Australian Government

Australian Fisheries Management Authority

Northern Prawn Fishery
Annual Research Statement
2022/23

Contents

Northern Prawn Fishery Annual Research Statement 2022/23

This Annual Research Statement was developed by AFMA, in consultation with the NPRAG and NORMAC. 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				
1. NPF Stock Assessment: • to set the Total Allowable Effort (TAE) for the tiger prawn fishery (including endeavour prawns) • to set the TAE for Redleg Banana Prawns in accordance with the NPF Harvest Strategy • determine the MEY target trigger catch rate for White Banana Prawns for the 2021 banana prawn season **Project 20/0803 finishing in October 2024**	• Provide a full assessment of the tiger prawn fishery for 2022 (using 2021 fishery data) and in 2024 (using 2023 fishery data). • Update the fishing power series incorporating data from gear surveys, annually (i.e. in 2022, 2023, and 2024 using data for the preceding fishing years)(for both the tiger prawn fishery and the Redleg Banana Prawn fishery); • Estimate MEY-based TAEs for the tiger prawn fishery for 2022 plus 2023 (based on the 2022 assessment); and 2024 plus 2025 (based on the 2024 assessment);	$660,000 (3 year project: 2021/22 $145,214; 2022/23 $184,818; 2023/24 $198,018; 2024/25 $132,012)	Essential	High

	• Assess stock status of the Redleg Banana Prawn fishery (and if relevant key environmental factors) and provide a TAE for Redleg Banana Prawns in each of 2022, 2023, and 2024; and, • Support the annual estimation of MEY-catch rate triggers for the White Banana Prawn fishery. This will be undertaken each year, i.e. 2022, 2023 and 2024. Three year project spanning 2021/22 - 2024/25 (Oct 2021 – Oct 2024)			
2. Vessel charter for the NPF recruitment/spawning surveys 2021-24 **Project 20/0807 finishing in March 2024**	• 2021-22: To obtain two adequate vessels for the recruitment survey (for a 15-20 day period in January/February) meeting the specifications; being the required length, providing adequate crew, providing fuel and providing stores for both crew and scientists. • 2022-23: To obtain adequate vessels for the spawning survey (one vessel for a 21 day period in June/July) and to obtain two adequate vessels for the recruitment survey (for a 15-20 day period in March) meeting the specifications; being the required length, providing adequate crew, providing fuel and providing stores for both crew and scientists.	$1.16m approx. (3 year project: 2021/22 $320k; 2022/23 $520k; 2023/24 $320k)	Essential	High

	• 2023-24: To obtain two adequate vessels for the recruitment survey (for a 15-20 day period in March) meeting the specifications; being the required length, providing adequate crew, providing fuel and providing stores for both crew and scientists Three year project spanning 2021/22 - 2023/24 (February 2022 – Oct 2024)			
3. Integrated monitoring program NPF 2021-24 **Project 20/0807 finishing in June 2024**	Undertake analysis of data collected during the recruitment surveys to determine and evaluate: • fishery independent parameters on the state and status of the population and recruitment indices for commercial prawn species; • the spatial extent, variability and abundance of prawn populations; and • the spatial extent and abundance of byproduct and bycatch species at risk. Three year project 2021/22 – 2023/24 (August 2021-June 2024)	$1.1m approx. (3 year project: 2021/22 $362k; 2022/23 $338k; 2023/24 $386k)	Essential	High
4. Annual analysis of Crew Member Observer (CMO) and Scientific Observer data to confirm it meets criteria for use in monitoring populations of	• Attend the 2021, 2022 and 2023 annual CMO workshops and train observers in TEP and 'at risk' bycatch species identification and quality catch data recording.	$150,000 (3 year project: 2021/22 $48,534; 2022/23 $49,877; 2023/24 $51,040)	Essential	High

TEP and at-risk species, with sustainability assessment every third year. **Project 20/0804 ends in December 2023**	• Process all digital data collected by the CMO and AFMA scientific observers in 2020, 2021 and 2022 and report on data collected via annual milestone reports. • Undertake a catch trends analysis of CMO and AFMA scientific observer data collected over the 2020-22 banana and tiger prawn seasons, including an evaluation of the performance of the CMO and AFMA programs over the last three years. • Deliver a triennial sustainability assessment report for the TEP and 'at risk' bycatch species impacted by the NPF in 2023. Three year project spanning 2021/22 - 2023/24 (Aug 2021 – Dec 2023)			
5. Red Endeavour prawn assessment –further potential improvements **Project 20/0806 finishing in January 2023**	• Model red endeavour growth using data from historical surveys in the NPF. • Conduct CPUE standardization for both blue and red endeavour prawns by incorporating environmental and fishery data. • Develop stock assessment methods for red endeavour prawn using standardized CPUE from Objective 2	$178,000 (2 year project: 2021/22 $124,638; 2022/23 $53,417)	High	High

	and incorporating growth estimated in Objective 1.		
	• Improve blue endeavour assessment model by: (1) using standardized CPUE from Objective 2; and (2) incorporating growth estimates from available literature and earlier studies.		
	• Integrate the new assessment models for both endeavour prawns into the bio-economic model.		
	Two year project spanning 2021/22 - 2022/23 (Aug 2021 – Jan 2023)		
Newly identified research priorities for 2022/23			
There are no additional AFMA funded research priorities in addition to the ongoing research in the fishery listed above.			

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				
1. Assessing the impacts of trawl gear on sawfishes in the Northern Prawn Fishery with the aim to identify and test mitigation measures ensuring the long-term	This project will build on the Our Marine Parks Round One grant pilot project (2019) by using the 2019 - 2022 industry (CMO) data and photographs to 1) identify the type of TED being used by	$205,782 (3 year project commencing 2020/21).	High	High

sustainability of Sawfish populations in northern Australia **FRDC project 2019-112 finishing 2023**	each vessel and 2) determine the position each sawfish is caught in the nets. The CMO photos of sawfish catches will be analysed to identify specific areas of the trawl net where sawfish are most commonly entangled and to determine the species, sex, and life status of the sawfish reported by the CMOs. This data will be combined with the Our Marine Parks 2019 project data (2010 - 2018) to determine any significant differences in sawfish catches between the TED configurations used in the NPF and identify potential mitigation measures to increase the escapement and survival of sawfish caught. Underwater video cameras will be deployed on a number of NPF commercial vessels during the banana and tiger prawn seasons of 2020 - 2023 to monitor behaviour of sawfish interactions with trawl nets. The video footage will be analysed to determine sawfish behaviour when entering a trawl net and escapement rates using current trawl gear, which are unknown at present. It will also provide footage of other large animals that escape through the TED.			
Newly identified research priorities for 2022/23				
1. Improve understanding of sawfish post-release survival	Four sawfish species are known to occur within the area of the NPF and have been recorded in catch records. These include narrow sawfish (*Anoxypristis cuspidata*),	Medium	High	Medium

	freshwater (Largetooth) sawfish (*Pristis pristis*), green sawfish (*Pristis zijsron*) and dwarf sawfish (*Pristis clavata*). The population status and numbers of sawfish in Australian waters are unknown as there is insufficient data to conduct formal stock assessment. One significant information gap for sawfish is an understanding of post-release survival. Research is needed to determine sawfish post-release survival in order to better understand population abundance.			
2. Estimating Narrow Sawfish (*Anoxypristis cuspidata*) abundance using close kin mark recapture	The CSIRO has pioneered a new technique for assessing populations called Close-Kin Mark Recapture (CKMR) that can be applied to sawfish in the NPF. With enough data, and for suitable species, the method can provide estimates of: • abundance of the breeding adult segment of a population • adult survival rates • connectivity within mature individuals of a population • population trend.	High	High	High

Priorities for external funding in 2022/23

Title	Objectives and component tasks	Evaluation		
		Total cost (approx. only)	Priority/rank	Feasibility
Newly identified research priorities for 2022/23				
1. Fishery impacts from a changing climate	A focussed workshop to prioritise R&D related to all of the concerns related to fishery impacts from environmental change.	Low	High	High
2. Ongoing research to reduce interactions with sawfish and sea snakes	Research aimed at reducing interactions with sawfish and sea snakes and building on previous projects to assess the impacts of trawl gear on these species as a key priority for the fishery. This may include (but not limited to) identification and trial of alternative technologies (*eg* lights) to reduce interactions; underwater video cameras to monitor behaviour of sawfish and sea snake interactions with trawl nets; analysis of footage to determine sawfish and sea snake behaviour when entering a trawl net, escapement rates, and TED effectiveness for these species	Low	High	High

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