

ICCAT GBYP SHORT TRAINING COURSE ON VPA FOR ATLANTIC BLUEFIN TUNA, MODELLING APPROACHES, GBYP PHASE 6

Virtual Population Analysis

Theory and Application to Atlantic Bluefin Tuna

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6th to 10th February 2017; Miami Florida

Outline

The course provides an introduction to the mathematical theory behind tuned virtual population analysis, the calculation of biological reference points, and projecting the abundance of the stock for a range of scenarios , e.g. for different catch quotas and model assumptions.

Participants will work in teams to develop simple assessment and projection models in Excel to learn the basic concepts. Afterwards, they will operate in a workshop environment similar to an actual bluefin tuna stock assessment where they will prepare for the 2017 assessment by conducting their own analyses using the VPA-2BOX and PRO-2BOX software, and prepare a summary of the proposed management advice. Techniques for modeling two intermixing stocks will also be discussed as time permits. Exercises will be conducted in both Excel and R

Learning goals

To

- Conduct exploratory data analyses of the types of data required to provide advice.
- Understand the assumptions underpinning stock assessment.
- Be aware of how uncertainty impacts the robustness of advice.
- Participate fully in the preparation for a ICCAT stock assessment working group
- Help in formulating advice

Organisation

VPA and the assumptions behind are introduced and explained, focusing on

- Data requirements
- Assumptions
- Uncertainty
- Diagnostic
- Interpretation of results
- Advice

Example are based on the last bluefin assessment

Participants

Members of the ICCAT Species Group

Agenda

All times are approximate

Day 1

09:30 – 10:00	Presentation: Population dynamics and theory of VPA
10:00 – 11:00	Presentation: Build your own VPA in Excel (parts 1-3)
11:00 – 11:15	Break
11:15 – 12:15	Presentation: Continue building your own VPA in Excel (parts 4-5)
12:15 – 13:15	Lunch
13:15 – 13:30	Lecture: Separable VPA and SCA
13:30 – 15:30	Presentation: Build your own SVPA and SCA in excel
15:30 – 15:45	Break
15:45 – 16:00	Presentation: VPA-2box
16:00 – 17:00	Exercise: Reproduce Excel VPA in VPA-2box

Day 2

09:00 – 09:30	Presentation: Reference points and projections
09:30 – 11:00	Exercise: Projections from VPA in excel
11:00 – 11:15	Break
11:15 – 11:30	Lecture: Pro-2box
11:30 – 12:15	Exercise: Reproduce Excel Projections in Pro-2box
12:15 – 13:15	Lunch
13:15 – 14:00	Presentation: Introduction to R
14:00 – 15:15	Presentation: ICCAT datasets
15:15 – 15:30	Break
15:30 – 16:00	Exercise: Exploratory Data Analysis
16:00 – 17:00	Summary of the day

Day 3

09:00 – 09:45	Presentation: Retrospective Analyses
09:45 – 11:00	Exercise: VPA2Box
11:00 – 11:15	Break
11:15 – 12:15	Exercise: Hindcast in R
12:15 – 13:30	Lunch
13:30 – 14:15	Presentation: Management Advice
14:15 – 15:00	Exercise: The kobe R package
15:00 – 15:15	Break
15:15 – 16:00	Presentation: Uncertainty
16:00 – 17:00	Summary of the day

Day 4

09:30 – 10:15	Presentation: Diagnostics
10:15 – 10:45	Exercise: The diags R package
10:45 – 11:00	Break
11:00 – 12:15	Exercise: Bootstrapping using VPA2Box
12:15 – 13:15	Lunch
13:15 – 14:00	Presentation: Scenarios
14:00 – 15:00	Exercise: Running Scenarios
15:00 – 15:15	Break
15:15 – 16:00	Exercise: Continued
16:00 – 17:00	Summary of the day

Day 5

09:30 – 10:15	Presentation: Preparing the 2017 stock assessment
10:15 – 10:45	Exercise: Main changes planned for the 2017
10:45 – 11:00	Break
11:00 – 12:15	Open Discussion
12:15 – 13:15	Lunch and possible field trip depending on interest
