

Transparent Assessment Framework

Status Update

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ACOM Meeting
28 Nov 2017

<http://taf.ices.dk>



Science for sustainable seas

Aim



*To implement a framework to organize **data**, **methods**, and **results** used in ICES assessments, so they are easy to **find** and **rerun** later with new data.*

TAF Plan

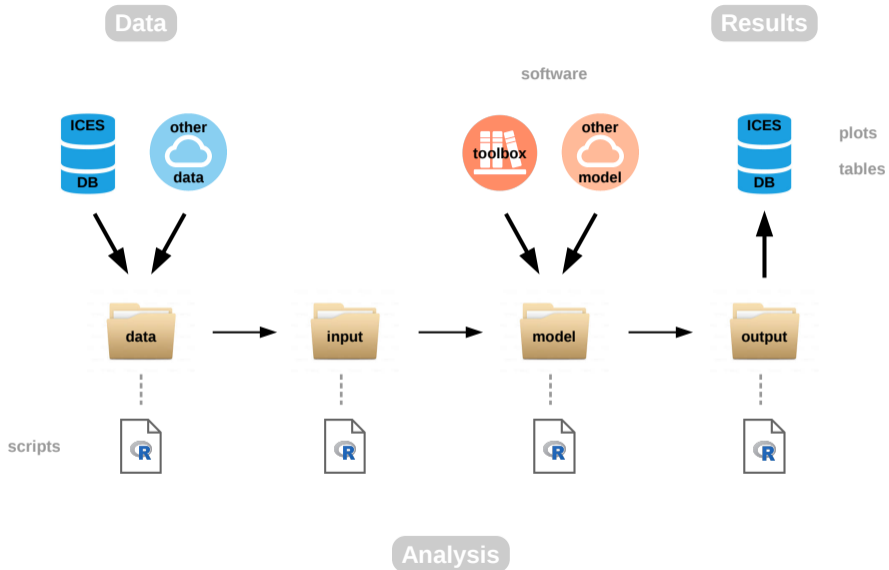


2016–2018

- ▶ Design
 - ✓ *Scientists write standard R scripts that prepare data and run analysis*
- ▶ Implementation
 - ✓ *R packages: work with ICES databases, core TAF functions*
 - ✓ *Web interface where users can browse, modify, and run assessments*
 - ✓ *Example stocks demonstrate workflow: input, model, output*

2018–2020

- ▶ Training
 - Introductory videos, user documentation, collaboration with EGs, support*
- ▶ Deployment
 - ICES assessments enter TAF gradually, around EG meetings and benchmarks*



Workflow scripts



Core

- data.R** - Preprocess data, write TAF data tables
- input.R** - Convert data to model format, write model input files
- model.R** - Run analysis, write model results
- output.R** - Extract results of interest, write TAF output tables

Also

- report.R** - Prepare plots/tables for report
- upload.R** - Upload raw data or model files

Example stocks



Completed and online

- ▶ North Sea spotted ray
- ▶ Icelandic haddock
- ▶ Eastern Channel plaice
- ▶ North Sea cod

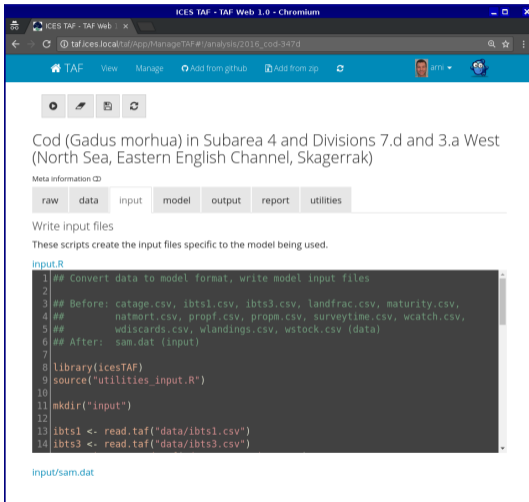
In progress

- ▶ Icelandic ling

Planned

- ▶ North Sea herring

View, edit and run R code online



ICES TAF - TAF Web 1.0 - Chromium

taf.ices.local/taf/App/ManageTAF#/analysis/2016_cod-347d

TAF View Manage Add from github Add from zip

input

Cod (*Gadus morhua*) in Subarea 4 and Divisions 7.d and 3.a West (North Sea, Eastern English Channel, Skagerrak)

Meta information

raw data **input** model output report utilities

Write input files

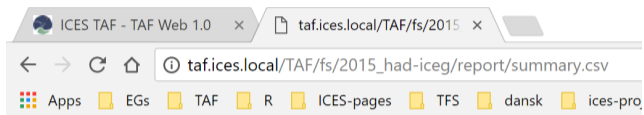
These scripts create the input files specific to the model being used.

[input.R](#)

```
1 ## Convert data to model format, write model input files
2
3 ## Before: catage.csv, ibts1.csv, ibts3.csv, landfrac.csv, maturity.csv,
4 ##         natmort.csv, propf.csv, propm.csv, surveytime.csv, wcatch.csv,
5 ##         wdiscards.csv, wlandings.csv, wstock.csv (data)
6 ## After:  sam.dat (input)
7
8 library(icesTAF)
9 source("utilities_input.R")
10
11 mkdir("input")
12
13 ibts1 <- read.taf("data/ibts1.csv")
14 ibts3 <- read.taf("data/ibts3.csv")
```

[input/sam.dat](#)

Inputs and results available to view or download



Year	Rec	B3plus	SSB	Landings	YoverSSB	Fbar
1979	80923	162177	96072	55330	0.576	0.521
1980	37390	192244	116521	51110	0.439	0.398
1981	10426	206988	141628	63558	0.449	0.542
1982	42788	180380	136817	69428	0.507	0.444
1983	29306	148112	112589	65942	0.586	0.508
1984	20574	112797	82961	48282	0.582	0.515
1985	42788	102394	66652	51102	0.767	0.537
1986	86501	96480	59837	48859	0.817	0.739
1987	164036	105395	46298	40760	0.88	0.584
1988	48742	153708	69391	54204	0.781	0.675
1989	29778	168184	99537	62885	0.632	0.676
1990	27094	145507	110745	67198	0.607	0.611
1991	92280	122708	89825	54692	0.609	0.664
1992	175094	106310	66379	47121	0.71	0.728
1993	38437	130461	71000	48123	0.678	0.669

And can be easily read into R

R Console (32-bit)

File Edit Misc Packages Windows Help

R is a collaborative project with many contributors.
Type 'contributors()' for more information and
'citation()' on how to cite R or R packages in publications.

Type 'demo()' for some demos, 'help()' for on-line help, or
'help.start()' for an HTML browser interface to help.
Type 'q()' to quit R.

```
> read.csv("http://taf.ices.local/TAF/fs/2015_had-iceg/report/summary.csv")
```

	Year	Rec	B3plus	SSB	Landings	YoverSSB	Fbar
1	1979	80923	162177	96072	55330	0.576	0.521
2	1980	37390	192244	116521	51110	0.439	0.398
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12	1990	27094	145507	110745	67198	0.607	0.611

Published assessments accessible on GitHub



ices-taf / 2015_had-iceg

Unwatch 2 Star 0 Fork 0

Code Issues 0 Pull requests 0 Projects 0 Wiki Insights Settings

Icelandic haddock Edit

Add topics

48 commits 2 branches 3 releases 2 contributors

Branch: master New pull request Create new file Upload files Find file Clone or download

colinmillar test change for webhook post Latest commit 985241e 15 days ago

_model	Download model executable from TAF database	3 months ago
_raw	Download catageysa.dat from TAF database -> data, later moved to input	3 months ago
data.R	Use setwd("data") to shorten paths	a month ago
input.R	Sort header files alphabetically	2 months ago
model.R	Sort header files alphabetically	2 months ago
output.R	Extract model results -> Extract results	29 days ago

Bookmark (tag) stages, i.e. end of EG, end of ADG



ices-taf / 2015_had-iceg

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Icelandic haddock Edit

Add topics

48 commits 2 branches 3 releases 2 contributors

Branch: master New pull request Create new file Upload files Find file Clone or download

Switch branches/tags

Find a tag...

Branches Tags

- 2.1
- 2.0
- 1.0

output.R Extract model results -> Extract results

executable from TAF database 3 months ago

ysa.dat from TAF database -> data, later moved to input 3 months ago

to shorten paths a month ago

phabetically 2 months ago

phabetically 2 months ago

Latest commit 985241e 15 days ago

List code changes between stages or between years



ices-taf / 2015_had-iceg

Unwatch 2 Star 0 Fork 0

Code Issues 0 Pull requests 0 Projects 0 Wiki Insights Settings

Comparing changes

Choose two branches to see what's changed or to start a new pull request. If you need to, you can also [compare across forks](#).

base: 2.0 ... compare: 2.1

7 commits 5 files changed 0 commit comments 1 contributor

Commits on Sep 13, 2017			
	arnima-github	Rename report.R -> report_tables.R	21c7d3f
	arnima-github	Add report_plots.R to demonstrate TAF	fb62492
Commits on Sep 15, 2017			
	arnima-github	Download raw data and model executable from github.com/ices-taf/ftp	e5e7093
	arnima-github	Use new download() function	941d8ab

View code changes between stages or between years



Showing 5 changed files with 86 additions and 10 deletions.

Unified

Split

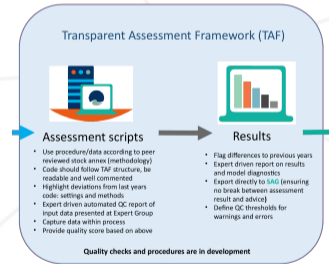
```
2 data.R
@@ -9,7 +9,7 @@ source("utilities.R")
9 9
10 10 mkdir("data")
11 11
12 -url <- "http://taf.ices.local/taf/fs/2015_had-iceg/raw/"
12 +url <- "https://raw.githubusercontent.com/ices-taf/ftp/master/nwwg/2015/had-iceg/raw/"
13 13
14 14 ## Download data, this file will later be moved to input
15 15 download.file(paste0(url,"catageysa.dat"), "data/catageysa.dat", quiet=TRUE)
```

```
5 model.R
@@ -7,12 +7,11 @@ library(icesTAF)
7 7
8 8 mkdir("model")
9 9
10 -url <- "http://taf.ices.local/taf/fs/2015_had-iceg/model/"
```

Quality Control

- ▶ Code should follow TAF **structure**, be readable and well commented
- ▶ Highlight **changes** from last year: code, settings, methods, data and results
- ▶ Expert driven **QC reports** covering inputs, results and model diagnostics
- ▶ Define **QC thresholds** to flag warnings
- ▶ **Directly connecting** DBs → assessment → SAG (advice)
- ▶ Provide **quality score**

TIC-TAQ



Links to other projects



Fishing Pressure - **Shapefiles** for OSPAR and HELCOM - links to VMS DB

VMS data QC - Country level **QC reports** linking to VMS DB

TIC-TAQ* - Tools for ICES Control of Technical (products) and **Assessment Quality**

SmartDots* - **Workshop report** via R markdown linking to SmartDots DB

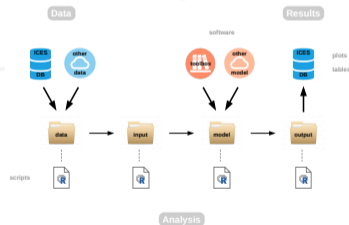
OSPAR MIME* - Webpages summarising station level **environmental assessment**

* under development

Benefits

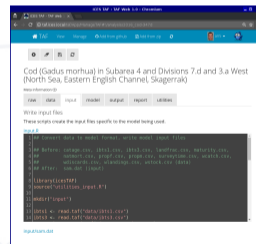
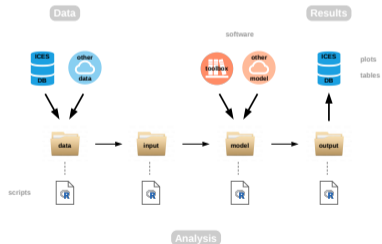


- ▶ Easy to **find data and results** from final assessment
- ▶ **Open** and reproducible science, improved **quality control**
- ▶ Easy for scientists around the world to **get ICES data**
- ▶ Easy to run an **update assessment** next year
- ▶ If scientist **changes jobs**, next person can take over
- ▶ Existing and **future tools** can use TAF services



ACOM perspective and role

- ▶ **Guidelines** on stock assessment workflow
- ▶ **Communicate** upcoming changes to experts
- ▶ Instill a sense of **ownership** and highlight **benefits**



```
cod <- readr::read_csv("data/cod.csv")
plot(cod)

# Create input files
write_csv(cod, "input/cod.csv")

# Create output files
write_csv(cod, "output/cod.csv")
```

Thanks!



Questions?

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<http://taf.ices.dk>