ICES WGMARS REPORT 2013

SCICOM STEERING GROUP ON SUSTAINABLE USE OF ECOSYSTEMS

ICES CM 2013/SSGSUE:06

REF. SCICOM

Interim Report of the Working Group on Maritime Systems (WGMARS)

4–8 November 2013

Stockholm, Sweden

ICES International Council for the Exploration of the Sea

CIEM Conseil International pour l'Exploration de la Mer

International Council for the Exploration of the Sea
Conseil International pour l'Exploration de la Mer

H. C. Andersens Boulevard 44–46
DK-1553 Copenhagen V
Denmark
Telephone (+45) 33 38 67 00
Telefax (+45) 33 93 42 15
www.ices.dk
info@ices.dk

Recommended format for purposes of citation:

ICES. 2013. Interim Report of the Working Group on Maritime Systems (WGMARS), 4-8 November 2013, Stockholm, Sweden. ICES CM 2013/SSGSUE:06. 30 pp.

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Executive summary

This was the first interim year for the multi-annual Terms of References (ToRs) for the Working Group on Maritime Systems (WGMARS) and the meeting was hosted by the Stockholm Resilience Centre. ToR A is the social network analysis of ICES networks and their functioning. ToR B is an analysis of the management plan landscape in Europe, eventually comparing it to other parts of the world. An additional ToR, ToR C, addresses how to best integrate stakeholders in ICES work. ToR C was initiated by Steve Mackinson as a response to the latest MIRAC meeting (meeting between ICES and the RACs) and on-going work in the GAP2 project.

WGMARS addressed ToR A by mining the 2012 Questionnaire data initiated and conducted by WGMARS member, Doug Wilson. Discussions with social network analysis expert Örjan Bodin at the Stockholm Resilience Centre helped WGMARS in scoping the current manuscript, and future manuscripts, that analyse this vast data set. Since the scope of the network analyses of ICES networks, including the Expert Groups, is beyond the annual WGMARS meetings, WGMARS have agreed to pursue additional funding for this work.

Discussions related to ToR B led to an outline of a new paper. This paper asks the question "What hat are you wearing?" and addresses the different roles with which fisheries scientists in the ICES community are faced. The upshot of this manuscript is to present a reflexive exercise on the identity of these roles and the challenges of conflicting interests. In doing so, the essay seeks to create a higher awareness about issues of legitimacy, transparency and credibility for fisheries science and advice.

ToR C was a landmark for ICES: the first forum within the ICES WG structure to facilitate stronger working relations between scientists and stakeholders. ToR C evolved from numerous informal discussions among and between scientists and stakeholders. WGMARS was identified by the ICES Secretariat as a natural home for these discussions. The first part of discussions promoted a shared understanding of science challenges, how these are framed in ICES' strategy and by stakeholders' perspectives on their research needs, and how this relates to collaboration between scientists and stakeholders. The second part of discussions looked specifically at the priorities for research in relation to policy timelines for the European Common Fisheries Policy (CFP) and the Marine Strategy Framework Directive (MSFD), where collaboration among scientists and stakeholders is needed. Using posters of policy implementation timelines for the CFP and MSFD, participants were asked to identify priority research needs which are summarized in this report.

WGMARS further discussed with RAC representatives which actions could be taken to strengthen collaboration between scientists and stakeholders in the ICES arena in ways that improve the scientific evidence base for management. WGMARS and the RAC representatives discussed the possibility of establishing standards for research information and scientific data collected by and with stakeholders. The RACs emphasized the importance of good and reliable data and the importance of allocating enough money to be able to do the work. It seems that the European Parliament has listened to this concern and voted to increase funding under the CFP's European Maritime and Fisheries Fund (EMFF). ToR C discussions also reviewed and aligned science priorities vs. stakeholder requirements. It is not always apparent how and when the scientific and stakeholder strategic research agendas align, so WGMARS outlined some guidelines based on these discussions and recommends a ToR (Annex 5) to continue this collaborative work.

1 Introduction of the 2013 Meeting

1.1 Opening of the meeting and adoption of the agenda

The WGMARS Chair Dorothy Dankel opened the annual meeting at 2:00 p.m. on Monday, 4 November 2013. She introduced and presented the ToRs, which were unanimously agreed. The WGMARS participants adopted the agenda. The Chair opened the floor for brief introductions of each of the participants. This was especially important as WGMARS was host to several representatives from the European Regional Advisory Councils (see Annex 1), new to the ICES Expert Group forum.

1.2 Attendance

The meeting was well attended this year. Nine members of five of the seven European Regional Advisory Councils (RACs) attended, as well as a representative from the Prince's International Sustainability Unit (http://www.pcfisu.org/marine-programme) in order to address ToR C. Twelve scientists participated in the meeting, from Norway (3), Germany (3), Sweden (1) and the Netherlands (5). The gender ratio is five women: seven men. The complete list of participants is in Annex I.

1.3 Terms of Reference (ToRs)

The ToRs for the 2013 WGMARS meeting were:

a) Social Network Analysis of ICES Expert Groups based on questionnaires distributed to WG Chairs in June 2012 to assess participation in ICES EGs

b) Operationalizing Management Strategy Evaluations (MSEs) & Management Procedures (MPs) in the EU

c) Stakeholder integration: establishing a forum within the ICES WG structure to facilitate stronger working relationship between the scientists and stakeholders:

ToR C1: Develop a strategic view on stakeholders research needs over the medium-long term.

ToR C2: Establish best practices in stakeholder engagement in EU funded research projects. Provide an overview of relevant research projects, how they approach stakeholder engagement and how this could (or could not) fit into the RAC agendas.

ToR C3: Jointly define future multi-annual Terms of Reference that promote sustained dialogue with stakeholders on strategic research issues and how to couple it to the delivery mechanisms for research and management.

2 ToR A: Social Network Analyses of the May 2012 questionnaire data in regards to the human networks of ICES

WGMARS 2012 highlighted interpretations of "synergy" and "ecosystem science." The need for integration of a wide range of disciplines is recognized in the ICES' Science Plan, (will be available on the ICES Website in spring 2014) which has served as a point of departure for WGMARS' work on ToR A. However, the ICES Science Plan also states that the organization is also committed to strong research within the individual disciplines of marine research.

In order to interpret the current state of the ICES Expert Group (EG) social network, we should identify exactly what an ideal EG social network design would be. WGMARS discussed this and other research questions with Örjan Bodin from the Stockholm Resilience Centre, who is an internationally recognized expert on social network analysis, and who possesses knowledge of socio-ecological systems in the Baltic Sea area. Örjan is interested in collaborating on our current ICES SNA manuscript (see WGMARS 2012 Report) as well as being part of a research proposal for further ICES SNA research.

WGMARS started in 2011 to analyse the links between expert groups in terms of individual scientists' membership in one or more expert groups. The underlying assumption is that individuals participating in more than one group contribute to a strengthened social network in ICES. It is important to explore the properties of the social networks in ICES as these may serve to enable or to constrain its capacity to provide integrated ecosystem assessments (ICES is required to provide advice under the ecosystem approach to fisheries) and advice. A preliminary analysis using a database on actual (physical) participation of scientists at expert groups in 2010 and 2011 was carried out in 2012. In addition, a questionnaire survey was designed and carried out to broaden the analysis. In 2013 WGMARS met at the Stockholm Resilience Centre to involve experts in social network analysis to further discuss, which kind of in depth analysis could be carried out with the database data and the questionnaire results. The discussion was very fruitful, although due to the limited time, actual analyses could not be carried out at the meeting. This led to a discussion on possibilities of inter-session work and a proposed work plan for the analyses to proceed with the envisaged publications.

If funding and time allows us to continue our ICES SNA work, we have ideas on where to take it. Based on the work on multilayer networks by Bodin and Tengö (2012), we want to identify real world ecological interactions and link them with those expert groups working on one or more specific issues. This would allow us to see if the ecological connections are resembled in the connections between expert groups, i.e. if expert groups which should be connected are actually connected.

From an organisational point of view, it is also interesting to identify key individuals in the network. With the data from the participation database a preliminary analysis was done to test the feasibility of this kind of analysis. All individuals from the database in 2011 (a total of 1535) represented nodes, connected through participation in the same expert group or committee (edges). The strength of the link indicates the number of same groups shared between two individuals. To identify the most influential individuals in terms of participation in expert groups, the betweenness centrality (the measure of a node's centrality, or shortest distance between other nodes, in the network) was calculated and used to scale the nodes.

The interpretation has to be made with caution. The results only show those individuals, who had contact to other individuals through mutual membership in expert groups, which does not necessarily mean that they have interacted or communicated with these individuals. Conversely, we have no information about any interaction taking place between individuals outside the EG format. Many links are necessary to categorize an individual as well-connected, but not sufficient to indicate influence in terms of participation in EGs. The lack of links can be an indication that an individual is not very influential despite possibly high activity and communication to the few links that the individual does have.

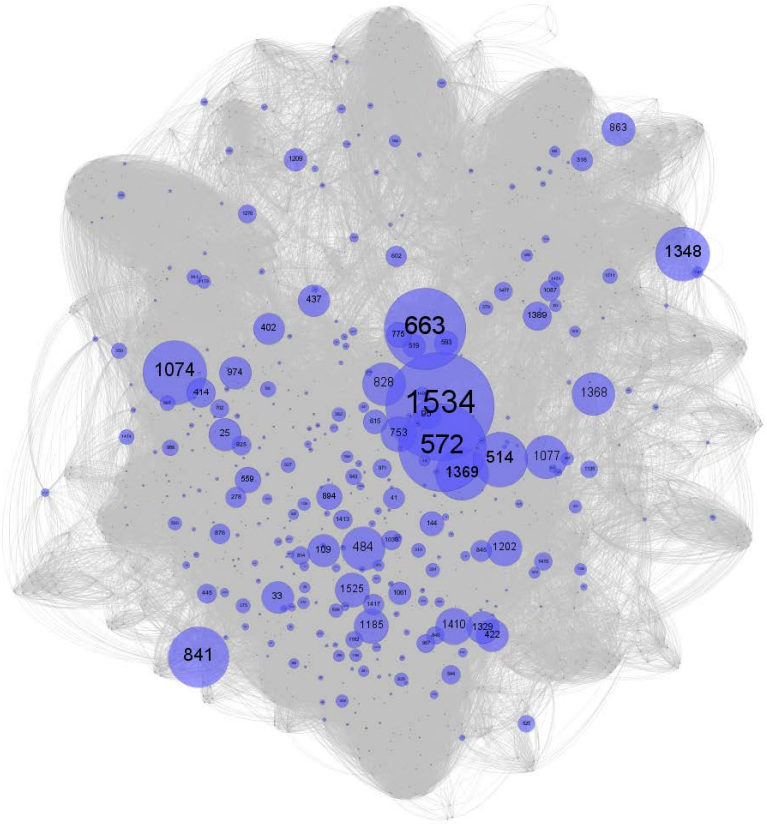

Figure 1. Network of individual scientists, which attended expert groups (incl. ACOM, SCICOM and COUNCIL meetings) in 2011. Scientists are represented as nodes. Links between nodes represent shared EG group attendance. Node size represents betweenness centrality.

Table 1. Top 20 individuals from Figure 1 arranged according to betweenness centrality (normalized to 1).

ID	Betweenness	ID	Betweenness
1534	1.0000	1368	0.3934
572	0.8066	828	0.3927
663	0.7525	1410	0.3325
1074	0.5866	753	0.3231
841	0.5555	1202	0.3225
514	0.5023	1525	0.3128
1348	0.4959	1185	0.3128
1369	0.4847	863	0.3037
484	0.3978	25	0.2979
1077	0.3957	974	0.2942

Additional funding of work on the analyses outside of the annual WGMARS meetings would be needed to publish high-quality peer-reviewed articles, which will examine multi-layered networks, identifying sub-networks (including identifying significant divisions between ACOM and SCICOM groups in relation to ecosystem science, and examining the roles of individuals in these networks. If additional funding becomes available, WGMARS can also explore and analyse ICES' links to other organisations in the area (e.g. OSPAR, HELCOM and STECF).

After discussions with Örjan Bodin this year and seeing the promise of intensifying collaborations, WGMARS will first bring up this issue with the ICES Secretariat, the first "customer" of this type of research, as soon as possible. WGMARS participants this year unanimously agreed on writing a research proposal in early 2014 to secure funding to continue this work.

2.1.1 References:

Bodin, Ö., and Tengö, M. 2012. Disentangling intangible social-ecological systems. Global Environmental Change, 22(2): 430–439.

3 ToR B: Operationalizing Management Strategy Evaluations (MSEs) & Management Procedures (MPs) in the EU

WGMARS started discussions by e-mail on how to arrange work and discussions to address ToR B in the summer of 2013. This year, WGMARS decided to address ToR B with a new *Food for Thought* paper that would specifically build on the themes of legitimacy, credibility and transparency that we wrote about in 2011 (Dankel et al. 2011 http://icesjms.oxfordjournals.org/content/early/2011/11/21/icesjms.fsr179.full.pdf) in an MSE context. The advantages of writing a publishable paper outweigh the time commitments: we mostly participate in a "publish or perish" scientific work style and a peer-reviewed paper is both more scientifically rigorous and reaches a larger audience than a standard report.

Below is the extended abstract of the paper that spurred from ToR B. The full manuscript will be sent to *ICES Journal of Marine Science* in early 2014.

3.1 What hat are you wearing? A reflection on the different roles of fisheries scientists in the ICES community (extended abstract)

Dorothy J. Dankel*, Kåre Nolde Nielsen, Kari Stange, Robert Aps[1], Jennifer Bailey, David Goldsborough, Friederike Lempe, Sebastian Linke, Steven Mackinson, Christine Röckmann, Jörn Schmidt, Harry Strehlow, Martin Pastoors[2]

*corresponding author: dorothy@imr.no; [1] alphabetical order of co-authors; [2] senior author

3.1.1 Introduction

Fisheries scientists in Europe serve in several and sometimes overlapping roles that are characterized by different mandates. As a result, the scientists might find themselves wearing different "hats" as they perform related tasks in relation to the same knowledge object, but serving in different roles. These roles become important to reflect upon due to the recent reform of the European Union's Common Fisheries Policy, which requires that multi-annual management plans are developed, and encourages science-industry partnerships. The management plan can be seen as *boundary object*: it frames the interaction between individuals in different social roles, and organizes the division and communication between them. This reasoning can be made even more concrete since ICES has both science and advisory committees, SCICOM and ACOM respectively. In SCICOM, the scientist wears the developer hat, and in ACOM the judger and facilitator hat is on for the same scientist.

The issue we address is that working procedures within ICES should be transparent. We do this by outlining a hypothetical example and describe a scientist's sometimes tricky navigation between these overlapping roles.

A hypothetical example:

Scientist *Nitram* from national marine lab in country *Waterland* gets contacted by a fisheries organization *iFish*. *iFish* wants to develop a management plan (MP) for their fishery. *Nitram* and *iFish* meet, discuss objectives and develop a MP. After some work and negotiations, *iFish* and *Nitram* are satisfied that the MP fulfills their objectives, and is of a quality that can sustain a review in ICES. Management strategy evaluation (MSE) runs also indicate the MP to be precautionary. *iFish* contacts the national authorities in *Waterland*, which drafts a formal request to ICES to evaluate the MP. The ICES Secretariat appoints an ad-hoc review group. *Nitram* is included in the group together with two scientists external to ICES. Using the existing model and data used by *Nitram* for carrying out the MSE test runs for *iFish*, the ad-hoc group finds that the MP, with minor adjustments, is of a sufficient quality. But these minor adjustments are over the capacity of *iFish* to understand, so they ask *Nitram* to another in-house meeting so he can explain what these minor adjustments mean including how much time and money they will cost to prepare and implement in the management strategy.

The roles:

The first is the role as "developer", where ICES clients of scientific advice (the European Commission or ICES Member States) or stakeholders' interests (e.g. Regional Advisory Councils), request that fisheries scientists assist with the development of a management strategy. The management strategy may be a set of algorithms designed to satisfy a series of management objectives (typically in a harvest control rule).

The second is the role as "judger," who under the institutional capacity of ICES or the EC's Scientific, Technical and Economic Committee for Fisheries (STECF), and sometimes both at the same time, assesses whether the management strategy is consistent with the Precautionary Approach (PA) or other management objectives. The judging role is explicit in this generic formulation of ICES advice: "ICES has evaluated the plan and concludes that it is in accordance with the precautionary approach and the ICES MSY framework."

In addition, scientists have roles as "facilitators." With this third hat on, the fisheries scientist is asked by managers or stakeholders to disseminate, clarify, or give a detailed account of scientific advice, including how and why a management strategy is deemed precautionary or not.

Requesting Long-term Management Plans and Discard plans, the new CFP increases the demand for scientists serving in all roles, and applies pressure that stakeholders be involved in the development phase. Therefore ICES must carefully consider how to meet these challenges: Which roles does it want to take on? What are the potential up and down sides of taking on one or more roles? How to organize efficiently as to carry out the roles it wants to take?

3.1.2 Discussion

In the above example, we see the same scientist in three different roles. In practice, ICES scientists are often involved in more than one role, and one role may in practice be so integrated in another, that there is a continuous shift from one role towards

another (i.e. the roles may be analytically distinct but practically intertwined). The interest in addressing the potential overlaps and tensions between these roles stems from their potential implications for ICES capacity to foster credibility, legitimacy and transparency in its science and advice.

Since there are a limited number of qualified people knowledgeable about particular biological operating models, methods and stocks, scientists can take on different hats relating to the same case and know the interests of clients as well as ICES process requirements. This makes work efficient. But there are also drawbacks and conflicting interests. The ambiguity of these roles questions good governance, transparency and accountability. *Nitram* might have an interest in defending the model that he developed, proposed, and applied. This ambiguity could severely degrade the perception of the expert quality of ICES work, especially if *Nitram*'s work or person was negatively deemed in one way or another. For example, if a scientific paper outlining an operating model that *Nitram* used to apply to the management strategy, (or a management plan, MP) had to be retracted because of a grave mistake in the data interpretation, ICES would have to evaluate how this error may or may not have affected the legitimacy of the Waterland sponsored MP *Nitram* and *iFish* proposed. Also, if *Nitram* was to financially profit from suggesting and/or developing objectives for a fishery (i.e. have shares in *iFish* or related industries) the credibility of each of the roles (developer, judger, facilitator) of the MP process is severely degraded.

The processes that fisheries scientists undertake have very important "ad-hoc" elements. The advantages of these include the flexibility to react quite promptly to a request by *iFish*. Also flexibility to react to specific requests from iFish and openness to think of new management approaches, so not necessarily sticking to the traditional stock assessment and TAC and HCR approaches, but could have the freedom to test completely different ways (e.g. temporally or permanent protected areas).

Disadvantages, however, include obstacles with respect to comparability of strategies and procedures, making it difficult to compare with other international approaches. Fisheries scientists in the ICES community frequently complain of over-worked travel schedules and turn down invitations to engage with RACs, a symptom of gross inefficiencies due to increased demand of their roles.

Problems of accountability and transparency also arise. First on accountability: how accountable is a scientist to peer-review her own work? Certainly the post-normal idea of the "extended peer review" (Funtowicz and Ravetz 1993, Dankel et al. 2012) is rejected if a scientist is involved to review her own work. On transparency, if ICES advices customers to accept the different roles of the scientists as acceptable, then this conflict of interest is innocuous.

ICES can be characterized as a boundary organization that according to Guston (2001) is mixing scientific and political elements and mediating between the institutions of science and politics. To maintain productive and dynamic relationships, boundary organizations need to be able to manage hybrids – to put scientific and political elements together, take them apart, establish and maintain boundaries between different forms of life, and coordinate activities taking place in multiple domains (Miller, 2001). Furthermore, by helping to manage hybrids, boundary organizations contribute to the maintenance of a productive tension between science and politics. This is an interesting point which challenges the notion of ICES as a scientific organization. If ICES itself is a boundary organization, then it stands to reason that ICES operates at the overlap among different fields or interests, and hence the multiple roles we outlined.

A reflexive exercise, such as the one pursued here, may help enhance a heightened awareness of these roles and thereby promote more transparency, legitimacy and credibility of ICES science in the context of fisheries and ecosystem management. We present the case that simple but thorough reflexivity is necessary in order to avoid degradation of legitimacy, transparency and credibility.

3.1.3 Cited References

Dankel, D. J. *et al.* 2012. "Advice under uncertainty in the marine system." ICES Journal of Marine Science: Journal du Conseil, **69**(1): 3-7.

Funtowicz, S. O., and J. R. Ravetz (1993). "Science for the post-normal age." Futures, **25**(7): 735–755.

Guston, D. 2001. Boundary organizations in environmental policy and science: An introduction. Science Technology and Human Values, 26(4): 299–408.

Miller, C. (2001). Hybrid management: boundary organizations, science policy, and environmental governance in the climate regime. Science Technology and Human Values 26(4), 478–500.

4 ToR C: Stakeholder integration: establishing a forum within the ICES WG structure to facilitate stronger working relationship between the scientists and stakeholders

4.1 Introduction

The need to establish a forum within the ICES WG structure to facilitate stronger working relations between scientists and stakeholders evolved from numerous informal discussions among and between scientists and stakeholders during the last 18 months. An important catalyst for establishing specific Terms of Reference for WGMARs was the RAC common position on the role of Regional Advisory Councils in a reformed CFP (InterRAC 2013). In that document, RAC stakeholders explicitly described aspirations for stronger participation in the process for gathering and applying the evidence used for scientific advice. In parallel, similar discussions are ongoing among scientists.

Building on an established history of work on institutional and various governance issues in fisheries research and management, WGMARs was identified by the ICES Secretariat as a natural home to facilitate a meeting between scientists and stakeholders, the first of its kind within the ICES WG structure.

The purpose of this first meeting was to establish a forum and provide an opportunity for discussion on three issues of common interest:

ToR C1: Develop a strategic view on stakeholders research needs over the medium-long term.

ToR C2: Evaluate and help to establish best practices in stakeholder engagement in EU funded research projects. Provide an overview of relevant research projects, how they approach stakeholder engagement and how this could (or could not) fit into the RAC agendas.

ToR C3: Jointly define future multi-annual Terms of Reference that promote and facilitate sustained dialogue with stakeholders on strategic research issues and how to couple it to the delivery mechanisms for research and management.

4.1.1 Participants

The discussions started with participant introductions including participants' interests, background and motivation for contributing to ToR C. Participants from the scientific community included researchers from Universities and Government research laboratories, and covered interests in studying the dynamics of cooperation and its practical application. Stakeholder attendees included representatives of 5 of the 7 Regional Advisory Councils (North Western Waters RAC, South Western Waters RAC, Pelagic RAC, North Sea RAC, Long Distance RAC), some of whom are engaged in research studies on institutional cooperation. A written contribution was received from the Baltic Sea RAC. Stakeholders from Russia, Greenland, Iceland (and Canada and USA) were sought prior to the meeting, but no representatives attended.

4.1.2 How the issues were tackled

A structured agenda (Annex 2), which included presentations from stakeholders and scientists (Annex 3), was used to facilitate active discussion on each of the three issues. In many cases, themes of the discussions overlapped among the three issues and we summarize the salient points here with respect to each of these issues rather than duplicate the specific discussions. An overview of the main points made by each presenter is provided, followed by clarifications on specific questions and a brief summary of the discussion, including recommendations/ actions we identified.

4.2 ToR C1: Develop a strategic view on stakeholders research needs over the medium-long term.

The first part of discussions on C1 aimed to promote a shared understanding of science challenges, how these are framed in ICES' strategy and by stakeholders' perspectives on their research needs, and how this relates to ways of working between scientists and stakeholders.

4.2.1 Discussion

Following the presentation of single species vs. multispecies implications for Fmsy by Henrik Sparholt (Annex 3), there was considerable discussion on how Fmsy is derived, where it comes from and what it means. The conclusion was that there is a lack of transparency: Fmsy is not a definitive number; but the fact that it is taken as a scientific certainty undermines credibility and confidence in the advice that is based on MSY. The core of this transparency issue lies not with ICES, but with what the Commission does with the advice from ICES.

Lorna Duguid from the NSRAC gave feedback from the InterRAC meeting (24th October 2013) "Smart ways for RACs to work with ICES and science projects." The RACs have frequent requests/invitations to take part in research projects, partly as a result of the conditions specified in proposal for research arising through Framework 7 (now Horizon 2020). Finding the best ways for these kinds of collaborations to work given that the different RACs have different needs, ambitions and strategies when it comes to research exposes several difficulties. While some RACs give more emphasis to participation in (and/or engagement with) research than others, it is important to stay clear that the RACs are advisory and not research bodies. While the RACs do not have a specific mandate to do research, research has a role to play in some areas of RAC advice, and thus participation in research can reflect, support and underpin the work programmes of the individual RACs. Under the new CFP, the future role and function of the Advisory Councils (ACs; this being the new name for the RACs)

describes three key tasks, the third of which [*Contribute, in close cooperation with scientists, to the collection, supply and analysis of data necessary for the development of conservation measures*] has particular relevance to collaboration of the ACs with scientists and ICES as an institution, since all of the current (R)ACs have emphasized the importance of good and reliable data. The presentation from Duguid prompted further discussion and contributions from other RAC participants, culminating in recommendations on what the RACs could do better to make collaboration with scientists more effective and useful to them. (See Annex 3, section 8.3).

The second part of discussions on C1 looked specifically at the priorities for research (in relation to policy timelines for CFP and MSFD) where collaboration among scientists and stakeholders was considered to be needed. Participants were asked to identify priority research needs by placing post-it/sticky notes on posters of policy implementation timelines for the CFP and MSFD.

The post-it notes were clustered into themes and a word clustering was performed on the raw text (see Annex 4 for raw post-it notes). There were no post-its that specifically related to MSFD implementation, possibly due to a herding effect around the CFP poster, but also indicating that engagement with scientific issues relating to achieving Good Environmental Status resides in the back of most people's minds because of the pressing issues of CFP implementation. The following themes emerged as priorities relating to the CFP:

Discarding – scientific understanding and management actions: Research on survivability, selectivity, gear technology, role of commercial and non-target species in the ecosystem, mapping fish distributions, flexibility in quotas.

Trade-offs of MSY approach to management: Identifying the fishery and ecological (food-web effect) trade-offs associated with MSY strategy.

Developing Long Term Management Plans: Mixed fisheries multi-species advice and socio-economic impact studies to underpin decisions on management options.

Establishing effective ways of working: Linking fisheries governance EC – MS – RAC – researchers by enabling structural changes such as opening all ICES WGs to stakeholders. Develop capacity for effective interaction of stakeholders and use ways for flexible input/ interaction (e.g. by funding through EMFF and H2020). Give credence where stakeholders' advice has substantive weight.

Knowledge and data needs for an integrated understanding: foster integrated research open to new approaches / methods for developing knowledge required for evidence. Provide guidance on transparency and quality standards and for industry/ joint data collection initiatives and co-produced knowledge (e.g. New Zealand 'Science information standards').

4.3 ToR C2: Establish best practices in stakeholder engagement in EU funded research projects. Provide an overview of relevant research projects, how they approach stakeholder engagement and how this could (or could not) fit into the RAC agendas.

This second issue engaged participants in discussing what is needed to overcome challenges to creating effective (mutually useful) engagement of stakeholders in research projects and how to ensure that research is made useful. The presentations on

this topic are in Annex 3. Reflecting the attendees, particular emphasis was given to the engagement with RACs.

4.3.1 Summary of Discussion on C2

What should good practice in stakeholder engagement in EU funded research projects look like?

Calls for strengthening collaborative or participatory research initiatives can be a sensitive issue because people think differently about science vs. non-science. For example can (and should) an observer have the legitimacy to say "this is not (good) science"…? There should be an emphasis and sensitivity to the different views of science and its boundary to politics when broadening the agenda for additional stakeholders.

Examples of best practice guidelines in collaborative research exist across many scientific disciplines. The difficulty with providing an in-depth guide is that much of what is accepted as best practice needs to be established by the individuals involved in working together on addressing a shared problem. The problem itself and how it is framed in a management context are also important. Some detailed discussion of these elements and examples in fisheries research are available from the work and experiences in the GAP1 project, where a Good Practice Guide to Participatory Research (Mackinson et al. 2008) and Code of Conduct for Initiating Participatory Research (Annex 5) were important outcomes that shaped planning in the GAP2 project. Much of this practical understanding is also discussed in Mackinson and Wilson (imminent) where the broader context of social dynamics is considered.

Participants in WGMARS elaborated that key principles of good practice in stakeholder collaborations were well known (if not always followed). Participants considered that these should be followed in the development and conduct of fisheries research.

PRINCIPLES OF GOOD PRACTICE DEVELOPING COLLABORATIVE RESEARCH AGENDAS

1. **Satisfy our needs for respect, trust, feeling valued** as individuals and in our contribution.
2. **Share goals connected to impact**
   - Knowing what you want – joint problem framing and agreement on shared goals that make the work fit-for-purpose
   - Identify and establish the pathways to achieve goals. Thinking about this from the start makes it easier later.
   - A big challenge is effective engagement from the top to bottom, so that we make a difference to research and fisheries and to the individuals involved. Try to make it clear where people 'fit in'. Making a difference means getting the right messages and information across to the right people at the right time.
3. **Understand each other's motivation and incentives**
   - Talking openly about 'what's in it for me', and
   - Getting the incentives that match these
   - Willingness! First take the willing, persuade the reluctant, coerce the deferrers, show the rest. Lead by example because the value will always need to be demonstrated… over and over.

4. **Mobilise knowledge and know-how:** making knowledge count
    - The elephant in the room - Knowledge challenges - tackling institutional barriers and conceptual barriers as to what and who's knowledge counts
5. **Learn by doing** (participatory research)
    - Understand the situational knowledge for problem solving. Less abstract. Overcomes different perspectives issues and enables more effective planning to get the job done.
    - Continuity – people (and the right ones) and continuous dialogue
    - This (as many other points made here) clearly involves communication aspects – i.e. how to communicate science and other knowledge claims to different actor groups
6. **Share outcomes and evolve**
    - Go for quick wins and feel good about them.
    - Communicate – who needs to know and wants to know.

4.3.2 How do institutional arrangements and rules influence good practice?

Participants discussed at length the institutional issues that act as barriers to effective collaboration and what is needed to overcome these. A particular example discussed was the rules regarding participation of stakeholders in ICES Expert Groups. While the rules allow for participation in expert groups organised under the science role (Science Committee), they exclude participation to expert groups where the outputs are directly associated with ICES advisory role (Advisory Committee). The experience of several participants was that this disconnection between the science and advisory stream stifled useful collaboration, since only when stakeholders are connected to meaningful management outcomes do they have a strong incentive to engage with the science and data issues. (See Mackinson and Wilson for discussion on these issues).

The RACs consider that ready access to WGs and Benchmark workshops is good for transparency and the trust it brings. One of the benefits that this opening up would bring is overcoming the problem that if you do not know what data is available then how can industry help to identify what is possible for them to help with.

Stakeholders expressed feeling hampered by the system directly where they can only ask the Commission for requests for scientific advice. They would prefer to directly go to ICES instead of via the European Commission. At present, they are not allowed to, seemingly because of the concern that stakeholders might in some way affect the integrity of the scientific process.

Another issue raised was the role of NGOs in engaging in an agenda for collaborative research. With some RACs finding it difficult to get strong NGO representation, is this a problem? Was there a cultural difference in approach that might serve to marginalize the role of the NGOs in RACs? Responses highlighted that there is no deliberate exclusion and it is a matter of the NGOs establishing their role in the RACs. In addition it was noted that many NGOs work independently to actively promote collaboration among stakeholders and scientists. One can critique this pipeline of NGOs to science since this separate communication channel can undermines the RAC as a unified body for science-stakeholder communication.

The group recognized that many solutions exist to the many problems. One of the outcomes of the discussions was a proposal for a new WGMARS ToR on assessing if the governance procedures in ICES and STECF are appropriate for the increasing need to engage with stakeholders in effective ways (see below).

4.4 ToR C3: Jointly define future multi-annual Terms of Reference that promote sustained dialogue with stakeholders on strategic research issues and how to couple it to the delivery mechanisms for research and management.

Based on the discussion, the proposal for future ToR for WGMARS is framed around the responses to the question:

What actions can be taken to strengthen collaboration among scientists and stakeholders in the ICES arena in ways that improve the scientific evidence base for management?

Assess if the governance structures and processes are relevant. What procedures, structures and processes can enable beneficial stakeholder-science engagement? What is needed for stakeholder to access science for their needs? Is ICES policy on stakeholder participation in Experts Groups best serving the needs of receivers of advice and users of science research products? What role can informal communication (e.g. in NL) between scientists and stakeholders play in preparation of ICES meetings and afterwards?

Establish standards for research information and scientific data collected by and with stakeholders.

Research and Science information standards – the benchmark for making science useful for ICES (note: an example of such standards are the Research and Science Information Standards used in New Zealand (http://www.fish.govt.nz/en-nz/Publications/Research+and+Science+Information+Standard.htm). Establishing such standards would require considerable input, drawing upon the existing and experience with benchmarking and extended peer review processes.

Review and align (where appropriate) science priorities vs. stakeholder requirements. How and when do the scientific and stakeholder strategic research agendas align?

4.5 WGMARS Proposal for moving forward

WGMARs greatly benefited from hosting stakeholder representatives at this year's meeting and realize its position to be able to mitigate some issues between ICES and stakeholders.

To provide a clear focus and manageable workload, WGMARS proposes to focus future discussions up to two (2) "Stakeholder interactions case studies" within the ICES area per annual meeting. The case-studies can be loosely defined (e.g. it could be engagement in specific piece of research on a discard plan, or engagement in an ICES benchmark or STECF meeting).

A suggested outline of the steps are (outlined in Annex 6: Recommendations):

1) Case studies must be outlined and presented in writing to the Chair (who is Dorothy Dankel for 2014 and 2015) at least two (2) months in advance of the meeting. The Chair will review the scope and appropriateness of the proposals to ensure it is consistent with the overall aim of WGMARs prior to disseminating it to the WG members.

2) At least one stakeholder representative of the case study must be present at the WGMARS for its presentation and to participate in discussions and Report writing.

3) Evaluate and analyse case studies by measuring a "happiness index" representing the quality and utility of the interaction from both the stakeholder(s) and scientist(s) (including ICES as an institution) perspectives.

4) Use the outcomes of the analysis as a basis for advising on specific progressive improvements that promote engagement where it is needed.

4.6 References

InterRAC, 2013. On the functioning of the Regional Advisory Councils within the current Common Fisheries Policy; Consolidated outcomes of discussions between the RAC Secretariats. http://www.nwwrac.org/admin/publication/upload/InterRAC_Letter_Functioning_RACs_15April2013_EN.pdf

Mackinson, S., Neville, S., Raicevich, S., and Worsøe Clausen, L. (eds) 2008. Good practice guide to participatory research between fisheries stakeholders and scientists. GAP project deliverable 1, 23p. http://gap2.eu/outputs/gap-good-practice-guide/

Mackinson, S., and Wilson, D.C.K. 2013 or 2014. Building bridges among scientists and fishermen with participatory action research Chapter 7. *In* Social Issues in Sustainable Fisheries Management, Springer.

5 Meeting Conclusions

The well-attended meeting this year led to engaging discussions on a wide variety of topics. Key themes this year included stakeholder integration in ICES science, the roles individual ICES scientists play in providing commissioned ecosystem science and advice as well as the larger scope of these roles in the ICES expert group network.

WGMARS continues to be an active working group keen on publishing timely articles based on discussions from WGMARS. This year's contribution on the paradoxes of the multiple roles of fisheries scientists, *What hat are you wearing?,* builds on the Dankel *et al.* 2011 paper *Advice under uncertainty in the marine system* where the themes of legitimacy, credibility and transparency are revisited.

The vast amount of data WGMARS now possesses regarding the social network of ICES working groups demands much more in-depth work and paper writing that cannot be accommodated only by the five day long WGMARS once a year meeting. WGMARS will write a research proposal and seek out funding for this intriguing work, including a meeting with the ICES Secretariat in January/February 2014. Next years' WGMARS annual meeting will be at ICES Secretariat in Copenhagen to assist a closer dialogue with key ICES scientists and administrators regarding the ICES social network analysis manuscripts.

Annex 1: List of participants for Working Group on Marine Systems, (WGMARS) 4–8 November 2013 (* stakeholders who participated 4–5 November for ToR C)

Name	Address	Telephone/Fax	E-mail
Dorothy J. Dankel **Chair**	Institute of Marine Research, Pelagic Fish, Post Box 1870 Nordnes, 5817 Bergen, Norway	+47 95 83 77 76	dorothy@imr.no
Steven Mackinson	Cefas Pakefield Road Lowestoft Suffolk, UK	+44 1502 524395	steve.mackinson@cefas.co.uk
Jennifer Bailey	Department of Sociology and Political Science Norwegian University of Science and Technology N-7491 Trondheim Norway	+47 73 59 81 52 +47 92 21 82 37	jennifer.bailey@svt.ntnu.no
Friederike Lempe	Thünen-Institute of Baltic Sea Fisheries Alter Hafen Süd 2 19069 Rostock Germany		friederike.lempe@ti.bund.de
David Goldsborough	VHL, University of Applied Sciences P.O. Box 1528, 8901 BV, Leeuwarden, The Netherlands	+31 317484303	david.goldsborough@wur.nl
Örjan Bodin (ToR A only)	Stockholm Resilience Centre		orjan.bodin@stockholmresilience.su.se
Kåre Nolde Nielsen	Norwegian College of Fishery Science, Faculty of Biosciences, Fisheries and Economics, Breivika N-9294, University of Tromsø, Norway	+47 77 64 44 80 +47 93 42 04 32	kare.nolde.nielsen@nfh.uit.no
Martin Pastoors	IMARES (Wageningen UR) Haringkade 1, IJmuiden, The Netherlands P.O. Box 68, 1970 AB, IJMuiden, The Netherlands	+31 317 487 849	martin.pastoors@wur.nl
Sebastian Linke	Department of Philosophy, Linguistics, and Theory of Science University of Gothenburg, Box 200, SE 405 30, Göteborg, Sweden	+46 (0)31 7864754	sebastian.linke@sts.gu.se

Name	Address	Telephone/Fax	E-mail
Christine Röckmann	IMARES (Institute for Marine Resources and Ecosystem Studies) PO Box 68 NL-1970 AB IJmuiden The Netherlands	+31 317 487 194	christine.rockmann@wur.nl
Kari Stange	Wageningen University Environmental Policy Group P.O. Box 8130 6700 EW Wageningen The Netherlands	+31 618 968014	kari.stange@wur.nl
Harry Strehlow	Thünen-Institute of Baltic Sea Fisheries Alter Hafen Süd 2 19069 Rostock Germany	+49 38 18 11 61 07	harry.strehlow@vti.bund.de
Jörn Schmidt	Christian-Albrechts-Universität zu Kiel Department of Economics Wilhelm-Seelig-Platz 1 24118 Kiel Germany	+49 431 880 5632	jschmidt@economics.uni-kiel.de
Lorna Duguid*	North Sea RAC		Lorna.Duguid@aberdeenshire.gov.uk
Klaas de Vos*	Prince Charles' Charitable Trust ISU , FiFT		klaas.devos@royal.gsx.gov.uk
Caroline Gamblin*	North Western Waters RAC		cgamblin@comite-peches.fr
Eibhlín O´Sullivan*	North Western Waters RAC		southwest@eircom.net
Alexandre Rodriguez*	North Western Waters RAC		rodriguez@bim.ie; nwwrac@bim.ie
Raul Garcia*	Long Distance Fleets RAC		secretaria@ldrac.eu
Carlos Aldereguía*	Long Distance Fleets RAC		carlos.aldereguia@ldrac.eu; secretaria@ldrac.eu
Manuel Liria*	Long Distance Fleets RAC		secretaria@ldrac.eu
Claus Reedtz-Sparrevohn*	Pelagic RAC		crs@pelagisk.dk
Benoît Guerin*	South Western Waters RAC		bguerin@ccr-s.eu

Annex 2: Agenda

https://drive.google.com/file/d/0B3VStkmkH-6vVnpFWUZMVGl3V1E/edit?usp=sharing

Annex 3: Selected presentations given during WGMARS 2013

8.1 ICES Science Strategic Plan and Stakeholders (Henrik Sparholt, Deputy Head of ICES Advisory Programme)

Following the recent release of the ICES strategic plan 2014–2018, the aim of the presentation was to help identify where cooperation on research may have more potential than others. Background on the role of ICES, its structure and operation of ICES was given.

Key points of relevance and interest to the participants included:

- Integrated ecosystem approach at the heart of the new ICES strategic plan. This includes integrated monitoring, analyses and advice across 6 Ecoregions (Baltic, North, Norwegian and Barents Seas, NW Atlantic, Western European Continental Shelf). Step-wise approach to developing advice that will include consideration of:
  - Environmental drivers on specific issues
  - Wider ecosystem impacts of options for societal action
  - Interactions with other human activities
  - If requested – trade-off between losses and gains for relevant stakeholder groups for different options
- Communication with advice users so that there is a mutual understanding of the questions that are being asked and the questions that scientists can answer. (see below on multi-species issues)
- Communication between stakeholders and scientists so that both appreciate each other's perspectives, including stakeholders' knowledge. E.g.
  - Meeting of ICES and the RACs (MIRAC) meeting with RACs, Presentation of ICES advice at the various RACs
  - RAC observers at ICES meetings
  - Cooperation with RACs in benchmark assessments is welcome
- CFP reform landing obligation
  - Shift to catch based advice following, where the division of work is to be agreed between ICES and STECF (some discussion have been had on this, but nothing agreed (see question below)
  - Guidelines for survival experiments
- CFP reform – MSY
  - ICES sees its main competence here is to define Fmsy, although it is not committed to providing a single value, given different interpretations that exists (EU CFP see Fmsy as a target, while UNCLOS (and MSFD) see Fmsy as a limit).
  - ICES say that you cannot achieve MSY for all stocks, but the commission says that is what we want.
  - ICES has tended to ignore multispecies interactions interactions in the past (and its implication for Fmsy), but this issue is now seen as a priority and aims are to reset single species Fmsy reference points with multispecies Fmsy reference points. Reactions from policy makers and stakeholders have revealed that this is politically complex and difficult

to handle, with little constructive debate helping all parties to move towards greater clarity about policy preferences.

- ICES advice is to keep Blim and R not impaired. Not hamper the possibilities of future human generations.
- Fmsy has no single solution in multispecies/ecosystem context, so policy choices need to be made – what to 'maximise'? And ecosystem state needs to be specified.
- FMSY in multispecies can be higher than those derived from simplistic single-stock approach. (note inserted by Steven Mackinson, co-chair ICES WG Multispecies assessment methods working group: However, the estimates from multi-species models are subject to high uncertainty, and this is an important area of research)
- Mixed fisheries advice means making choices and compromises.

- Autumn 2014: dialogue meeting (Policy makers, stakeholders, scientific advisers) regarding MSY in an ecosystem (especially multispecies). Aim to stimulate dialogue and feedback regarding policy preferences and choices.
- Observers on board fishing vessels could play a role beyond monitoring, helping get better coverage of data and address specific issues like biological measurement of big monkfish.

8.1.1 Questions to Henrik Sparholt on ICES Strategic plan

Q. Does the integrated advice include social and economic advice?

A: a little but definitely not fully

Q. What is the process for ICES and STECF to decide on how to divide up the work on discards between ICES and STECF? Given the short time scales, it's important to know.

A: In the normal way, it starts off with some discussion between a few individuals to shape some thinking before involving others. It's difficult, because it's a bit of a 'chicken and egg' situation where we are waiting for the regulation to help clarify on how to define roles.

Q: How will the discussion on taking multispecies considerations into account evolve?

A: This is the elephant in the room. Both ICES and the RACs have also been telling the commission that it is not achievable. The important question to ask is "Can we do something better than what we have now". Can we say something rather than say nothing. Should not ask, is it perfect? The difficulty is that policy choices need to be made.

8.2 NWWRAC experiences with science-industry-Member State collaboration to improve data deficiencies for stock assessments (e.g. ICES WKDDRAC) (Alexandre Rodriguez , Eibhlin O'Sullivan, Caroline Gamblin). [presentation available on website]

An overview of cooperation among ICES and the NWWRAC was given.

Motivated by fears of losing fishing opportunities on stocks where lack of knowledge prevented assessment of the stock status, the North Western Waters and North Sea RACs began in early 2010 a joint initiative to understand what the RACS and the industry could do to improve quality of data for stock assessments. The initiative subsequently evolved through dialogue with ICES and the encouragement of the commission. Through a series of workshops (WKDRAC) and meetings, the RACs established specific regional task forces and appointed data coordinators for each of the stocks, who have the responsibility to maintain continuous dialogue with ICES.

The example demonstrates the evolution of a structured process designed to meet specific needs. Key relevant lessons were:

- The need to be pragmatic given limited resources. The way to achieve this was to prioritise the collection of data on each of the data-poor stocks for ICES benchmarking.
- Training in understanding what stock assessment is all about (ICES training courses) was valuable for the stock coordinators to understand how their work fit with the ICES machinery.
- There remains t confusion about who to address in ICES regarding data deficiencies, so there is an important role for the RAC secretariat as the engine room / facilitator between ICES and RAC coordinators.
- Despite being driven by industry representation, getting the data can still be difficult, with reluctance from fishermen and POs in some areas being a persistent problem. While there are difficulties in mobilising fully the data that might be available, the current situation is better than before.
- Training in science methods for data collection and guidance on format from ICES would improve the quality of data collected by industry.

Question to the NWWRAC representative on WKDDRAC initiative

Q. Is the RAC the right place to get the consensus on between Member States (MS) data collection programmes?

A: Yes – because it has MS representation and the connections to get right down to the data collection platforms. The MS value the outputs from the RAC because of the power of consensus.

8.3 Smart ways for RACs to work with ICES and science projects: Feedback from the InterRAC meeting (24 October 2013) (Lorna Duguid, NSRAC)

The RACs receive frequent requests/invitations to take part in research projects, partly as a result of the conditions specified in proposal for research arising through Framework 7 (now Horizon 2020). Finding the best ways for it to work given that the different RACs/ACs have different needs, ambitions and strategies when it comes to research can be difficult. While some RACs give more emphasis to participation in (or engagement with) research than others, it's important to be clear that the RACs/ACs are advisory bodies and not research bodies. While the RACs do not have a specific

mandate to do research, research has a role to play in some areas of RAC advice, and thus participation in research can reflect, support and underpin the work programmes of the individual RACs/ACs. The information, the future role and function of the ACs describes three key tasks, the third of which has particular relevance to collaboration of RACs with scientists and ICES as an institution, because all RACs have emphasized the importance of good and reliable data:

1. Submit recommendations and suggestions on matters relating to the management of fisheries and the socio-economic and conservation aspects of fisheries and aquaculture

2. Inform the Commission and Member States of problems relating to the management and the socio-economic and conservation aspects of fisheries

3. Contribute, in close cooperation with scientists, to the collection, supply and analysis of data necessary for the development of conservation measures

Prompting further discussion and contributions from other RAC participants, Lorna Duguid reflected on what the RACs could do better to make collaboration with scientists more effective and useful to the RACs while taking in to account resource constraints. Recommendations included:

- **Be more proactive and strategic in our approach**. Plan more clearly at what point in time the RACs need to engage with science and anticipate needs for information to build their advice. Identify shared issues among RACS and agree on priorities. An example from research planning in New Zealand was given where research plans are aligned with management plans). Note: see Mackinson et al. in prep (a paper on what works well in New Zealand that might be transferable to a European context)
- **Developing own scientific experts and share these expertise among RACs.** Trust and encourage these people in their mandate to represent the RACs. This also makes work more efficient by avoiding duplication.
- **Developing robust and effective feedback mechanisms** within the RAC and with ICES. Consider what forums are best for this, e.g. MIRAC, specific WGs?
- **Strengthen RAC/stakeholder direct participation in research projects** by
    - Building projects through dialogue with stakeholders and administrations so that timing of research better matches the timing of needs for management. Stakeholders/RAC should be involved from the outset in design and drafting of the project, including input in identification of research needs. This includes the need for research plans to be flexible to evolving management need, which means not defining precisely all the content before the project is awarded, and ensuring time for participatory development within the project.
    - Taking ownership / leadership of projects by getting the right to have direct access to funding (cooperate/compete with other consortia), and ensuring that all the key 'players' need to address the issues are involved.
    - Access to funding for stakeholder participation in projects. One way to help promote this is to encourage transnational networks to focus member state funding on regional issues.

- Having dedicated research project coordinator(s) within the RACs, so that the benefits of the RACS engagements in projects can be fully realised.

- **Bringing fishermen closer to research**. An important challenge for the RACs is to be able bring fishermen back to the RACs. Doing so requires stressing that collaboration can have a meaningful outcome. One way to facilitate this might be inside the RACs through the issue-based Focus Group. It is a difficult issue. For example the North Sea Fishers Survey has lost impetus because fishermen do not see how the information is used and what the industry stands to gain. So we need to be realistic and clear about (i) what can be given (what is possible) and (ii) and what can be gained. It was noted that one of the roles of the RACs was to help overcome the fear that collaboration will lead to negative outcomes for individuals.

Question

Q: Are the formal structures already in place (e.g. observers in ICES and STECF) enough? Or is there a need for more formal structures?

A: It's not always good. STECF sometimes denies what seem to be reasonable requests and there are practical issues with agenda planning and capacities.

8.4 Reflection on an exercise undertaken by the SWWRAC to review projects and identify how better to coordinate the work (Benoit Guerin, SWWRAC) [presentation available on web]

Instigated by the desire to be proactive in finding out what research was coming out of various projects and how this could be useful to the RAC in establishing LTMPS for the Bay of Biscay and Iberia Waters, the SWWRAC coordinated a phone conference among project coordinators of several large EU projects. Specifically the exercise sought to compile expected results and related deadlines, with a focus on the following areas:

Knowledge & observation of the marine environment

Production of multi-species scientific opinions

Multi-species management tool

Recommendations in terms of governance

Definition of Management Units

Market aspects

The intended outcome was to enable the SWWRAC to be in the position to be able to channel the recommendations on management plans through the GEPETO project by collating and synthesizing the results from other projects.

The compiled information was sent to the STECF plenary (to be found at http://stecf.jrc.ec.europa.eu/web/stecf/plen03). STECF's response was that it considered that having a clear picture of existing projects, deliverables and case studies, is helpful and valuable for the future planning of STECF activities regarding LTMP for BoB and IB. Further it suggested the Commission take note of the deliverables' dates when planning activities regarding the development of management plans for these areas.

Some of the lessons learned from this are reflected in the section above on smart ways for RACs to work with science projects.

8.5 Report on outcomes of the Fishing into the Future workshop http://fishingintothefuture.co.uk (Klaas de Vos, Princes Charity ISU)

Building on work their global work programme, The Prince's Charity International Sustainability Unit (UK), convened a workshop to enable UK fishermen from all areas and sectors to share ideas, best practice and define together the actions needed to create a positive future for fisheries. The programme was designed mainly by fishermen so that their needs were heard and addressed. Attended by active fishermen, industry representatives scientists and managers, the issue of stronger collaboration in science featured heavily.

While there emerged a clear sign of the fishing industry's enthusiasm and willingness to actively engage, this was marked with some reticence in cases where past experiences had not been constructive. Taking a positive step to encourage this, participants identified the need for examples of best practice. Such a review would seek to establish examples where collaboration with industry resulted in a useful change in the way things are done (either in terms of better knowledge or better management). The question asked is: What evidence is there that collaboration of fishermen and scientists leads to useful outcomes for those involved?

Discussion on science and data needs centered on participatory research, technology and efficiency in data collection, training. A specific working group has been set up to take the science and data issues forward.

Comments: Experience of WWFs work in Mediterranean showed that driving collaboration through bottom up activities was leading to a great success in co-management initiatives. The key here has been engaging local managers, rather than to look from the top-down for change. The challenge now is how to scale up to RAC level to get more regional scale impact at policy level. So you can make a difference and catalyse real positive change. The seeing is believing model really works.

8.6 Expanding the knowledge base for fisheries management through participatory research (Kari Stange, WU) [presentation available on SharePoint]

Kari shared some perspectives on participatory research based on on-going work within the GAP2 project (www.gap2.eu). The presentation focused on the roles of actors in various collaborative constellations. Actors involved in collaborations aimed at improving the knowledge base for EU fisheries are recognized as being either scientists, stakeholders or bureaucrats (managers and policymakers). Along with the division of roles comes an implicit expectation of what kind of knowledge each actor contributes with. Scientific knowledge, stakeholder knowledge and bureaucratic knowledge come together, but how do different kinds of knowledge mix? And how will the output from the collaboration be recognized; is it still science? The on-going work driven by the North Sea RAC to make a long term management plan for North Sea Nephrops fisheries is an example where stakeholder knowledge is at the forefront while scientists and bureaucrats are invited in to provide input. Scientists involved as advisors to the NSRAC are also engaged in various Nephrops -related Expert Groups within the ICES network. The collaboration exemplifies how such informal links can help develop a common understanding between stakeholders and scientists.

Comments: The examples given and experiences described can be put to use by the North Western Waters RAC as they are involved in similar stakeholder-scientists collaborations around Nephrops management on the Porcupine Bank.

The stakeholder-led collaborations exemplified by these RAC-led initiatives represent new ways of looking at participatory research.

8.7 Practical guidance on collaboration in generating the evidence base for managing fisheries. (Martin Pastoors, IMARES) [presentation available on SharePoint]

The presentation focused on guidance for effective collaboration in addressing research needs for management. Reflections were made on what the needs for research to support the new CFP imply for the way in which collaboration is organized.

When scientists sit together and frame a project from A-Z, then ask for letters of support from stakeholders, the engagement of stakeholders is likely to be poor and ineffective. If you don't liaise with stakeholders in framing the problem, how can you meaningfully develop a project? While institutional structures still make this a challenge, one way to help overcome this is to create the opportunity for a more cooperative and open planning during proposal definition. The suggestion was that because the needs of management (and science support for it) evolve throughout a project, emphasis should be placed on the consortia and how it will tackle the issues, rather than hard-wiring the specific issues and methods.

It is clear that there are different roles for scientists in the management process. There is the consultative role in framing research questions and generating ideas for solutions and there is the judging role (e.g. ICES and STECF) where solutions are assessed and evaluated.

Different funding streams are available for collaborative research. The new Horizon 2020 call opens up for tendering within the project – this can be a flexible tool. The new EMFF also places a strong emphasis on innovation and collaboration. EMFF funds national projects but there may be scope to explore international dimensions to EMFF.

Annex 4: Post-it notes on research priorities where stronger collaboration among stakeholders and scientists would be beneficial (word cloud below represents all notes clustered)

Establishing effective ways of working

- Linking fisheries governance EC – MS – RAC – researchers
- Enable interactions between scientists and stakeholders through structural changes, e.g. back to back meetings
- Optimize work relationship ICES – stakeholder. Win win
- Create capacity for flexible input / interaction
- Open all ICES WG to stakeholders
- Mechanisms for uptake of a diversity of knowledge into management
- Substantive weight of RAC's advice vis-à-vis MS / EC (binding in some areas?) regionalisation
- Using H2020 and EMFF for funding research needs of RACs (and MS)
- Ad hoc requirements to specific stocks, additional data / modelling work

Knowledge and data needs for an integrated understanding

- Developing really integrated research agenda for understanding of system behaviour (measure – behaviour – effect)
- Openness for potentially new approaches / methods + "anecdotal knowledge"= traditional local ecological knowledge
- Guidance on methods quality standards for industry data collection initiatives 'science information standards'
- Transparency about uncertainties in data, methods, assumptions
- Data collection frameworks (technical)

Trade-off of MSY approach to management

- Identify and evaluate trade-offs among fisheries strategies aimed at achieving MSY
- Better understanding of the MSY in the fisheries and trophic web

Discarding – science understanding and management actions

- Landing obligations & underpinning science

- Studies of survivability of discards – for both target (commercial) and non-target species
- Survivability
- Selectivity: joint problem definition first (with stakeholders / industry + science + policy makers / EC). Then research projects -> decision support
- Selectivity
- Gear technology
- Need information required to prepare discard plans such as survival rates etc. Short term / immediate
- Study of role of commercial & non-target species in ecosystem – relevance to evaluating discard policy impacts
- Consequences of the discard ban in the ecosystem: selectivity, biomass extraction, specifically in the Mediterranean
- Mapping fish distributions. E.g. mackerel, blue whiting, herring
- Indicators for flexible management plan scenarios of probable marine system impact of discard ban user group impact
- Flexibility (quota and species). Technical solutions: sorting, selection
- Discard plans.
- Jointly assessing options in discard plans and impacts.

Developing Long Term Management Plans

- Issues developing Long Term Management Plans as lack of scientific data / support required to develop these. Should be ongoing but likely to be deferred for discard plans
- Need reference points from ICES (catch and discard estimates) for developing transition F in management plans
- Mixed fisheries multi-species advice
- Socio-economic studies to underpin management decision
- Social / Society economic impact of management options / decision
- Long term management plans

Others

- Sea bass management options

Annex 5: Code of Conduct for Initiating Participatory Research

10.1 (from the GAP1 project; Mackinson, S. and Neville, S. (eds) 2009. Bridging the GAP between science and stakeholders Phase 1 – Common Ground 1, Final Report. 46pp.)

The aim of the Code of Conduct is to provide a summary of the key factors requiring consideration when initiating participatory research. The code combines key messages from a social science study of fishermen and scientists working together, with messages from a workshop that developed a guide to good practice in participatory research in fisheries science.

10.1.1 When planning the research:

Participatory research activities should be guided by a clear plan: The plan must ensure the process of participation is open and transparent, so that working relationships built on trust can be developed. The aims and objectives of any research should be agreed during the planning phase, and the expected effects on management and policies clearly explained and discussed.

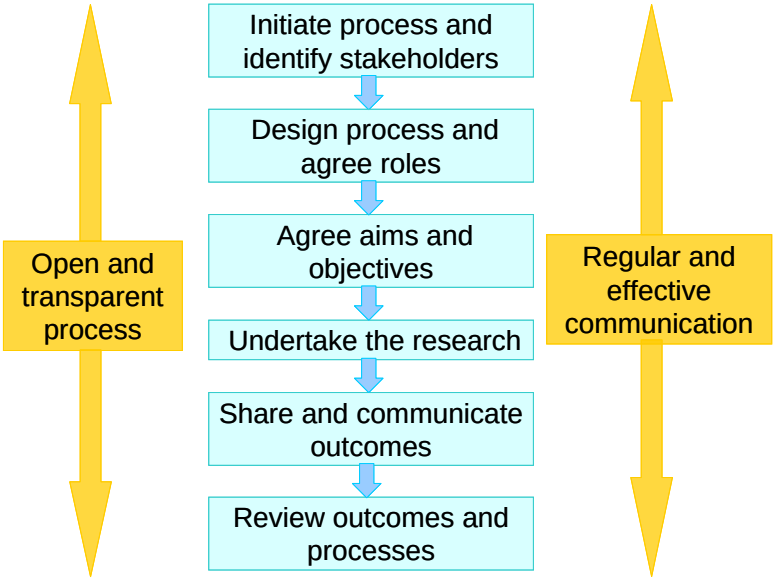

Figure 2. An overview of the process of participatory research.

Highly skilled leaders are required to motivate and inspire others, and to manage the process appropriately

The right leadership skills are required to undertake the initiation and management of a participatory process. Neutral facilitators / moderators may be very beneficial in early stages, where the subject is complex or where there is a history of conflict.

Identify and involve all participants at the earliest planning stage so they can have a substantial influence on the design of the process

Who is involved will greatly impact upon process design, so agreeing this at the very beginning of the process is essential. The views of all participants should be taken into consideration when deciding who should be involved.

Find the right level of participation that benefits all those involved

Fishermen have demonstrated a clear commitment to being involved in fisheries research at a number of different levels. One particular level will not suit all fishermen because of differing interests, motivations and constraints. Participants should collectively agree their roles and how this might work on a practical level. Relevant incentives for the involvement of fishermen in research at the various levels need to be considered.

Manage expectations from the outset: Participants may have quite different understanding, motivation and expectations of the process. Clear and honest communication at the earliest stages will prevent misunderstandings arising, lessening the potential for derailment of the process at a later stage.

Short, medium and long-term approaches are required: Coherent and continuous efforts are required at all levels because enabling effective participation by stakeholders is a long-term process.

Understand, respect and give equal weight to all forms of knowledge: Try to understand the motivation, lifestyle and attitudes of the different groups of people involved in the process. Qualitative and quantitative scientific and local ecological knowledge needs to be incorporated in the research, both in the planning and implementation stages.

10.1.2 When doing the research:

Consistency of people involved is critical to success: Relationships take time to build and constant changes in personnel can lead to frustration and delays.

Adapt the process to the individuals involved and work together to overcome problems: Each participatory process will require a different approach and so there will not be one set of guidelines that will perfectly fit all situations. Individual people, projects, timescales, and constraints will vary, so the process must adapt to these. Learn from similar experiences, evaluate, and look for ways to improve the process.

Fishermen should not automatically be expected to undertake tasks that interfere with their priorities on board: Time is precious for fishermen and their priority is to make a living. They have some pre-established tasks that must be carried out on board to secure their priorities. Anything additional that might interfere with their fishing tasks might not be received with enthusiasm. During the planning of joint research, it is important to consider together what is practical given limited time and manpower.

Ensure effective two-way communication at regular intervals: Two-way communication is essential for the success of any participatory research process. Substantial effort is required to ensure the flow of information between the different levels within the fisheries sector works effectively. Fishermen require feedback on the work being done, and opportunities to be involved in the interpretation of results. Improved access to information about the research, the results, and the links to policy are required. All information must be easily accessible and presented in an appropriate format.

Ensure key objectives and outcomes are effectively communicated to both stakeholders and the wider community, and that they make a difference to informing policy: Fishermen often report being unable to see the relevance of the research, which is often due to poor communication of the scientific objectives and subsequent

results. This leads to scepticism and mistrust of the research process, and completely demotivates the fishermen. The key objectives and outcomes, and the likely effects on policy, whether positive or negative for the fishermen, need to be clearly communicated upfront. Unexpected outcomes can cause a great deal of mistrust and frustration.

Annex 6: Recommendations

Recommendation	For follow up by:
1. To provide a clear focus and manageable workload, WGMARS proposes to focus future discussions up to two (2) "Stakeholder interactions case studies" within the ICES area per WGMARS annual meeting. The case-studies can be loosely defined (e.g. it could be engagement in specific piece of research on a discard plan, or engagement in an ICES benchmark or STECF meeting). A suggested outline of the steps are: 1. Case studies must be outlined and presented in writing to the Chair (who is Dorothy Dankel for 2014 and 2015) at least two (2) months in advance of the meeting. The Chair will review the scope and appropriateness of the proposals to ensure it is consistent with the overall aim of WGMARs prior to disseminating it to the WG members. 2. At least one stakeholder representative of the case study must be present at the WGMARS for its presentation and to participate in discussions and Report writing. 3. Evaluate and analyse case studies by measuring a "happiness index" representing the quality and utility of the interaction from both the stakeholder(s) and scientist(s) (including ICES as an institution) perspectives. 4. Use the outcomes of the analysis as a basis for advising on specific progressive improvements that promote engagement where it is needed.	SCICOM/ACOM

Annex 7: WGMARS – new meeting dates for 2014

2012/2/SSGSUE06 The **Working Group on Maritime Systems** (WGMARS) chaired by Dorothy Dankel, Norway, will meet at the Stockholm Resilience Centre, Stockholm, Sweden from 4–8 November, 2013 to work on ToRs and generate deliverables as listed in the Table below.

The Second Interim Meeting of WGMARS chaired by Dorothy Dankel, Norway will be held at ICES Headquarters, Copenhagen 1–5 December 2014

WGMARS will report on the activities of 2013 by 6 December 2013 to SSGSUE and **the second year by 5 January 2015.**