NPF Sawfish Plan 2024 – 2026

This Plan details the work programme to address how uncertainties about the magnitude of the impact from the NPF tiger prawn and white banana sub-fisheries will be reduced in order to demonstrate with a probability > 80% that those sub-fisheries do not hinder recovery of sawfish species. (MSC 2023 Condition Milestone 1.)

Over the past two decades, the NPFI has been proactive in supporting and promoting research to better understand the interactions the fishery has with sawfish species. During this time there has been many research and monitoring projects that initially focused on determining interaction rates and improving crew identification of sawfish species and accurately recording this in logbooks. As a result, there has been vast improvements in the accuracy and precision of sawfish monitoring that enables us to better understand the extent of the issue and the spatial and temporal details of these interactions. With this information in hand, our focus has moved towards augmenting the monitoring with research into mitigation options and quantifying the impact that the NPF is having on sawfish populations. As outlined below, the current Plan contains a suite of research projects that include but are not limited to satellite tagging and sawfish tissue sampling projects are aimed at obtaining verifiable, robust data on fishery interaction, an estimate of sawfish populations and post release survivability – all of which will assist the fishery to meet Condition Milestone 1.

Note: the majority of activities identified in this Plan are components of current NPFI MSC, DCCEEW & CSIRO sawfish research projects.

1. Process, timing and entities responsible for reviewing and analysing existing NPF fishery-dependant logbook, Crew Member Observer (CMO) Program and Scientific Observer program data to determine differences in NPF sawfish interaction rates between fishing vessels, gear types fishing areas and fishing years/seasons				
Activity	**Entity Responsible**	**Timeline**	**Activity Update**	**Status**
Collation of trawl gear design/net and mesh types in use by NPF vessels	NPFI	By Sept 2023	NPFI undertook interviews with all NPF operators to collect and collate information on the various fishing gears in use in the NPF from 2012 to 2022. Critical data points, including fishing effort, catch records, interactions with wildlife, particulars	Completed

			of fishing gear, BRD (Bycatch Reduction Device) types, and TED (Turtle Excluder Device) escape orientations were compiled and entered into a new, comprehensive dataset of NPF fishing gear. Industry interviews indicated that grey Magna TED mesh material was introduced sporadically from 2019 to 2022 by several NPF fishing companies. The activity output is a baseline of the suite of trawl gear/net and mesh types being used by individual fishing vessels in the Northern Prawn Fishery. NPF fishing gear data base provided to CSIRO on 3/08/2023.	
Desktop analysis of available data on sawfish interaction rates in the NPF	NPFI/CSIRO	July 2023 to April 2024	A desktop analysis of the available data was undertaken between May and August 2023. During the desktop analysis, a correlation emerged between high fishing effort and increased interactions of sawfish (and sea snakes). However, a noteworthy observation was the variability in sawfish catch rates among vessels	Completed

			operating within several geographic areas during the same time. Given the multifaceted factors influencing sawfish captures— eg year, month, season, vessel type, effort, trawling duration, gear specifications and other factors - it became evident that a more rigorous statistical analysis beyond just the typical desktop examination was required. CSIRO has been engaged by NPFI and has subsequently undertaken an extensive Generalised Linear Model (GLM) Analysis of the NPF fishing gear dataset to determine which factors influence sawfish captures.	

2. Processes, timing and entities responsibility for collation, dissemination and consideration of the results of the data analysis by NPFI members and AFMA management, ensuring that reports comply with AFMA's confidentiality policy and protect the identify of individual vessels and individual fishing companies.				
Activity	**Entity Responsible**	**Timeline**	**Activity Update**	**Status**
Collation of the outputs of the data analysis as required in accordance with the MSC and DCCEEW project milestones	NPFI/CSIRO	MSC project – by April 2024 DCCEEW Project – by November 2024		MSC project completed Sept 2024. DCCEEW draft report in progress (Nov 24)

Dissemination of final MSC report including results of data analysis to NPFI, NPRAG and AFMA for consideration.	NPFI	August 2024 Revised to Feb/May 2025 Nov 24)		Pending acceptance of the final report by MSC Report accepted by MSC 22/11/24. Report disseminated to NPFI, NPRAG and NORMAC members 22/11/24
Dissemination of DCCEEW draft project report, including results of data analysis to NPFI, NPRAG and AFMA	NPFI	November 2024 Revised to Jan/Feb 2025 (Nov 24)		Pending completion of data analysis – due by end of Nov 2024. Completed – being incorporated into draft project report for dissemination in January 2025
Consideration of MSC report including results of data analysis by NPFI, NPRAG and AFMA for consideration	NPFI/AFMA/NPRAG	November 2024 Revised to Jan/Feb 2025 (Nov 24)		Pending acceptance of the final report by MSC. Report accepted by MSC 22nd November 2024. Scheduled for review Jan/Feb 2025 (Dec 2025)
Consideration of draft DCCEEW project report, including results of data analysis by NPFI, NPRAG and AFMA	NPFI/AFMA/NRAG	May 2025		Pending project completion March 2025

3. Processes for identifying and commissioning any additional data needed to inform development and/or trial of alternative fishing gear mitigation solutions aimed at improving escapement of sawfish and/or reducing sawfish interactions				
Activity	**Entity Responsible**	**Timeline**	**Activity Update**	**Status**
Consideration of results to determine effectiveness of initial at-sea trials. NPF industry members to be consulted on ideas/ options for alternative gear mitigation trials	NPFI/ NPF skippers	December 2023	The first at-sea trials conducted of the STED (Oct 2023) proved the new STED design to be operationally unsuccessful. NPFI convened an industry workshop in Jan 2024 to discuss and agree options for the second vessel trial to be undertaken in 2024 banana prawn season. A TED with smaller bar spacing will be trialled in May 2024 under the same scientific trial conditions as applied to the STED trial in 2023. Additional data will also be collected from industry vessels using different mesh/gear materials during the 2024 banana and tiger prawn seasons. Relevant data including underwater video footage - will	In progress - reviews of next trials will occur in July and October 2024. A small bar spacing TED was trialled by one Austral vessel under a formal scientifically robust trial during commercial fishing operations for two weeks in the 2024 banana prawn season. The device appeared to be successful in reducing large fish, sharks, rays and (potentially) small sawfish, with varied prawn loss. Video footage of the trial is currently being analysed as part of the DCCEEW project. Due to the initial promising results from the trial, an additional 9 Austral vessels

			be provided to NPFI and CSIRO for analysis.	collected data on sawfish interactions while using the small bar spacing TED during the 2024 tiger prawn season. 8 boats used the trial devices on one side and the conventional TEDs on the other. One boat used the trial TED on both sides. A modified version of the small bar spacing TED was trialled on one Raptis boat during the 2024 tiger prawn season. (Nov 24) All trials completed. Data analysis completed Nov - results being incorporated into draft project report for dissemination in Jan 2025 (Dec 2024)

4. Processes and work plans, including timing and entities responsible for developing the scope, design, timing and implementation of sea trials to test various trawl gears/mesh types and other equipment/technology with potential to reduce sawfish interactions in a scientifically robust way.				
Activity	Entity Responsible	Timeline	Activity Update	Status

Develop a scientifically robust and comprehensive design for sea trials of technology and fishing gears with potential to reduce sawfish interactions	NPFI/AFMA/CSIRO	July 2023 – June 2024	Sea trials of gear mitigation options developed as follows:	Completed – trials undertaken during the 2024 tiger prawn season in accordance with trial design. Results of data analysis being incorporated in to draft project report for dissemination in Jan 2025
			8 – 10 NPF vessels to trial and collect observed sawfish interactions data to provide comparison between standard black sapphire mesh with grey Magna mesh TED flaps in the 2023 banana and tiger prawn seasons	
			Output: 8 vessels trialled and collected observed sawfish interactions data *in 2023 in accordance with the project plan. Data provided to NPFI for analysis*	
			2 NPF vessels to test the industry standard black sapphire mesh (51mm x 2.6mm) TED flaps (control) against Magna grey mesh 3.9mm x 60mm (experimental) in the 2023 tiger prawn season	
			One NPF vessel to undertake a trial aimed at comparing the previous TED flap mesh	

| | | | materials as well as trialling Magna grey mesh (3.9mm x 60mm) 15 meshes forward of the TED within the throat of the net during the 2023 tiger prawn season.

The above three vessels conducted 14-day sea trials with one AFMA scientific observer onboard each vessel during the trial periods.

Underwater cameras will be attached to all four nets on each vessel, recording bycatch activity/ interactions with the TED flaps/net. Cameras will be rotated after each fishing day to download footage and recharge the batteries.

Output: Trials of different mesh types undertaken in the 2023 tiger prawn season by three vessels in accordance with the sea trial design. Data provided to NPFI and CSIRO for analysis. | |

			Two NPF vessels will trial a new TED design – known as a STED - Sawfish, Turtle Excluder Device. These trials were conducted over 14-day periods during the NPF 2023 tiger season. The catch from each net for every trawl shot was separated, sorted and weighed to determine the impact of the STED on prawn catches and general bycatch. Data on sawfish and other TEP interactions was recorded by individual net and net position from each shot to provide catch rate data. The gear trials aimed to determine the effectiveness of the STED to improve sawfish escapement. Underwater cameras were installed on all four nets on each vessel for the duration of the trial period. Independent observers on board both vessels to aid in data collection and	

			recording for the duration of the trials. *Output: the first at-sea trial of the STED was conducted by one vessel over a two week period in Oct 2023. The new STED design was proved to be operationally unsuccessful.* *The January 2024 NPFI Sawfish workshop identified alternative gear mitigation options for trial in the 2024 banana and tiger prawn seasons including a smaller bar spacing TED to be trialled during the 2024 banana prawn season and alternative gear materials to be trialled in the tiger prawn season.*	

5. Processes and workplans, including timing and entities responsible, for developing the scope, method and protocols and undertaking data collection and analysis from sea trials				
Activity	**Entity Responsible**	**Timeline**	**Activity Update**	**Status**
Develop the scope, methods and protocols for undertaking data	NPFI, AFMA, CSIRO	April 2023 – October 2024	Data collection protocols developed as follows:	Completed

collection and analysis from sea trials			Sawfish interactions data to be collected by participating vessels comparing grey Magna mesh and black Sapphire mesh and recorded on data sheets provided by NPFI.	
			All data collected and recorded on data sheets to be analysed by NPFI and provided to CSIRO in raw and aggregated form.	
			Underwater cameras to be attached 600 mm forward of the TED, to all four nets on each of the 3 boats undertaking sea trials on different mesh types, recording bycatch activity/interactions with the TED flaps/nets.	
			Cameras to be rotated after each fishing day to download footage and recharge the batteries.	
			STED trials: the catch from each net for every trawl shot deployed on the STED trials to be separated, sorted and	

			weighed to determine the impact of the STED on prawn catches and general bycatch. Data on sawfish and other TEP interactions to be recorded by individual net and net position from each shot to provide catch rate data. Underwater video cameras to be installed on all four nets on each STED trial vessel for the duration of the trial period. Independent observers to be on board both vessels to aid data collection and recording for the duration of the trials. All video footage data to be provided to CSIRO for analysis by 31st August 2024.	

6. Processes and workplans, including timing and entities responsible, for consideration of results of sea trials by AFMA and NPFI with a view to identifying potential gear mitigation solutions (if any) for adoption in the fishery				
Activity	**Entity Responsible**	**Timeline**	**Activity Update**	**Status**

Activity	Entity Responsible	Timeline	Activity Update	Status
Consider draft reports including results of sea trials and data analysis outputs from NPFI MSC and DCCEEW sawfish projects	NPFI, AFMA, NPRAG, NORMAC	November 2024; Feb/May 2025; November 2025		Pending

7. Timelines for reviewing the outputs from relevant research projects pertaining to sawfish in the NPF (eg Close Kin Marked Recapture & satellite tagging projects)				
Activity	**Entity Responsible**	**Timeline**	**Activity Update**	**Status**
CSIRO to provide reports to AFMA, NPFI, NPRAG and NORMAC	CSIRO	Project progress reports – on sample collection for June 2024; Report of final sample size for narrow sawfish FRDC project: Oct-Nov 2025 CKMR analysis scheduled Feb-March 2025 (FRDC Narrow sawfish project) and Jan/Feb 2026 (NESP/FRDC sawfish project). Draft reports/results from CKMR data analysis - NPRAG		Ongoing

		May 2025; NPRG OOS Feb/March 2026		

8. Recommendation from July 2023 MSC Assessment report (P1. 3.2.2.c)

Recommend that AFMA and NPFI demonstrate that the Precautionary Approach is taken into account in Actions in response to improving the management of sawfish stocks. **ONGOING**

9. Timelines for undertaking and publishing the results of the next NPF Bycatch Sustainability Project and the white banana prawn and tiger prawn sub-fishery Ecological Risk Assessments (ERAs) to be undertaken by CSIRO, AFMA be considered

Activity	Entity Responsible	Timeline	Activity Update	Status
Sustainability Report to be published. White banana prawn and tiger prawn sub-fishery ERA's to be published.	CSIRO/AFMA	Sustainability Report: June 2024 ERAs: June 2026	2024 Sustainability Report in progress. NPRAG to consider scheduling of updated white banana prawn and tiger prawn ERAs at the June 2024 meeting.	In Progress

10. Processes and workplans, including timing and entities responsible, for considering alternative, practical management options (if available) to reduce impacts of fishing on NPF sawfish populations as required

Activity	Entity Responsible	Timeline	Activity Update	Status
Consider draft reports including results of sea trials and data	NPFI, AFMA, NPRAG, NORMAC	November 2024; May		Pending

analysis outputs from NPF MSC and DCCEEW sawfish projects		2025; November 2025		
Consider results of CKMR and satellite tagging projects	NPFI, AFMA, NPRAG, NORMAC	NPRAG May 2025; OOS Feb/March 2026		Pending
Discuss and agree practical management options (if available) to reduce impacts of fishing on NPF sawfish populations as required	NPFI, AFMA, NPRAG, NORMAC	May 2025; Nov 2025; May 2026		Pending

11. Processes and workplans to address any EPBC Act WTO conditions (as required). Note: the following workplan addresses Part 13A Conditions 5 – 9 inclusive and Part 13 Conditions A - D inclusive (Part 13A conditions 1 – 4 relate to AFMA BAU requirements).				
Condition 5: The Australian Fisheries Management Authority must undertake a review of the Northern Prawn Fishery Scientific Observer program to ensure its coverage is spatially and temporally distributed across the fishery in a manner that delivers representative independent data (particularly in areas where known data gaps exist or where ecological risks are higher). *Note: has wider application than just sawfish.*				
Activity	**Entity Responsible**	**Timeline**	**Activity Update**	**Status**
Undertake a review of the NPF Scientific Observer Coverage in accordance with the above condition	AFMA	By 30 June 2025		Pending

Condition 6: By 15 December 2024, the Australian Fisheries Management Authority must complete a trial of electronic monitoring in the Commonwealth Northern Prawn Fishery. This should assess the potential practicalities, costs, and benefits of introducing electronic monitoring in the fishery, with a view to informing a final decision on whether to implement a long-term electronic monitoring program in the fishery. *Note: has wider application than just sawfish.*

Activity	Entity Responsible	Timeline	Activity Update	Status
Implement a trial of EM in the NPF and assess according to the requirements of Condition 6	AFMA/NPFI	By 15 December 2024	EM trial currently underway - 3 boats 2024 banana prawn season; 5 boats 2024 NPF tiger prawn season	In progress

Condition By 30 June 2026, the Australian Fisheries Management Authority must draw on the information developed through the Northern Prawn Fishery Strategic Research Plan 2019-2023 and other supporting research to develop a sawfish bycatch mitigation strategy for the Commonwealth Northern Prawn Fishery. The strategy should consider the application of all relevant management measures and controls, including potential technological, behavioural, temporal, and spatial responses.

Activity	Entity Responsible	Timeline	Activity Update	Status
Review outputs of current research projects; develop a sawfish mitigation strategy in accordance with requirements of Condition 7	AFMA in collaboration with NPFI/CSIRO/NPRAG/NORMAC	By June 2026		Pending results of research projects

The Australian Fisheries Management Authority must ensure that where possible, all interactions with sawfish and sea snakes in the Northern Prawn Fishery are reported to the species level.

Activity	Entity Responsible	Timeline	Activity Update	Status
Implement ongoing education and liaison plan to improve industry	AFMA/NPFI	Ongoing	AFMA and NPFI continuously encourage operators to report sawfish and species interactions to species	Ongoing

reporting of sawfish and sea snakes to species level (where possible)			level through flyers, pre-season briefings, CMO program etc.	