

Modernization of ICES work processes

The document is providing background information under five headings to be used to review and discuss issues related to workload.

The “workload” issue has been a recurring theme in the management discussions of ICES work. ICES has decided on various initiatives to rectify the situation, including reallocations of the core budget, and investments (as opposed to maintenance) from SIF/equity. The document forms the basis to start a discussion and consider what progress has been made and what further changes, if any are needed, to consider the issue “Improved”.

Investments and updates to the system (from 2008)	Benefits to ICES community/clients/secretariat	Costs	Form of Investment and delivery date
Data Collection			
DATRAS governance group	Improved oversight and prioritisation of developments by ICES community		
RCG input from ICES as end user; annual meeting between RCG chairs and ICES	Improved oversight and prioritisation of developments/surveys/data by ICES community/Secretariat into regional coordination of monitoring activities for EU DCF. Leading to a better utilised data collection.		Advisory budget Recurrent
EOSG looking at ecosystem considerations and survey design	Further development of effectively co-ordinated, integrated, quality assured and cost-effective monitoring will lead to better advice and lower costs in the long-term. Even though monitoring methods are increasingly automated, many methods are still ship-based or require ship support, and costs can easily exceed 10K euro per		Core budget

Investments and updates to the system (from 2008)	Benefits to ICES community/clients/secretariat	Costs	Form of Investment and delivery date
	day for larger vessels working offshore, with additional costs for staff time, consumables, sample and data processing. Thus, small investments in procedures can reap significant benefits. Existing programmes often developed more or less in isolation and well before the advent of the ecosystem approach, political pressure to rationalise and the emergence of new monitoring technologies.		
Data management and data processing			
RDB-ES (regional database and estimation system)	Improved quality of data management, documentation, processing and estimation of commercial catch data. Better oversight and timely delivery of relevant input data to an assessment. Regional approach allowing a pooling of effort (from sample design to data product delivery). Key input to Transparent Assessment Framework (TAF)		Equity Several phases, start-up in 2015 and expected completion date 2019
ACOUSTIC	Improved quality of data management, documentation, processing and estimation of acoustic survey data. Better oversight and timely delivery of relevant input data to an assessment. Regional approach allowing a pooling of effort (from sample design to data product delivery). An input to Transparent Assessment Framework (TAF)		In use AtlantOS
DATRAS	Improved quality of data management, documentation, processing and estimation of		Equity – on-going

Investments and updates to the system (from 2008)	Benefits to ICES community/clients/secretariat	Costs	Form of Investment and delivery date
	biological survey data. Regional approach allowing a pooling of effort (from sample design to data product delivery). A key input to Transparent Assessment Framework (TAF)		
CARA: Stock assessment database, Stock information database (SAG and SD.ICES.DK)	Improved quality of data management, documentation of stocks and assessments, processing and automation of outputs. A key component for Fisheries Overviews, MSFD D3 outputs. A key output linked to Transparent Assessment Framework (TAF)		In use Equity Several phases, with start-up in 2012
Ecosystem assessment Data Portals (Noise, Biodiversity, Contaminants, Eutrophication, Marine litter)	Improved quality of data management, documentation of assessment input, automation of data products and indicators. A key service to RSC as clients and could potentially be in ICES Ecosystem Overviews.		In use Core budget and special requests
Transparent Assessment Framework,	Improved quality of data management, documentation of assessment (input, output and methods, versions). Automation of assessment products (input and output). A tool for use, and to be developed, within the ICES assessment community). Reduction of repetitive tasks within WG's. A key service to RSC as clients and could potentially be in ICES Ecosystem Overviews.		Equity 2016- 2020
Quality Control: Source code and documentation management	Improved documentation and shared access to in-line quality control and coding used in ICES products. More efficient for locating documentation for		Core budget and equity

Investments and updates to the system (from 2008)	Benefits to ICES community/clients/secretariat	Costs	Form of Investment and delivery date
(GitHub and QC database)	Secretariat and Community, as well as ability to share effort on tasks on a greater pool of resources.		
Organizational structuring			
Strengthening of Secretariat, SCICOM and ACOM leadership	Active day to day leadership of core areas of work, stronger communication between science and advice, more active communication with network, stronger and more frequent representation of science, ecosystem approach and advice, externally visible ICES leadership of these areas of work.		In place Equity/SIF, advisory and core budget
Ecosystem based approach - Strengthened ecosystem focus in the secretariat	Strengthening the ICES work to provide products of relevance for the application of the ecosystem based approach		Completed Equity
Allocation of all EG in ICES to a Steering Group (i.e. Fish and fisheries Steering Group)	Ensures that all EG are effectively represented in ICES including at the SCICOM Business Group/ACOM Leadership meetings and therefore creates more active links between science and advice. These costs are small in relation to the long-term benefits expected to accrue from strengthening links between science and advice	80,000 to 100,000 DKK to support the SG Chair. One-off short-term cost of a few days staff time to update ICES systems and the website to reflect the change and an ongoing additional	Core budget

Investments and updates to the system (from 2008)	Benefits to ICES community/clients/secretariat	Costs	Form of Investment and delivery date
		workload to the Secretariat of around one week per year to support the SG Chair.	
Website restructure and rebrand			Carried out Equity
Advisory services review			Carried out Equity
Young fisherman at ICES ASC			Terminated Equity
Process Optimization and Network			
RCT	Improved quality of expert resource management in terms of expertise and processes. Better oversight for relevant links between experts, groups and meetings and a 'one-access' point for updating information.		Carried out – still looking into further possibilities of streamlining working processes Equity
Frequency of assessment	Reduction of the annual number of stock assessment to be conducted in support of the advice on fishing opportunities without compromising quality and robustness of advice. More efficient use of available expertise within Secretariat and ICES community.		Advisory budget 2016 -

Investments and updates to the system (from 2008)	Benefits to ICES community/clients/secretariat	Costs	Form of Investment and delivery date
Reopening of advice	Minimizing the number of reopenings of advice will facilitate a more efficient use of available expertise within Secretariat and ICES community.		Advisory budget Negotiation during the revision of the AA for 2018
Training programme and online modules	The Training Programme develops careers, broadens knowledge and expands professional networks of scientists in the ICES network. Training on advice-related topics increases quality of the advisory process.		SIF Equity /unused BlueBridge
SharePoint updates: <ul style="list-style-type: none"> • New community site • ASC – registration, abstract and theme session submissions 			Core budget
MARCOM+			Carried out/project ended Equity
Historical Plankton Data rescue	Recovery of historical time series, quality control and documentation of dataset. Made available under ICES Data policy on ICES website http://ices.dk/marine-data/dataset-collections/Pages/Plankton.aspx		In use Equity/SIF

Investments and updates to the system (from 2008)	Benefits to ICES community/clients/secretariat	Costs	Form of Investment and delivery date
Use and outputs			
CARA: SAG and SD.ICES.DK	Improved quality of data management, documentation of stocks and assessments, processing and automation of outputs. A key component for advice outputs. A key output linked to Transparent Assessment Framework (TAF)		In use Equity
Fisheries and Ecosystem Overviews	Provide an integrated approach to management of ocean resources, providing a description of the ecosystems, identifying the main human pressures, and explaining how these affect key ecosystem components. The fisheries overviews address fishing activity and impacts across ecoregions while ecosystem overviews puts the fishing activities into the context of the trends and status of the marine ecosystem as a whole.		Core and advisory budget 2014 – Developed for several ecoregions and under development for the remaining. Will be updated annually.
Science symposia and Early career scientists conference			Core budget and equity
Strategic Initiatives (currently; Strategic Initiative on Climate Change and Marine Ecosystems and the Human dimension, and	Supports the network to highlight and develop high priority, dynamic and topical science areas, and often to build collaboration outside our existing member countries.		SIF

Investments and updates to the system (from 2008)	Benefits to ICES community/clients/secretariat	Costs	Form of Investment and delivery date
earlier Biodiversity, Strategic Assessment methods, MSFD, and Maritime Spatial Planning)			
OOPS products	Using external projects to improve the availability of relevant and customised data products for use in ICES working groups. Saves Secretariat resource, brings access to data/products that ICES would otherwise not have access to.		EMODnet
Science Fund			SIF/Equity

1 Issues highlighted in Bureau 2016 (Understanding Data Flow in ICES)

ICES would seem to have many of the tools to affect a positive change at its fingertips, however making best use of the tools and making the linkages between the various tools and working practices is really the challenge. The following are an unprioritised list grouped into 3 broad categories outlining suggested issues to look at, improvements and questions drawn from various discussions with the assessment and data collection experts.

1.1 Data collection

1. Fisheries independent data:
 - a. Surveys groups, as the custodians of long lived and consistent time series, may be resistant to changes in the survey design that would potentially improve the ability of the survey to answer current and future needs.
 - b. Survey groups main tasks are to plan and coordinate surveys, develop guidelines/manuals for how to conduct the surveys, improve survey design and address issues related to handling and reporting of data. The groups are in general not linked to the use of the data.
 - c. A greater ownership of DATRAS (trawl surveys) by both the survey groups and assessment groups. Survey groups need to not only ensure delivery to the database, but also provide a standard and well documented evaluation of the data to the end user. Assessment groups need to make use of the standard products and ensure that survey data in their assessments is channeled through this route whenever possible.
2. Fisheries dependent data:
 - a. ICES has no process to coordinate collection of fisheries dependent data. Within EU the Regional Coordination Groups (RCGs) coordinate the collection of data under the DCF.
 - b. Data groups within ICES are developing guidelines for statistically sound sampling.
3. How does ICES ensure that coordination of data collection (fisheries as well as fisheries independent data) occurs within regions? Should ICES take a more proactive role? Can ICES use the RCGs and in case how do we ensure that they cover all ICES ecoregions and involve all Member Countries.

1.2 Data management and data processing

4. Collaborative tools such as the [ICES GitHub](#) can serve the dual purpose of creating transparency (of the methods) and greater ownership of the methods by the experts (as they have direct and immediate influence)

5. Easing access to databases for scientific users of the data i.e. simplified and transparent procedures to access the restricted systems such as RDB.
6. ICES need to be pragmatic and realistic about the data flow process; it is not sufficient to describe and document the data provision, methods of calculation and flow of outputs if this is not how the system works in reality. If some parts of the process are not within the described flow i.e. if an individual survey goes straight from country A to the assessment group this should be made explicit in the description.
7. Shared with data users and data providers, a more systematic understanding of what data sources are being used, by whom, and what is the quality of these data, how access is provided to these data, and when, and where the gaps in provision of data and data products are is important. An 'engineered' approach is needed for at least some of the current data flows, the initiative suggested by DIG to target a few groups to gather this knowledge would be very useful. Without this we may observe (or never realise) the inefficiencies and duplications occurring within the complex interactions of the data flows to assessment groups.

1.3 Data use

8. As highlighted by some of the regional sea approaches, removing individuals (but not data users as a collective entity) from the operational setting of the data flow process helps by focusing in on the data use (the real product required for assessment) and avoids an inoperative process where dependencies are created around individuals in the process.
9. End users are defining their data needs but the routing and the receiver of these information is not apparent; RCMs might be considered an obvious receptor of data needs requirements but: 1) They operate outside ICES and do not represent all ICES member states but only EU Members, and 2) RCMs goal is to coordinate data collection between countries but not to prioritize data needs.
10. In relation to the above; ICES needs to define a simple and consistent way of providing feedback on data needs; this will need to include a clear process to make priorities on data needs.
11. ICES needs to look beyond the CFP framework for data requirements to fulfil special requests and environmental data, which is also an essential and growing part of ICES work.
12. A standard practice should be a quality review of input data as a key task for the assessment and survey WG – and making time/opportunity for this to occur

13. Consistent and specific interactions should be sought out between the survey/collection side and the end user i.e. WGISUR, WKDATR that bring the data survey, data management and end use together. Usually these initiatives are driven from the survey/data management side, but it would be a turning point if this came from the assessment side.
14. Prioritization of data (i.e. what stocks and surveys, and variables are needed, nice to have, nice to have in the future). Currently the prioritisation is done for CFP related data by EU and Member States and for all other data by Member Countries. The process within ICES is not defined and needs a strategic concerted effort. ICES does not perform at the moment any cost-benefit analyses prior to communicating to RCMs. A good starting point would be to have a cost-benefit of what surveys are needed under EC (also including Norway).

For data calls – as a specification of what is required by assessment –time should be devoted to it in an assessment group, and where possible the data providers should be consulted early in the design so it is both realistic and relevant. This avoids time intensive issues later when the data are delivered.