



MASTS Marine Planning and Governance Forum

WORKSHOP REPORT

MASTS sense-check – Clyde & Shetland Regional Assessments.

Scottish Government, Victoria Quay, Friday 31st March 2017

SUMMARY

All workshop participants agreed that, as a first iteration for the current planning cycle, the draft assessments provide an adequate assessment of the condition of the Shetland and Clyde marine areas, and an appropriate evidence base from which to develop regional marine plans.

A number of issues have been identified that would improve the assessment and the articulation of the outcomes. Some of these may be readily progressed for this iteration of the assessment, whereas others would require more work and may be carried forward to be addressed at the next planning cycle.

BACKGROUND

Following the adoption of the National Marine Plan in 2015, the regional tier of statutory marine planning in Scotland has commenced under the Marine (Scotland) Act 2010. The first two Regional Marine Planning Partnerships (RMPPs) have been established in Shetland and the Clyde Marine Regions. The next step required under the legislation is to undertake a Regional Assessment of the condition of each Marine Region, and both Shetland and the Clyde are nearing the end of that process. The assessments will inform the identification of priority issues for regional marine plans and, in turn, the drafting of plan policies.

Legislative requirements within section 5 of the Marine (Scotland) Act 2010:

- (4) For the purposes of preparing a ... **regional marine plan**, the Scottish Ministers must...
- ...
- (b) prepare an assessment of the condition of the... Scottish marine region at the time of the plan's preparation,
 - (c) prepare a summary of significant pressures and the impact of human activity on the area or region.

The draft regional Assessments have been prepared with input from statutory advisers and relevant experts, including the guidance of a special sub-group of the SSDAG (Scotland's Seas Data and Assessment Group). Consequently, full peer review was not considered necessary, but to support a rigorous assessment Marine Scotland invited a sense-check of the outputs from the scientific

community, via the MASTS Marine Planning and Governance Forum. The decision was taken to deliver this review through a workshop, allowing for discussion with the marine planners themselves.

PURPOSE

For academic members of the MASTS community to provide a 'sense-check' of the draft regional assessments prepared by the Clyde and Shetland RMPPs. This sense-check provides independent views on whether the conclusions reached on the condition of marine areas and the summary of significant pressures and impacts are robust in light of available data.

In particular, contributors were asked:

- a) Do you agree that the information presented gives an adequate assessment of the condition of the marine area and an appropriate evidence base from which to develop a regional marine plan?
- b) Do you agree with the interpretation of the data presented in the RAs to give that assessment?
- c) Are there omissions / data gaps which limit the ability to reach conclusions about the assessment of the marine area?
- d) What further work, if any, is needed to supplement the data available for the Regional Assessments?

It was noted that these assessments were the first attempt of such an exercise at this scale and level of detail. They should be seen as a first iteration that will not be perfect but which can identify data and knowledge gaps to inform scientific priorities that will help improve the evidence base for future planning cycles.

GENERAL COMMENTS

In a broad sense, there was agreement from all participants that the assessments satisfy the legislative requirements, providing a reasonable basis upon which to move forward with regional marine plans. There was general praise for the achievement of collating and interpreting such a large volume of information into the assessments. It was acknowledged that, beyond some agreed high-level [principles](#), there was no requirement for different regional partnerships to deliver assessments that are consistent in their methodology or presentation. However, the planners noted that they have sought to align on the general approach to describing trends.

Most of the comments and discussion regarded points of detail that would improve the assessments. Some of these could be readily addressed for these first iterations of the regional assessments, but it was accepted that other more complex matters could be identified and progressed to inform future planning cycles.

Context and clarity

- Potential for additional historical context was noted. There may be sections where the official trend data provides a fairly recent baseline, but societal memory, unofficial records and intuition provide good reason to assume a different historical context. This should be detailed in the text of assessments.
- Note that some biological features and human activities have relevance outside the plan boundary. Check that assessments for the region are made in the context of their wider geographic relevance. As part of this, note if a regional trend differs from wider scale trends for a feature or interest.

- Summary boxes for different chapters or sections are mostly very succinct. In some cases these could be expanded to ensure readers appreciate any important nuances in the assessment outcome, such as species-specific trends, different historical contexts or wider geographic context in terms of species biology or the scale of an activity/pressure.
- In considering confidence and uncertainty, consider how to distinguish between confidence in an overall trend from our confidence in having a full understanding of the drivers of change (e.g. kittiwakes & sandeels; harbour seals; red algal blooms). If this distinction is not made, there is a risk that uncertainty will be seen as an inhibitor to developing or delivering appropriate actionable policy. Where there is not high confidence, identify a corresponding evidence gap for research / survey work.
- The traffic light system is useful, but note that red symbolises a downward trend rather than necessarily a negative outcome. Consider whether a traffic light system is appropriate for 'productive' sections.
- Identify where knowledge has been co-produced with the community or stakeholders, demonstrating implementation of the Community Empowerment (Scotland) Act 2015.
- Be clear where knowledge came from – use references or at least ensure they are accessible to in order to robustly defend any challenges to assessment content.

Physical condition of seas

- Climate change – while there is debate about the detail of some forthcoming changes, there is good data on current and projected sea level rise, including confidence measures, so it should be feasible to reach an assessment conclusion. A vulnerability metric could be included, based on different global emissions scenarios. There has also been some work on predicting changes to tidal current flows (JT to provide references).
- The Scottish Shelf Seas Model may be a useful tool for future assessments, providing information on currents and water circulation patterns. It may also be possible to use it for examining the potential ecological connectivity of features of conservation interest.
- Sections on seascape and coastal characterisation were welcomed and considered a valuable addition to the assessments. It was observed that different approaches to the assessments were taken.
- The physical condition sections would benefit from information on flushing/residence time / water exchange of voes and sealochs.

Clean and safe seas

- Useful data and reports on potentially toxic micro-algae: <http://www.habreports.org/>
It is useful to distinguish micro-algae that cause problems at high biomass, such as *Karenia*, from strongly toxic micro-algae, such as *Pseudo-nitzschia*, that can intoxicate shellfish at low algal concentrations
- Algal blooms: there is not currently sufficient available data to describe a trend but work is underway. The main current concern is red tides of the dinoflagellate *Karenia mikimotoi*, which have been of concern in both regions. As yet there are insufficient data to establish trends, and a recent analysis of possible causes was unable to reach definite conclusions (Davidson et al., 2015¹). Statements made in the assessments should be referenced and note uncertainty about drivers of change.
- WFD: there are difficulties with the scale and resolution (spatial & temporal) of WFD assessments, and the use of a 'one-out-all-out' assessment of macrobenthic, phytobenthic and

¹ Davidson, K., et al. (2015). Synthesis and interpretation of data set relating to the harmful dinoflagellate *Karenia mikimotoi* in western Scottish waters. Report to Crown Estate. 94pp

phytoplankton quality elements. Culhane (2012)² suggests that chance could determine whether benthic status is determined as moderate or good in any particular year – so it is desirable to consider several years of monitoring when reaching a conclusion. Stating WFD status provides useful context but note caveat that WFD (and MSFD) have not been set up to inform marine planning at this scale. (e.g. for Clyde region, disagreement with Loch Striven assessment).

- Work has started on the scale of impact of different chemical treatments in aquaculture (immediate nearby benthic impact is expected but further work is needed to examine the more distant sediments (and their biota) that receive these chemicals) – this may inform spatial planning of aquaculture in due course.

Healthy and biologically diverse seas

- Pelagic primary production and its use by zooplankton underpins most marine food webs, so more assessment content on pelagic habitats, including oceanography, would be of value. There is good data/research at appropriate scales; see the network of fixed station and Continuous Plankton Recorder (CPR) routes used for MSFD reporting. Also see recent publication from Marine Scotland on phytoplankton community at single sites within regions (MG to provide reference). Marine Scotland are also currently sourcing SAHFOS data (10nm scale) that may be of use. Consider seeking broader scale information on productivity patterns, possibly using remote sensing data (i.e. chlorophyll distribution). [Copernicus](#), [Sentinel](#) and NASA have some open access data that could be useful.
- Although the MSFD assessment and reporting occurs at a larger scale than Scottish Marine Regions (SMRs), its concepts can be applied at smaller scales. In the case of the pelagic habitat, it can be applied to discrete ecohydrodynamic regions. Scherer et al (2016)³ did this for the Western Irish Sea, and a similar approach could be taken in SMRs.

Productive seas

- Recreation data – suggest examining whether British Marine Federation trend data on watersports can be clipped to Scottish Marine Regions. Also consider diversification of activities as well as overall growth.
- ‘Productive’ trends and outcomes – consider checking with economists the use of different measures (i.e. GVA, employment) and appropriate timescales. Longer term context may be important for informing policies and measures for objectives that are inherently long-term (e.g. sustainable fisheries).
- Some fisheries catch may be caught in a Scottish marine region (SMR), then landed and processed in the adjacent Scottish local authority area. Other catch may be landed & processed elsewhere (including international), while some catch from waters outwith an SMR could be wrongly assigned to the SMR depending on where it is landed. How do we draw out the economic, social and environmental implications of these different scenarios? The absence of data on non-EU landings could be problematic for Shetland.

Ecosystem services & the human element

- The inclusion of Ecosystem Services information was widely welcomed, and the initial approach of taking a simple descriptive approach understood.
- The potential for fuller assessments could be progressed in the future, supported by Marine Scotland work on associated data layers. At that time consistency in the ES classification system

² Culhane, F.E. 2012. The use of benthic communities in environmental health assessment. PhD thesis, Edinburgh Napier University.

³ Scherer C, Gowen RJ and Tett P (2016) Assessing the State of the Pelagic Habitat: A Case Study of Plankton and Its Environment in the Western Irish Sea. *Front. Mar. Sci.* 3:236
<http://journal.frontiersin.org/article/10.3389/fmars.2016.00236/full>

used should be sought between regional planners and national-level work. Planners could consider which services it would possible or useful to progress more advanced assessments for [possible MASTS forum workshop].

- The NEA framework has been used in the assessments thus far, but there should be consistency in the sub-categories used. Potts *et al* (2017) report provides explicit definitions for categories (TP to send reference). This report also collates ecosystem services information for PMFs and broadscale habitats – these could be extracted for use in current tables and to inform future assessments.
- Consider including more content on human well-being and how this is associated with marine activities and the health of our seas. For some data sets there may be challenges in distinguishing the role of the sea from that of land, but descriptive information could be included in the current Ecosystem Services tables, while quantifiable objective measures are developed. There may be a need for tailoring of future approaches to regions.
- Recent work on mapping typologies of coastal human populations may be useful in examining the influence of the sea on social and cultural dynamics and prosperity. The information is due to go on NMP when available.

Cumulative pressures / impacts

- Cumulative mapping of pressures would be useful, linking to feature sensitivity and presence if possible. This is a large area of work, which Shetland have made some inroads in to. However, there are challenges around developing a common currency for pressures from different activities (i.e. generic responses Vs pressure response patterns specific to biota & pressure), the availability of data for some sectors/pressures and the inclusion of temporal aspects. There are also gaps in our knowledge of where sensitive features are. These should be identified in the list of knowledge gaps.

SHETLAND ONLY COMMENTS

- Page 18 - What's the evidence for increased productivity in the Celtic Sea? Clarify source of information and area to which it refers.
- Page 25 - Include map or reference to where map can be found of WFD waterbodies – distinguish freshwater from coastal & transitional water bodies.
- Suggesting tying the interpretation of the maps in to the text more clearly, to explain what they are and what they show, including what may be visible at a finer resolution (on NMPi).
- Remove word 'supporting' from blue tables in relation to ecosystem services – potential confusion with 'supporting services'
- A report by Dawson et al (undated) ⁴ summarises SOTEAG monitoring around Shetland.

CLYDE ONLY COMMENTS

- Subtidal sediments & fish: seek further independent academic opinion (i.e. from Clyde 2020 Advisory Group) on the confidence assigned to assessment outcome based on provided definitions of relative confidence. Query whether recent Clyde-specific publications give high confidence and distinguish between confidence in the overall trend and that of knowledge regarding the drivers of change.
- Suggest a collation of key data & knowledge gaps to direct improvements to the evidence base.

⁴ Alastair Dawson, Ian Napier, Nicola Davies & Jason McIlveny. Date unknown. A review of SOTEAG monitoring data and other long term environmental series from Shetland. Report, 118 pp.
<https://www.nafc.uhi.ac.uk/research/environment/soteag-data/soteag-project-final-report>

NEXT STEPS

The MPPs may edit their draft assessments based on the comments made, prior to their sign off by their partnership and publication. These will then inform the identification of planning issues and options, followed by plan preparation. As stipulated in their Direction from Ministers, plans are to be adopted within three years of receiving their delegated authority.

Some matters raised will be of interest to the wider science and marine planning community, including the identification of some priority knowledge gaps.

To support the Clyde and Shetland planners in finalising their assessments, and others in the wider science and marine planning community for progressing some of the issues identified, the following actions are noted:

- Jacqui Tweddle to circulate references about predicted changes to tidal current.
- Marine Scotland and others involved in discussions to determine ecosystem services classification system for use in relation to tagging NMPi and any future assessments.
- Tavis Potts to circulate 2017 report that provides definitions for ecosystem service sub-categories and information on ecosystem services associated with PMFs and broadscale habitats.
- MASTS MPG Forum to consider a workshop examining for which services it would possible or useful to progress more advanced assessments.
- All workshop participants are invited to provide any additional comments directly to the Clyde and Shetland marine planners.

Workshop participants:

Martyn Cox (Marine Scotland) - Introduction

Lucy Greenhill (MASTS Marine Planning & Governance (MPG) Forum Convenor) - Facilitator

Chris Leakey (MASTS MPG Forum Deputy-Convenor, SNH) - Notes

Rachel Shucksmith (Shetland MPP)

Fiona Mills (Clyde MPP)

Sinead Sheridan (Clyde MPP)

Tim Stojanovic (University of St Andrews)

Paul Tett (Scottish Association for Marine Science)

Jacqui Tweddle (University of Aberdeen)

David Green (University of Aberdeen)

Tavis Potts (University of Aberdeen)

Matt Gubbins (Marine Scotland Science)