Australian Tuna and Billfish Fisheries

ANNUAL RESEARCH STATEMENT

2017-2018

Version 1.0

ATBF Annual Research Statement for 2017/18

AFMA funding in 2017/18 (AFMA Research Committee - ARC)

Title	Objectives and component tasks	Evaluation		
		Total cost (approx. only)	**Priority /rank**	**Feasibility**
1.Data Management, Assessment & implementation of HS for Australia's Tropical Tuna Fisheries (3-year RAG project)	**Primary 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). **Component tasks:** Together with the management of data related to these fisheries, this project would assess and provide advice on: i) the impact of the fisheries on both the targeted, by-product and ecologically related fish resources, ii) the outcomes of stock assessments for the principal species caught in these fisheries, iii) 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,	$500,000 (over 3 years)	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.

	iv) the need to update or develop new fishery performance indicators as required given changes in these fisheries, v) the development of indicators for byproduct species vi) assessing the potential impact of related international fisheries on the fish resources of Australia's Tropical Tuna and Billfish Fisheries, vii) 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 viii) 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. ix) chairing Management Issues theme of WCPFC Scientific Committee and contribution to development of harvest strategies and MSE for WCPFC, including at specific meetings focussed on these issues.[last item not ARF funded by may be considered by COMFRAB/DAWR]			

FRDC funding in 2017/18 (Commonwealth Research Advisory Committee - ComRAC)

Title	Objectives and component tasks	Evaluation		
		Total cost (approx. only)	**Priority /rank**	**Feasibility**
2.Investigate oceanographic and environmental factors impacting on the ETBF (Physics to fish)	**Objective** To improve AFMA (and its advisory committees) understanding of environmental impacts upon a) the ETBF 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. Characterise spatial and temporal variability in key "fisheries relevant" environmental factors within the ETBF, including the influence of climate-ocean system drivers upon those. 2. Investigate the relationship between environmental factors, catch rates, fish sizes, and fish movement, within the ETBF region. This would include investigation of A) "anomalies" in seasonal and spatial catches (to look for environmentally driven causes) and B) relationships between cohort strength and oceanographic conditions. 3. Assess regional and domestic fisheries and environmental data trends to assess evidence for environmentally driven connectivity/mixing (or separation) This would include	$150K (over 2 years)	High	High feasibility. This research would draw upon existing and accessible fisheries and environmental (oceanographic and climatic) data and apply largely standard analytical techniques. Past research to develop SBT management zones based on SST data is an example of the feasibility of this type of work.

	assessing questions such as: A) Do within season regional spatial patterns in fish sizes and CPUE suggest movement of fish into the ETBF from adjacent regions and if so under what environmental/climatic conditions. B) Can environmental factors explain the differing temporal patterns in availability (catches) of target species (espec Yellowfin) to the commercial and recreational fisheries off eastern Australia. 4. Based on the above investigations and analyses, develop predictive models to assist management and industry planning (e.g. expected relative shifts in catch levels, spatial patterns, and seasonal trend, under different climate conditions and under long term climate change). This project may benefit and complement the recreational fishery project specified below. 5. Other fisheries may benefit from this work (e.g. recreational game fishery, small pelagic fishery)			
3.Economic impact of historical management decisions to assist identifying appropriate management decisions in the future.	**Objective** To determine the economic impact of historical management decisions so as to assist identifying appropriate management decisions in the future. **Components:** 1. Collate relevant historical economic data 2. Develop models/analyses to relate management decisions to changes in profitability and economic returns (while	50K (highly uncertain)	Medium	Feasibility is high. ABARES holds historical records of economic indicators (e.g. GVP) while TTRAG has developed a database of historical management decisions. Might be combined with projects 4&5

	accounting for other factors that impact upon these indicators)			below
4.Operational cost-benefit analysis when running the harvest strategy	**Objective:** To provide industry and AFMA a means by which to understand and potentially predict the economic cost of management changes made in the fishery, including due to changes in RBCCs/TACCs. **Components** 1. The project would potentially use economic information compiled under the priority "Develop and implement methods to analysis the economic state of the fishery" to develop a tool/model by which to predict economic impacts of changes in management including due to TACC changes.	Highly uncertain (~50K)	Low	Feasibility = high but dependent on access to economic market data (ABARES already collects a lot of the data)
5.Development of a spatial and temporal model to estimate economic returns to the Australian Tuna and Billfish Fisheries	**Objective:** Development of a spatial and temporal model to estimate economic returns to the Australian Tuna and Billfish Fisheries and assist TTRAG and TTMAC identify and develop appropriate management options and strategies in order to maximise the economic efficiency of the fishery within sustainable limits. **Components** 1. Compile information on key economic drivers, such as fish prices, the cost of fuel and quota allocations, as well as	~200K	Low	Feasibility is dependent on the success of the oceanography/enviro nment impacts project

	biological conditions and constraints.
	2. Development of a model to assist TTRAG and TTMAC identify and develop appropriate management options and strategies in order to maximise the economic efficiency of the fishery within sustainable limits

NSW Recreational Fishing Trust funding in 2017/18

Title	Objectives and component tasks	Evaluation		
		Total cost (approx. only)	**Priority/ rank**	**Feasibility**
6.Use of recreational fishery data in the management of the ETBF.	**Objective:** To firstly, better estimate recreational catches of key ETBF species off eastern Australia to provide more accurate data inputs to stock assessments and assist reviews of harvest strategy effectiveness, and secondly, to assess the interaction between recreational and commercial tuna species (inshore and offshore) and inform future resource sharing discussions and management arrangements. **Components**	~80K	High	Feasibility High. TTRAG have identified a number of sources of recreational data that could be used to support this research including club data, tournament data and tagging data. This priority will complement and link with the oceanography/environment project identified above

	1. Review available recreational catch information, identify key data gaps, and develop estimates of the size of the recreational catch in the ETBF. This will form the basis of improved recreational catch inputs to stock assessments, and assist the review of harvest strategy effectiveness, and may help improve existing indicators or develop new ones. 2. Undertake analyses to better describe and understand the relationship between inshore recreational catch rates/catches and offshore commercial catch rates/catches – a key knowledge gap in regard to application of the ETBF harvest strategy.			(for FRDC funding)

Key documents

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