length-based empirical data-limited catch rule

FLR data-limited MSE for ICES WKLIFE

Introduction

This repository contains the Management Strategy Evaluation (MSE) for the ICES data-limited catch rule as presented during ICES WKLIFE VII, VIII and IX. The simulation is based on the Fisheries Library in R (FLR) and makes use of the Assessment for All (a4a) standard MSE framework (`FLR/mse`) developed during the Workshop on development of MSE algorithms with R/FLR/a4a (Jardim et al., 2017).

The repository contains the source code for the work published in:

> Simon H. Fischer, José A. A. De Oliveira, Laurence T. Kell (2020). Linking the performance of a data-limited empirical catch rule to life-history traits, ICES Journal of Marine Science, https://doi.org/10.1093/icesjms/fsaa054.

The state of the code for the publication is stored in release v1.0 (https://github.com/shfischer/wklifeVII/releases/tag/v1.0).

Repository structure

The repository contains the following R scripts in the `R/` directory:

- `OM1.R` & `OM2.R` : Scripts for creating the operating models for 29 data-limited fish stocks,
- `MP.R` : script for running the MSE scenarios and is called from a job submission script,
- `MP_stats.R` : script for post processing the results from `MP.R` ,
- `MP_analysis.R` : script for analysing the results,
- `MP_plots.R` : script for creating plots,
- `MP_functions.R` : script with additional functions, used for creating the operaing models, run the MSE and processing it afterwards,
- `input/` : contains csv files with the life-history parameters used to create the operating models

R, R packages and version info

The MSE simulation was run on a high performance computing cluster:

```
sessionInfo()
R version 3.5.1 (2018-07-02) -- "Feather Spray"
Copyright (C) 2018 The R Foundation for Statistical Computing
Platform: x86_64-conda_cos6-linux-gnu (64-bit)
(...)
other attached packages:
 [1] doRNG_1.7.1         rngtools_1.3.1      pkgmaker_0.27       registry_0.5
 [5] mseDL_0.9.9         foreach_1.4.7       data.table_1.12.2   FLBRP_2.5.3
 [9] ggplotFL_2.6.6      ggplot2_3.2.1       FLAssess_2.6.3      FLash_2.5.11
[13] FLCore_2.6.11.9001 iterators_1.0.12    lattice_0.20-38
```

The framework uses FLR and requires the following FLR packages:

- `FLCore`
- `FLash`
- `FLBRP`
- `ggplotFL`
- `FLife`
- `mseDL` (a fork of the FLR/mse package for data-limited MSE)

The specific FLR package versions as used for the simulation can be installed with `devtools` :

```
devtools::install_github(repo = "flr/FLCore", ref = "d55bc6570c0134c6bea6c3fc44be2037
devtools::install_github(repo = "flr/FLash", ref = "7c47560cf57627068259404bb553f2b64
```

```
devtools::install_github(repo = "flr/FLBRP", ref = "142d5e14137c5ceb4526afd6718c26269
devtools::install_github(repo = "flr/ggplotFL", ref = "9b502a1aa01524637f4f269a3353a9
devtools::install_github(repo = "flr/FLife", ref = "d0cca5e574a77fb52ec607a25c244969b
devtools::install_github(repo = "shfischer/mse", ref = "80b5cf18dc9611f7307f599564ccd
```

Furthermore, some more R packages available from CRAN are required:

```
install.packages(c("foreach", "doParallel", "dplyr", "tidyr", "data.table",
                   "doRNG", "dtwclust", "ggdendro", "glmnet"))
```

Releases 1

Publication Latest
on Jul 20, 2020

Packages

No packages published

Languages

- **R** 100.0%