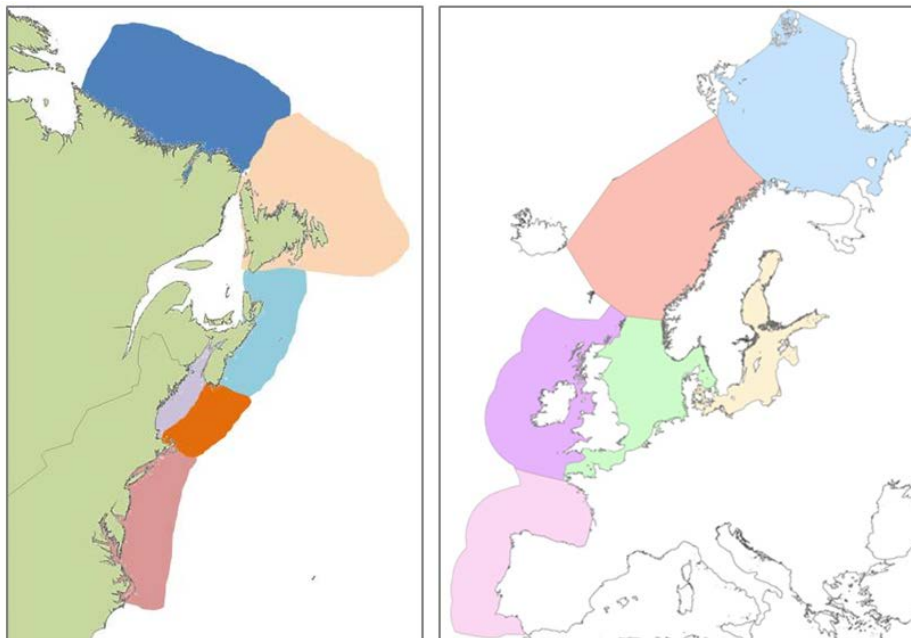


Supply of Operational Oceanographic Products and Services to facilitate Ecosystem Overviews from ICES

The International Council for the Exploration of the Sea is a provider of scientific advice in the North Atlantic on the exploitation and stewardship of the marine ecosystem and marine living resources. Within this role, it is developing integrated ecosystem advice at a regional level which will be appropriate to managers, policy developers and interested stakeholders. As part of this ICES has constructed “Ecosystem Overviews” which describe the trends in pressures and state of regional ecosystems. ICES plans for this advice to be operational, by which it means having a clearly defined business process that outlines the roles, operators, methodologies, timetables and agreed deliveries of services/products that constitute the advice mechanism. These advice processes will require regular inputs of monitoring information on the oceanography and hydrology of the regions. These could be called Operational Oceanographic Products and Services (OOPS).

This call for expressions of interest in providing OOPS to the ICES advice process is aimed at the expert groups in ICES, as well as the MyOcean community and the satellite earth observation community, who produce, or are planning to produce, OOPS. ICES wants to establish working arrangements with these actors that are prepared to regularly supply such information into the advice process. If you, or your organisation, are prepared to offer OOPS to ICES through your existing funding streams, or if you are prepared to work with the ICES Data Centre to make your product operational, please respond to this call. ICES is aware that this is a new mechanism but hopes that this engagement will lead to a robust provision of OOPS to the ICES community.

The regions of interest to ICES are shown in this map (see Annex 1 for listing):



Map of Eastern Atlantic proposed ICES-ecoregions and Western Atlantic hydrographic regions



The requirement specified

ICES requires OOPS that are ideally continuously updated at a given update interval, the minimum requirement would be that by January each year the OOPS is updated with the latest available information. These OOPS could also be called monitoring indices. We acknowledge that indices of the oceanographic state are always a simplification of reality, and of the processes that effect ecosystem functioning. However to aid reporting and ecosystem description, we must make some degree of simplification. The products and services that we envisage will reflect indicators of state of the oceanography and ecosystem.

The data and the derived products will remain the intellectual property of the suppliers. The products will only be used by ICES within the ecosystem overviews¹. The products will be publically displayed through the ecosystem overviews, with full citations of the providers. Alternative uses of the products and underlying data must be pre-agreed with the OOPS providers. This call conforms to the ICES data policy (http://www.ices.dk/marine-data/Documents/ICES_Data_Policy_2012.pdf) that states that:

- Correct and appropriate data interpretation is solely the responsibility of data user
- Data sources must be acknowledged, preferably using a formal citation
- Data users must respect all restrictions on the use of data such as for commercial purposes
- Data users are requested to inform ICES of any suspected problems in the data
- Data users are encouraged to inform ICES of possible sources of relevant information
- The quality assurance of data is the responsibility of the data provider
- Data may only be redistributed, i.e., made available in other data collections or data portals, with the prior written consent of ICES
- Redistribution of meta-data will be allowed

Suppliers of products will receive annual reports from the ICES secretariat on the views and downloads of the ecosystem overviews from the ICES website.

For each region and for each variable, ICES requires one overall index of the state of the sea/region of ocean that can reflect the trends usually at the resolution of months. It will also require up to four spatial disaggregated indices (as considered appropriate by each regional ICES group, see Annex 1). The variables to be considered in the indices are given in Annex 1. It is preferable that this updated operational information must be associated with a 30-40 year time series (or longer). This will allow the current situation to be viewed in the context of recent change. ICES would also like researchers that have developed integrated indices of hydrographic state to respond to the call, providing that those integrated indices have been shown to provide value as monitoring tools.

¹ The overviews will thus provide information of potential sources of OOPS to the ICES community. Experts from working groups can contact the providers to gain fuller access to the underlying data.



The responses to this call will be assessed by an evaluation panel on the basis of:

- use of scientifically acceptable techniques for estimating variables
- responsiveness to the ICES community needs
- quality of data products and supply mechanisms.
- track record of producing regular operational products
- transparency of methodology, and appropriate documentation
- access to underlying data

The evaluation panel will be made up of representatives of SCICOM, WGOOFE, WGOH and the ICES secretariat. Members of the evaluation panel will not be associated with any submitted proposal. One supplier will be chosen for each product. Across the regions, the suppliers may vary although it might occur that one supplier is chosen for a product across a range of regions.

The OOPS that are successful in the evaluation review will then set up service level agreements (SLA's) with ICES for the delivery of OOPs for the next 4 years (2015-2018). These SLAs will be set up with the ICES secretariat. As stated above, funding will not come from ICES, but must come from existing indirect sources.

The indices must be provided by an agreed electronic mechanism, and must conform to known standards and protocols i.e. ISO meta data (19115/19139), OGC, INSPIRE. The indices should have quality labels and be provided with 200 words of interpretation of the patterns observed per index to act as part of a bulletin of oceanographic change in the ICES area. Each bid should describe:

1. scales for integration in time and space
2. definitions of variables
3. data formats and delivery
4. frequency of the updates (e.g. monthly, annual, etc.)
5. Documentation on the quality assurance of the data product
6. Description of the provider

Specific groups and projects that are encouraged to provide time series and operational updates are scientists associated with the ICES working groups WGOOFE, WGOH and WGZE and those working in, or through, the EU funded project MyOcean (or its follow on structure) or from the satellite earth observation community. Respondents to the call can provide subsets of variables or regions requested (ie a specialist in monitoring the timing of spring blooms can offer specific OOPS for spring blooms). In addition, the ICES Data Centre is also prepared to provide support in the assembly and processing of an OOPS, both on a short and long term perspective, should the group/project need additional technical resources beyond its own capability.

This call will close on 4 July 2014, with the intention to start delivery of OOPS by the beginning of 2015. Please respond to the call using the [OOPS application form](#). Send enquiries to OOPS@ices.dk.



Annex 1: List of Oceanographic Variables required in an operational manner by the ICES Integrated Ecosystem Advice process

Annual updates of variables, at a monthly or annual resolution, associated with a time series of at least 30 years. For the following eco-regions:

1. Eastern Atlantic:

- a) Baltic Sea
- b) Greater North Sea
- c) Norwegian Sea
- d) Barents Sea
- e) Celtic Seas
- f) Bay of Biscay and Atlantic Iberian waters

2. Western Atlantic

- g) Labrador Sea
- h) Newfoundland Shelf
- i) Scotian Shelf
- j) Georges Bank
- k) Gulf of Maine
- l) Middle Atlantic Bight

	VARIABLE	DESCRIPTION
1	Sea temperature	Monthly mean, integrated over the water column
2	Water column stratification	timing of annual onset and area by month
3	Nutrients (N&P)	winter concentrations of dissolved nitrogen and phosphorus
4	Oxygen depletions	occurrence and spatial distribution of events
5	Salinity	integrated over the water column, and important events
6	Ice coverage	timing of onset and melt and spatial coverage
7	Estimates of water flux	flux in and out of each region (annual and monthly) and events
8	Spring bloom	timing and intensity
9	Copepods	abundance of the top 6 species by number
10	Copepods	ratio of large to small species