Australian Government
Australian Fisheries Management Authority

Eastern and Western Tuna and Billfish Fishery Annual Research Statement 2022/23

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ETBF and WTBF Annual Research Statement 2022/23

This Annual Research Statement was developed by AFMA, in consultation with the TTRAG and TTMAC. It identifies areas of high priority research for both AFMA and potential FRDC funding in 2022/23 and will be presented to the AFMA Research Committee (ARC) for consideration as part of the 2022/23 funding round.

AFMA funding in 2022/23 (AFMA Research Committee (ARC))

Title	Objectives and component tasks	Evaluation		
		Total cost (approx. only)	Priority/rank	Feasibility
Currently funded projects				
2019/0847 – Data Management, Assessment & implementation of HS for Australia's Tropical Tuna Fisheries (4 year project) commencing in 20/21 and ending in 2022/23 (May 2023)	**Objective:** Provision of ongoing scientific advice to the Tropical Tuna Resource Assessment Group (TTRAG) to support the adequate monitoring, implementation and success of management arrangements in Australian tropical tuna and billfish fisheries (ATBFs). **Components:** Together with the management of data related to these fisheries, this project would assess and provide advice on: 1. the impact of the fisheries on both the targeted, by-product and ecologically related fish resources,	$446,000 (over 3 years ending in 2022/23)	Essential	High feasibility. This is long running (and essential) research that draws largely upon existing fisheries data collected by AFMA. Its feasibility has been demonstrated in the past and there is little risk that this work could not be successfully undertaken.

	2. the outcomes of stock assessments for the principal species caught in these fisheries, 3. the application of the related harvest strategies (for species with harvest strategies), and provision of indicators based advice (for non HS species) to inform determination of the annual TACCs, 4. the need to update or develop new fishery performance indicators as required given changes in these fisheries, 5. the development of indicators for byproduct species 6. assessing the potential impact of related international fisheries on the fish resources of Australia's Tropical Tuna and Billfish Fisheries, 7. reviewing, and where necessary refining, the harvest strategies (for swordfish and striped marlin) and management arrangements so that the conservation and economic objectives for these fisheries can be achieved, and 8. collaborating on the assessment of the principal species in the Western Central Pacific Ocean and the Indian Ocean and the provision of scientific advice to the related Commissions.			

Newly identified research priorities for 2022/23				

FRDC funding in 2022/23 (Commonwealth Research Advisory Committee (ComRAC))

Title	Objectives and component tasks	Evaluation		
		Total cost (approx. only)	Priority/rank	Feasibility
Currently funded projects				
2017-004 – Investigate oceanographic and environmental factors impacting on the ETBF (Physics to fish)	**Objective:** To improve AFMA (and its advisory committees) and participating countries understanding of environmental impacts upon a) the ETBF and other national fisheries and b) ETBF interactions with other fisheries (domestic and international), and ensure such impacts can be taken account of when developing or amending management arrangements. **Components:** 1. Collation of fisheries, environmental and biological data for Australia and participating regional countries collated 2. Historical analysis of observed catch/abundance of five key species through the focal region over time	$500,000 (over 3 years)	High	High feasibility for most components. This research would draw upon existing and accessible fisheries and environmental (oceanographic and climatic) data and apply previously tested analytical techniques.

	3. Development of Phase 1 historical habitat models using known biological relationships, fish presence data, and environmental data) for the east coast Australia. 4. Assessment of hindcast skill of seasonal and decadal forecast models 5. Establish information dissemination approach (e.g. website) after consultation with industry. 6. Development of Phase 2 Habitat model for YFT for eastern Australia. 7. Delivery of forecasts via preferred media for Australian region and delivery of information to Australian managers and industry representatives 8. Develop Phase 1 historical habitat models for complete region (ie FFA and NZ) 9. Delivery of training to FFA representatives (related to Objective 4) 10. This project may benefit and complement the recreational fishery project specified below. Other fisheries may benefit from this work (e.g. recreational game fishery, small pelagic fishery)			
20250-041 Improving the effectiveness, efficiency and safety of mitigation tools for protected species interactions	1. To trial several new and/or modified protected species mitigation tools and processes in the Eastern Tuna and	$175,500	High	High

in the Eastern Tuna and Billfish Fishery	Billfish Fishery to further reduce the rate of protected species interactions. 2. To demonstrate whether new and/or modified mitigation tools and processes are cost-effective and easy to use than the current suite 3. To improve crew safety through revising the design and deployment of protected species mitigation equipment. 4. To provide Eastern Tuna and Billfish Fishery vessels with an improved protected species toolkit including better data gathering, greater analysis capability and enhanced information sharing capabilities			
Newly identified research priorities for 2022/23				
Assessment of ETBF fishing depth strategies to assist key commercial and protected species management approaches [Note - Tuna Australia are currently pursuing FRDC funding for a project on future management of wildlife interactions, which could potentially include an element to collect data on fishing depths.]	**Objective:** To address the lack of understanding of fishing depths associated with different gear setting and fishing strategies (which have changed over time) across the ETBF which currently: 1. hinders AFMAs ability to make informed decisions to improve protected species management, 2. hinders industries abilities to reduce protected species interactions, and 3. increases the risk that CPUE indices feeding into TACC	\$60K – 100K	High	High feasibility TDR based research has been commonly conducted around the world in other fisheries and has been conducted previously in the ETBF (albeit on older fishing strategies)

	decision processes do not reflect the underlying local abundance of key commercial stocks. **Components:** 1. Identification of the predominant range and type of fishing strategies in the fishery by time/area/vessel group. Factors defining different strategies will include mainline lengths, snood lengths, hooks per float and setting speed. 2. Deployment of time depth recorder instrumentation to accurately measure fishing depths associated with different fishing strategies. 3. Integration of fishing strategy depth information to improve CPUE analyses through the development of relationships between the information recorded in logbooks (and the need for any additional information) and the distribution of depths attained by the fishing gear. 1. Utilisation of fishing depth information in bycatch mitigation and management measures/approaches for protected species, particularly sea turtles and seabirds.			

Recreational fishery data collection	**Resources sharing and TACC decisions** – understanding the total recreational fishery catch of species like striped marlin and yellowfin, and potentially swordfish (for which there is evidence of a growing recreational fishery) is important to understanding both the total Australian catch of these species and relative contributions of the fisheries to changes in local abundance/availability of these species. Such information may inform TACC decisions and future resource sharing arrangements (e.g as recently the case for SBT). **Local abundance indicators –** the collection of catch rate data in the recreational fishery for these species can provide additional valuable information regarding trends in the local abundance/availability of these species and potentially regarding the level of interaction between the domestic and recreational fisheries. This information can also inform resource sharing arrangements (including for species where there are existing commercial fishery limitation in place such as black and blue marlin). 1. A quantifiable understanding of the level of the total catch, catch rates and post release mortality of ETBF target species taken in the	Uncertain – further scoping required	High	Uncertain – further scoping required

	recreational fishery in the area of the ETBF. 2. An understanding of the potential relative impact of the recreational fishery on ETBF target species local abundance/availability 3. A better understanding of the spatial and temporal interaction between the recreational and commercial fisheries for ETBF target species. 4. A more robust information/evidence base upon which to make future resource			

Evaluation key:

Cost	Priority categories	Feasibility categories
High: >$200,000	Essential	High
Medium: $100,000 - $200,000	High	Medium
Low: <$100,000	Medium	Low
	Low	

Key Documents

- Framework for delivering cost effective research for AFMA
- RAG gap identification form
- AFMA research cycle and timetable
- FRDC research cycle and timetable