ICES WGOOFE REPORT 2013

SCICOM STEERING GROUP ON SUSTAINABLE USE OF ECOSYSTEMS

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2nd Interim Report of the Working Group on Operational Oceanographic Products for Fisheries and Environment (WGOOFE)

29 April 2013 and 26–27 November 2013

WebEx and A Coruña, Spain

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CIEM Conseil International pour l'Exploration de la Mer

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Executive summary

The Working Group on Operational Oceanographic Products for Fisheries and Environment (WGOOFE), chaired by Rosa Barciela and Bee Berx, is a working group on the user/provider interface of operational oceanography products. WGOOFE develops, maintains and reviews a web-based portal for extant operational oceanographic products for users in fisheries and environmental research (www.wgoofe.org).

Highlights of WGOOFE, during 2013, include:

- A demonstration project, with the Herring Assessment Working Group (HAWG), to assess the usefulness of operational oceanographic data within the ICES ecosystem advice context.
- The provision of advice to Integrated Assessment Initiatives within ICES.
- A draft proposal for coordinated, and formal, provision of operational oceanographic products and services to ICES.
- Development of index-based products of environmental and oceanographic change and variability.
- Reviewing WGOOFE activities, specifically its website and general developments in the operational community.
- Outreach activities such as, among others, the MyOcean2 User Interaction Workshop (April 2013), the GMES Marine User Requirements Consolidation Workshop (October, 2013).

WGOOFE met twice in 2013, once virtually *via* WebEx (29 April) and also face-to-face in A Coruña (Spain), on 26–27 November. The group also worked intersessionally on the development of new products, guided by the above-mentioned discussions.

The rational for WGOOFE

WGOOFE is a working group on the user/provider interface of operational oceanography products. It runs a web-based portal for operational oceanographic products for users in fisheries and environmental research (www.wgoofe.org, Figure 1). It has maintained outreach to users and producers of Operational Oceanographic Products with joint meetings, flyers, articles and a published paper. The web portal now has a working matrix of operational oceanographic products that are categorized based on accessibility and user-friendliness.

WGOOFE met twice in 2013: virtually (29 April) *via* WebEx and also face-to-face in A Coruña (Spain), on 26–27 November. The group also worked intersessionally on the various tasks described in this report.

In 2013, WGOOFE continued progress on its three-year plan, which was agreed during discussions in 2011. In addition to continuing the management of the web-portal, the group made substantial progress on the following work streams:

- A briefing sheet was created for the Herring Assessment Working Group (HAWG) as part of our ongoing collaboration (see section 1 below).
- The provision of advice to Integrated Assessment Initiatives within ICES (section 2).
- A draft call for the formal and coordinated provision of operational oceanographic data products to ICES (section 3).
- Development of index-based products of environmental and oceanographic change and variability (section 4).
- Reviewing WGOOFE activities, specifically its website (section 5) and general developments in the operational community (section 6).
- Outreach activities with GMES and at the ICES Annual Science Conference in 2014 (see section 7).

Figure 1. The WGOOFE web portal.

1 HAWG Request for Briefing Sheets on the Physical and Biological Environment

WGOOFE prepared and submitted a briefing sheet to the Herring Assessment Working Group, following their request in 2012:

HAWG requests the annual creation of a "briefing sheet" de-tailing the current state of the physical and biological environment in the ecoregions that it covers as an aid to generating advice. Suggestions as to the contents and structure of such a sheet are included in the HAWG report. HAWG has discussed this with members of the WGOOFE group, but would also welcome input and ideas from related working groups, e.g. WGOH, WGZE.

This presented a demanding challenge, given the short notice (three weeks) of the request. Despite of this, the briefing sheet (available by request to the WGOOFE Co-Chairs) was efficiently produced. It provided a graphic representation of the requested parameters, as well as a short expert interpretation of the information presented. In the end, the process of collating all the inputs was labour-intensive and challenging for those involved, but forewarning and planning ahead should streamline this activity in future versions. Feedback from the HAWG Chairs was very positive. The main lessons learned were: (i) both groups need dedicated time in order to plan the work, coordinate the inputs to the briefing sheet and provide expert interpretation of results, (ii) wider expert interpretation is needed in the products provided; and (iii) WGOFFE should explore how to streamline this process.

WGOOFE has initiated a wider discussion, with the Working Group on Oceanic Hydrography (WGOH), the Working Group on Integrated Assessments of the North Sea (WGINOSE) and the benchmark Workshop on Sprat Stocks (WKSPRAT), on how our expert groups can best coordinate to provide and meet environmental data requirements effectively. WGOOFE members are also involved in discussions with the Sardine stock assessment group to see how information from operational oceanographic data products can be integrated into their advice.

2 Advice to Integrated Assessment Initiatives within ICES

Within ICES, the Regional Seas Programme coordinates a number of regional expert groups on integrated ecosystem assessments (see http://www.ices.dk/community/groups/Documents/ssgrsp%20diagram%20A3.pdf for more information). These integrated assessment working groups have now also been tasked with producing ecosystem overviews, an outcome from the Workshop on Ecosystems Overview (WKECOVER) held in January 2013 (http://www.ices.dk/sites/pub/Publication%20Reports/Expert%20Group%20Report/acom/2013/WKECOVER/WKECOVER%202013%20report.pdf).

There is now a need to create the products necessary to populate these briefing sheets, i.e. make operational data available to these groups at appropriate regional and temporal scales. Currently some reports exist describing the status of ICESs seas, such as the ICES Report on Ocean Climate (IROC) produced by WGOH, but this is a basin-scale assessment of the North Atlantic, with little information on shelf seas and coastal areas within the ICES region. The WGINOSE has included such an ecosystem overview in their 2013 report, which highlights the products and regions where they expect WGOOFE will be able to assist.

WGOOFE will need to gather a better understanding of the requirements of the different groups and help narrow down which products are/aren't suitable for inclusion.

The group briefly discussed whether we should try to streamline requests so our efforts are aligned for the different groups, but consensus seemed that this would be considered once the workload became too demanding. The group also discussed the potential of the ICES Data Centre to help hold the data products and services created for these other ICES Expert Groups.

3 Operational Oceanographic Products and Services (OOPS) Call

WGOOFE Co-Chairs have been closely working with WGOH and the ICES ecosystem professional officer on a paper focused on the delivery of operational oceanographic products to aid the Integrated Ecosystem Assessment (IEA) process. The paper was submitted for discussion to SCICOM last autumn and it was very well received. It is effectively a call for expressions of interest in order to provide OOPS to the ICES advice process. The call is aimed at the expert groups in ICES, as well as the MyOcean community who already produce, or are planning to produce, relevant OOPS. ICES would like to establish working arrangements with those key players that are prepared to regularly supply such information for the advice process. It is envisaged that this call will be finalized and made public in spring 2014. No funding will be available from ICES.

- WGOOFE discussed the proposed call at the meeting in A Coruña. The main discussion points raised were:
- The lack of a funding mechanism and potential impact on smaller groups.
- The level of detail in the descriptions of the requested data products, such as scales for integration in time and space, definitions of parameters, definition of required products (e.g. trends, indices), data formats and delivery, frequency of the updates (e.g. monthly, annual, etc.),
- The need to have transparent and clear criteria for evaluation (i.e. how will the candidates be evaluated? Could more than one submission be successful? How would overlaps be dealt with?
- The need to have an independent assessment panel to review the responses to the call and make an unbiased decision,
- Clear measures for the evaluation of success (how will ICES evaluate OOPS take-up in the community?),
- Intellectual property rights and data ownership.

4 Index-based products of environment and oceanographic change and variability

During our meeting in Brussels, in November 2012, the group agreed to start developing index-based products to bring to our meeting in Spain in November 2013. The list below is the wish-list developed during these sessions:

- Transport indices on NOOS/BOOS sections
- Temperature/Salinity anomalies
- Fronts (position, strength of gradient)
    - Based on temperature
    - Based on density – Corinna
- Stratification indices
    - Depth of the *-cline
- River plume index
    - Surface area of river discharge
- Nutrient fluxes through key sections
- Contaminant exposure on plankton/benthos
- Timing, duration and strength of blooms
    - Timing – documented by DvdZ
    - Stength – documented by DvdZ
    - Simple calculation – to be documented by DvdZ
- Subpolar Gyre Index
    - 1st EOF of the monthly SLA field in the N Atl – Hakkinen and Rhines
- Upwelling indices – documented in MR product
- Lagrangian indices (Huret *et al*; PrOcean.)

Little progress was made on producing these index-based products, and it is something WGOOFE will aim to develop in 2014.

5 The WGOOFE website

The WGOOFE website remains active, and the group spends some time each year reviewing links and ensuring the portal is up to date. Martin Huret (Ifremer) continued with his efforts in managing the site on behalf of the group. Below is a summary of the statistics on website access over the last 12 months.

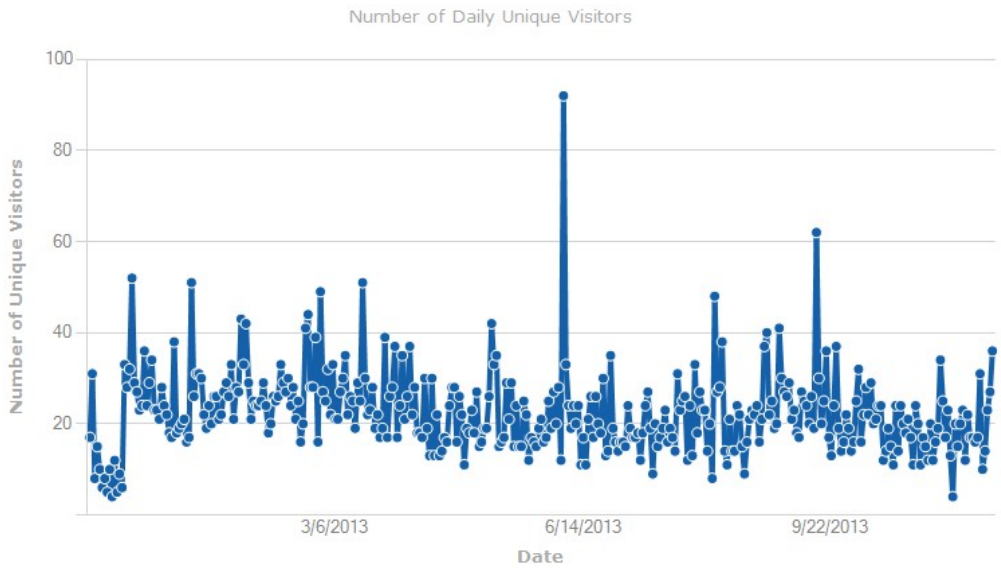

Figure 2. Number of daily unique visitors to the WGOOFE website over the last six months.

In the last 12 months, the site had an average of 22 unique visitors per day, although there are individual days where the number of visitors peaks. WGOOFE think these peaks often correspond to a specific meeting when the WGOOFE website was presented to users.

The top visited pages of the website are shown in Table 1. The homepage which referrers link to is the top visited page, followed by the product matrix (the main WGOOFE-portal product). From the parameters, temperature remains the top visited page, and surprisingly the "fish larvae" page is the second-most visited parameter.

	Page URL (under http://groupsites.ices.dk/sites/wgoofe)	Number of Page Views↓	Percentage of Overall
1	/pages/default.aspx	11,201	57.90 %
2	/operationalocenography/pages/default.aspx	820	4.24 %
3	/operationalocenography/pages/temperature.aspx	454	2.35 %
4	/obj/pages/default.aspx	437	2.26 %
5	/operationalocenography/pages/fish-larvae.aspx	335	1.73 %
6	/operationalocenography/pages/water-turbidity.aspx	328	1.70 %
7	/particletransporttools/pages/default.aspx	313	1.62 %
8	/operationalocenography/pages/salinity.aspx	298	1.54 %
9	/operationalocenography/pages/chlorophyll.aspx	287	1.48 %
10	/operationalocenography/pages/bloom.aspx	270	1.40 %
11	/browsethebulletins/pages/iberian-biscay-irish-sea.aspx	265	1.37 %
12	/operationalocenography/pages/currents.aspx	242	1.25 %
13	/operationalocenography/pages/oxygen.aspx	241	1.25 %
14	/obj/pages/feed-back-form.aspx	240	1.24 %
15	/browsethebulletins/pages/northwest-atlantic.aspx	239	1.24 %
16	/browsethebulletins/pages/default.aspx	236	1.22 %
17	/obj/pages/why-such-a-site-.aspx	233	1.20 %
18	/operationalocenography/pages/mesoscale-indices.aspx	230	1.19 %
19	/operationalocenography/pages/co2---ph.aspx	223	1.15 %

Table 1. Top pages visited. 1: website homepage. 2: matrix of product page.

6 Updates on general developments and new products in the Operational Oceanography Community

WGOOFE received presentations and updates at their meeting in A Coruña on the following:

- New developments and datasets: model results and ADCP (Corinna Schrum, University of Bergen)
- RBINS's operational Oceanographic products for the WGOOFE community (Dimitri van Der Zande, RBINS)
- Ireland area summary (Tomasz Dabrowski, Marine Institute)
- Management of Atlantic Bluefin tuna fisheries Perspectives for application of operational oceanography (Diego Alvarez, SOCIB)
- Updates on NIVA activities (Lars Golmen, NIVA)
- HABs prediction bulletins and the Asimuth project (Manuel Ruiz, IEO Coruña)
- Recent advances by the IEO Coruña coastal/ocean modelling group (Manuel Ruiz, IEO Coruña)
- Operational Oceanography, end-users and social network sites: an explora tory analysis (Luz Garcia on behalf of Pablo Otero)
- From the deep ocean to the estuarine intertidal areas: an operational frame- work for the Portuguese Exclusive Economic Zone (Francisco Campuzano, Maretec)
- PREVIMER: A coastal operational forecasting system and developments of index-based products (Martin Huret, Ifremer)
- Updates from Marine Scotland Science (Bee Berx, Marine Scotland)
- Recent advances in shelf-seas model operational hindcasts and reanalysis (Rosa Barciela, Met Office)

For further details, the reader is referred to contact the WGOOFE Co-Chairs or visit the WGOOFE website.

7 Outreach activities

7.1 ICES Annual Science Conference 2014 special session

WGOOFE submitted a theme session proposal for the ICES Annual Science Conference in 2014 (which will be held next September in A Coruña, Spain). Although originally submitted as a stand-alone proposal, the conveners have been asked to integrate with an open session on "big data". WGOOFE hopes to contribute to the schedule for this open session to continue raising the profile of operational oceanographic data products and their application within the ICES community.

7.2 MyOcean2 User Interaction Workshop

Mark Dickey-Collas attended the MyOcean2 User Interaction Workshop, hosted by the European Environment Agency (EEA) in Copenhagen, on 9–10 April 2013. The group discussed two main subjects related to this meeting:

1) The change of funding within the operational oceanography community.

At the end of MyOcean2, the European Centre for Ocean Monitoring and Forecasting (ECOMF) is expected to ensure the continued delivery of products past the project's lifetime. This will include funding from national governments, as well as through Copernicus (the EU's new GMES funding mechanism).

2) The emerging focus on reanalyses and hindcasts.

WGOOFE has long been advocating the importance of these types of oceanographic data products, so this is a welcome development. This has already been implemented in MyOcean2, but further model simulations will become available in future.

7.3 GMES Partnership for User Requirements Evaluation (GMES PURE) URE Marine User Requirements Consolidation Work

The objective of the GMES PURE project is to define and implement a transparent process for user involvement in the definition of long-term requirements for the Copernicus Marine and Atmosphere Services. Their process covers the definition of user requirements as well as the derivation of service specifications, service data requirements and technical requirements on the observation infrastructure. For more information – the reader is referred to http://www.gmes-pure.eu/index.php for further information.

The GMES PURE team organized a "Marine User Requirements consolidation workshop" in Brussels, 29–30 October. Rosa Barciela, in her role as GMES PURE expert consultant and Co-Chair of WGOOFE, attended this meeting and communicated re- quirements from a large number of users, including ICES. Rosa liaised with ICES Ecosystem Professional Officer (Mark Dickey-Collas) and communicated ICES requirements based on the seminal survey WGOOFE carried out in 2010 and the OOPS mentioned above. These were very well received.

Rosa has also presented the activities and outcomes of WGOOFE at other international fora, such as the International Ocean Colour Science meeting (Darmstadt, May 2013) and the GODAE Ocean View Symposium (Baltimore, November, 2013).

8 Further work for WGOOFE

WGOOFE has made good progress this year towards achieving its ToRs. Specific tasks for next year include:

- The production of briefing sheets informed by ongoing discussions with HAWG, WKSPART, WGOH and WGINOSE.
- The generation of novel index-based products for integrated ecosystem assessment
- Finalizing the OOPS call in collaboration with other relevant ICES groups.
- Co-convene a special session at the 2014 ICES Annual Science Conference
- WGOOOFE plans to meet twice in 2014. The first meeting will be a tele-conference planned for the week starting on 10 March 2014. A second, face to face, meeting is planned for 28–30 October 2014 at ICES HQ (Co-penhagen).
- WGOOFE also plans to meet with WGINOSE on 12–13 March 2014, at ICES HQ in Copenhagen.

Annex 1: List of WGOOFE meeting participants

NAME	APRIL 2013	NOVEMBER 2013	E-MAIL
Michael Ott	X		Michael.Ott@dfo-mpo.gc.ca
Fraser Davidson	X		fraser.davidson@dfo-mpo.gc.ca
Rosa Barciela – **Co-Chair**	X	X	rosa.barciela@metoffice.gov.uk
Bee Berx – **Co-Chair**	X	X	b.berx@marlab.ac.uk
Asbjørn Christensen	X		asc@aqua.dtu.dk
Mark Dickey-Collas (via Webex)	X	X	mark.dickey-collas@ices.dk
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Henning Wehde	X		henningw@imr.no

*** Virtual meeting. All other members either participated in both meetings or the meeting in November only.**

Annex 2: Terms of Reference for WGOOFE 2012–2014

2011/2/SSGSUE06 The **Working Group on Operational Oceanographic Products for Fisheries and the Environment** (WGOOFE) chaired by Rosa Barciela* UK and Bee Berx* UK, will meet at the ICES Secretariat, Copenhagen with WGIPEM, from 12–16 March 2012, and at the EuroGOOS Office in Brussels, 6–8 November 2012, to:

The second year meeting of the **Working Group on Operational Oceanographic Products for Fisheries and the Environment** (WGOOFE) chaired by Rosa Barciela UK and Bee Berx UK, will be held in La Coruña, Spain, 26–28 November 2013.

The third year meeting of the **Working Group on Operational Oceanographic Products for Fisheries and the Environment** (WGOOFE) chaired by Rosa Barciela UK and Bee Berx UK, will meet back to back with WGINOSE at ICES Headquarters, Copenhagen, from 12–13 March 2014 and then again at ICES Headquarters from 28–30 October 2014

a) Develop, through an iterative process with users, further index based products of environment and oceanographic change and variability for application to and take up by the ICES integrated assessments and advice;

b) Demonstrate, through specific case studies, applications of oceanographic products in integrated assessments and advice;

c) Communicate through various mechanisms, to the ICES community the availability of oceanographic datasets, products and time-series. This should include publicizing and maintaining the WGOOFE website, developing Fact sheets for ICES expert groups and further targeted meetings with groups and workshops;

d) Act as an interface for ICES for multinational projects, networks and organizations on operational oceanographic products, such as MyOcean2, Emodnet, MarCoast2, EuroGOOS and work with producers of the expectations and abilities of users;

e) Liaise with the ICES training committee to develop an appropriate training course in the availability and use of oceanographic and environmental data;

f) Respond to ad hoc requests for advice on oceanographic products for the ICES ecosystem modelling, advisory and ocean observing communities;

WGOOFE will report on the activities of 2012 (the first year) by 1 January 2013 (the second year) by 3 January 2014 and (the third year) by 19 December 2014 to SSGSUE.

Supporting information

Priority	A need remains within ICES to incorporate the field of operational oceanographic products to be able to support fisheries research, assessment and management advice and other ecosystem approach related activities within the organization.
Scientific justification and relation to the ICES Science Plan	**Scientific scope** The priority within ICES to integrate environmental information in research, assessment and advice, relies on operational oceanographic data products fit for purpose. WGOOFE is committed to continue its work to further develop the dialogue between the ICES user community and producers of operational oceanographic data products. WGOOFE

	sees a continued need for its existence to facilitate the communication between the two sides, as well as demonstrate the potential of oceanographic data integration into ICES science and advice. **Science Plan priorities to be addressed** Within the high priority research topics identified in the Science Plan, the work of WGOOFE addresses thematic area 3, entitled ***Development of Options for sustainable use of the ecosystem***, and more specifically, the research topics of operational modelling combining oceanographic, ecosystem, and population processes.
ToR justification:	**Term of Reference a)** Continue the dialogue between users and producers of operational products and will focus its medium to long-term objectives in becoming a fundamental part of the integrated management under the ecosystem approach. **Term of Reference b)** Further development of suitable operational data products to fit the needs of the ICES user community needs to engage users in the work of the WG, as well as operational oceanographers involved in product development. **Term of Reference c)** Available operational oceanographic products are to be used to initiate a dialogue with the users by show casing the potential applications within applied science. **Term of Reference d)** Through its work as interface between users and producers, WGOOFE has the opportunity to influence product development such that it considers the user needs appropriately. **Term of Reference e)** More focused training allows for users to improve their skills in the handling of operational data products they may not be familiar with, while providing data providers a platform to demonstrate the advantages and limitations of their products.
Summary of work plan	**Year 1:** — Transition the WGOOFE website to ICES to be hosted through the SharePoint system. — Inform providers of WGOOFE work in terms of visibility of their operational products and current "rankings" by users. — Establish a focused dialogue with the users, including other ICES WGs to provide a route for inclusion of operational, high-quality data in the integrated management process carried out under the ecosystem approach. **Year 2** — Liaise with the ICES training committee to develop an appropriate training course in the availability and use of oceanographic and environmental data. — Define subject matter for Fact sheets most relevant to ICES Expert Groups and begin the drafting process (outline, …) **Year 3** — Demonstrate the use of operational environmental data in the ICES integrated annual assessments. — Finalize Fact sheets for distribution to relevant Expert Groups
Working Group expected deliverables/ outputs (e.g. publications, datasets, advice, networking tools)	— WGOOFE website hosted at ICES: members of ICES expert groups interested in operational oceanographic data products and their application to science and advice [Spring 2012] — Fact sheets highlighting products, their application within the ICES community (January 2015)
Resource requirements	No specific resource requirements beyond the need for members to prepare for and participate in the meeting, and participation from ICES

	data centre , particularly for the website migration.
Participants	The Group should have participants from international organizations dealing with operational services and/or development of operational techniques, and participants that are identified of users of such products.
Secretariat facilities	None.
Financial	No financial implications.
Linkages to ACOM and groups under ACOM	A close link with WGECO and any other assessment working groups that are trying to integrate environmental drivers into the assessments.
Linkages to other committees or groups	There would be a strong interaction with other experts groups within SSGSUE, as well as SSGRSP and SSGEF. These include WGZE, WGPME, WGHABD, WGOH, WGIPEM and the regional sea programmes. Later also with the ICES Advisory Programme.
Linkages to other organizations	The WG must interact with IOC/JCOMM/GOOS/EuroGOOS (and its regional ROOSes, such as ArcticGOOS, NOOS, IbiROOS) and GMES/GEOSS. The group should also have a close relationship with MyOcean2.