UNIVERSIDADE FEDERAL RURAL DE PERNAMBUCO

Departamento de Pesca e Aquicultura

PLANO DE ENSINO

PROGRAMA DA DISCIPLINA	
Disciplina: Tópicos especiais: "Applied Data-limited Stock Assessment"	**Código**:
Área: Recursos Pesqueiros e Aquicultura	**Crédito**: 1
PROFESSOR: Dr.Jason Cope (Northwest Fisheries Science Center, NOAA, Seattle, WA)	**Carga Horária**: 15h

OBJETIVOS:

O objetivo desta disciplina é fornecer conhecimento fundamental e prático sobre os modelos de avaliação para dados limitados e explorar a capacidade de uso desses modelos de avaliações de estoques pesqueiros.

The objective of this course is to provide fundamental and practical knowledge about valuation models for limited data and to explore the ability to use these models to assess fish stocks.

EMENTA:

Fisheries are considered data-limited if there are insufficient data to conduct a comprehensive quantitative, model-based stock assessment to estimate time-series of biomass and fishing mortality relative to their reference points. Nevertheless, even with limited data, some aspects of stock status can be inferred. The proposed lectures will provide theoretical knowledge on many data-limited approaches that have been developed to meet an increasing demand for science-based fisheries management of unassessed fisheries where data and resources are limited. Data-limited assessment methods are increasingly used for management purposes to report on the regional status of fisheries across many stocks and to assess the status of individual data-limited stocks as inputs to management decisions.

Thistheoretical knowledgewill be complemented by practical sessions dedicated to apply the previous knowledge and available data to the models as study examples. Also, practical sessions will allow the students to learn how to gather information from different international and national databases, how to visualize and use basics and advanced analyses from the models outputs.

CONTEUDO PROGRAMÁTICO

Course overview:

•Data-limited fisheries management frameworks
- Overview of data-limited methods
- Context and design

•Data-limited methods: theory and examples

•Risk analysis
•Indicator-based methods
•Life history methods
•Length-based methods
•Catch-only methods
•Integrated modelling frameworks

• Pratical sessions:
• DLMTool& Indicator-based methods
• Length-based methods
• Catch-only methods and setting catch limits
• Using Stock Synthesis as a DLM

MÉTODOS DIDÁTICOS DE ENSINO

Aulas expositivas, aulas práticas, discussão em aula.

CRITÉRIOS DE AVALIAÇÃO
FORMAS DE ACOMPANHAMENTO DO ALUNO

Os procedimentos para acompanhamento dos alunos serão por meio da avaliação crítica e apresentação de semináriossobre assuntos científicos da área.

BIBLIOGRAFIA INDICADA:
General, Principles, Theory:

Haddon, M. 2001. Modelling and Quantitative Methods in Fisheries. Chapman & Hall/CRC, Boca Raton, FL. 406 pp.

King, M. Fisheries biology, assessment and management. John Wiley & Sons, 2013. 399 p.

Ricker, W.E. 1975. Computation and interpretation of biological statistics of fish populations, 382 p.

Haddon, M. 2020. Using R for Modelling and Quantitative Methods in Fisheries. CRC Press, 353 p.

Hilborn, R.; Walters, C. J. 2013. Quantitative fisheries stock assessment: choice, dynamics and uncertainty. Springer Science & Business Media. 575 p.

Beverton, R. J. H.; Holt, S. J. 2012. On the dynamics of exploited fish populations. Springer Science & Business Media

. 540 p.

Applications:

Software requirements: R (https://cran.r-project.org/)
RStudio (https://www.rstudio.com/)

Links to tools presented in the course:
Life history parameters Natural Mortality Tool install.packages("shiny", "devtools","fishdynr", "fishmethods", "ggplot2", "reshape2") runGitHub("Natural-Mortality-Tool", "shcaba")
http://barefootecologist.com.au/shiny_m https://github.com/shcaba/Natural-Mortality-Tool

FishLifehttps://github.com/James-Thorson/FishLife
devtools::install_github("james-thorson/FishLife")

vignette("tutorial", package="FishLife")
https://james-thorson.shinyapps.io/FishLife/

Age and Growth
https://github.com/shcaba/VBGF_
IGOR

Framewor
ks
FishPathht
tps://fishpa
th.org/

Adaptive Fisheries Assessment and Management (AFAM) Toolkit https://github.com/SFG-UCSB/afamAppPackage
https://sfg-ucsb.github.io/afamGuidanceDocument/

Risk Analysis PSA
https://github.com/nathanvaugh
an1/PSA

Length-based methods LB-SPR
http://barefootecologist.com.au/lbspr
https://github.com/AdrianHordyk/LBSPR_shiny
https://github.com/shcaba/Stochastic-LBSPR-RPs-CRs

LIME https://github.com/merrillrudd/LIME devtools::install_github("merrillrudd/LIME", build.vignettes=TRUE, dependencies=TRUE) library(LIME)

CC-SRA https://github.com/James-Thorson/CCSRA

DLMtoolhttp://www.datalimitedtoolkit.org/
https://dlmtool.github.io/DLMtool/userguide/introducti
on.html
runGitHub("Shiny_DLMtool",
"shcaba")
https://github.com/shcaba/Shiny_DL

Mtool
https://shcaba.shinyapps.io/shiny_dl
mtool/

Datalimitedhttps://github.com/datalimited/datalimited https://support.rstudio.com/hc/en-us/articles/200486498-Package-Development-Prerequisites http://mcmc-jags.sourceforge.net/ devtools::install_github("datalimited/datalimited")

Datalimited2
https://github.com/cfree14/datalimited2
devtools::install_github("cfree14/datalimit
ed2")

Refined ORCS
https://marine.rutgers.edu/~cfree/refined-orcs-approach/ https://github.com/cfree14/datalimited2
devtools::install_github("cfree14/datalimited2")

Production Model JABBA
https://github.com/jabbamode
l/JABBA

SSS, XSSS and Stock Synthesis
https://vlab.ncep.noaa.gov/group/stock-synthesis/home
https://github.com/shcaba/SSS
https://github.com/CWetzel/XSSS
devtools::install_github("CWetzel/XSSS",
build.vignettes=TRUE) library(xsss); vignette(xsss)