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Developing a participatory approach to the management of fishing activity in UK Marine Protected Areas

WORKSHOP 3A – LANCASTER - OUTPUTS

INFORMING POSITIVE CHANGE

NFFO/JNCC

Developing a participatory approach to the management of fishing activity in UK Marine Protected Areas

Workshop 3a – Lancaster - Outputs

VERSION	DATE	VERSION SUMMARY	APPROVALS
RO		V1	Principal authors: Anna Bullen
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R1		V2 – incorporating comments by project partners and stakeholders	Approved by: Gerard Couper
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1 Introduction

A multi stakeholder workshop was held on 23rd May 2019 in Lancaster to bring together the project partners and West of Walney MCZ regional stakeholders to further the project process.

The primary aims of the workshop were to:

- Bring regional stakeholders together to design participatory management of MPAs
- Further develop the proposed MPA management toolkit;
- Consider the outcomes for the scenario modelling;
- Consider triggers for a management review;
- Explore possible governance frameworks for adaptive management.

1.1 Our approach

The outputs were gained through a series of presentations that were followed by discussion sessions, whereby questions were posed and discussed in detail, led by independent facilitators. Representatives from the project partners were part of the discussion groups, available to answer project specific and regulation questions.

The outputs of the workshop are summarised in this report. They will be used in the development of the final national workshop, within the project itself and to inform the wider process in developing participatory management of MPAs.

1.2 Report structure

Section 2 of this report provides details of the workshop participants. The remainder of the report is set out according to the workshop sessions and specific questions asked, presenting key discussion points. This report is not an analysis of the outputs but a representation of everyone's input to the discussion, whilst also highlighting key themes that arose from those discussions.

2 Workshop participants

Figure 1 Workshop participants

Name	Organisation	Stakeholder category				
		Fishing industry	Conservation / NGO	Scientific / research	Other industry	Regulator
Project partners						
Louisa Jones	JNCC					X
Alice Doyle	JNCC					X
Lowri Evans	Bangor University			X		
Jan Hiddink	Bangor University			X		
Nick Greenwood	Marine Management Organisation					X
Mike Quigley	Natural England					X
Dale Rodmell	NFFO	X				
Project Advisory Group						
Edward Hind-Ozan	DEFRA					X
Stakeholders						
Emily Baxter	North West Wildlife Trusts		X			
Melanie Hartley	IFCA (North Western)					X
Peter Duncan	Isle of Man Government					X
Caroline Salthouse	North West Coastal Forum	X	X	X	X	X
Harry Wick	Northern Ireland Fish Producers Organisation	X				

3 Review of Model Scenarios

The RBS model (relative benthic status) was developed to help us understand fisheries impacts on benthos in a quantitative manner. This is just one tool in the toolkit. The RBS model considers the ratio of depletion against recovery. Depletion rate is based on gear penetration depth based on average values from a meta-analysis for bottom trawled gear (Hiddink *et al*., 2017) along with information from Dale for the gear modification scenarios. The Recovery element is based on species longevity, which is estimated using equations suitable for NW Europe to estimate longevity of the communities in relation to the sediment type of the features we are looking at (Rijnsdorp *et al*., 2018). Maps of habitats and site-specific information are also included.

Fishing effort is based on the ICES swept area ratios (SAR) for 2017. Just one years' fishing data is used to keep the model simple, and to allow it to be used in data poor areas. The model uses the most recent activity data as recent effort is more indicative of impact than historic values. RBS values range between 0.01 and 1, with 1 representing 100% of the possible biomass remaining and 0.1 representing 10% of the possible biomass remaining.

The data used is not finite. The model can incorporate other data, such as more site-specific information.

Figure 2 West of Walney MCZ key facts

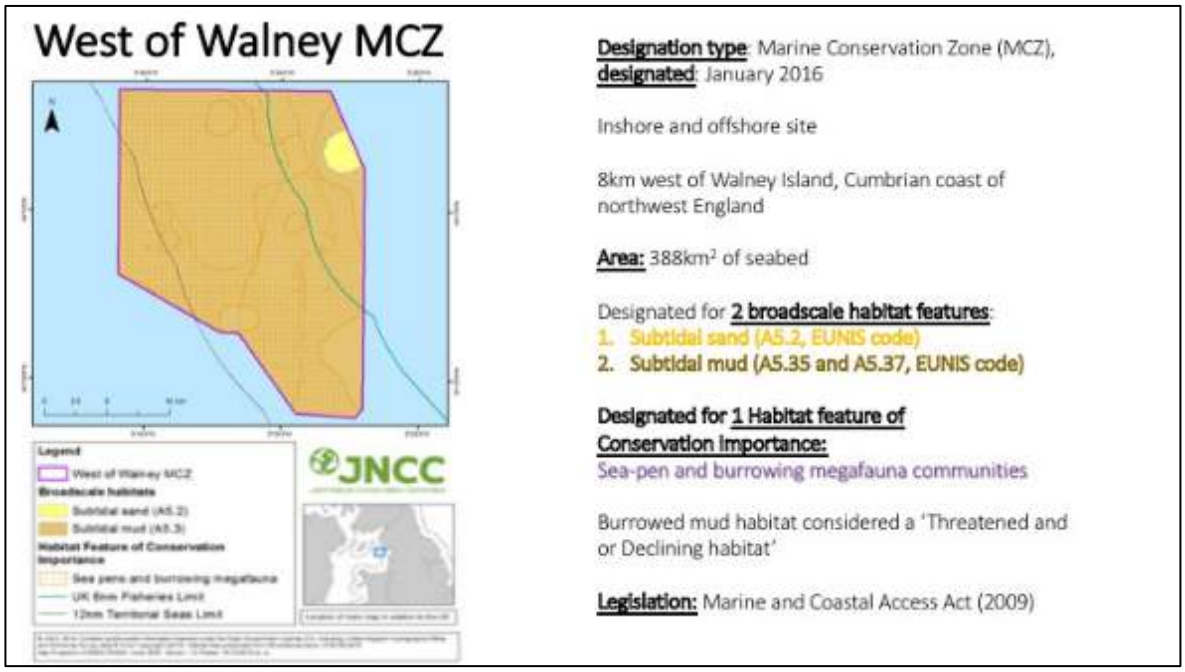


Figure 3 Conservation objectives of West of Walney MCZ

The **Conservation Objectives** for the **West of Walney MCZ** are for the zones to be:

1. Maintained in favourable condition if they are already in favourable condition.
2. Brought into favourable condition if they are not already in favourable condition.

For each protected feature, favourable condition means that, within a zone:

1. Its extent is stable or increasing
2. Its structure and functions, its quality, and the composition of its characteristic biological communities (including diversity and abundance of species forming part or inhabiting the habitat) are sufficient to ensure that its condition remains healthy and does not deteriorate.

Feature	Species Composition	Sediment Composition	Extent & distribution of feature	Extent & distribution of communities
Sea pens & burrowing megafauna	Recover	Maintain	Maintain	Recover
Subtidal mud	Recover	Maintain	Maintain	Recover
Subtidal sand	Recover	Maintain	Maintain	Recover

Figure 4 Relative Benthic Status (RBS)

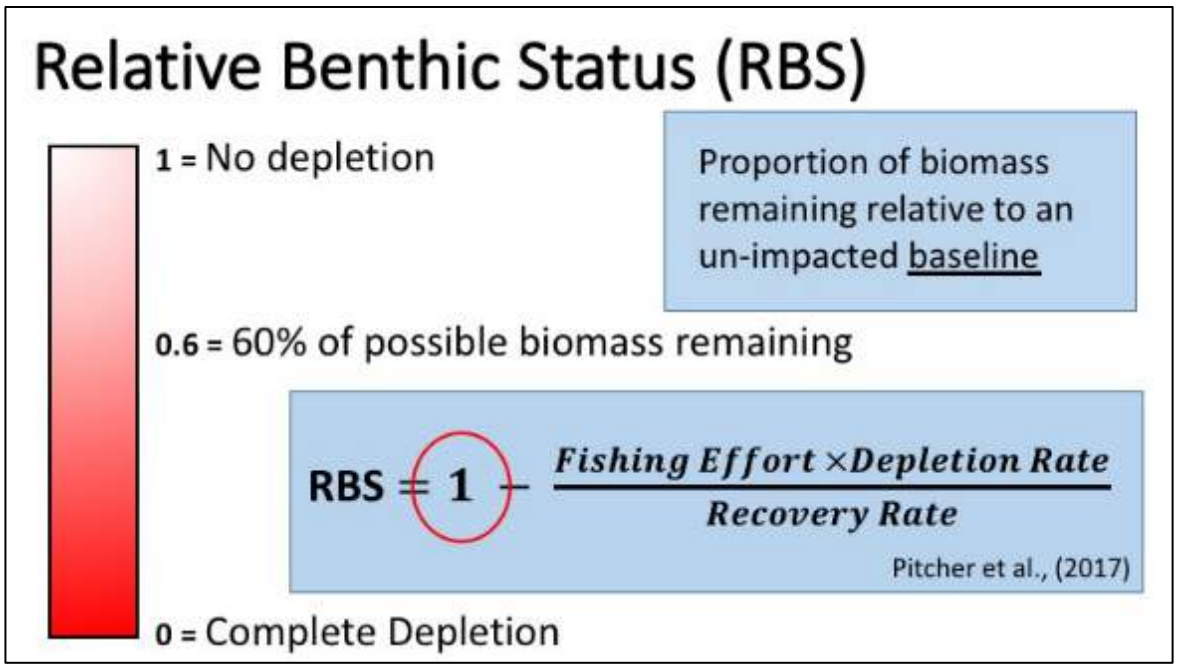
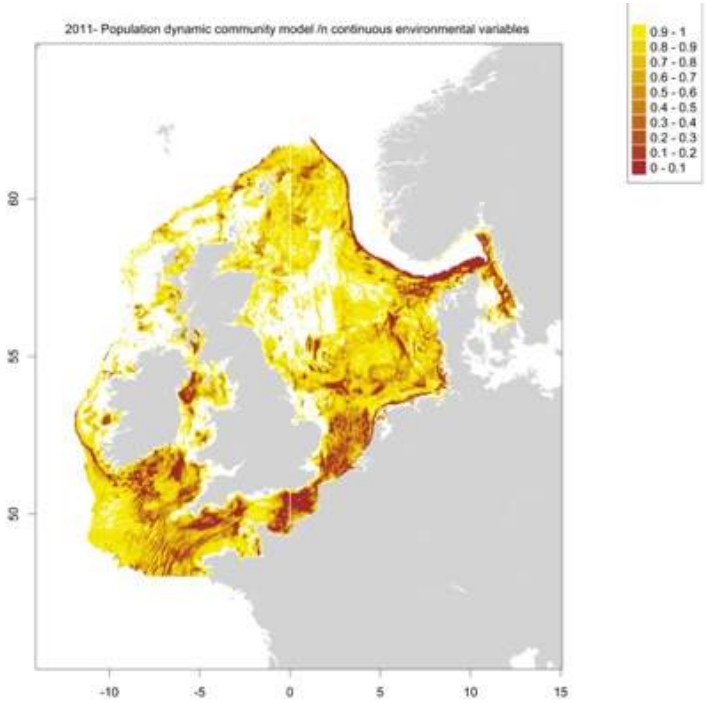


Figure 5 Example output for NW Europe from ICES



3.1 General comments on the model

- How do recovery rates in the model that relate to habitats address varying recovery of individual species within communities?
    - This project used data from published work regarding habitats (from sand, mud and gravel sediments) where fishing is not occurring. The data was then extrapolated / modelled across the North Sea to provide a distribution of recovery across the area. An example of Relative Benthic Status output for the whole of NW Europe (figure 5) shows red areas (low RBS) where habitats have been impacted by towed gears, which is expected in areas of high fishing activity for this gear type.
- What are the actual outputs of the model?
    - The model provides RBS values (numerically) and these are transposed to GIS maps for visual representation (the model does not provide a graphical / mapped output. Instead the values provided by the model are used to plot the maps shown).
- Why is fishing the only variable?
    - This may be the more simplistic approach, but the model should be accurate rather than simplistic.
- Why are environmental factors and other activities not considered?
    - The idea was to keep the model simple and focus on one activity for the case study to assess the usefulness of the model being used alongside adaptive management. It doesn't assume that fishing is the only pressure, instead it considers if other pressures remain static, what impact would changes in fishing pressure have on the RBS. Other information does feed into the decisions. There is a legal duty to manage

fishing for conservation of the site. The model will not be considered in isolation. It was thought that this would be most helpful to review management of this activity, although future hopes would be to use the model to review other activities. We are not trying to single out fishing as only impact to habitat.

- Does it pass the common-sense test? For example, if the area hasn't been fished due to reduction in stock / not a profitable area, then fishing effort would reduce naturally and so is not the biggest impact to the area (which could still be impacted by other activities). Area FU15 has seen a decrease between 2010-2012 with a northward movement in fishing effort. Impacts on developments such as windfarms also key, so the ICES 2017 data would show a lower level of effort than that from previous years.
    - We need to recognise there is a bigger picture and consider how other activities are managed. Some impacts are harder to map (e.g. climate impacts etc.) so fishing is used as there is data available.
- Important to include windfarm development in model output maps, and accommodate this into fishing displacement?
- Important to only include infrastructure which is in existence and would impact / be relevant to interpretation of the scenario- including all activities would make the maps too busy / confusing to interpret.
- Useful to include habitat distribution in map also as this could be used to visualise where there is potential for recovery (for example ensuring suitable habitat is available in areas for expected increase in RBS for communities) and where fishing would most likely be displaced to.
- Displacement needs to be considered logically for all scenarios. There is a need to accommodate local knowledge, for example where fishing is most likely to be displaced to. In West of Walney MCZ fishing effort is likely to be displaced to The Clyde area so need to balance if this displacement would have impacts to other MPAs etc. Agreed by all it is key to have this local knowledge in reviewing the scenarios and adapting model accordingly. There are tools to support this (e.g. NE displacement model).
- The model should be used at a site level for fine detail and also at a more regional scale to show impacts to surrounding areas of displacement.
- Noted that the RBS values for the site before hypothetical management scenario are already relatively high. How can management be justified using RBS when the improvements seem so negligible? How does this balance this with economic impacts? Fishermen being reduced to beyond poverty etc.
    - Socio-economics are taken into account during the MCZ designation process- these are then accounted for in the Impact Assessments. Management of the MPA is focused on conservation of features and not influenced by socio-economics although impact to business is recorded.
- How is timescale built in to the model outputs? Varying recovery rates for different habitats. For example, sea pen communities may take longer to get to RBS 1 than sedimentary habitats. Helpful for the fishing industry to know how long the site could be closed for.
    - Model equations can be adapted to show how long it takes for the site to recover to RBS of 1. Useful for review of management. A recovery trajectory can be developed

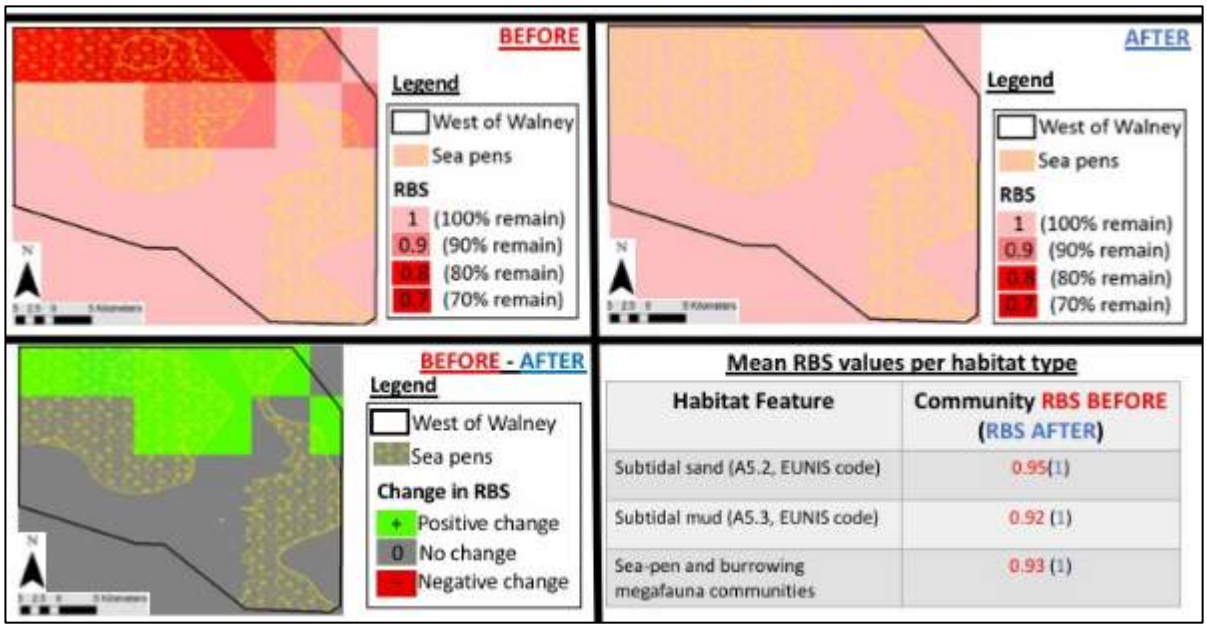
per feature of interest which indicates a guideline 'time to recovery' if fishing were to cease in the area.

- Can we ground-truth the starting point of the model (e.g. species assemblages)? Need current data to assess site condition rather than using modelled data.
    - Yes, the ideal situation would be to use site specific data (as detailed as possible). This could easily be incorporated into the model if/when that data is available.
- What baseline are we aiming for in achieving conservation objectives and using General Management Approach (GMA)?
    - The industry objective is to focus on Nephrops fisheries stock rebuild and also to diversify fisheries. Current example discussed regarding cod stocks which are not recovering despite management plans- although Haddock results are looking more positive.
    - However, the conservation objectives of the site are not intended for fisheries enhancement. They were derived for conservation of important features.
- What is the compatibility with this model and others in development (e.g. Cefas model and displacement model from NE toolkit)? Can the models be incorporated to provide a more holistic approach?
    - Bangor in conversations with Cefas to collaborate on similar models- although there are separate drivers (and different funding sources providing the focus). The aim is to collaborate and ensure models are covering similar aspects.
- Query (from MMO) on fisheries activity data being used. There is little impact being shown in southern area of the site. Could this be an issue of incomplete data set?
    - This is not the case but highlights the importance of participatory / stakeholder group to review and QA dataset for use in real-life scenarios.
    - Noted also that inshore fishing data is missing from the model so not a complete picture.
- Can we include scenarios to account for change in fishing activity e.g. change to static gear (potting / creeling)
    - Static gear cannot be incorporated into this model (at the moment) as the model pressure comes from abrasion of seabed (from bottom trawling). We would need to consider different pressures for static gear.
- Using static gear provides economic benefits; is it possible to look into profitability of areas within site and visually present these / incorporate them into the model?
    - Potentially. This would be a future consideration / adaptation for the model, working with social scientists and / or economists- however this is not feasible within this project. .
- Recoverability needs to be looked at more closely for site-based information- otherwise this can be easily challenged. How can we derive site data in most cost effective way?
    - Use of industry; for example, Harry Wick mentioned his fleet is currently gathering data for academics and researchers and are keen to share this data and work to help solve the problem rationally with data. But they need to know the gaps in order to help.
    - More precautionary approach would be to use recoverability of longest-lived species.

- Can we use other methods for calculating sensitivities, such as MarESA (Marine Evidence based Sensitivity Assessments) provided by MarLIN (MBA, Plymouth)? Sensitivity assessment (recoverability) provided on biotope level, so could use site survey data to assess which biotopes actually present in site and map sensitivity according to these assessments? Also, there is potential to link to pressures activities database (JNCC)?
    - Longevity of species considered best value to be used. However, this could be changed? Open to discussion.
    - Need to balance most sensitive species against recoverability of community function.
    - Need to present tolerance to consented activities; could model provide indices of vulnerability?
- The model works best when applied on a site-specific basis, as it can be tailored to give a more realistic output that way. It can be applied to other sites if similar, but best to have a site specific and separate regional version to assess the wider picture.
- It was noted that the model alone would not determine or generate changes in management but would still be a useful tool to regulators to determine what trajectory and scale of change could be expected under a certain management scenario. It would not be used in isolation to make management decisions.
- Fishing industry believe it would be a useful tool for appraising management options.

3.2 Scenario 1

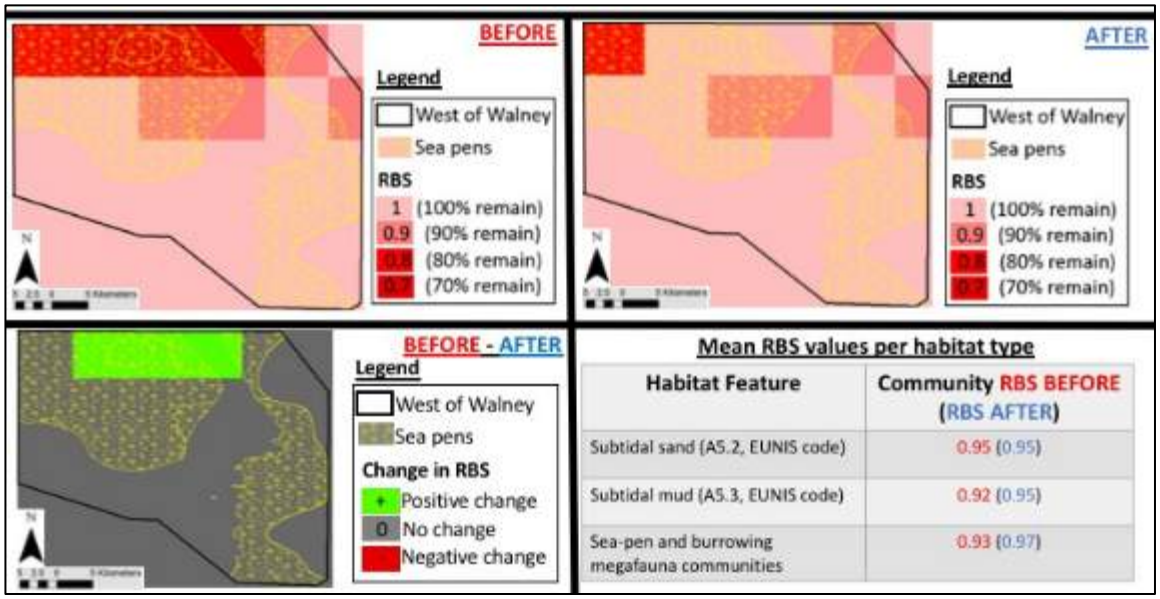
Figure 5 Scenario 1 Complete spatial/temporal closure



- The results are as expected, although not sure they are realistic.
- They are also very site focused. It would be useful to see the effects on regional area / surrounding MPAs to account for displacement of fisheries.
- This management scenario is the closest to the proposed management option for West of Walney MCZ.

3.3 Scenario 2a

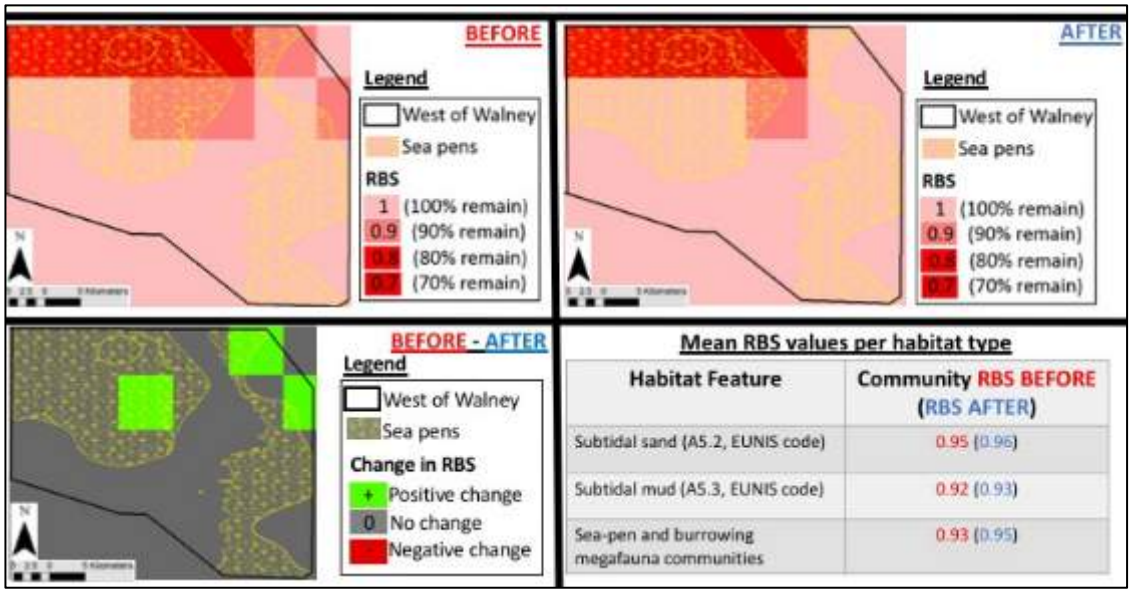
Figure 6 Scenario 2a remove fishing from highest % of fishing area without displacement



- What percentage of fishing effort was used to detect highest % of fishing within this scenario?
    - Three 'cells' were selected purely due to them having the highest effort % within the site- these 3 cells had the same value- neighbouring cells were slightly less (in %effort) and so not included for this scenario.
- When reviewing this scenario, it would be useful to justify why / what level % effort is considered 'high'. Are there recognised values for this? When applying common sense, the highest % effort area is due to that area being most profitable for the fishing (that's where the fish are). So, the pattern of displacement under this management scenario is not realistic, as displacement of fishing is predicted to be in areas where fish aren't. Moving from prime grounds to less profitable areas not realistic. Fishermen need to account for fuel / catch effort etc. It would be more realistic to move to a new location (or existing location of similar profitability) (e.g. to the Clyde).

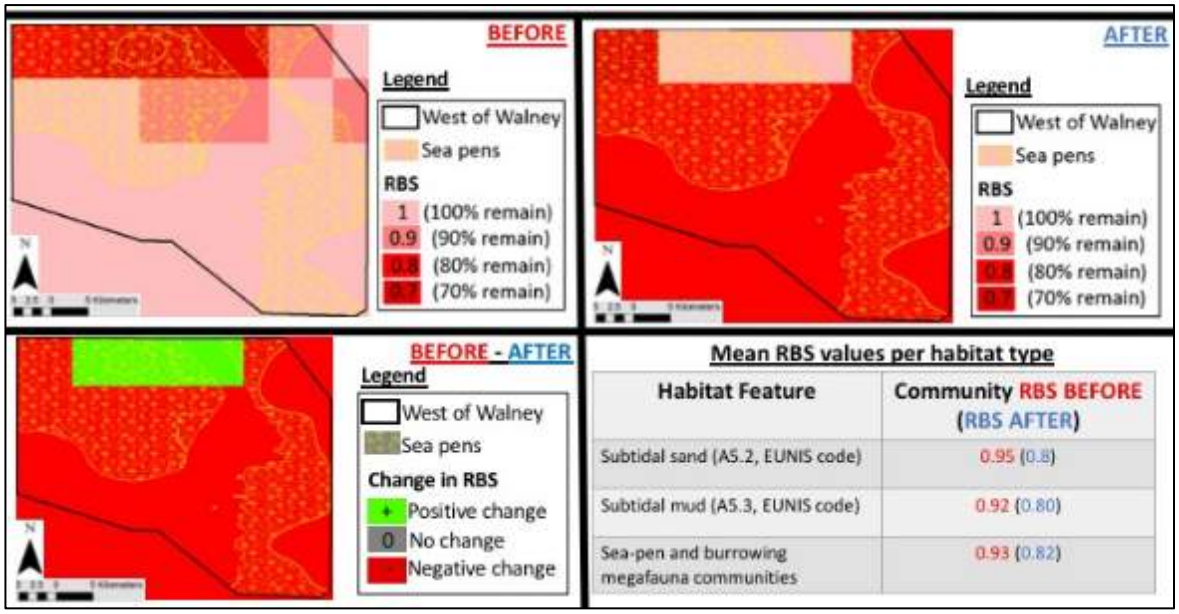
3.4 Scenario 2b

Figure 7 Scenario 2b remove fishing from the lowest % of fishing area without displacement



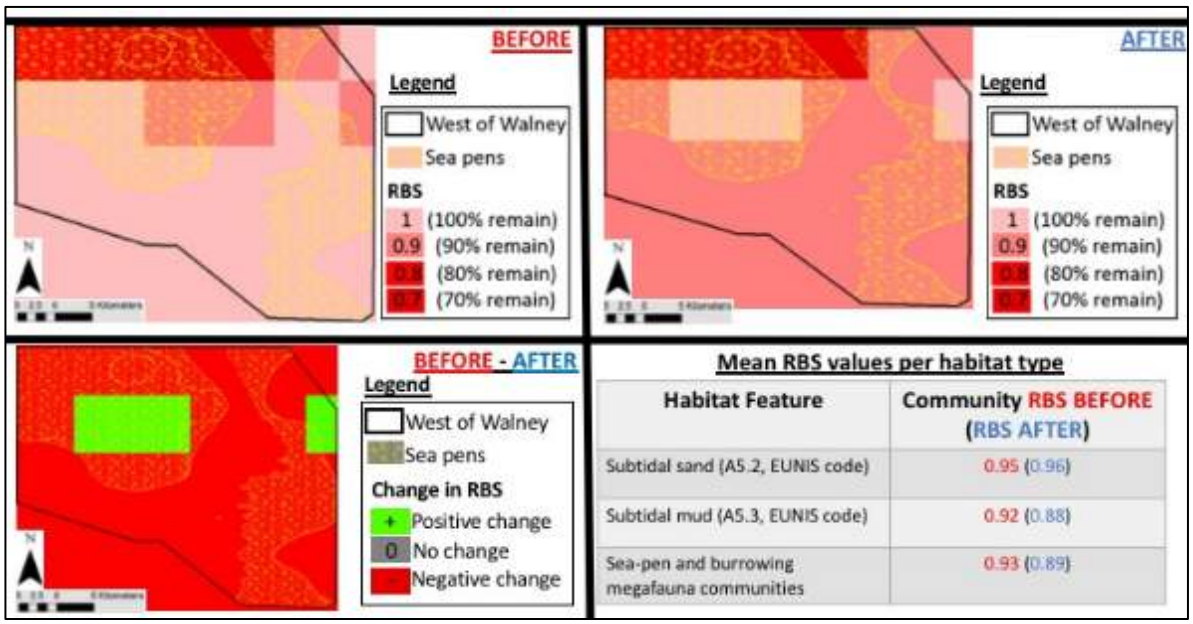
- This scenario is recognised as the most cost-efficient option for delivering conservation objectives. However, this needs to balance with the conservation objectives of the site.
    - RBS approach leans towards highlighting scenarios where there is more overall conservation gain (rather than focus on biodiverse hot spots / highly sensitive species).
    - Removal of fishing from marginal areas would focus conservation efforts over areas where there is little disturbance and more potential for recovery. However, there is uncertainty around whether poor diversity / productivity in these areas is associated with fishing pressure, or because these areas are naturally less diverse / productive. If the reason fishing is low in these areas is because catch is low, it would imply that these areas are less diverse and/or productive. Would there actually be an increase to RBS in this scenario? Appropriate ground truthing of the model is needed in order for outputs to be considered with confidence.
    - We are limited in how pragmatic we can be. Reaching 90% of the way to achieving the conservation objectives in as cost effective a manner as possible doesn't fulfil legal duties. The offshore works slightly differently (zoned approach does do the cost effective) but this is due to necessity.
- It is interesting to compare the difference in improvement of RBS and relative impacts to fishing. However, displacement of fishing is still a key topic.
- Different habitats exhibit different levels of tolerance to fishing pressure. For example, highly mobile sediments more tolerant of activity than mud habitats which have increased impacts and slower recovery. It would be useful to show model outputs that show RBS improvement over time to highlight how long recovery might take for different features.

Figure 8 Scenario 2c remove fishing from highest % of fishing area and displace fishing activity



3.5 Scenario 2d

Figure 9 Scenario 2d remove fishing from lowest % of fishing area and displace fishing activity



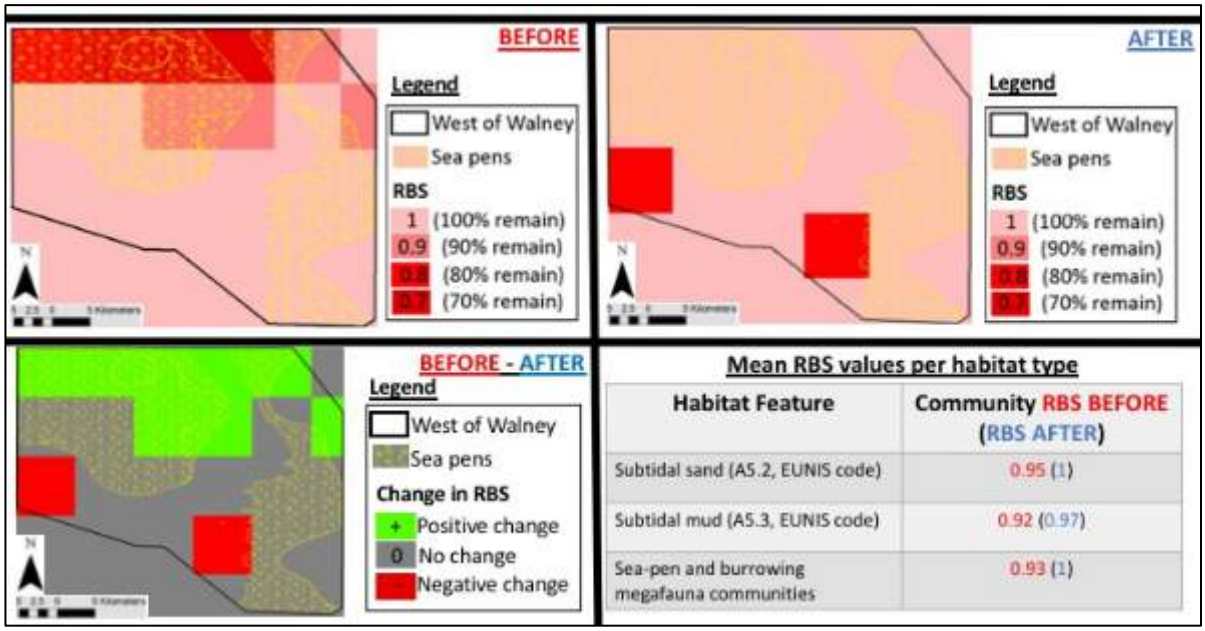
- Displaced effort has been evenly distributed across the open sections of the site (as discussed this isn't realistic) however this can be tailored to be more site specific with local knowledge from stakeholder group.
- It is more likely that displacement would go north towards the nearest Nephrops fishery. This could put added pressure on fisheries which are already fished at capacity, undermining sustainability longer term, and could have a domino effect pushing displacement further afield. Although there are models available, it is notoriously difficult to predict displacement, and ideally local/fishers' knowledge should feed into this process.

Common sense would suggest that displacement would go to highest fished areas (or at least be shared proportionally across the site).

- Defra are looking to co-design surveys on fisheries economics (customer service approach to fisheries management.) which could incorporate a pop-up survey on displacement. 'The best way to find out what someone will do is to ask them.'

3.6 Scenario 3

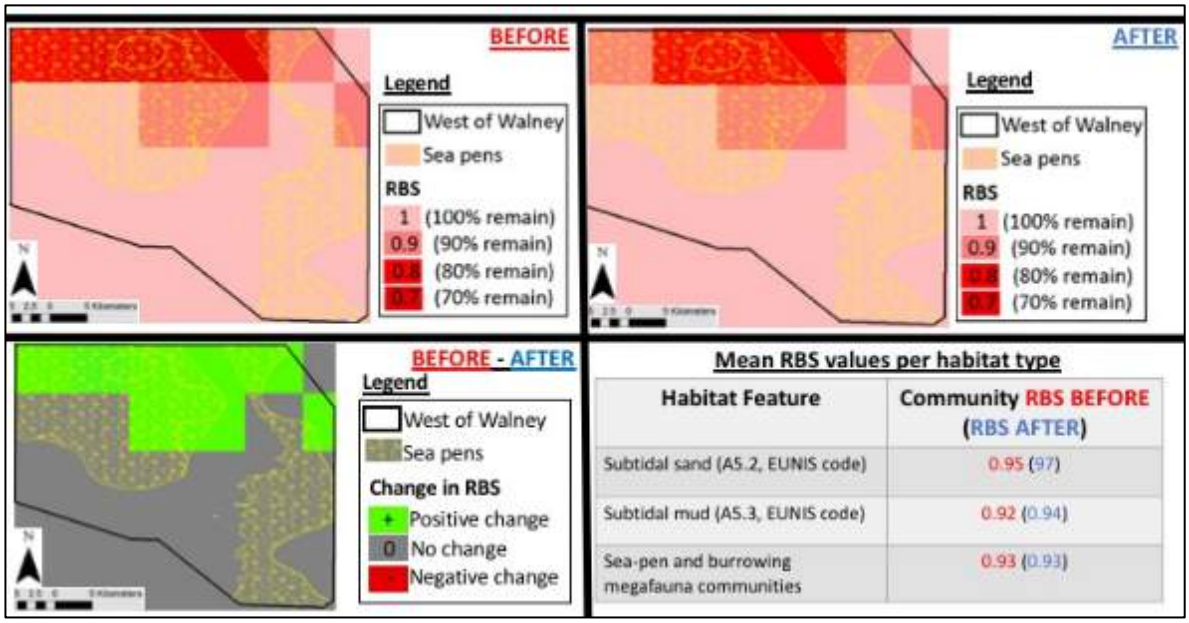
Figure 10 Scenario 3 remove fishing from where sea pens occur with displacement



- This scenario is feature focused, with proposed closures over the sea-pen and burrowing megafauna community HOCI. For this approach to be useful, we need to consider which components of the feature are of concern. In this instance we are concerned with distribution/extent
- There was discussion about using a mean (absolute) RBS rather than a range (confidence intervals). There was some general recognition of the limitations of absolute values. It was suggested that ground-truthing the RBS baselines and providing confidence intervals would greatly strengthen the model as a tool. However, adapting the model to individual sites would make it less comparable between sites.

3.7 Scenario 4

Figure 11 Scenario 4 gear modification



- The gear modification scenario was not considered to be plausible for the West of Walney site (though may be applicable in other cases) as the gears used currently target specific species and the modifications would reduce their ability to catch those species and would in essence remove the fishery making it equivalent with scenario 1. More data is needed to look at the potential implications of gear modification.
- Although it is useful to see how changes in gear can alter RBS, effort is needed to assess the value and practicality of this. There may be scope for such an approach in a number of fisheries, but we need the practical know-how to implement decisions.
- For this type of management approach to work, we would need to ascertain an industry standard against which modifications are compared.
- Although gear modification is an attractive approach (a compromise of sorts), it would be almost impossible (given current data collection limitations) to determine if it works. There are also considerable issues with compliance; mitigation would need to be legislated for.
- One proposal was to develop a gear toolkit, which would list the types of gears which can be used, the impacts of each, offset against efficiencies (fuel, selectivity, etc). This could be used by Fishers to help them make decisions. Cost-benefit could be split across fleets (i.e. if one fisher can't afford to make modifications, another can offset his impact).

3.8 Other scenarios to test

- Displacement patterns - look at different types of displacement, using local knowledge.
    - Option 1 – consider how windfarms in the site might influence displacement patterns.

    - Option 2 – take a common-sense approach and distribute displaced effort proportionally according to fishing effort (i.e. areas with highest fishing effort will gain the largest proportion of displaced effort).
- Could we look at profitability of the site if fishing activity changed from trawling to creeling?
    - The model can't look at static gears, but we could possibly look at changes in profitability outside of the model.
    - An assessment of total number of families moved from poverty into extreme poverty bracket due to loss of fishing opportunity was put forward as an option along these lines. .
        - This sits separately to the participatory approach we are developing and would be linked more closely with an impact assessment of management measures. Considering these socio-economic factors would be a future consideration / adaptation for the model, working with social scientists and / or economists- however this is not feasible within this project
- Proposal to tweak least fish / most fished scenarios so they are x% effort removed instead and comparable across scenarios.
- Proposal to invert the model process – to feed the model a 'desirable' RBS value and get it to spit back management scenarios which would result in that RBS value.
    - This may require more specific site information to be achievable.

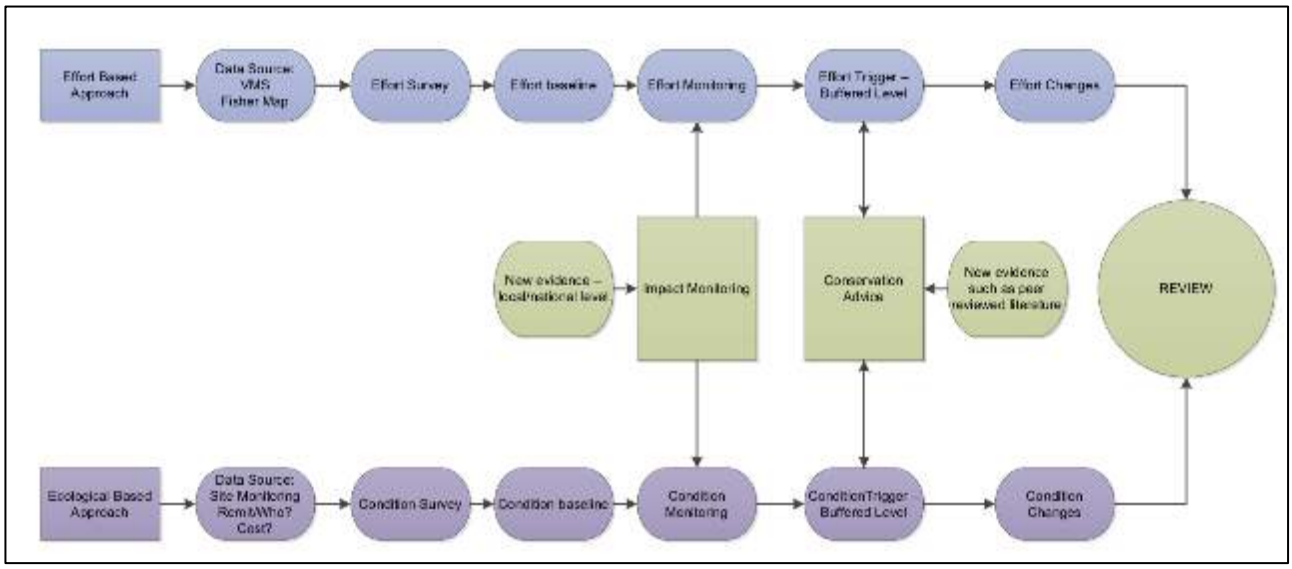
4 Triggers for a management review

Nick Greenwood from the MMO gave a presentation on management review triggers, which presented a schematic of the proposed review process for adaptive management. Importantly, it was noted that **review does not mean revision**.

Under the revised approach, assessments are reviewed every two years, but for low risk sites the review period is aligned to broader review strategies and occurs every 5 years. This period is adapted for sensitive sites. For the adaptive management process, the period is also flexible and can be reviewed following a relevant trigger. The outcomes of reviews are available to the public. Currently the first tranche of assessment reviews is in progress and these will be published and available once complete.

A schematic was presented which highlights the two main types of data which can be used to trigger a review – Ecological (largely informed through SNCBs) and Effort-based (VMS and logbook data; other vessel monitoring sources). Discussion was then encouraged to identify further triggers for review. Following are the key discussion points and proposed additional triggers.

Figure 12 Adaptive management review trigger types



4.1 What other factors might trigger a review?

- New prey species (shifting resources due to climate/environmental change).
- Addition of new species / protected features to MPAs.
- New pressures and in-combination/cumulative effects; the impacts of other activities within the site on both fishing and on the features of the site should be considered.
- Changes in the use of a site should be used as a trigger.
- New pressures (environmental); invasive species, climate change, etc.

Industry interactions were discussed at length. There was concern as to how fisheries are factored into Marine Spatial Planning and how in-combination/cumulative effects influence management reviews. It was noted that other industries go through an assessment to identify impacts and ensure they are mitigated for before they are consented – this includes in-combination/cumulative effects, though it was acknowledged that it is difficult to account for these. An Ecosystem Approach to Fisheries Management should help to align the fisheries process with the licensing process used by other industries.

Participants also discussed if **changes in fishing activity level** should include decreases in fishing effort. Where this is linked to improved data on activity then yes, but otherwise it can be a bit more complex. Decreases could be caused by a number of things including management itself… this trigger may be more relevant to permitting baselines. Fishing activity is reviewed for each site on a yearly basis and incorporates VMS data and information from the IFCAs, but it was acknowledged that better use of fisher's knowledge to ground truth these data is needed and consideration of other factors (e.g. market prices, species booms, etc.) would help to better identify patterns and trends in activity.

Further, assumptions have been made about the under 12m fleet activity (as these don't have VMS). The introduction of iVMS will add clarity around this and if the assumptions are found to be wrong, this will likely trigger a review.

There was considerable discussion around fishing activity data. Fishers could add considerable value and confidence to these data if there was an appropriate forum for them to feed into the data collection and assessment process. If fishers had access to VMS data, they could help to ground truth these data and provide additional information on patterns and trends observed.

In relation to ecological data, SNCBs are responsible for condition monitoring of sites. This follows a 6-year cycle and has been completed for most sites. However, causes for change in condition can be difficult to identify, and there is need to improve understanding and relationships with industry, so they can better assist in monitoring site condition.

Industry feel that commercial impacts should also be monitored alongside site condition impacts. However, it was discussed that the purpose of the site is for conservation of features, not of fishing resources.

4.2 How might stakeholders inform the effort-based review process?

- Ground-truthing of VMS data is one option. Defra would like more information on where fishing is occurring, and the industry could help but the data/insight is not readily available. There are a number of caveats and issues associated with VMS data which industry could help to tease out
    - Linking VMS to landing data- difficult to link
    - International- no log book
    - Hard to determine exact gear use and modifications

    - Transparent about how MMO have come to conclusions from data used
        - Review of fishing industry- rare to get level of feedback which would help improve picture more.
        - Issue of communication- access to the data for independent review by fishing industry?
- Fishers could help to interpret and predict where displacement might occur
- Peer review literature; industry should be more involved in review
    - Review if data is correct- include ground truthing
        - Achieve through workshops to review conclusions?

4.3 How might stakeholders inform the ecological based review process?

- Links with academia can help to plug knowledge gaps and make use of platforms of opportunity. For example, the Northumbria team of NE have a partnership with local IFCA and University to look at potting impacts. There may be useful data collected by Universities that we are not tapping into.
- The energy industry also holds useful data, some of which is in the public domain (but some not). For offshore windfarms, data is available from monitoring surveys.
- Conservation advice from SNCBs; this has been improved over the last year- West of Walney MCZ conservation advice is available on the Natural England designated sites system
- Active participation of fishing industry in data collection / involvement.
    - We need to identify how and where the fishing industry can get involved, however, it was noted that there is some distrust between regulators and industry. Fishers are not sure how their data would be used and worry it may be used against them.
    - It was also highlighted that there are no incentives to provide information. The benefits of involvement need to be better highlighted to industry. Some projects have worked well (e.g. GAP2, Defra social science projects) but often these are project based and money runs out resulting in an end to the alliance. Participants recognised a need for sustainable systems to be established. The fisheries bill includes commitments for more participatory management so need to start doing things to meet this.
    - There is also a need to establish a process for turning anecdotal evidence into useful information and providing clarity around how confidence in such data is assigned and assessed.
    - There may be lessons learned from the Isle of Man (evidence of benefits of small protected areas to fishing industry has been shown here which has been widely accepted by fishing industry leading to reduced conflict). Also, if the systems were in place to make it easier to record and exchange information it might support this.
    - Fishers have a negative association based on previous experiences providing evidence for MPAs proposals. Specifically, alternative MPA were proposed but weren't taken forward and data which was provided was treated as biased because it came from industry

- How do we resolve this issue? We need to include participatory science in participatory management. Co-design would be a step beyond consultation (which is the current approach). Would moving towards co-management improve stewardship and engagement? There are examples of this working well (e.g. Marine Stewardship and Terrestrial-Catchment Partnerships), and the MCZ process has adopted a more bottom-up approach which has been received better than the European Sites approach which could form a lessons-learnt/good practice example. However, there needs to be a benefit or there is no incentive to co-management. Benefits could include stewardship (protecting resources into the future), spill-over and recruitment benefits, but these need to be plainly evidenced.
- There is a difference between precautionary and proportionate. Proportionate management accepts taking more risk under the assumption that a gap will be addressed, and impacts will be reviewed on a regular basis.

It was generally acknowledged that fishermen have knowledge to fill gaps in scientific uncertainty. Fishers' knowledge can help us to move away from precautionary approach, provided it is integrated into an official information source. We need to move away from anecdotal evidence and towards a dependable reporting system which includes appropriate audit and data/information sharing.

5 Developing a governance framework for adaptive management

Handouts were provided to stakeholders at the workshop to give an overview of general governance options and details on the governance frameworks in operation in English MPAs. These handouts outline the difference between management and governance and introduced a scoping exercise to attendees to identify a suitable governance option for the West of Walney case study.

Appendix 1 sets out all the comments in relation to the different governance models.

Following the scoping exercise, attendees were asked to add markers to their preferred governance option. Each attendee was given three markers and split them among the options in whichever way they wanted.

The Decentralised governance approach was a clear favourite with attendees, and this option was taken forward for further discussion. The aim was to discuss and develop some of the mechanisms through which this option could be delivered for West of Walney MCZ. However, it was noted that there is no clear fix for all situations and the type of governance which works best will be different for different sites and regions. Attendees noted that the decentralised option is the most flexible, and therefore offers much broader appeal. It can work in a lot of different ways and there is more scope to compromise between the two extremes of governance making it more suitable to adaptive management.

5.1 Key discussion points

Engagement

- There are a number of barriers to engagement, with finances, time and level of understanding all impacting stakeholder engagement.
- Effective communication is a key element of engagement and we need to clearly set out a communication strategy (who, when and where).
- It was suggested that a Stakeholder Mapping exercise is needed to identify the 'what', 'who' and 'how'.
- Proposals on 'where' to engage included fishing ports and there was a suggestion that we could develop a platform where people can engage at a low cost and from anywhere – like an app or online platform. This could be open to all and could give the option to engage anonymously. Although it was recognised that an electronic medium is useful and low cost, we also need to use a variety of engagement tactics to suit individual needs. Some people don't have access/can't use technology and we don't want to stifle their participation.
- Where to engage: It takes time (and resources) to build relationships. We need to spend time where the stakeholders are to begin to understand the dynamics of the community, and resources need to be devoted to achieving and sustaining this.

- There are examples where programmes have had some initial success but due to lack of funds could not be sustained long-term (e.g. fisheries management training programme developed in the United States which encourage a wider range of engagement). GAP2 (facilitated by mindfully wired communications) project developed a number of conference style talks and events that fishermen could attend remotely while they were at sea
- We could build a programme with Seafish or other recognised collaborators that the industry respects? Or we could break it down into smaller manageable units, but it might be difficult to draw these back together.

Resources

- Money was recognised as the biggest barrier to overcome. We need to be willing to commit resources and prove people are being listened to.
- Costs impact engagement at both ends, from stakeholder participation to regulators funding engagement.
- Financial resources need to be sustainable to ensure the longevity of the process. A capital injection is needed to get these ideas up and running but we also need a sustainable source of income to keep it going longer term. Engagement needs to be sustained in order to build trust.
- We need to ensure that all aspects of the process are properly funded including data gathering and analysis
- It was proposed that a charge could be brought in through marine licensing or enforcement; some kind of self-sustaining fund. Perhaps charge for activities within MPAs.

Incentives

- Incentives should be defined in relation to the management system e.g. for increased participation
- Security of resources; Lessons from agricultural management. Farmers are paid to manage their land sustainable. However, this is easy to implement as farmers own land. The sea is a common resource, so it is difficult to translate an Agri-framework into Marine-framework. It might be possible to incentivise gear use/modification.
- Ownership = stewardship. It gives a sense of internal policing. In New Zealand for example, the fishery was split out and fishers each had a share and the whole fishery was run as a cooperative. This is similar to the PO role in UK – everyone has a share of quota, disputes are dealt with internally and the resource can't be accessed by anyone else. However, this could work more effectively if it was applied at smaller geographical regions.

Scale

- Spatial scale is important; it is easier to identify the stakeholder cohort if the spatial scale for engagement is defined. Governance framework is also linked to scale. For example, community-based governance works better on a small scale (islands etc).
- To some extent this is already represented by the IFCA districts, but engagement has been less successful since these authorities took on a conservation role. The IFCAs do represent a regional committee through which governance could be led. However, the same regionalised mechanism doesn't exist in the offshore. There are forums, such as the pelagic resource group which could provide useful, but perhaps we should consider setting up OFCAs (Offshore Fisheries and Conservation Authorities).
- Nomadic and international fishers (fishers which fish across regions) can cause problems for regional management schemes too with regard to buy in – it means more stakeholders are tied in. IFCAs could set up a permitting scheme or could introduce a fee for nomadic vessels. This may be seen as exclusionary, but the local governance group would need to decide what is best for resource management and conservation outcomes.
- An option would be to group based on a specific fishery rather than a regional scale.

It was noted that many of the issues discussed also apply to the other governance options to a degree. The engagement level adopted by the Government led approach is largely driven by finances. This option is the least resource heavy if an entirely top-down approach is taken. The community led approach also has issues with consistency of approach. Although the freedom to be flexible gives more scope to be creative, there is still a statutory responsibility to ensure MPAs are appropriately managed and so there needs to be some consistency in how this is applied.

Following this discussion, Nick Greenwood (MMO) took us through the MMO byelaw process for non-uk vessels (which is similar to that for UK vessels, but timing is more flexible). The aim was to discuss how our governance approach might sit alongside this and feed into this process. The key element for consideration was how to ensure that we get an appropriate cross section of opinions through the consultation elements of the process.

How could stakeholder engagement be brought in earlier?

- Fisheries interest groups could be set up for each MPA or region. This would include anyone who had a fisheries/conservation interest in the area. It was suggested that a site-based approach may be inefficient due to cross attendance but combining groups might also be inefficient as they would need to cover many issues which may not be relevant to all participants. However, a system could be put in place by which stakeholders register their interest in a particular MPAs/region to ensure only the relevant stakeholders are consulted for a given issue.
- The Coastal Forum is an example of this approach working well. The mechanism persisted through time, keeping people informed through newsletters and websites and by running local events. This forum has assisted the MMO in engagement previously. An option like this would be cheaper than bringing in external consultants and would make use of

existing contacts/relationships – we need to identify any existing groups or forums which could be used

- For the offshore region, ACs (advisory councils) could be used as a collective body to coordinate and respond to national fisheries organisations. However, this forum is currently used through the CFP process, with very little engagement from the ACs.
- Other options such as producing posters for display in libraries, ports and other key locations were proposed, but it was agreed that this would need to balance with available resource and would need some element of future proofing. Engagement is funded through public money and we have a responsibility to be as cost effective as possible
- Worth also noting that stakeholder fatigue is a real issue. Engagement events need to be targeted and have a clear focus.
- Need to review best practice examples – what's already out there, what's been done and what works. Defra/MMO are currently commissioning a project to evaluate coastal partnerships and IFCAs to see what works well and what financial efficiencies can be made and how improvements could be taken forward and built on to improve the current status.
- Acknowledged that there needs to be links to ecological data too to evaluate impacts.

Proposed forums

- Fisheries interest groups: based around similar themes/issues with working groups for each and optional attendance depending on interest
- Irish sea network and nested groups within: relevant to the WoW site. This approach would have a nest localised/site specific element that feeds up to an over-arching forum. It would do more than feed into byelaw consultations, it would consider environmental issues and data, acknowledging all work streams and identify local interest and expertise.
- Coastal partnerships
    - The Celtic Seas Partnership set up a pilot project with Scottish fisheries, Scottish government and environmental organisations to see whether mediation could help build trust between groups with challenging relationships and break down the barriers that stop them working together. This was considered as a positive step in building these relationships and a similar project is taking place in France.
- Marine site management groups
- Irish Sea Maritime Forum

6 References

Hiddink, J. G., Jennings, S., Sciberras, M., Szostek, C. L., Hughes, K. M., Ellis, N., Rijnsdorp, A. D., et al. (2018) *Global analysis of depletion and recovery of seabed biota after bottom trawling disturbance*, Proceedings of the National Academy of Sciences, 114, no.31, pp.8301-8306

Rijnsdorp, A. D., Bolam, S. G., Garcia, C., Hiddink, J. G., Hintzen, N. T., van Denderen, D., van Kooten, T. (2018) Estimating sensitivity of seabed habitats to disturbance by bottom trawling based on the longevity of benthic fauna, Ecological Applications 28, no.5, pp.1302-1312

Appendix 1 Governance options

Governance option	Description	Positives	Considerations/Negatives	Who	How
Government led	Governed primarily by the state under a clear legal framework	• Ensures the legal duties are met • Legal structures are in place to ensure compliance and enforcement power • Well established, tested governance, management structures and mechanisms • Standardised and structured approach leads to greater consistency • Statutory basis (legally accountable) • Should be representative of all stakeholders • Simple • Evidence-based approach • Certainty and consistency in the approach • Improved capacity for decisions	• Disconnected from the real world, limited pragmatism around possible outcomes. • Limited "personal" interest (represents the "greater good" vs "individual good"). • Status quo • Centrally made decisions based on standard assumptions rather than all available evidence and local knowledge may be less robust • Minimal regional flexibility • May be politically driven • Reduced ability to communicate and engage/involve all stakeholders that the legal framework and decisions will affect, particularly minority interests. • Does not promote buy-in, stewardship or ownership from stakeholders. This may disenfranchise stakeholders and lead to less compliance • Promotes distrust and alienation in stakeholders and communities • Expensive • Technical process	• All Governance types need full representation for completeness and credibility. • Devolved administrations • SNCB's - particularly those with local knowledge • Regulators • Policy advisors • Government bodies • The public (through consultation) • Fishermen • Local communities • All stakeholders, but participation to be constrained and less local.	• Public consultations supported by workshops • Community engagement • Regional structures, but these need to be ongoing to build relationships and trust • By decree • Involve stakeholders at clearly defined stages • Transparency of decisions

Governance option	Description	Positives	Considerations/Negatives	Who	How
Decentralised	Governed by the state with significant decentralization and/or involvement from private organizations	• Government acts as an arbiter - Government can still offer some direction compared to a community led approach. • Regulators have to ensure legal obligations are met - better for conservation. • Increased resource availability - Potentially more flexibility to review and adapt the process • Local/regional outcomes which are less constrained • Stakeholders still get an input and a say in to the process. • This leads to a more informed process and final decisions - Potential for greater involvement and buy-in from those stakeholders who may be impacted by the process. • Private organisations can provide a more objective opinion (less of an agenda) • Facilitation • Consensus building • Local empowerment • Potential opportunities for co-management	• Issue of consistency between sites • Conflicting advice • Who will decide who is involved? - Will everyone who needs to, have a seat at the table? • Multiple opinions can be challenging to balance (mexxy and complex) and may lead to inertia •Will take a long time to reach an agreement with so much stakeholder involvement • Unbalanced participation • Regulators must ensure the legal obligations are met (ideological barriers). This may upset and disenfranchise stakeholders if their views cannot be implemented due to overriding nature conservation needs. i.e. Stakeholders may lose trust in the process if they feel they are being ignored.	• All Governance types need full representation for completeness and credibility. • All stakeholders with a management interest: - Any organisation whose activity may be impacted both positively and negatively by management measures. This should include those from overseas. • Everyone - with local focus and structures • Devolved administrations • Industry • NGO's • Regulators • SNCB's • MMO • IFCA's (highlighted by several Post-its) • Bespoke management council/committee • Resource stakeholders	• Include everyone from the start. • Regionally focussed groups with an environmental and/or fisheries interest • Public consultation is still key, but should be managed through reps as part of Task & Finish Group • By informed decree • MPA Groups/FORA (Consultative) • Co-design approaches • Targeted interviews/communications • Stakeholder engagement through targeted workshops, interviews and/or communication organised by regulators/SNCBs and governmental bodies. • Review process and proposal development when changes are proposed. • Clear and consistent process communicated from the start: - Outline the roles and responsibilities of all involved.

Governance option	Description	Positives	Considerations/Negatives	Who	How
Community led	Governed primarily by local communities under collective management arrangements	Improved compliance through an "ownership" of the process: • Stronger buy-in from stakeholders who feel engaged in the decision-making process • Self-policing through peer pressure/normative behaviours • Local empowerment - stakeholder contributions feel more valued. • Whole community involvement • Enhanced stakeholder representation (potentially) • Most attuned approach for problem solving to fit the individual communities	• This approach may lack statutory or defined governance structure. - Local approach may lack the experience, resources and/or expertise needed - This may lead to local, but not the national priorities/legal requirements being met - Harder to achieve conservation on a network scale - Difficult to be consistent in approach • Compliance and enforcement capability will need support from a legal framework • There is currently no framework for data collection and management with the offshore sector. This is comparable with the (present?) IFCA/MMO process. • A community led approach may restrict the input from outside vessels (foreign/nomadic) • Challenging to reach a consensus on some aspects. - Compromise may leave no one happy - Increased risk of stakeholders becoming disenfranchised if an outcome cannot be agreed.	• Everyone - Open access to the wider community, particularly coastal communities. • All stakeholders with a management interest with particular emphasis on: - Stakeholders with a nature conservation interest - Businesses whose activities may be impacted National representatives: • SNCB's • Regulators - MMO - IFCA's • NGO's - Wildlife Trusts • Researchers Local emphasis on stakeholders to give "voice": • Local councils • Governments	• Establish a committee and meet regularly to evaluate progress, issues etc. • Tiered management group approach established/facilitated by a compliant authority: Local focus groups and community meetings but networked across the country. i.e. Local (focus) group -> Chair -> Regional group -> Chair -> National group - Local groups should feed into the review process and be responsible and/or capable of instigating and triggering review • Bespoke management entities including stakeholders • Build a framework for collecting data, designation objectives and setting management • Workshops

			• Regulator ideological barrier Resource: • Requirement for a leader/group to coordinate meetings. • Does everyone in the community have an equal voice? - Some groups/organisations may not have the resource/capacity/knowledge/will to get involved and may feel disenfranchised from the start - Risk of unfair competition - Political localism and special interest groups can overshadow/disenfranchise some local groups	• Industry - Fishermen • Community based organisations • Voluntary groups of interest • Resource stakeholders	• MPA Groups/FORA (Advisory)

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