Sector. IEEP report to WWF. 2006 – p.71

¹⁵ Net Benefits, a Sustainable and Profitable Future for UK fishing. Prime Minister’s Strategy Unit. 2004 – p. 200

¹⁶ Pilot Shellfisheries Strategic Environmental Assessment – Environmental Report. Mott Macdonald report to NESFC. 2008 – p.166

Clearly close working with members from relevant statutory bodies will be necessary in order that management measures are legal and can be enforced. Although best practice can be promoted in MCZ site users through voluntary codes, where sensitive habitats and species are at risk there is a clear requirement for a statutory approach.

5. Collaborative monitoring and feedback

Adaptive and flexible MCZ management requires the timely provision of high confidence information in order to assess the efficacy of management and to inform adjustments of management measures.

It is envisaged that monitoring will be carried out in a participatory manner utilising local expertise and stakeholder knowledge from a wide group of sea users including wildlife groups, leisure boaters in addition to commercial fishermen. These stakeholders, allied with technical experts and scientific researchers may be able to deliver the necessary MCZ monitoring in a scientifically robust and a cost effective way.

The WFA envisage that Welsh MCZs may include NTZ areas set aside for well-founded scientific research. These modest but meaningful areas will help researchers and policy makers to better understand the utility of such areas in marine management and to use them as a measure against which to judge the success of the wider MCZ management.

3. Conclusions

Our approach, based upon internationally recognised best practice in MPA management, has been conceived to deliver high levels of environmental protection, to promote ecosystem recovery and resilience, and improve our understanding of the marine environment and the role that MCZs, including no-take-zones, have in marine management.

Importantly for the Welsh fishing industry and local communities this approach will preserve their cultural and economic life, secure traditional low-impact fisheries and recreational activities along with the related business.

The WFA believe that the SES ecosystem-based model described in this document, once demonstrated successfully within the MCZs, could be applied more widely to other Welsh MPAs to form a truly cohesive network by which very real gains in ecosystem and fishery recovery and resilience could be made.



WELSH POTTING VESSEL HEADING OUT FROM ABERYSTWYTH

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