Scoping the next stock assessment platform

P123 – Background and discussion

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Overview

Project P123 *objective, background, terms of reference*

Software Platforms *operational, current and future development*

Road Ahead *assessments, workshops, collaboration, adaptive plan*

Possible Outcomes *level of funding, partnerships*

SPC buildings – large project, resources, requirements, interim phase, flag

AD Model Builder – comparable lifetime, succession, from maintainer to container

Flight – research and development, novel breakthrough, uncertain project duration, uncertain outcome

Timing – John, Nick, Dave

Scoping the next tuna stock assessment software

Project scheduled 1 Feb 2024 to 31 Dec 2026

50K USD each year: 2024, 2025, 2026

Project P123

- *Project objective*
  Scoping phase to assess what features and capabilities
  will be important in future assessment software for tunas

- *Overarching objective*
  Continue to support the specificities and future requirements
  of WCPFC tuna stock assessments

- *Desired outcome*
  Software platform that has the desired functionality
  for tuna assessments around the world

Background

Future advances to MFCL are not expected to be as mathematically innovative as in the past

Need to plan and identify whether alternative existing software exists, or new software must be developed in the longer term

Starting a phased approach to replace MULTIFAN-CL

Collaboration with other tuna RFMOs is essential to produce the desired outcome

This is anticipated to be a multi-year endeavor that may need additional funding

Terms of Reference

2024

1. Review and identify important model features for tuna assessments
2. Identify existing platforms that have these features or can be extended
3. Reach out to and initiate collaboration with model developers
4. Conduct two workshops in 2024, one online and one in person

2025–2026

5. Conduct simulation studies
6. Determine which platforms can be considered viable candidates
7. If a viable platform has been identified, plan transition
8. If no viable platform is identified, extend a platform or create a new one

Software Platforms

Existing platforms that fit to length composition data

    Stock Synthesis

    Casal2

    Gadget

Ongoing development

    SAM fitted to length comps   *Colin Millar, Anders Nielsen*

    WHAM fitted to length comps   *Giancarlo Correa, Tim Miller*

    ALSCL   *Fan Zhang, Noel Cadigan*

    CCSBT   *D'Arcy Webber, Rich Hillary*

    FIMS   *NOAA*

Road Ahead

Tunas every 3 years
Swordfish every 4 years
Striped marlin every 5 years
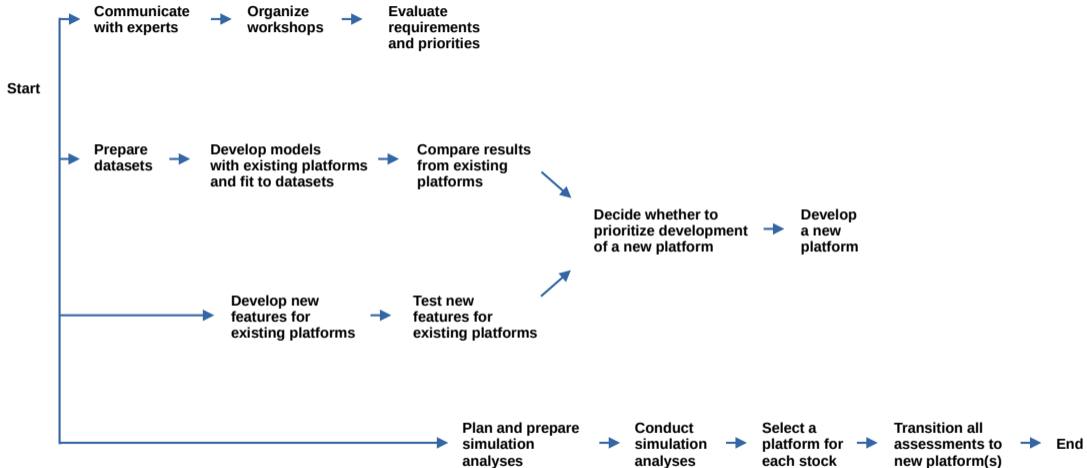
2024 ALB MLS
2025 SKJ SWO
2026 BET YFT
2027 ALB
2028 SKJ
2029 BET YFT SWO MLS
2030 ALB

Start

Communicate with experts → Organize workshops → Evaluate requirements and priorities

Prepare datasets → Develop models with existing platforms and fit to datasets → Compare results from existing platforms

Decide whether to prioritize development of a new platform → Develop a new platform

Develop new features for existing platforms → Test new features for existing platforms

Plan and prepare simulation analyses → Conduct simulation analyses → Select a platform for each stock → Transition all assessments to new platform(s) → End

Possible Outcomes

If commitment and funding is limited, then the following unwanted outcome, characterized by a lack of progress, could well occur...

Upcoming assessments:

2024 MFCL with config changes, other platform(s) did not work well, workshop

2025 MFCL with config changes, other platform(s) did not work well, workshop

2026 MFCL without config changes, other platform(s) did not work well, workshop

2027 MFCL without config changes, other platform(s) did not work well, workshop

2028 MFCL without config changes, other platform(s) did not work well, workshop

2029 MFCL without config changes, other platform(s) did not work well, workshop

2030 MFCL without config changes, other platform(s) did not work well, workshop

Possible Outcomes

will depend on:

Level of funding

Level 0 – Annual workshops, coordination

Level 1 – Hire one person for 5 years

Level 2 – Hire two people for 5 years

Partnerships

Tuna RFMOs – funding and scientists' time

Domain experts in state-space model development – scientists' time

Other funding sources

Summary

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