

Progress on pilot project on update assessments, and improvements to RDB and DATRAS

Transparent Assessment Framework (TAF)

“Transparency and participation of an extended peer community are important aspects of Responsible Research and Innovation” – Dorothy Dankel, University of Bergen. Speaking in response to the [Data's Den](#) pitch of TAF at the ASC 2018.

In December 2018, the TAF system goes live and will be presented at the FAO FishForum conference in Rome. This will signal the culmination of three years of design, development, and collaboration within the ICES secretariat and the ICES scientific community. The functionality of the first release of the TAF web application will offer:

- Users can view input data, code, results and plots online
- Each input file and plot will have a unique web address (url) for traceability
- All ICES stock assessments (available in TAF) will have been run on a trusted server
- Changes to input data or code by the stock assessor, will automatically update the assessment result and be version controlled
- Stock assessments can be repeated with new data
- Single sign in using ICES SharePoint username and password, access to specific assessments will be linked to SharePoint group membership

The remaining year and a half of the TAF project will focus on user testing and training, and continued development as the focus moves to full documentation of input data and the development of automated quality control procedures.

The system will make all ICES stock assessment input data, analyses, and results available online. TAF will pipeline the data flow, starting from the ICES fisheries and survey databases and ending by submitting the results to the ICES stock assessment graphs database. By making the analysis open and reproducible, TAF will also make it easier to prepare and run update assessments with a new year of data.

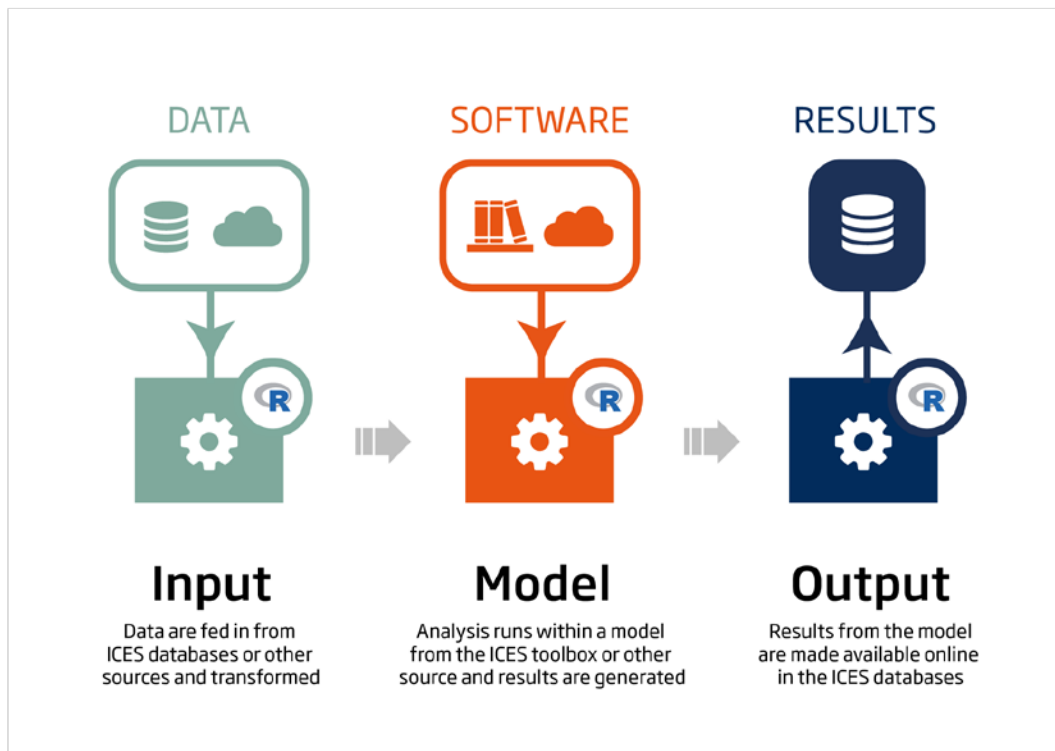


Figure 1. The TAF information graphic.

The project reached an important milestone in early 2018 as the first working groups began using TAF to organize selected stock assessments. There are 20 assessments on TAF today, of which 12 are complete (Figure 2). They include a wide range of assessments in terms of geographical area, the nature of the analysis, starting point of data, and assessment model type. To facilitate the adoption of TAF by stock assessors, the first user documentation has been published, including a tutorial video on YouTube. Furthermore, the TAF developers have attended selected working group meetings to assist stock assessors in person.

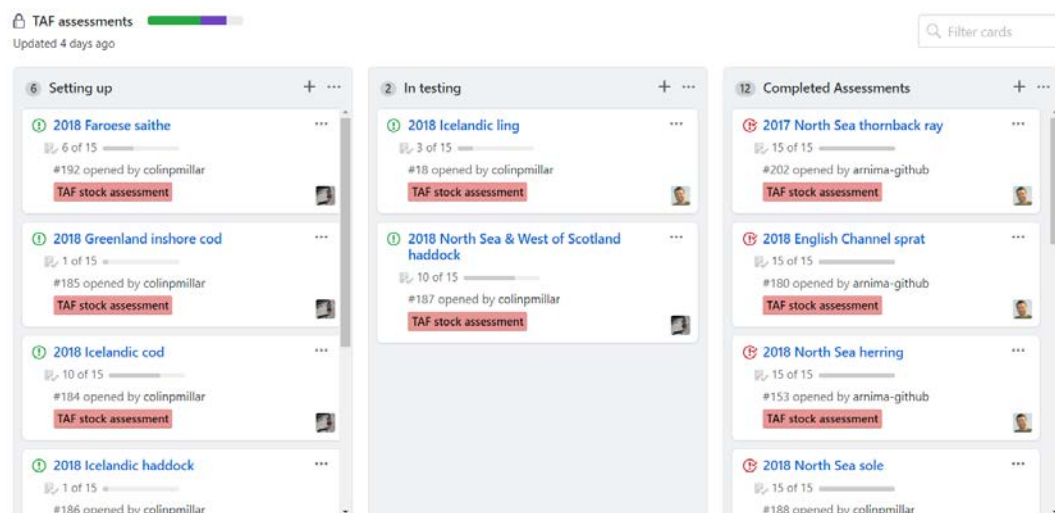


Figure 2. The TAF assessment progress board, publicly available at <https://github.com/ices-taf/doc/projects/2>.

The TAF project has established formal collaboration with developers of two other stock assessment computer systems: Stockassessment.org, developed by DTU in Denmark, which is an online application for running stock assessments in R and is used widely throughout ICES stock assessment working groups; and the REDUS project run by IMR in Norway, which aims to encapsulate all of the processes in fish stock advice to allow the full process to be simulated. REDUS plans to use the TAF framework for their stock assessment and data raising procedures.

Regional Database and Estimation System (RDBES)

There has been good progress on the Regional DataBase and Estimation System in 2018. The RDBES benefitted from a special request from the EU Commission which enabled a number of workshops to take place in addition to what had already been planned/budgeted under the Council investment.

The dynamic data model has been further developed by the Core Group (a subgroup under the Steering Committee of the RDBES). The data structure is now considered stable and has been sent out to the countries for the second time to test and give feedback. The feedback in September 2018 from the countries was positive, it fits the purpose and covers the statistically sound sample design of the countries/institutes that have tested it. However, the data model is now is very complex and covers 32 different ways/hierarchies to sample all species in all countries. This means the development of the RDBES web and database system is not as far as planned, but there has been good progress towards a skeleton structure. It is now possible to maintain the codes in the RDBES using the ICES Vocabulary system for code maintenance, internally import very simple data sample files for all the 32 different hierarchies.

It is expected that during 2019, the user requirement specifications of the whole RDBES is finalised by the Core Group. On the system development side, it is anticipated that the following will be complete at the end of 2019; security module, set up a web site for testing the data file uploads, support the countries testing the upload, data overviews, download and deletion of uploaded data, all checks, a simple version control of the estimation scripts and execution, handling and storage of the estimation results.

It should be noted that the EU Commission has now abandoned the project for a European FishHub, that would have aimed to make detail fisheries dependent data available across all EU countries.

Database of Trawl Surveys (DATRAS)

Enhancement: *Expert revision and automatization of NS-IBTS ALK (age length key) substitution procedure*

Automatization of the substitution has been developed in R - an open source platform. This semi-automatic approach needs to be run for historical data to tune and achieve an even more accurate decision making process for borrowing ALK, and therefore further testing and code amendments are required to finalize.

Enhancement: *ROCKALL and SWC-IBTS data products and indices in DATRAS*

Indices calculation workshop at Marine Scotland in July 2017. DATRAS has implemented new survey design adopted by Marine Scotland after 2011. Surveys splits in two time series pre and post 2011, separate screening rules and calculation method has been discussed and implemented. Age base product calculation developed in R platform and will be part of ICES DATRAS github package.

Enhancement: *LFI *Large Fish Indicator for biodiversity indicator in Ecosystem overviews*

Focus has been on Fish Size Index time-series (proxy of LFI).

A Workshop is planned, chaired by Kai Wieland, expert on NS-IBTS and Henrik Degel, expert on BITS, aimed to fully define the calculation of the swept-area based effort index across surveys and years. For this workshop DATRAS have prepared a protocol to extract an overview of missing data, across surveys and years. The second goal of this workshop is to apply this swept-area effort to the calculation of a fish size index. For this, we have an initial protocol to calculate time-series of Large Fish Index, based on OSPARS indicator method. Once the issues with the swept-area calculation are solved, this protocol will serve as a starting point to test the assumptions of this Index and their impact in different sets of data.

Enhancement: *Compute the estimations for maturity Ogives and provide the data and method on the DATRAS webpage*

This development is still in the planning stage. A second knowledge exchange is planned between Thuenen institute and ICES Data Centre to develop Baltic products as well as to develop generic approach applicable to all surveys. Maturity base product discussion will be part of 2019 IBTSWG meeting, which mainly focusses on North Sea standard species maturity.

Enhancement: *Pilot on automated data harvesting service with IMARES*

In progress, workshop organised in October 2017 at IMARES. Authorisation module which allows data submitter to go through the ICES authentication has been developed and tested. Automated screening and checking on the file submitted by the remote service also tested and application was deployed on the DATRAS server for further checking at <http://datras.ices.dk/WebServices/FileUploadDATRAS.svc?singleWsdl>. Web service synchronisation between python platform to .Net service is in progress at IMARES side.

DATRAS also benefitted from a special request from the EU Commission which enabled a number of workshops (for all ICES countries) to take place to 'unblock' the flow of data to DATRAS from surveys that have yet to provide data into DATRAS, or where there is a need to increase the quality of the data for specific cases in DATRAS.

DATRAS workshops 2018

- 1) The Workshop on DATRAS surveys- Bay of Biscay and Iberian Coast (WKDATR-BoB) met in Copenhagen, 11-13 June 2018 and was chaired by David Stokes, Marine institute Ireland and Vaishav Soni, ICES. Seven participants, representing Norway, Belgium, Ireland and the ICES Data Centre, joined the full meeting
- 2) The Workshop on DATRAS surveys- Bay of Biscay and Iberian Coast (WKDATR-BoB) met in Copenhagen, 4-5 July 2018 and was chaired by Vaishav Soni, ICES. Five participants, representing France, Portugal, Spain and the ICES Data Centre, joined the full meeting

The main goal of this workshop was to collect data which are in the pipeline from many years, as well as to resolve some submission doubts and issues of the data-submitters. Another goal was also to identify and resolve data quality issues in DATRAS, proposing quality check procedures for missing data to be applied during uploading/reloading processes, as well as in already existing exchange data.

Primarily, the participants of the workshop worked towards identifying the issues regarding current missing time-series for exchange data, resolve them, and identify the hurdles. Participant data submitters worked closely with the DATRAS team of ICES Data Centre to resolve their issues, which allowed them to upload the data directly into DATRAS database after applying those changes to their data. Erroneous data and misinterpreted data have been corrected in this workshop.

Row Labels	1965	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Baltic International Trawl Survey								1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Beam Trawl Survey				1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Beam Trawl Survey - Bay of Biscay (VIII)																																			
Deepwater Surveys																							1	1	1	1									
French Channel Ground Fish Survey				1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
French Southern Atlantic Bottom Trawl Survey															1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Inshore Beam Trawl Survey																			1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Irish Ground Fish Survey																				1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Irminger Sea International Deep Pelagic Survey																											1								
North Sea International Bottom Trawl Survey		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Northern Ireland Ground Fish Survey																																			
Norwegian Sea International Deep Pelagic Survey																							1	1	1	1	1	1	1	1	1	1	1	1	1
Portuguese International Bottom Trawl Survey																				1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Scottish Rockall Survey - new (from 2011)																																			
Scottish Rockall Survey - old (until 2010)																																			
Scottish West Coast Bottom Trawl Survey (up to 2010)		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Scottish West Coast Groundfish Survey (from 2011)																																			
Spanish Gulf of Cadiz Bottom Trawl Survey													1				1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Spanish North Coast Bottom Trawl Survey							1	1	1		1			1					1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Spanish Porcupine Bottom Trawl Survey																			1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

Figure 1 DATRAS survey portfolio 1965 to present day