



SEVENTH FRAMEWORK PROGRAMME
THEME 6

Environment (Including Climate Change)

MEECE User Advisory Group Meeting Report

Proposal Acronym: **MEECE**

Proposal full title: **Marine Ecosystem Evolution in a Changing Environment**

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Meeting Participants

Manuel Barange (PML) WP6 Leader and UAG Chair

Jan Busstra (Dutch Ministry of Transport and Water Management)

Anaï Mangos (Plan Bleu)

Niall McDonough (European Science Foundation)

Wojciech Wawrzynski (ICES)

Icarus Allen (PML) MEECE Project Coordinator

Jessica Heard (PML) Knowledge Transfer Coordinator and MEECE Project Manager

GerJan Piet (IMARES) WP5 Leader

Mike St John (UHAM) WP2 Leader

Marco Zavatarelli (UNIBO) WP4 Leader

Apologies: Eva Royo Gelabert (EEA, Denmark), Luis Valdes (IOC, France)

Comments from Eva Royo Gelabert added 29th October 2009

Action Points

Action	Assigned to
Contact Richard Bellerby (WP1; cc Icarus Allen) re technical FS: summary of datasets	Jessica Heard
Approach Icarus Allen and Mike St John (WP2) re technical FS on model library	Jessica Heard
Contact Xabier Irigoien (WP3), Marco Zavatarelli (WP4) re FS summarising scenarios to be used in MEECE.	Jessica Heard (cc Icarus Allen)
Contact GerJan Piet (WP5)(cc Icarus Allen) re FS on MSE examples	Jessica Heard (cc Icarus Allen)
JH and WW to identify ICES expert groups that could benefit from MEECE model library factsheet.	Wojciech Wawrzynski and Jessica Heard
Circulate ICES report when available (expected March 2010)	Wojciech Wawrzynski
Send list/ copies of position papers that would be of interest to MEECE.	Niall McDonough
Prepare a short statement to clarify the target audience of MEECE with regards user communities.	Manuel Barange/Jessica Heard
Consider a second UAG meeting during the planning of the MEECE Science Meeting	Jessica Heard/ Icarus Allen

Meeting Report

The presentations delivered under agenda items 1-7 are summarised below. Copies of the full presentations can be downloaded from

http://web.pml.ac.uk/meece/kt/UAG/amsterdam_meeting.html

1. Aims and objectives of the User Advisory Group (UAG) by M. Barange

Key points from the presentation include:

- EU Lisbon Treaty - Knowledge lies at the heart of the European Union's Lisbon Strategy to become the "most dynamic competitive knowledge-based economy in the world". The 'knowledge triangle' - research, education and innovation - is a core factor in European efforts to meet the ambitious Lisbon goals. Numerous programmes, initiatives and support measures are carried out at EU level in support of knowledge.
- MEECE definition of knowledge transfer/exchange - KT is the process which facilitates the dissemination of research-based knowledge, expertise and skills. Effective knowledge transfer requires communication between MEECE scientists and global users (e.g. policy makers, advisory bodies, research managers, conservation and user groups, management bodies), and results in the production, dissemination and use of existing or new research-based knowledge in decision-making and enterprise.
- The term knowledge transfer covers the processes by which knowledge, expertise and skilled people exchange between the science base and its user communities, to contribute to economic competitiveness, effectiveness of public services and policy, and quality of life. This includes:
 - Knowledge normally presented in scientific papers or at scientific meetings.
 - Knowledge that can be commercialised (based on the ownership of intellectual property).
 - Tacit knowledge (also called know-how) concerned with the methodology used in scientific processes or experiments.
 - Pieces of scientific knowledge, or observations of a scientific nature, that by themselves are not enough to constitute a scientific paper, but could be key pieces of information for other scientists or users of science.
 - Knowledge produced as scientific advice or evidence for policymakers or other users of science.
- Strategic objectives of MEECE UAG - A facilitator of knowledge transfer/exchange
 - a) Provide advice to the MEECE Consortium to ensure that questions relevant to user communities are taken on board by MEECE.
 - b) Advise and assist in the dissemination efforts of MEECE knowledge, results, expertise and skills to potential users (e.g. managers, policymakers, regulators, etc.).
- The membership of the UAG is not closed and additional members may be invited as deemed necessary over the course of the project. Current UAG members are welcome to propose additional names.

2. MEECE overview by Icarus Allen

This presentation described the strategic aims of the project as well as general description of the science activities to be undertaken.

- *Establishing the tools*

- WP1: Comparative analysis to define model parameterisations for key processes (acidification, pollution response, fishing and alien invasive species impact); Establishing scenarios and hypothesis for testing based on the existing historical analysis of ecosystem response to the drivers
- WP2: Coupling biogeochemical models to upper trophic level models; modification of models to include response to acidification,; Model skill assessment
- *Running the Scenarios*
 - WP3: Scenarios Climate and circulation drivers, impact on ecosystem end-to-end
 - WP4: Scenarios Direct anthropogenic drivers and multiple driver impact on ecosystems end-to-end
- *Implications and Knowledge Transfer*
 - WP5: Implications for resource management.
- ❖ Comment from Eva Royo Gelabert (29/10/09): That is the key output of the project in my view and should be developed down to the level of 'management measures' (responding to the policy 'needs'). I'm generalising here but I'm afraid that most of this type of work (i.e. the further 'digestion' and elaboration of the science/research into management) has to fall on the scientists; decision-makers (administrations, policy developers, politicians, etc.) do not make the effort plus they do not get/understand much of the science... *See below*
 - WP6: Knowledge Transfer and Outreach
- ❖ UAG suggested that a technical Fact Sheet could be prepared summarising the Datasets/bases to be used in MEECE, the rationale behind the sets selected, and the experimentation needs that emerge from the gaps in knowledge identified. *Action: JH to contact Richard Bellerby (WP1; cc Icarus Allen).*

3. WP2: Advanced modelling by Mike St. John

The principle objectives in WP2 include:

- Creating a library of models which can be coupled to existing coupled hydrodynamic and intermediate and complex NPZD type models.
- Providing the integrated End-to-end modelling tools necessary to assess how ecosystems are impacted by global change via drivers such as ocean circulation, ocean climate, ocean acidification, pollution, over fishing and invasive species.
- Identification of system specific and generic key feedbacks and forcing for focused modelling activities.
- Creation of a library of biogeochemical, ecosystem, higher trophic level, alien invasive species and ecotoxicology models necessary to assess the impacts of MEECE drivers on ecosystem dynamics.

MSJ explained how MEECE uses the rhomboid approach to achieve these objectives. In order to accomplish the end-to-end ecosystem modelling principle using "rhomboid" principles they intend to:

- Identify a system specific and generic key feedbacks and forcing for focused modelling activities.

- Create of a library of biogeochemical, ecosystem, higher trophic level, alien invasive species and ecotoxicology models necessary to assess the impacts of MEECE drivers on ecosystem dynamics.
- Develop a modular modelling structure to enable the flexible coupling of biogeochemical, ecosystem, higher trophic level, alien invasive species and ecotoxicology sub models modules to existing ocean atmosphere models.
- Develop a “model coupler” system to enable the implementation of feedback loops into end-to-end modelling frameworks. A coupler is a software tool that a) exchanges information between models with minimal code interference and b) transforms the coupling fields from the source model grid to the target mode grid and c) contains no “science”; does not define the components.

He described briefly the different modelling approaches, with particular emphasis on the multiple approaches for fish modelling: IBMs, Stochastic Multispecies Models, ECOPATH+ECOSYM, OSMOSE, APECOSM. Some time was used to explain the technical difficulties involved in the planned work, using the IBM (Individual Based Modelling) approach as an example.

- ❖ UAG suggested that a technical Fact Sheet could be prepared summarising the library of models to be used in MEECE, their characteristics, benefits and shortcomings, and some details on the thinking behind the model coupler to be implemented in MEECE.
- ❖ **ERG (29/10/09):** In this context, see the results of the project "Scenarios and models for exploring future trends of biodiversity and ecosystem services changes" available at: <http://ecologic-events.eu/biodiv-scenarios/documents.htm> The Final Report contains a review of marine models that may be useful.

Action: JH to approach Icarus Allen and Mike St John (WP2).

4. WP3: Ecosystem response to climate change drivers and acidification, Icarus Allen on behalf of Xabier Irigoien

The objective of this WP is to scenario test the impacts of climate drivers on the structure and functioning of marine ecosystems. The first task will define the common scenarios and metrics that will allow model-model inter-comparability. He described the basic simulations:

- Reference simulation: climate – 1860-2100, IPSL-CM4 GCM, ORCA2 PISCES hydrography/nutrient, SRES A1B emission scenario. Daily resolution for the atmosphere, monthly for the ocean.
- Reference simulation: re- analysis - ERA-40, 1960-2002, Observed rivers, Re-analysis forced ocean model for boundaries.
- Time slices - 2000, 2025, 2050, 2100
- Spin-up from reference initial condition.
- Need to be long enough to encompass inter-annual variability (2-30 yrs).

IA explained that a common set of scenarios are planned for each of the 9 geographical regions of MEECE. These will be analysed for the effects of climate forcing and ocean circulation on ecosystem function on time scales of daily to seasonal to inter-annual variability. Particular issues that will be investigated are effects of varying mixing, temperature and transport on nutrient availability, light availability, changing acidity, carbon flux, and metabolic processes. The results will provide background fields for WP4.

- ❖ UAG discussed when particular drivers (e.g. pollution) switch from positive to negative. If thresholds could be provided these would be of great importance for policy development (WP3 and WP4). **ERG (29/10/09):** Yes, but then the thresholds have to be very relevant for the policy. They have to be formulated in a way that shows how they link to the policy objectives and/or targets. Otherwise, it is unclear how to use them in management.

5. WP4: Ecosystem response to direct anthropogenic drivers by Marco Zavatarelli

MZ described the main objectives of WP4 as:

- To define the envelope of response to combinations of direct anthropogenic drivers on marine ecosystem on a regional scale.

ERG291009: The regional scale is the most useful one from a policy point of view. The Marine Strategy Framework Directive's (MSFD) 'management units' are the 4 European marine regions on (sub-regional divisions also possible for management but, in the end, everything has to be aggregated regionally). The Common Fisheries Policy (CFP) aims at moving towards 'regionalisation' (decision-making at the regional sea levels, cf. CFP Reform Green Paper April 2009)

- Ascertain the impact on ecosystems end-to-end of changes in pollution, fishing effort, fluvial nutrient and CDOM inputs.
- The above focused on physics, biogeochemistry, ecosystem productivity, higher trophic levels.

To differentiate from man made climate change, this WP focuses on drivers originating from a direct human pressure on the marine environment, such as eutrophication substances (nutrients), toxic substances (e.g: herbicides, antibiotics), optically active substances (CDOM), exploitation of living marine resources, introduction of invasive species. The approach followed for each of these direct pressures was presented.

On the issue of scenarios, MZ noted that MEECE a) assumes that policy drivers will seek either the maintenance or the reduction (up to the phasing out) of the current inputs, in accordance with the EU water framework directive **ERG (29/10/09):** Offshore (beyond 1nm for 'biology' and 12 nm for 'chemistry') but also in coastal/WFD waters (1nm or 12 nm) for some issues, the MSFD applies. The final aim of this Directive is achieving 'good environmental status' of European marine waters by 2020 on the basis of the further EU-level definition (the JRC/ICES 2010 work referred to below) of the 11 descriptors found in its Annex I. See them to judge whether what will be needed is the maintenance or the reduction (up to the phasing out) of the current inputs, b) will ensure appropriateness of policy related scenarios, and c) will seek interaction with expert advisory group (stakeholders and users). Specific details of the scenarios to be considered for each driver were provided, although it was clear that these are not yet fully defined.

- ❖ It was agreed that WP3 and WP4 could benefit from UAG feedback to develop scenarios, especially for fisheries. UAG indicated that issues such as urbanisation and habitat loss, for example, are not included in the models, although these are the most pressing issues requiring technical input.
- ❖ UAG suggested using urbanisation as the main driver for one of the scenarios. This would involve describing the 'pressures' in terms of habitat loss, urban development, etc., driven by an increase in the use of the marine coastal environment over time. Such a scenario would help bridge the gap between technically driven scenarios and those driven by societal needs. **ERG (29/10/09):** The 2006 and the 2012 update (to be drafted over 2010-2011) of the EEA's 'Coastal' Report may be useful in this context providing a general, European-wide picture of the above-mentioned coastal 'pressures'. The same with the marine/maritime/coastal assessment in the EEA's 2010 'State of the environment' Report (advanced draft available February 2010). 2006 version of the 'Coastal' Report available at: http://www.eea.europa.eu/publications/eea_report_2006_6
- ❖ UAG suggested that a technical Fact Sheet could be prepared summarising the scenarios to be used in MEECE and the rationale behind them. This could be the result of a scenarios workshop. *Action: JH to contact Xabier Irigoien (WP3), Marco Zavatarelli (WP4) (cc Icarus Allen).*

6. WP5: Implications for resource management by GerJan Piet

GJP described the objectives of WP5 as the:

- Development of a methodology to integrate the dynamic response of marine ecosystems to the combined effects of various anthropogenic and natural drivers into multi-criteria tools supporting the decision-making process.
- Development of management strategies that support the EC Marine Strategy, EC Maritime Policy and the EC Common Fisheries Policy and their long-term ecological and resource management objectives.
- Evaluation of the tools supporting the decision-making process and management strategies using the MSE tools.
- Further development and implementation of Management Strategy Evaluation (MSE) tools.

Underlying these objectives is the understanding that resource management in the European area is changing from a present situation focused on the effects of fishing on commercial fish stocks under CFP, to a future defined by the Marine Strategy Framework Directive and a reformed CFP. Present objectives to keep stocks “within safe biological limits”, scientific advice based on stock-assessments, and fishing considered in isolation, will change to a system based on the implementation of the Ecosystem Approach, the desire to achieve Good Environmental Status and the need to apply an integrated management of human activities.

The development of MSE tools was described, and the goals of the comparative methodology in the WP defined as:

- Common methodology to compute and estimate ecological indicators. . **ERG (29/10/09):** It is mentioned below (UAG comments) and I already referred to it above, the MSFD 11 descriptors (Annex I) of ‘good environmental status’ are being further defined/made more concrete at the European level by the JRC & Ices and this work should be finished by spring 2010. The work, under the MSFD Common Implementation Strategy, involves both developing a conceptual framework for assessment, most possibly an indicator, and deriving some idea of thresholds for what ‘good’ may mean for each of them. The results will have to be general enough to apply to the whole of Europe, but the indicators (and thresholds?) would be extremely useful in the context of MEECE here. There is also a possibility that there will be follow-up work over 2010-2011 on further adapting the developed descriptors to the specific situation of each European regional sea....
 - Common protocol for elaborating a diagnosis on ecosystems state. **ERG (29/10/09):** See above.
 - Common communication methods for transferring scientific knowledge to the general public.
 - Website presenting the generic dashboard (computation and visualisation of ecosystem indicators) on several world ecosystems.
 - For the main links (where driver compromise objectives) management strategies will be developed that take MEECE climatic drivers (temperature, acidification, circulation/ stratification and light) into account.
 - Indicators of both Pressure and State will be (further) standardized and consistently implemented as part of decision-support tools.
 - Management strategy evaluation tools will be developed and implemented to select the best strategies, indicators and decision-support tools and to assess the improvement achieved.
- ❖ **ERG (29/10/09):** As I have advanced above, unless this goes down to the level of ‘management measures’ - at the very least of the level of detail included in the WFD’s Annex VI - it will not be as useful as it could. The MSFD Annex VI is much less helpful than the WFD and does not include concrete examples or much detail on

anything. So there is a clear gap/niche there. In relation to the CFP, the Green Paper puts forward some general options for management but noting concrete yet, so it is good to come up with something concrete!! Of course, there must also be a link between the measures and the ecological indicators, which (as said above) should also be linked to the policy objectives/targets.

QUESTION: Will you account for cost-effectiveness in this management (measure) evaluation? That is a key requirement of the policy. If 'yes', how will you do that?

It was emphasised that this WP has the strongest links to WP6 (Knowledge Transfer) and the UAG.

- ❖ UAG pointed out that Management Strategy Evaluation cannot be carried out for all drivers and situations. It would be important to narrow early on where MSE will be applied and why. **ERG (29/10/09):** Following from the WFD Article 5 analysis and the 2012 MSFD 'Initial assessment' approach, it could be done for areas at risk of failing the 'good status' policy objective?
- ❖ It was suggested that a specific example should be selected and run through the MSE system as a test case.
- ❖ Indicators are crucial to the work of WP5, these must be selected carefully. UAG pointed out that ICES and JRC are preparing a set of reports on indicator to define "good environmental status". These would be very useful for MEECE.

ERG (29/10/09): TOTALLY!! I also think that there should be MEECE representation in the MSFD Common Implementation Strategy, possibly at the Marine Strategic Coordination Group. This would help to keep abreast of 'policy needs' and policy development with regards the MSFD but also, to a lesser extent, the Integrated Maritime Policy (e.g. EMODNET, which is mentioned below) and, to an even lesser but still valuable extent, with the CFP reform. It would also be key for dissemination, for linking with stakeholders etc.

- ❖ GJP indicated that some specific examples are already available (e.g. Baltic). It was pointed out that such an example could be the focus of a Fact Sheet. *Action: JH to contact GerJan Piet (WP5) (cc Icarus Allen).*

7. WP6: Knowledge Transfer and Outreach by Manuel Barange

MB introduced the main objectives of WP6:

- Develop strategies and tools to transfer knowledge arising from MEECE to user groups.
- Use web-based tools and printed materials to facilitate KT and outreach.
- Coordinate users inputs to MEECE through a User Group.
- Train next generation of modellers.

The following Tools and Strategies to be used were identified:

- Web pages
- Fact sheet series (and electronic updates)
- Coordination of inputs from User group
 - Contacts Database
 - UAG
- Website on marine world's ecosystem status – work carried out by WP5

ERG (29/10/09): Really? This sounds very ambitious. I though MEECE was only European. At which level of 'resolutions' will this be done? How does it fit with the work of Halpern, 2008 and 2009?

- Modelling Summer School

Closed discussion of UAG

In this first meeting of the UAG the discussions were centred on two specific issues:

- Provide advice to MEECE to improve the relevance of the results to the user community.
- Identify synergies and complementarities in the work of the UAG member's Institutions.

The following points were raised:

- ❖ "Modelling" results alone cannot provide advice – a context is needed and an active UAG can provide some of this policy context. **ERG (29/10/09):** Not only a context is needed, but beyond: For MEECE to go down into 'management measures' as much as possible.
- ❖ Sharing of results is still weak across European projects, resulting in duplication of work and missing important gaps. There is a strong need to ensure effective dissemination. **ERG (29/10/09):** YES! But what to do about it that really improves the situation?
- ❖ Whilst the Model Library (WP2 output – see point 3 above) may not directly influence policy making, it would be very valuable to particular expert groups (e.g. ICES working Groups). Expert Groups can in turn provide feedback. *Action: JH and WW to identify ICES expert groups that could benefit from MEECE model library factsheet.*
- ❖ ICES/JRC work on indicators could provide information for prioritisation of modelling runs for MEECE. This could also be the focus of a MEECE Fact Sheet. *Action: W. Wawrzynski to circulate ICES report when available (expected March 2010).*
- ❖ A key challenge for MEECE is how to paint a simple picture of their modelling activities for the end users who may have limited understanding of how models work and what information they can provide. MEECE needs to show out model outputs can be used in policy development and also explain their limitations.
- ❖ There were discussions as to the connectivity of MEECE with society's urgent needs. For example, can MEECE address some of the following questions:
 - What ecosystems will exist in future?
 - What fish species will there be and what will their spatial distribution be?
 - What level of exploitation will be sustainable?

It was noted that MEECE seems to have little focus on Marine Protected Areas. This is a key issue and a very hot topic at present: **ERG (29/10/09):** Similarly deep-sea ecosystems....

Can habitat destruction be considered in MEECE modelling scenarios?

- ❖ Data issues: data exchange, availability etc. is currently a major issue for scientists at European level. For example: EMODNET (European Marine Observation and Data Network) a network of observations, uses a range of technologies, sensors, platforms to monitor marine environment. The data is made available to data managers and then end users in most efficient way possible. What is MEECE's perspective on this?

Is there data sharing program? How can data be fed into other programs? What access to datasets is required? Some specific issues were flagged:

- How data access was being handled within the project?
- How are issues with incompatibility being overcome?
- Does MEECE have all the historical data it requires and how is this source?
- How are differences in methodology dealt with?
- Are people only using data that is easily available, what if some data is being missed?

It was discussed that a position statement (or/and Fact Sheet) on Data issues be prepared by the Consortium (see point 2 above).

- ❖ Could MEECE 'stress-test' specific policies? Examining the "do nothing" principle versus the impact of different policies could be very interesting and of great relevance to policy makers. Is this something to be done with in WP4? This may further help in defining scenarios within MEECE and force the rationale behind scenario development. **ERG (29/10/09):** Again 'policies' means nothing. It should be policy or better (policy-derived) management measures that should be considered if MEECE wants to be useful.
- ❖ **Scenario development** – This was discussed following on the questions during plenary. Decision makers prefer to have two or more potential scenarios to explore. It is useful to have predicted outcomes of potential policies. Could MEECE scenarios be set up to reflect habitat destruction, potentially modelling urban development?
- ❖ There was considerable discussion on the **target level** of MEECE, and the importance to address national, regional and global levels as well as European. National challenges will be different in every country and so will need to find a suitable entry point to get the MEECE message across. MEECE is taking a regional approach to its work, but issues for which there is national devolution of policy implementation, require national-level input. MEECE does not seem to have thought this issue through enough. Following on the above point, the setting of targets in EU policy making is sometimes left at national level, and MEECE could assist those countries setting targets. **ERG291009:** *Too ambitious? I would leave it at European regional sea level. Nevertheless, the link to global would be very important for high seas' and integrated management of the whole sea/ocean. Are you familiar with the UN 'Assessment of Assessments' towards a Regular Process for reporting on the state of the marine environment? For the MSFD, countries will have to come up with their own, specific national indicators and targets to evaluate progress towards 'good environmental status'; much of that would be very political (?). I doubt that MEECE could influence them all in all countries. It is better to focus at the European and regional sea level and this is why the MSFD CIS, as suggested above, is a good entry point for dissemination (see what I wrote under point 6).*
- ❖ Could MEECE help in calculating policy compliance? Regulations are generally outcome based, so tools that help to identify whether a measure taken in one way or another way would have a similar outcome would be useful. This may help Member States find solutions which can take into account their specific needs. **ERG (29/10/09):** See above plus legal compliance should be the exclusive competence of the European Commission. You could do it as a 'shadow' type of work but, as I said, too many indicators, targets and countries....plus the fact that. If I have understood correctly, MEECE will not cover all the topics covered by the MSFD, the IMP and the CFP so it would only be partial compliance anyway
- ❖ Impact Assessment: there is a growing need for project outcomes to be related to societal and economic impact assessments. MEECE's function in this context needs

to be made explicit. This is not currently in project, but could identify ways of linking research with the assessment processes to feed into impact assessments.

ERG291009: Indeed, for me an 'impact assessment' of a plan or a project is a type of 'management measure' in a way.

- ❖ **There was some discussion regarding strategic project objectives, and particularly considering that the Marine Strategy Framework Directive (MSFD)**¹ will be revisited every few years. MEECE could be one of the tools to help re-define the objectives in the next cycle (2015), as part of its legacy. Over the coming year Member States need to translate indicators into measures that will be taken and rolled out in 2015. From 2015 onwards the timing of this updates will be in line with updates in the Water Framework Directive. While it may already too late for 2015, MEECE could offer input to the 2021 version as **a support tool in the life cycle of strategic marine directive**. This would see MEECE outputs going straight into policy making.

ERG (29/10/09): There are 2 ways in which MEECE could 'help' (but check dates are correct):

a) Supporting the repetition of the 2012 'initial (baseline) assessment' (DPSIR & cost of degradation), which would be a wider, 'state of the environment'-type assessment than that linked to the 'good environmental status' indicators. It is a national responsibility but it could be carried out at the regional level or at least very well coordinated at that level. MEECE to help put 4 regional pictures of that, one for each sea would be very useful. Needs to link to the work of regional sea conventions...

b) Influencing the programmes of measures (which are part of Marine Strategies), which would contain the management measures (the ones I've been mentioning all along) required to get to 'good environmental status' (based on the 2012 'initial assessment the first time and then on the repetition of that as a context but mostly on the indicators and targets towards 'good environmental status'). The targets and indicators are national but there could be some regional coordination via the of regional sea conventions.

- ❖ In general it was discussed that there is not a clear description of target audience for MEECE e.g. is it authorities or the scientific institutes that advise them? Unclear whether private enterprises are targeted? The interfaces between science and users (i.e. how will the final product be delivered to the target user group) are unresolved. In this context, would a workshop/meeting specifically for end users be useful? **Action: JH and MB to prepare a short statement to clarify the target audience of MEECE with regards user communities.**

The discussion also noted synergies between MEECE and the objectives of the Institutions of the members of the UAG. These are worth noting:

- ❖ The major role of ICES is to provide advice to policy makers therefore the outputs of WP5 will be of great interest to them.
- ❖ **ERG (29/10/09):** That WP will also be the most relevant for the EEA. Thus, the European Environment Agency (EEA) is an agency of the European Union. Our task is to provide sound, independent information on the environment, including Europe's

¹ Directive 2008/56/EC of the European Parliament and of the Council of 17 June 2008 establishing a framework for community action in the field of marine environmental policy (Marine Strategy Framework Directive) *OJ L 164, 25.6.2008, p. 19–40.*
<http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:32008L0056:EN:NOT>

seas and coasts. We are a major information source for those involved in developing, adopting, implementing and evaluating (the effectiveness of) environmental policy, and also the general public. Currently, the EEA has 32 member countries (cf. <http://www.eea.europa.eu/about-us/who>)

- ❖ The Marine Board-ESF convenes Expert Working Groups (<http://www.esf.org/publications/position-papers.html>) on marine science areas of identified strategic importance. These Working Groups produce position papers which examine the state of European research effort, develop strategy and foresight and define future research priorities for the specific scientific area. The target audience for these position papers are policy makers, program developers (at both national and EU level) and the marine science community itself. A Marine Board Working Group is currently being put together to develop a position paper on Marine Protected Areas (MPAs). The activities and outputs from MEECE would be very interesting for that Working Group and particularly for the strategic analysis of European policy with respect to MPAs. It was suggested that MEECE may benefit from reference to some completed position papers and provide input to current and future papers of relevance. Working Group experts are normally identified by the national Member Organisation Delegates. UK Delegates include Ed Hill of NOCS and Mike Webb of NERC. **Action: Niall McDonough to send list/ copies of position papers that would be of interest to MEECE.**
- ❖ The ESF Marine Board also produces high level papers called 'Navigating the future' – now in its third edition this paper looks at priority areas and identifies key strategic areas in Europe. The European Commission uses these in future planning, for example the earlier 'Navigating the future' papers were used in the development of FP7. 'Navigating future IV' is currently in the planning stages set for publication in 2011. Potentially some of outputs of MEECE could feed into this paper by providing information on the current state of play in the modelling community and how model outputs are being put to use.
- ❖ Plan Bleu noted that some of the main issues in the Mediterranean Action Plan include; urbanisation, tourism, agriculture (including fishing and aquaculture), environmental statement. Plan Bleu can provide some contextual information about their past and prospective regional trends if needed, to feed scenario. Could MEECE reflect those concerns and provide input such as determining the kind of future ecosystems, their abundance/vulnerability, their spatial dispersion?

Future of the UAG

It was suggested that the next meeting of the UAG should coincide with the first MEECE Science meeting to be held in Crete, 1-4 February 2010. **Action: JH and IA to consider this in the planning of the Science Meeting.** It was suggested that the group could be expanded to include additional end users such as fisheries managers.

Other advice from UAG to MEECE

High level platforms

- Strategic Committee on Maritime Issues, meets every 4-6 months, would it be appropriate for MEECE to try reporting directly to them?
- EUROCEANS 2010 conference (October, evening event for MEPs in European parliament, Ed Hill speaking). Then two days in Ostend. The meeting allows the marine science community to get together with a focus on policy. Currently identifying topics for working groups and presentations. Indicators are one of these topics. Could MEECE get involved?

- European maritime day – 20th May? Should be in Spain next year. It would be possible to ask for a side event.
- Two technical specific comments to feed to MEECE:
 - Could modellers try and use shortest time scale as possible – so that results are more easily fed into policy?
 - Scenarios discussed so far have been set mainly by IPCC SRES. However, these are currently being revised. MEECE needs to think carefully about relevance of scenarios before they are selected, or have a good reason to stick to outdated IPCC SRES.
- **ERG (29/10/090):** See comments above regarding MSFD CIS.

Future Strategic input to policy

- Harnessing ocean energy is a very competitive area currently undergoing rapid development in technology. Many countries are looking at quite large offshore installations which will have an inevitable impact on marine ecosystems. The onus is on marine science community to ensure this is done in the least harmful way. There is a unique opportunity to influence this process before it starts to help ensure it is sustainable. Can MEECE get involved in this?
- Although this is beyond current remit of MEECE, its set of models provides a legacy that could be used later on to assess alternative uses of the marine environment. It should be an aspiration of MEECE to pan the way for this to happen at a later stage.

Agenda

- 10:00 **1. Welcome and Introduction** Manuel Barange
Introduction to the meeting, role and objectives of the UAG
- 10:20 **2. General Overview of MEECE** Icarus Allen
- 10:40 **3. Advanced Modelling (WP2)** Mike St John
- 11:00 **4. Ecosystem response to climate change and acidification (WP3)** Icarus Allen
(on behalf of X. Irigoien)
- 11:20 **5. Ecosystem response to direct anthropogenic drivers (WP4)** Marco Zavatarelli
- 11:40 **6. Implications for resource management (WP5)** GerJan Piet
- 12:00 **7. Knowledge transfer and outreach (WP6)** Manuel Barange
- 12:15 Discussion and questions
- 12:30 Lunch

Parallel sessions:

- 13:30 **8. Closed session of UAG**
Short presentations from UAG members highlighting their organizations main activities and interest in the MEECE project would be most welcome.
- 13:30 **9. Management meeting for WP leaders**
- 16:00 Meeting close
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