Comisión Interamericana del Atún Tropical
Inter-American Tropical Tuna Commission

CIAT
IATTC

CAPAM Workshops: Risk Analysis, Stock Assessment Good Practices, Tuna Stock Assessment Good Practices

Mark N. Maunder

Recent workshops

- Stock Assessment Good Practices
  - CAPAM and FAO
  - Hybrid: FAO Headquarters, Rome, Italy
  - 24 - 28 October 2022.
- Model Weighting
  - IATTC and CAPAM
  - Virtual
  - 28 Nov – 2 Dec 2022
- Tuna Stock Assessment Good Practices Workshop
  - CAPAM, NIWA, and ISSF
  - Hybrid: Wellington, New Zealand
  - 7 - 10 March 2023

IATTC October Stock Assessment Workshop Series – First Workshop

- Recommended diagnostics for large statistical stock assessment models
- La Jolla, October 2 – 4. 2002
- Report: Shelton J Harley and Mark N Maunder

https://www.iattc.org/GetAttachment/fac01749-122c-46e7-a2e7-4aebb6dd7559/SAR-04_Recommended-diagnostics.pdf

IATTC October Stock Assessment Workshop Series – Topics

Topic	Year	Participants
Recommended diagnostics for large statistical stock assessment models	2002	10
Reference points for tunas and billfishes	2003	22
Developing indices of abundance from purse-seine catch and effort data	2004	27
Stock assessment methods	2005	36
Management strategiues	2006	32
Using tagging data for fisheries stock assessment and management strategies	2007	41
Spatial analysis for stock assessment	2008	37
Modelling population processes	2009	43
Integrating movement information from tagging data into stock assessment models	2011	NA
Including Oceanography in Fisheries Stock Assessment and Management'	2011	NA

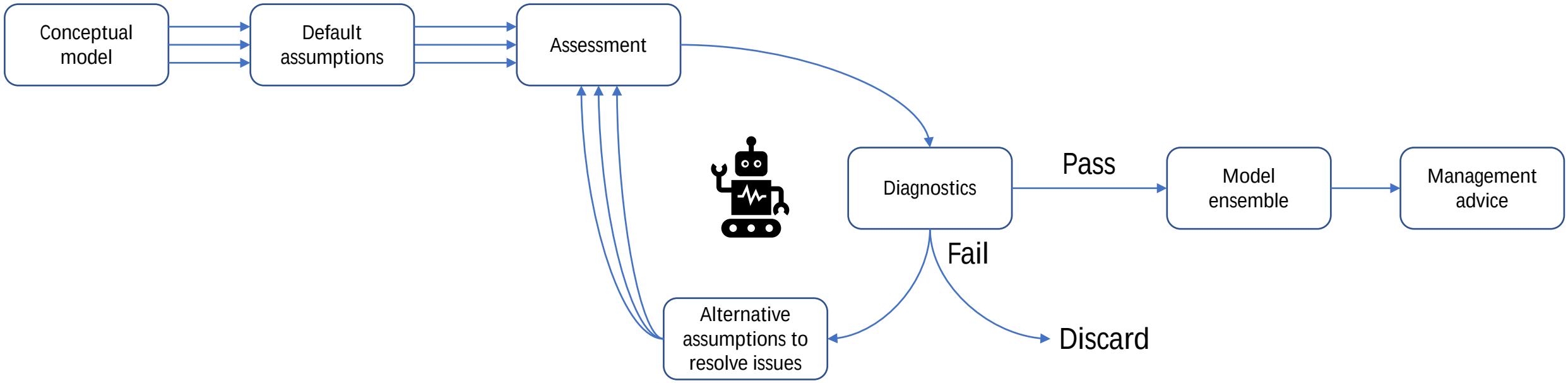
The founding of CAPAM: 2012

- Paul Crone, SWFSC
- Brice Semmens, SIO UCSD
- Mark Maunder, IATTC

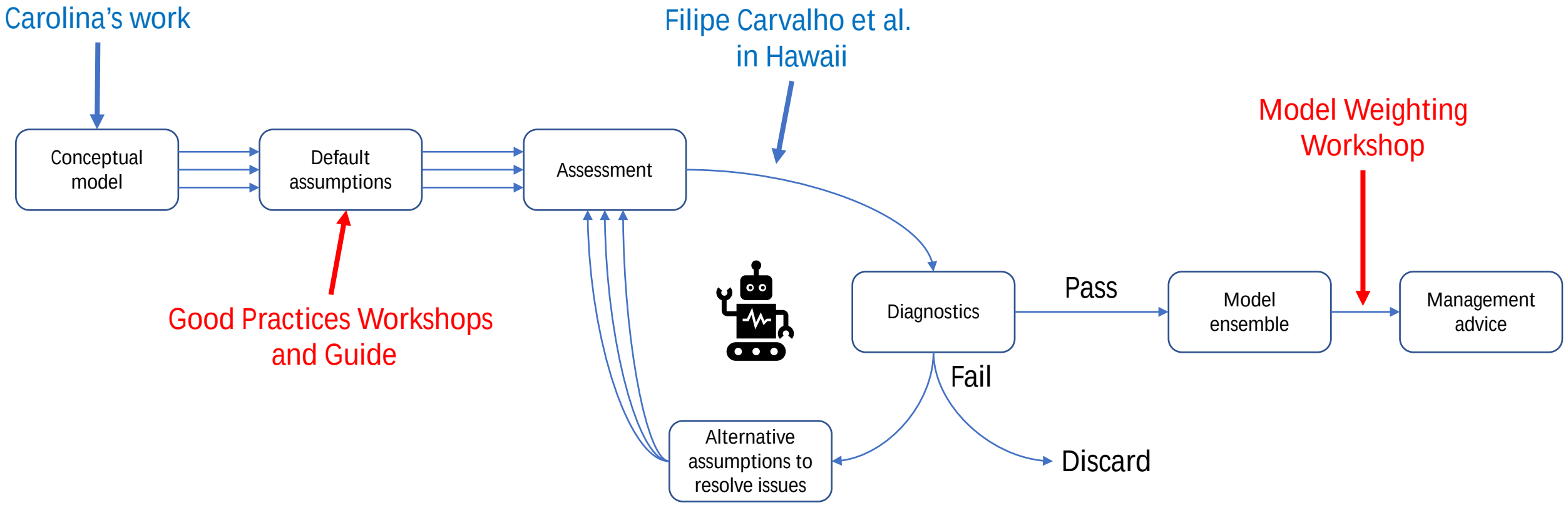
CAPAM workshops and special issues – Topics

Topic	Date	Location	Chair	In person participants	Special Issue
Selectivity	2013	San Diego	Maunder	65	Yes
Growth	2014	San Diego	Maunder	100	Yes
Data Weighting	2015	San Diego	Maunder	NA	Yes
Recruitment	2017	Miami	Sharma/Porch	95	Yes
Spatial stock assessment models	2018	San Diego	Maunder	NA	Yes
Spatio-temporal modelling	2018	San Diego	Maunder	NA	Yes
Next Generation Stock Assessment Models	2019	New Zealand	Hoyle	82	Yes
Natural Mortality	2021	Virtual	Hamel	Virtual	Yes
Diagnostics	2022	Virtual	Maunder	200+ Virtual	No
Good Practices	2022	Rome	Maunder		Yes
Model weighting	2022	Virtual	Maunder		No
Tuna Good Practices	2023	Hybrid	Maunder		No

Expert system to construct an ensemble of models for fisheries stock assessment



Expert system to construct an ensemble of models for fisheries stock assessment



Workshop on Model Weighting

- Designing an approach to create an ensemble and to weight models in that ensemble that is more objective, transparent, and automated.
- Part of the IATTC workplan to improve the risk analysis for tropical tunas in the EPO
- Key questions
  - Which models to consider and what measures (diagnostics) should be used to exclude models?
  - What measures to use in weighting and how to determine the weight for each metric?
  - How to combine weights?
  - How to present and use results?

Workshop on Model Weighting

- Developing an ensemble is comprised of three steps
  - What models should be considered?
  - How to fix and/or eliminate models
  - How to weight models.

Workshop on Model Weighting

- The models to consider should be based on the development of a conceptual model of the system
- Good Practices to represent the alternatives identified by the conceptual model in the form of assessments models.
- Duplication of models should be avoided to prevent double weighting of certain hypotheses.
- Diagnostics are then used in an iterative process to fix and then accept or reject the models in the ensemble.
- Finally, the models in the ensemble should be weighted by either their ability to fit the data or to predict out of sample observations. But equal weighting is probably most practical.

Documents

- Model weighting workshop report is under background documents on the SAC website
- Other workshop reports, recordings, etc. are on the CAPAM website
- http://www.capamresearch.org/Workshops
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