

## Council Strategic Initiative on the Marine Strategy Framework directive and Ecosystem Approach (CSIMSFD-EA)

The Council Strategic Initiative on the Marine Strategy Framework Directive and Ecosystem Approach (CSIMSFD-EA) has proven to be a useful fora for highlighting the important ICES contributions in the Ecosystem Approach field, such as responding to the science needs for the EU's Marine Strategy Framework Directive. The group has been able to engage across the ICES community and engage on issues such as seafloor integrity and integrated monitoring.

During 2017 CSIMSFD-EA has been without a Chair. Simon Jennings, SCICOM Chair, and Mark Dickey-Collas, Ecosystem Approach Coordinator have been supporting relevant work in the absence of a Council delegate Chair.

With ICES having established itself as a player within the field of Ecosystem Approach, there is a need for the CSIMSFD-EA to also consider issues such as involvement of new expertise, and linkages at national and international levels with relevant activities.

*Action: Council is requested to agree on a chair for the CSIMSFD-EA. The first task of the chair will be to update the ToRs, for submission to Council delegates for approval.*

Council delegates are invited to express their interest to engage with the CSIMSFD-EA.

### Existing Terms of Reference

1. To identify the principal elements of ICES work that are relevant to the implementation of the MSFD, and to consider how best to achieve the internal coordination of these elements.
2. Maintain strategic oversight of how current or new working arrangements with strategic cooperation partners, principally the European Commission, OSPAR, and HELCOM, may be best used to link the ICES Science and Advice structures to those of the Regional Seas Conventions so that ICES can provide appropriate input to the continuing MSFD process.
3. To consider how ICES can best contribute to the development of (a) integrated surveys and monitoring in support of the MSFD, (b) programmes of measures, c) integration across indicators, and d) cumulative effects.

4. Develop a strategy that encourages expert working groups under both the advisory and science committees to contribute to producing high-quality MSFD advice products.
5. . To create the opportunity to co-convene an MSFD related symposium in 2014/2015 with recipients of ICES advice and interested collaborative partners.

**Background Information**

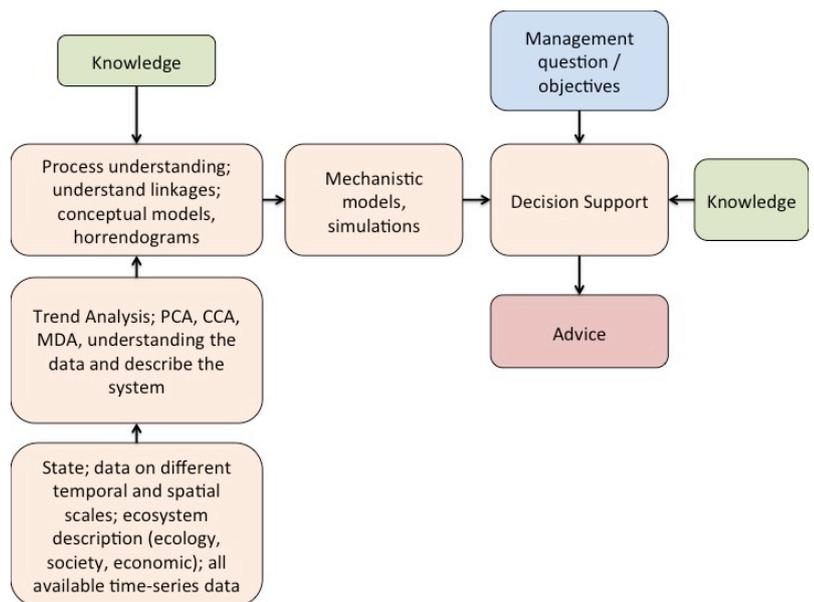
In 2015, Council agreed to rebrand and broaden the mandate of the CSG MSFD as a Council Strategic Initiative on the MSFD-Ecosystem Approach (CSIMSFD-EA).

**ICES work on the MSFD and Ecosystem Approach:**

**a) Atlantic Ocean research alliance (AORA), ecosystem approach to ocean health & stressors working group**

The ICES secretariat supports this working group. The working group has produced a road map of activities required over the next 18 months to create a vision document on research needs for EBM (see Annex 1). It will run a strategic open session at the ICES 2017 ASC on transatlantic cooperation on the ecosystem approach. <https://www.atlanticresource.org/aora/site-area/aora-cooperation-areas/ocean-health-stressors-working-group/aora-ocean-health-stressors>

**b) WKIDEA**  
 Workshop on integrated ecosystem assessment methods (WKIDEA) found that the methods and processes across the IEA groups (integrated ecosystem assessments) are beginning to converge.



### c) Communication ICES and Ecosystem Based Management

ICES has produced a document on its approach to providing the knowledge base for the ecosystem based management. This has been used to create a flyer for circulation.

<http://www.ices.dk/news-and-events/news-archive/news/Pages/Explaining-ICES-approach-to-ecosystem-based-management.aspx>



### d) MSFD roadmap and advice

DGENV has asked ICES to prepare a roadmap of potential research for the next 2 years to support the development and implementation of the MSFD. The work should focus on aggregation methods, testing indices and considerations of Good Environmental Status (GES). ICES has been asked to lead on commercial fisheries (D3), foodwebs (D4), seafloor integrity (D6) and assist with data management for underwater noise (D11). ICES is expected to work closely with JRC (EU Joint Research Centre) and this includes making a substantial contribution to the work on biodiversity of species and habitats (D1). All work flows into the Common Implementation Strategy (CIS) of the MSFD through WGGES.

ICES is currently answering requests on the demography of fish populations (D3C3) and seafloor integrity and catch (D3 and D6).

#### Examples of ICES MSFD Advice provided to date:

- Guidance on operational methods for the evaluation of the MSFD criterion D3C3 (second stage 2017)

[http://www.ices.dk/sites/pub/Publication%20Reports/Advice/2017/Special\\_requests/eu.2017.07.pdf](http://www.ices.dk/sites/pub/Publication%20Reports/Advice/2017/Special_requests/eu.2017.07.pdf)

- Guidance on the most appropriate method to aggregate species within species groups for the assessment of good environmental status for MSFD Descriptor 1 [http://www.ices.dk/sites/pub/Publication%20Reports/Advice/2016/Special\\_Requests/EU\\_Guidance\\_on\\_method\\_to\\_aggregate\\_species\\_within\\_species\\_groups\\_D1.pdf](http://www.ices.dk/sites/pub/Publication%20Reports/Advice/2016/Special_Requests/EU_Guidance_on_method_to_aggregate_species_within_species_groups_D1.pdf)
- Guidance on the practical methodology for delivering an MSFD GES assessment on D3 for an MSFD region/subregion [http://www.ices.dk/sites/pub/Publication%20Reports/Advice/2016/Special\\_Requests/EU\\_Guidance\\_on%20MSFD\\_D3\\_assessment.pdf](http://www.ices.dk/sites/pub/Publication%20Reports/Advice/2016/Special_Requests/EU_Guidance_on%20MSFD_D3_assessment.pdf)

#### **e) PAME and ICES**

ICES took part in the Arctic council PAME/CAFF/AMAP conference on ecosystem approach to management in the Arctic in August 2016. There will be follow on workshop centring on best practice for integrated ecosystem assessment of the Arctic Ocean, in winter/spring 2018. ICES has been invited by PAME to formally join the workshop.

#### **f) Automated products**

The first fisheries overviews are now close to publication and Council funding is currently being used to develop automated community indicators (e.g. large fish indicator) for various ICES ecoregions. The first products are expect in late 2017.

#### **g) WKIrish**

A series of workshops, initiated in 2015, focussing on improving single-species stock assessments (principally cod, haddock, whiting, plaice, herring), incorporating a mixed fisheries model, and developing the integration of ecosystem aspects and working towards an integrated assessment and advice. <http://ices.dk/community/groups/Pages/WKIrish.aspx>

#### **h) ICES advice for an ecosystem approach to fisheries management in the European Union**

A new article in the ICES Journal of Marine Science provides a useful contribution and analysis of ecosystem approach to fisheries management in Europe and the ICES role in the process. Published by the MAREFRAME project. <https://academic.oup.com/icesjms/article-abstract/doi/10.1093/icesjms/fsx181/4344803/Do-not-shoot-the-messenger-ICES-advice-for-an?redirectedFrom=fulltext>

## Annex 1. Selected information from the AORA Working Group on the Ecosystem Approach to Ocean Health and Stressors.

The working group proposes an 8-step roadmap for the following 18 months as a forward looking opportunity. The steps cover vocabulary, stakeholders, mandates, linking sectors and ecosystem, identifying gaps in knowledge and take up of science, tools for EBM, communication and research priorities.

### Overview of tools available for EBM trade-off analysis.

Tool	Use Level	Data requirements	Strengths
Mental Modelling	Heuristic	Low	Developing a shared understanding among stakeholders of key ecosystem interactions
Ecosystem Indicators	Heuristic to Tactical	Medium	Provide context on the status of the ecosystem and information on how management actions might affect ecosystem structure and productivity.
Systemic Reference Points	Strategic to Tactical	Medium to High	Support decision making on a wide range of human actions that influence the ecosystem structure.
Risk Analysis	Strategic	Medium	If developed in a way that incorporates stakeholders, this can be useful for understanding risk-tolerance levels of stakeholder groups, which may inform managers on the acceptability of management actions.
Spatial Planning	Strategic and Tactical	Medium High	Helps to inform where resource conflicts may arise. For resources that are not highly spatially variable, this may be appropriate for tactical decisions.
Trait based and size based modelling	Strategic	Low	Individual and size based ecosystem theoretical models are used to challenge management questions. They are useful to explore future scenarios using different underlying assumptions compared to end to end models. They often result in evidence of alternative stable states and counter intuitive outcomes due to the impact of density dependence.
Models of Intermediate Complexity	Tactical	Medium	Used to make single sector or single species decisions cognizant and inclusive of broader ecosystem considerations
End-to-end models	Strategic	High	Useful for developing a quantitative understanding of the spatial and temporal dynamics of the interactions between biological, physical, and socioeconomic components.

Visualization tools	Heuristic	Variables	Better way to communicate information from which to make decisions
Management Strategy Evaluation	Strategic and Tactical	High	Provides a formal framework for testing management actions and understanding relative changes in biological and socioeconomic components of the ecosystem for given actions.

### **Annex 1 cont. Priority research areas emerging from work of the working group to date**

The working group recognized that several research themes to advance the implementation of EBM emerged. Consistent with common prioritization criteria and national research plans, a suggested list is offered here to indicate probable important research areas in the Galway member states.

- Cumulative effects (relevance of stressor scale will be important)
- Carrying capacity (broadly defined)
- Tipping points/thresholds/non-linear responses
- How to improve the transfer of research to advice to policy and management
- Multi scale adaptive capacity (change is coming, how may society, organisms, ecosystems adapt?)
- Furthering decision-support science to evaluate trade-offs particularly for emerging or non-traditional sectors ex. Biotech
- Best approaches to characterize, quantify and assess the "invisible connections". These are attempts to understand and characterize the invisible fabric of connections among species, physics, process, and human systems of marine ecosystems.
- Stressors caused by distant activities (far field effects)