Scoping the next stock assessment platform

Stage I: Reaching out to tuna RFMOs and the scientific community

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SPC Online Workshop
13–16 May 2024

Meeting Objectives

Communicate *project 123, explorations, decisions, development*

Discuss *succession plans, admb, multifan-cl, stock synthesis*

Seek Advice *insights, opinions, experiences, predictions, ideas*

Seek Collaboration *tuna RFMOs, research labs*

Meeting Schedule

⇒	0:00–0:20	Introduction
	0:20–0:30	**Platforms** currently used in tuna stock assessments (presentation)
	0:30–0:50	**Common challenges** of all tuna RFMOs, **longevity** of MULTIFAN-CL and Stock Synthesis, **succession plans** (round table)
	0:50–1:00	SPC challenges and **project plan** (presentation)
	1:00–1:10	**Features** of current and future platforms (presentation)
	1:10–1:25	Discussion on platform **features** most **relevant for tuna** (round table)
	1:25–1:35	**State-space** models and latest developments (presentation)
	1:35–1:50	What do you think is the **best way forward for SPC?** (round table)
	1:50–2:00	Summary of discussions, next steps, **collaboration** (round table)

Who Are Here Today?

People with expertise in

- Tuna
- Stock assessment
- Software development

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Platforms currently used in tuna stock assessments

SPC: MULTIFAN-CL for all stocks

IATTC: Stock Synthesis for all stocks?

IOTC: Stock Synthesis for all stocks?

ICCAT: Stock Synthesis, JABBA, other

Project P123

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. Explore and compare existing platforms, fitting to SPC tuna data
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*
- SStag — *Nicholas Ducharme-Barth*

CAPAM 2019 Discussions

Tunas every 3 years

Swordfish every 4 years

Striped marlin every 5 years

2024 ALB MLS

2025 SKJ SWO

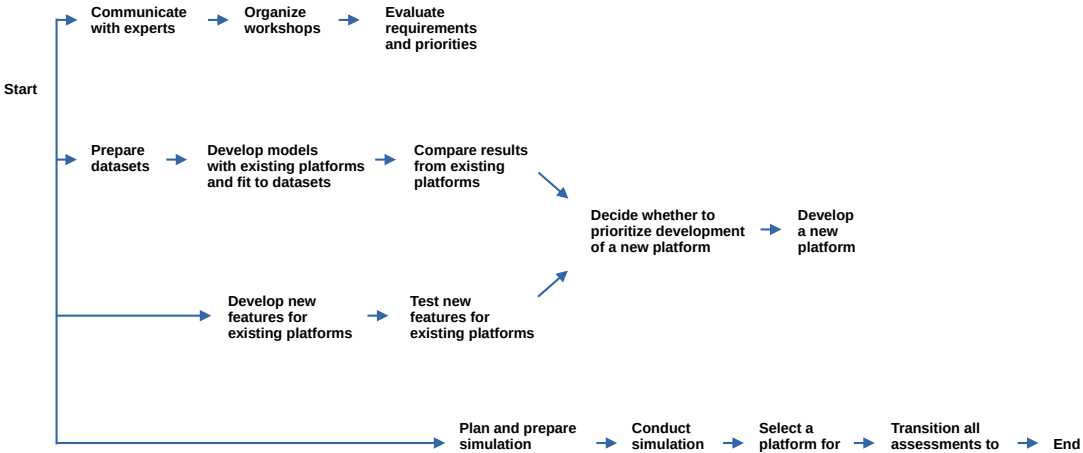
2026 BET YFT

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

Pacific Community
Communauté du Pacifique

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*