

TUMAS

Tuna Management Simulator

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What is TUMAS?

- Software to support WCPFC fishery mgmt
- “Tuna Management Simulator”
 - Simulates possible futures for tuna stocks
 - Predicts effects of management action
 - What if longline effort decreases by 10%?
 - What if the region 3 FAD fishery closes for 3 months?

What is it for?

- To help managers make decisions and negotiate
- Managers run it themselves
 - Gives them hands-on experience of ‘the stock’ responding to management
 - Helps them to understand the scientific advice
 - Lets them try out their own ideas

Where does it fit?

1. Stock assessment

- Estimates current situation
- Indicates need for change

2. Management options advice

- Predicts possible outcomes (costs and benefits) of different management options
- ‘Forward projections’

3. Management decisions

How does it work?

- User interface written in JavaFX
- Runs the full MULTIFAN-CL stock assessment in projection mode, using the same code and input files as the agreed final assessment
- Provides results with a focus on being user-friendly and useful

Status and plans

- Ongoing development (funded by the PFRP) since January 2010
- First release February 2011
 - Bigeye, yellowfin, skipjack assessments
 - Free download from www.tumas-project.org
- Latest release November 2011
 - Better user interface
 - Projections run faster and use less memory
 - 2011 stock assessments added

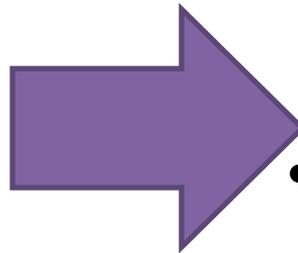
Issues with version 1

- No offline installation.
JavaFX 1.x licensing terms from Oracle prevented this.
- Web distribution not working correctly:
 - Inconsistent behaviour between several Java releases or even computers.
 - Download slow, failing or incomplete for unknown reasons.
 - Digital certificate errors even with valid certificates.
 - JavaFX 1.3.1 digital certificate invalidated for several weeks in February 2012. Had to wait for several weeks for Oracle to renew them.
- Oracle drops support for JavaFX 1.x end of December 2012.

Work done in 2012

2010-2011

- Web distribution (Java Web Start)
- Java 6 + JavaFX 1.x
 - Java, JavaFX Script
- Projections:
 - 2010 assessments
 - BET



2011-2012

- Native offline installer.
- Java 7 + JavaFX 2.x
 - Java, FXML, JavaScript, HTML5
- Projections:
 - 2010 + 2011 assessments
 - BET, YTF, SKJ
 - Option that simulates High Seas Pocket closures (for supported scenarios)

Current Features

	Windows	Linux	MacOS X
Java Virtual Machine	32 bit, 64 bit	32 bit, 64 bit	64bit
MFCL	32bit	32bit	n/a
Installer	32bit	n/a	n/a
Create new projections	Yes	Yes	No
Edit Scenarios	Yes	Yes	No
View Scenarios	Yes	Yes	Yes
Export charts	Yes	Yes	Yes

- MFCL currently not available on MacOS.
- We use 3rd party tool for packaging on Windows.

Future Features

	Windows	Linux	MacOS X
Java Virtual Machine	32 bit, 64 bit	32 bit, 64 bit	64bit
MFCL	32bit	32bit	64bits
Installer	32bit, 64 bit	32bit, 64 bit	64bits
Create new projections	Yes	Yes	Yes
Edit Scenarios	Yes	Yes	Yes
View Scenarios	Yes	Yes	Yes
Export charts	Yes	Yes	Yes

- Work is underway to produce a MacOS version of MFCL.
- Oracle is working on new native packaging tool for Java 7-8.

Other Plans

- Execute projection code in R directly in the JVM (<http://code.google.com/p/renjin/>)
- Download updated assessment scenarios from website.
- Minimize memory footprint of charts.
- Support for other species and other areas of the globe?
- Support for long term average recruitment?