

JIMAR ANNUAL REPORT FOR FY 2012

P.I. NAME: Drs Shelton Harley, Simon Hoyle, and Mr Fabrice Bouyé

NOAA OFFICE (*Of the primary technical contact*):

NOAA SPONSOR (NOAA TECHNICAL LEAD) NAME :

PROJECT PROPOSAL TITLE: “Improved effectiveness of WCPFC through better informed decision makers”

FUNDING AGENCY:

NOAA GOAL (*Check those that apply*):

- To protect, restore, and manage the use of coastal and ocean resources through ecosystem-based management
- To understand climate variability and change to enhance society’s ability to plan and respond
- To serve society’s needs for weather and water information
- To support the nation’s commerce with information for safe, efficient, and environmentally sound transportation.
- Mission Support

PURPOSE OF THE PROJECT (*One paragraph*): *Include at least one objective.*

The objectives of this project were:

- To create a standalone application (‘the application’), downloadable from a website, that allows a user to evaluate various management options using forward projections with the most recent WCPFC stock assessment models.
- To change MULTIFAN-CL so that it provides outputs that are more relevant to the needs of fisheries decision-makers.

PROGRESS DURING FY 2012 (*One-two paragraphs*):

Include a comparison of the actual accomplishments to the objectives established for the period, along with reasons for the slippage if established objectives were not met.

At December 2011 we had TUMAS 1.x working in both Windows and Linux with all three tropical tuna species. It had options to have catch or effort management restrictions for all fisheries and then for the equatorial purse seine fisheries there was the additional option of having either total spatial closures (for various high seas areas or EEZs) or

closures that only apply to FAD related fishing. At this stage there were two primary weaknesses that we were looking to address: 1) Problems with the Java Web Start online content delivery system that we were using for the downloading at automatic updates – it just did not work consistently; and 2) TUMAS was using large amounts of computer memory that made it cumbersome on lower end machines. With all the major developments within the PFRP funding project complete, our aim was to address these minor issues and then include other MULTIFAN-CL assessments into TUMAS (both from WCPFC and other RFMOs). Unfortunately, not all of this has eventuated.

Early in 2012 we became aware that one of the key tools used in TUMAS, JavaFX runtimes (that we could not legally package) were essentially no longer supported by Oracle (who had purchased Java). This left us and many other software developers in the cold. The new versions under development did not support important features, e.g. image export. We immediately contacted our colleagues at PFRP to make them aware of this issue which had essentially rendered TUMAS inoperable. For the remainder of 2012 we headed down three parallel lines: 1) Trying to get Java to fix the problems we are currently encountering; and 2) Developing a new version of TUMAS using the new version of Java-FX; 3) Investigating the potential to develop a GUI interface that works within the R software domain.

Our attempts at getting Oracle to ‘lift their game’ were not immediately successful, but we have now developed TUMAS 2.0 using the latest JavaFX runtimes. These can be packaged within TUMAS so we have no longer have to deal with Java Web Start. This new version has 90% of the functionality of version 1.0 with a few minor exporting options to be addressed. We intend to release TUMAS 2.0 in December 2012 and we are hopeful that this version will also include the South pacific albacore and southwest pacific striped marlin assessments conducted in 2012. Our investigations into using R have indicated that the GUI would be very inferior to the current JavaFX version, and the approach taken by the “R-project” for making available the necessary dll’s would mean that TUMAS could not be used on Linux or Mac OS. We will not head down this path at this time, but will continue monitoring.

PLANS FOR THE NEXT FISCAL YEAR (*One paragraph*):

While funding for TUMAS has now ended, we are pleased to announce that further development is planned. If the December 2012 release does not include these other assessments, that will be the first plan of attack for 2013. Once this is completed the next step will be a scientific publication that describes the approach undertaken and the challenges. The next steps planned are: 1) extension to include the MULTIFAN-CL assessments undertaken in other TRFMOs (the scientists are keen and we are developing networks to further this work); 2) extension of MFCL and TUMAS to work first with the MAC OS and then potentially with tablet devices further down the track

**LIST OF PAPERS PUBLISHED IN REFERRED JOURNALS DURING FY 2012
OTHER PAPERS, TECHNICAL REPORTS, ETC.
PUBLICATION COUNT**

**complete excel attachment (JIMAR publications request)*

GRADUATES:

Names of students graduating with MS or PhD degrees during FY 2012; Titles of their Thesis or Dissertation

AWARDS:

Name of JIMAR employees or project receiving award during the period, and Name of award

PERSONNEL *(on Subcontracts):*

For projects that awarded subcontracts in the fiscal year, please provide the number of supported postdocs and students from each subgrantee.

IMAGES AND CAPTIONS:

*We will also be including images for the annual report. Please send two of your best high-resolution, color images (photo, graphic, schematic) as a **JPEG or TIFF (300 dpi)** with a caption for each image. If you do not have an electronic version of the image, a hardcopy version may be dropped off at the JIMAR office located in the Marine Sciences Building, Room 312*

- Caption 1:
- Caption 2:

ACRONYMS:

Please provide the complete descriptions for any acronyms used in any areas of the report. For example: UH (University of Hawaii)

FAD – Fish Aggregating Device

GUI – Graphical User Interface

[T]RFMOs – [Tuna] Regional Fisheries Management Organizations

TUMAS – Tuna management simulator

WCPFC – Western and central Pacific Fisheries Commission