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International Council for the
Exploration of the Sea

Conseil International pour
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Subject: ICES contribution to the Common Implementation Strategy for the EU
Marine Strategy Framework Directive

General Secretary
Anne Christine Brusendorff

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Dear Joachim,

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ICES would like to acknowledge the opportunity to contribute to the Common Implementation Strategy for the EU Marine Strategy Framework Directive (MSFD). This letter outlines some of the main features of the ICES work, and core competences that ICES could offer in developing the scientific basis for the implementation of the MSFD. Examples are given in the Annexes, outlining ICES contributions within the three listed working areas and priorities for the CIS MSFD beyond 2013.

ICES – marine science and operational core competencies

ICES distinguishes itself by drawing on the experience and expertise of scientists from Europe and North America. It is an acknowledged centre for expertise in assessing living resources and fisheries dynamics and has a proven track record as a provider of scientific advice on a wide range of environmental and ecosystem issues. With regards to the MSFD, relevant and fully operational core competencies are the international coordination of monitoring and survey programs as well as, marine data platforms and standards.

ICES – and advice

With regards to managing living marine resources ICES is a major advice providing body for the European Commission. Here, a well-established, quality controlled advisory system is in place providing regular information on the status of stocks of living marine resources and their sustainable exploitation levels. Presently, ICES works on the development and evaluation of indicators and targets, assessment criteria, ecosystems modelling, peer review and the application of risk based approaches. This work could form the scientific basis for adapting and expanding the advisory system to provide routine advice on environmental and ecosystem indicators relevant for MSFD implementation. ICES has the experience and mechanisms for the flexible delivery of scientifically robust advice on the marine environment.

**Excellence in marine science
since 1902**

To conclude; what can ICES offer?

ICES can provide a common knowledge base of regional importance and contribute to the development of understanding at the scale of specific eco-regions. ICES work links the requirements under the MSFD, as well as national and international obligations which require countries to use an integrated ecosystem based approach in managing how humans use the goods and services provided by the marine environment.

ICES can offer a scientific/expert platform, enabling member countries to cooperate within and across marine eco-regions, pooling their resources in one work process, through a coordinated sharing of tasks within an established network. This will benefit countries both in terms of making efficient use of resources and facilitating fulfilment of their obligations.

The diversity of ICES member countries means that the science developed benefits from a range of perspectives, which is of specific value for the EU Countries for whom MSFD work is relevant. This work also benefits other ICES member countries by developing generically useful products which can be used to inform national marine policies based on ecosystem approach.

ICES work focusses on areas where ICES possesses a unique competence and experience. This includes issues where international cooperation is required and where ICES has a well-established network of experts, including such issues as biodiversity, food webs, habitats and fish populations, ecosystem modelling, risk analysis and evaluation, and cumulative effects.

Last, but not least ICES work is coordinated, and ensures synergies with work carried out in other intergovernmental organizations. In relation to the MSFD, this means coordination and cooperative processes, leading to shared products, with the Regional Seas Commissions, the European Environment Agency, and EU Directorate-Generals (DGs).

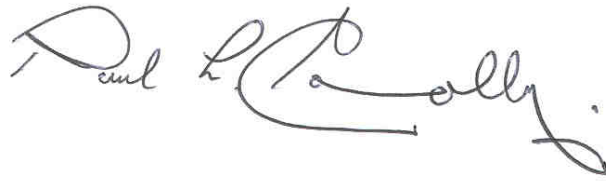
In order to produce routine environmental advice to support the MSFD, similar to the established system for producing advice on fish stocks, it is necessary that the availability of expert resources is ensured by member states. ICES work depends on the nomination of experts to the groups who conduct the work. A pooling of resources through an intergovernmental process is beneficial for all because;

- it ensures efficient use of scarce resources; and
- most issues must be addressed on an ecoregion scale.

ICES is currently working on an internal strategy, as well as with the RSCs, and EEA to explore potential synergies and options to avoid duplication of effort and maximize the use of available resources.

ICES is prepared to present and further explain these ideas and proposals at the Marine Directors meeting in December 2013.

Yours sincerely,

A handwritten signature in black ink that reads "Paul Connolly". The signature is written in a cursive style with a large initial 'P' and a long, sweeping underline.

Paul Connolly
ICES President

Evolution of MSFD related work within ICES, with reference to sections 5.1, 5.2 and 5.3 on the CIS MSFD, dated 12 July 2013

Re. 5.1. Working Area: Assessment and Monitoring of the marine environment

Example 1

ICES furthering integration of fisheries surveys and environmental monitoring

ICES has fulfilled a role as coordinator of international research vessel surveys for more than a century. In such surveys, ICES Member Countries share their vessel pool, and sampling and measurements are carried out according to agreed statistical and methodological procedures with the resulting data shared by the community. The coordinated work is quality controlled and peer reviewed and ensures that the larger vessels are operated as one fleet. This experience and capacity could additionally be used in relation to environmental monitoring, where smaller vessels are also involved with an increasing need for coordination.

The integration between fisheries, maritime, and environmental surveys in support of the ecosystem approach to management is considered a strategic issue for ICES, as this integration is necessary to enable the provision of integrated ecosystem understanding and advice.

In a management context regionalization and eco-regions are the focus, allowing for better coordination and planning at a regional level, and in the case of surveys this should lead to, for example, optimal use of research vessels.

Cooperation and coordination are necessary to ensure the best use of available resources to obtain scientific information needed for implementing the ecosystem approach in fisheries, maritime, and environmental policies. Surveys carried out under national resource legislation, and in the framework of the EU data collection to support the EU Common Fisheries Policy (EU CFP) could be combined with the collection of data legally required under other national policy areas, within the framework of the Regional Seas Conventions, as well as under e.g. the Marine Strategy Framework Directive (MSFD), even when this would lead to a broader data collection, than required by a single legislative framework. This is a matter of efficiency that can be achieved by good coordination and planning by the Member Countries carrying out these surveys.

In view of the limited financial resources available both at regional and national levels, Member Countries must explore the possibility to optimise the use of available funding. This includes, for some Member Countries, the

optimization of the use of funding available from the European Maritime Fisheries Fund.

Only by increasing the efficiency of the cost and labour intensive traditional methods, including development of new technologies for obtaining and analysing the appropriate data, and to address the appropriate temporal and spatial scales with greater efficiency, will it be possible to adequately respond to policies such as the MSFD which present new challenges, to collect and analyse information covering entire ecosystems.

For many years ICES has had a role as coordinator of international fisheries surveys (trawl, TV, acoustic, and ichthyoplankton surveys), more recently ICES has developed training courses on fisheries survey design. In addition to these activities, several ICES expert groups continue to work on the development of guidelines, technical standards, and monitoring techniques, all relevant for the development of integrated surveys. Also, applied work towards integrating surveys continues to be done by ICES expert groups

At regional level coordination of environmental monitoring cruises could ensure greater coverage over the year in a given area. The MSFD demands coherence and coordination at regional or sub-regional scales and ICES could play a role as technical/scientific coordinator emphasizing the importance to consider compatibility and planning between Member States in the design and execution of their monitoring programmes. Cooperation between ICES and the Regional Seas Commissions is vital for the success of any integrated monitoring under the MSFD

More details can be found in the ICES document: http://www.ices.dk/news-and-events/Documents/Themes/MSFD/CM_2012_Del-04.1_surveys_integrated_monitoring.pdf

Re. 5.1. Working Area: Assessment and Monitoring of the marine environment

Example 2: ICES development and service on indicators and biodiversity

From 1998 to 2008, ICES worked on indicators for ecosystem health and monitoring through its advisory committee on the ecosystem (ACE) and the ICES working group on Ecosystem effects of fishing (WGECO). This work led to much of the current indicator-based framework that is used across the world and embedded the use of indicators as tools for the ecosystem approach to marine management. ICES showed that the ecosystem approach puts emphasis on a management regime that maintains the health of the ecosystem alongside appropriate human use of the marine environment. Incremental changes in selected indicators should target an end state and can be used as a guiding mechanism for management. In 2001, ICES formally provided advice on what makes a good indicator. ICES showed that indicators need to detect responses to management action and be practicable. The large fish indicator (LFI) is an example of an indicator that arose from this work and it has since been scrutinised by the scientific community through the fora offered by ICES.

As well as exploring the conceptual challenges associated with indicators, ICES also began proposing operational indicators in 2008. An example of this is the development for OSPAR of the Ecological quality objective (EcoQO) for seabird populations. These have been used by OSPAR since. At the same time as operational indicators were being proposed, ICES researchers began exploring biodiversity indicators and how to further evaluate the performance of indicators.

Reviewing the current outputs of ICES formal advice shows how this development and evaluation work has continued and is being applied to the MSFD. In 2013, ICES provided advice on the use of survey information collected and held by ICES for biodiversity. This advice answered questions for DG ENV on indicators for monitoring the impacts of fisheries. ICES created criteria to evaluate the performance of indicators and applied these to answer a special request from OSPAR, the technical specification and application of common indicators under D1, D2, D4, and D6 of the MSFD. To answer this request ICES reviewed 35 common indicators whose technical specifications had been supplied by OSPAR ICG-COBAM and found that 14 could be considered operational already. The advice also highlighted potential gaps in the suggested approach and commented on indicators for monitoring invasive species. In preparation for further requests ICES is now working with NOAA (USA) to develop indicators for food web structure and function and create a mechanism to assess the indicators proposed.



This concise summary highlights that ICES has the experience and maintains the potential to explore, evaluate and test proposed indicators for environmental status. This service has been developed through conceptual discussions, practical application, and robust evaluation of the performance of indicators.

Re. 5.2. Working Area: Data, Information and Knowledge Exchange on the marine environment

ICES has provided a successful data platform for regional management of the marine environment over many decades. This extends to providing specific data management expertise and services to both the Baltic and NE Atlantic RSCs. ICES has a close relationship to the institutes that undertake the collection of monitoring data, which means it is able to provide an interface between the mechanics of what (and how) data are being collected, and what marine managers require in order to act at a policy level. The establishment at ICES of the regional databases for commercial Fisheries (RDBs) is the latest development that demonstrates ICES ability to manage a semi-autonomous platform over more than one region that specifically addresses the needs of EU policy. Moreover, ICES has worked extensively with the EEA and Commission to develop the article 19.3¹ concept, and therefore has a good understanding of the principles of the Shared Environmental Information System (SEIS), and the future data landscape in Europe.

ICES has a proven track record in developing standards for the assembly and sharing of data, as well as facilitating synergies between regions, and across data types, when it comes to building a reporting framework to address the needs of the science and policy groups who synthesise these information streams into indicators and assessments. Through its work with the EEA and RSCs in relation to the WFD, ICES has already promoted the streamlining of reporting of data (EIONET for example). This concept and initial work on new data sources is expected to be a component of fulfilling the access to underlying data in the MSFD.

ICES is the task lead for WISE-Marine² in its work within the European Topic Centre on inland, coastal and marine waters (ETC-ICM). ICES contributes its knowledge and practical experience in developing data and information portals that span more than one sea region. The wide geographic remit of

¹ “With regard to access to environmental information, Directive 2003/4/EC of the European Parliament and of the Council of 28 January 2003 on public access to environmental information shall apply. In accordance with Directive 2007/2/EC, Member States shall provide the Commission, for the performance of its tasks in relation to this Directive, in particular the review of the status of the marine environment in the Community under Article 20(3)(b), with access and use rights in respect of data and information resulting from the initial assessments made pursuant to Article 8 and from the monitoring programmes established pursuant to Article 11. No later than six months after the data and information resulting from the initial assessment made pursuant to Article 8 and from the monitoring programmes established pursuant to Article 11 have become available, such information and data shall also be made available to the European Environment Agency, for the performance of its tasks.”

² Water Information System for Europe (WISE)-Marine for the Marine Strategy Framework Directive

ICES has built into it an international aspect (beyond the EU member states) that ensures platforms, standards, and protocols are 'outward' looking. This competence is valuable for the MSFD, in regard to neighbouring seas and member states, and will allow the facilitation of their input into MSFD work. In addition, the technical expertise that ICES has gathered through making its own data and information portals interoperable with other European and international portals (i.e. EMODnet³ Biology, World Data Centre US) will be invaluable to the development of WISE-Marine. ICES differentiates itself by the large and active user base that have informed the development of the data portals, and their products. This interaction with the user base, and the methods developed to ensure that the services and products within the data management system address these needs is key to the success and longevity of large cross-sectoral data platforms.

ICES provides large reference datasets through its work with the EIONET⁴ and can provide further advice on the availability of, and the potential use of reference datasets relevant to the MSFD. ICES has already engaged with the RSCs to provide input to the DIKE⁵ technical group, and can leverage this collaboration further as the specifications of what will be required under reference datasets and the workflow processes are elaborated. ICES can contribute further to the INSPIRE⁶ implementation with specific use cases that will ensure the different marine data types are adequately described under the INSPIRE implementing rules. ICES has already provided extensive GIS and content support to ICES member countries, the EEA, and Commission on spatial boundaries and their harmonisation. ICES can also provide further assistance in helping to establish the GIS infrastructure and management tools that will need to be in place to handle the spatial reporting of information, and the viewing and download services that could be a component of WISE-Marine.

ICES has started to develop a concept for sharing data and information between EU/EEA, ICES, and RSCs and translate it in a formal arrangement (e.g. MoU), where necessary. This is done in cooperation with the EEA and RSCs and the first output of this was shown to the DIKE technical group (July, 2013). Where a regional/descriptor template of the data and information workflow was presented that accounts for established mechanisms, but also incorporates newly developing delivery mechanisms. The business process will be further elaborated in DIKE (October, 2013) and a series of workshops are planned for 2014. These will result in a number of workflow schemas that could form the basis for an agreement between the named actors for the

³ European Marine Observation and Data Network

⁴ European Environment Information and Observation Network

⁵ Working Group on Data, Information and Knowledge Exchange

⁶ Infrastructure for spatial information in Europe

provision, assembly and methodology of data products and indicators that relate to the 11 MSFD descriptors.

Re. 5.3. Working Area: Management, measures, economic and social analysis of human activities affecting the marine environment

ICES is currently developing integrated assessments and integrated advice from two angles.

The integrated assessment working groups, which are now established for nearly all ecoregions in the ICES area including the north western Atlantic, are developing assessments which integrate the understanding of marine ecosystem dynamics between marine science disciplines; and the understanding of interactions between human activities and marine ecosystems across economic sectors.

Integrated advice has taken the first steps by expanding the perspective of fisheries advice to incorporate aspects of multispecies interactions into single stock assessments (such as estimates of natural mortality for stocks where multispecies models have been developed). The first examples of integrated advice have been provided in the fisheries advice which presents relevant trade-off considerations for policy makers when making choices between different options in a multispecies and mixed fisheries context. (multispecies in the Baltic and the North Sea; and mixed fisheries in the North Sea). Work has also been initiated to integrate advice across policies. An example is the advice on so called "data-limited" stocks, where a model has been developed to assess if some by-catch species, based on a risk assessment (or productivity-susceptibility analysis), should not be considered from a resource perspective (fisheries in a CFP context), but from a biodiversity perspective are relevant in relation to descriptor 1 under the MSFD. ICES has developed a plan to extend such approaches to all ecoregions.

It has become clear from this work that policy choices between trade-offs will have to relate to societal objectives which go beyond the ecological sustainability of human activities, and that integrated advice ultimately must build on the notion that humans are part of marine ecosystems. An example is the multispecies considerations presented for the Baltic, where the conclusion may be drawn that there is no single F_{msy} option, or a single choice which will be sustainable. Rather, that ecological sustainability defines the boundaries of a decision space within which choices depend on societal priorities in relation to economic and social sustainability. While it is not the role of science to define those priorities, there is a case for such decisions to be informed by research based evidence. In the Baltic case this relates to how the fisheries for cod and pelagic fish are balanced as different choices will have very different implications for the overall yield, the value of fisheries, and the distribution of access to fisheries for different fleet segments and countries. These implications can be quantified in the same way (and probably with comparable uncertainties) as the implications of different choices in respect of the ecological sustainability that are quantified in ICES advice today. The move towards integrated assessments and integrated advice will therefore

ultimately mean that social sciences including economics must be integrated in the assessment and advisory process.

By working with STECF and JRC, ICES can use its expertise in marine planning, and coastal management to examine trade-offs between GES objectives and growth opportunities. ICES offers to participate in the work of the WG MAES in order to contribute to the development of methods to quantify the value of ecosystem services and can capture the links between different goods and services.

As a first step towards integrated assessments ICES is now developing ecosystem overviews which intend to provide a synthesis of those ecosystem drivers which have direct or indirect impacts on human activities, –an overview of the state of marine ecosystems, and information regarding the sustainability of human activities to the extent this is available and/or ICES provides advice on this. This work is intended to stimulate an integration of ecosystem drivers into advice, to help identify knowledge gaps, and prioritise future efforts, as well as to contribute directly to those policy frameworks which are presently developing with requirements for ecosystem assessments such as the EU MSFD.

ICES could use this developing integrated assessment work to help countries make their assessments consistent within a marine ecoregion and to explore scenarios for an overall programme of measures at ecoregion level in relation to targets and risks. Regional sea conventions can help member states with the challenging task of identifying the main interests regarding trade-offs between costs and benefits, and to approach agreements on how an overall programme of measures can be divided into national programmes of measures.

It is crucial that the development of research based advice for the MSFD is conducted through a process which is transparent and results in relevant advice which has scientific and political legitimacy. ICES operates on a daily basis at the science-policy interface and has used that experience to develop transparent and participatory approaches to ensure that policy decisions are informed by scientific advice, which is operational and relevant to policy objectives, transparent to stakeholders, and based on scientific integrity. ICES offers its experience and aims to contribute to the development of research needs in this area.