



Australian Government

Department of the Environment and Energy

Assessment of the
COMMONWEALTH NORTHERN PRAWN FISHERY

December 2018

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This report should be attributed as '*Assessment of the Commonwealth Northern Prawn Fishery December 2018*, Commonwealth of Australia 2018'.

Disclaimer

This document is an assessment carried out by the Department of the Environment and Energy of a commercial fishery against the Australian Government *Guidelines for the Ecologically Sustainable Management of Fisheries – 2nd Edition*. It forms part of the advice provided to the Minister for the Environment on the fishery in relation to decisions under Parts 13 and 13A of the *Environment Protection and Biodiversity Conservation Act 1999*. The views expressed do not necessarily reflect those of the Minister for the Environment or the Australian Government.

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CONTENTS

Executive Summary of the Assessment of the Commonwealth Northern Prawn Fishery	1
Section 1: Assessment Summary of the Commonwealth Northern Prawn Fishery Against the Guidelines for the Ecologically Sustainable Management of Fisheries (2nd Edition), Consistent with the EPBC Act.....	3
Section 2: Detailed Analysis of the Commonwealth Northern Prawn Fishery Against the Guidelines for the Ecologically Sustainable Management of Fisheries (2nd Edition)	7
Section 3: Assessment of the Commonwealth Northern Prawn Fishery Against the Requirements of the EPBC Act.....	18
Section 4: Commonwealth Northern Prawn Fishery – Summary of Issues Requiring Conditions, December 2018	25
References	29

EXECUTIVE SUMMARY OF THE ASSESSMENT OF THE COMMONWEALTH NORTHERN PRAWN FISHERY

On 10 August 2018, the Australian Fisheries Management Authority (AFMA) submitted an application for assessment of the Commonwealth Northern Prawn Fishery (the fishery) under the provisions of Part 13 (protected species) and Part 13A (wildlife trade) of the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). The Department of the Environment and Energy (the Department) has also assessed the sustainability of the fishery's management arrangements against the Australian Government *Guidelines for the Ecologically Sustainable Management of Fisheries – 2nd Edition*. A public comment period was open from 11 September 2018 to 15 October 2018.

Fishery management arrangements

The fishery operates across Australia's northern coastline from Cape York, Queensland to Cape Londonderry, Western Australia (WA), and extends from the high water mark to the limits of Australia's exclusive economic zone. Bilateral Offshore Constitutional Settlement arrangements allow AFMA to manage fishing activities in state and territory waters.

AFMA and the Northern Prawn Fishery Industry Pty Ltd (NPF Industry) co-manage key aspects of fishing operations under the *Northern Prawn Fishery Management Plan 1995* made under the *Fisheries Management Act 1991* (Cth). Harvesting is managed in accordance with the *Harvest strategy for the Northern Prawn Fishery under input controls*. Input (effort) controls include limited entry, statutory fishing rights (SFRs), and permanent or temporary closures. SFRs place restrictions on the gear and vessels used in the fishery. There are two fishing seasons – Banana prawn season (1 April to 15 June), and Tiger prawn season (1 August to 1 December).

Target and byproduct stocks

There are six primary target species – White (Common) Banana Prawn (*Penaeus merguensis*), Redleg Banana Prawn (*P. indicus*), Grooved Tiger Prawn (*P. semisulcatus*), Brown Tiger Prawn (*P. esculentus*), Blue Endeavour Prawn (*Metapenaeus endeavouri*), and Red Endeavour Prawn (*M. ensis*). The fishery also harvests Western King Prawn (*Melicertus latisulcatus*), Redspot King Prawn (*M. longistylus*), and Black Tiger Prawn (*P. monodon*), although catches for these species are much lower. No target species is considered overfished or subject to overfishing, although Red Endeavour Prawn stocks are classified as 'uncertain'. Byproduct species include squid, scampi, bugs, scallops, and a range of finfish species. Key byproduct species that are taken in fisheries managed by the Northern Territory, Queensland and WA are managed under bilateral memorandums of understanding.

The management measures in place in the fishery (summarised in Section 1) are sufficient to ensure that the fishery is conducted in a manner that does not lead to overfishing and that stocks are not currently overfished.

Information requirements

AFMA has developed a strategic research plan, which includes timelines for priority research, to ensure that target stocks continue to be fished sustainably. This strategy indicates a commitment by AFMA and the NPF Industry to continue to facilitate stock assessments and research, including in relation to bycatch species. A key challenge for this fishery is to ensure management measures are adequate to constrain fishing effort in a way that ensures stocks remain sustainable.

Ecosystem impacts, including bycatch, threatened species and communities

Taking into account the management arrangements in place in this fishery, including the mandatory use of bycatch mitigation devices and AFMA's ecological risk management framework, the Department considers that fishing operations are managed to minimise their impact on the structure, productivity, function and biological diversity of the ecosystem. However, while the fishery is relatively well managed, the Department has identified a number of risks and uncertainties relating to ongoing interactions with sawfishes and sea snakes that must be managed to ensure that impacts are minimised. The management plan for the fishery

has been reaccredited under Part 13 of the EPBC Act, subject to conditions requiring AFMA to facilitate ongoing research and develop a suitable education program or materials that aim to minimise the effect of fishing for sawfish and sea snake species.

Conclusion

On this basis, the Department has determined that product taken in the fishery should be included in the list of exempt native specimens under Part 13A of the EPBC Act until 6 January 2024. To ensure that this decision remains valid, the recommendations made under Part 13A and the conditions made under Part 13 listed at Section 4 will apply.

SECTION 1: ASSESSMENT SUMMARY OF THE COMMONWEALTH NORTHERN PRAWN FISHERY AGAINST THE GUIDELINES FOR THE ECOLOGICALLY SUSTAINABLE MANAGEMENT OF FISHERIES (2ND EDITION), CONSISTENT WITH THE EPBC ACT

Guidelines assessment	Meets	Partially meets	Does not meet	Details
Management regime	7 of 9	2 of 9		The management regime is generally effective in managing target stocks, byproduct species and the broader marine environment. While the fishery does not currently comply with all recovery plans and conservation advices for sawfish species, AFMA's research strategy shows a commitment to develop and implement mitigation measures.
Principle 1 (target stocks)	7 of 11 2 of 11 not applicable	2 of 11		All target stocks are classified as 'sustainable'. However, Red Endeavour Prawn biomass is 'uncertain', and Redleg Banana Prawn stocks are 'uncertain' with regard to fishing mortality and biomass. 1.1.2 – Up-to-date information is available for most target species. However, more data is required to reliably assess Red Endeavour Prawn and Redleg Banana Prawn stocks. 1.1.7 – There is a need for ongoing monitoring to ensure that fishing effort continues to be adequately constrained.
Principle 2 (bycatch and TEPS)	3 of 12 2 of 12 not applicable	6 of 12	1 of 12	Bycatch is high for sawfishes and sea snakes. 2.1.3 – Further research is required to minimise the impact to sawfish and sea snake species. 2.1.4 – Up-to-date information will inform future management actions for bycatch. 2.1.5 – There are no performance measures for sawfish. 2.1.6 – Achieving the objective to mitigate impacts to bycatch species requires ongoing research. 2.2.2 – It is important that geographical risk assessments include population dynamics for species that continue to be discarded in high numbers. 2.2.4 – Given the high number of discards, it is important that performance measures are developed and implemented for sea snake and sawfish species. 2.2.6 – Ongoing research and studies are required to develop appropriate mitigation measures for sawfish species.
Principle 2 (ecosystem impacts)	3 of 5	2 of 5		In 2012, an ecological risk assessment was conducted for the whole fishery except Joseph Bonaparte Gulf Banana Prawn sub-fishery. The ERA for this sector was completed in 2015. An ERA is in progress for the whole fishery.
EPBC requirements	Meets	Partially meets	Does not meet	Details

Part 12		All partially met		While fishing activities are not likely to be deleterious to the values identified in the marine bioregional plans in the short term, there are known risks to protected species (e.g. high bycatch numbers) that must be addressed.
Part 13	2 met	7 partially met		Given the high protected species bycatch, three conditions under Part 13 of the EPBC Act are considered appropriate to ensure mitigation measures are developed to minimise the impacts to TEPS (see Section 4).
Part 13A	All met			Although there are known risks, the Department considers it appropriate to include product taken in this fishery in the list of exempt native specimens.
Part 16	All met			The precautionary principle has been considered in making this decision to include specimens in the list of exempt native specimens.

Notes:

Assessment history:

Information on previous assessments for the Commonwealth Northern Prawn Fishery — <http://www.environment.gov.au/marine/fisheries/commonwealth/northern-prawn>.

- **1st assessment** finalised November 2004 — The list of exempt native specimens (LENS) was amended to include product from this fishery until 09 January 2009. Export approval was subject to 12 recommendations. Accredited under Part 13 of the EPBC Act on 12 January 2006. Accreditation for the *Northern Prawn Fishery Management Plan 1995* pursuant to subsection 33(1) of the EPBC Act on 12 January 2006.
- **2nd assessment** finalised December 2008 — The list of exempt native specimens (LENS) was amended to include product from this fishery until 09 January 2014 (F2009L00008). Export approval was subject to nine recommendations.
- **3rd assessment** finalised December 2013 — The list of exempt native specimens (LENS) was amended to include product from this fishery until 09 January 2019 (C2014G00040). Export approval was subject to four recommendations. Accredited under Part 13 of the EPBC Act on 20 December 2013.

Fishery reporting:

- Annual reports — <https://www.afma.gov.au/about/corporate-publications>.

Key links for information relevant to managing the fishery:

- AFMA's operational procedures, policies and guidelines — <https://www.afma.gov.au/about/fisheries-management-policies>
- Northern Prawn Fishery webpage — <https://www.afma.gov.au/fisheries/northern-prawn-fishery>.
- Northern Prawn Fishery Management Advisory Committee (NORMAC) — <https://www.afma.gov.au/fisheries/committees/northern-prawn-management-advisory-committee>.
- Northern Prawn Fishery Resource Assessment Group — <http://www.afma.gov.au/fisheries/committees/northern-prawn-resource-assessment-group/>.
- Northern Prawn Fishery research program — <https://www.afma.gov.au/research>.

Management arrangements

- Northern Prawn Fishery management plan 1995 — <https://www.legislation.gov.au/Current/F2012C00160>.
- Northern Prawn Fishery operational information handbook — <http://www.afma.gov.au/fisheries-services/fisheries-management-plans/>.
- Northern Prawn Fishery directions and closures 2017 — <https://www.afma.gov.au/fisheries-services/fisheries-management-plans>.
- Northern Prawn Fishery determinations and directions — <https://www.legislation.gov.au>
 - Determination of fishing capacity, NPF Fishing Capacity Determination No. NPF GD 07 at <https://www.legislation.gov.au/Details/F2011L01521>.
 - NPF (Closures) Direction No. 166 — <https://www.legislation.gov.au/Current/F2014L00253>.
 - NPF (Closures) Direction No. 169 — <https://www.legislation.gov.au/Current/F2014L00990>.
 - NPF (Closures) Direction No. 171 — <https://www.legislation.gov.au/Current/F2017C01044>.
 - NPF (Closures) Direction No. 172 — <https://www.legislation.gov.au/Current/F2015L01954>.
 - NPF (Gear Requirements) Direction No. 174 — <https://www.legislation.gov.au/Current/F2018C00613>.
 - Fisheries Management (Logbooks for Fisheries) Determination 2018 — <https://www.legislation.gov.au/Series/F2018L01310>.

- Northern Prawn Fishery Industry Pty Ltd – <http://npfindustry.com.au/>.

Enforcing legislation

- Commonwealth legislation and regulations are available at Federal Register of Legislation – <https://www.legislation.gov.au/Home>.
- *Fisheries Management Act 1991* (Cth).
- Fisheries Management Regulations 1992 (Cth)

Harvest strategy

- Harvest strategy for the Northern Prawn Fishery – <https://www.afma.gov.au/sustainability-environment/harvest-strategies>.
- Dichmont et al. 2014 'Harvest strategy for the Northern Prawn Fishery under input controls' – <http://npfindustry.com.au/Publications/Harvest%20Strategy/Harvest%20Strategy%202012.pdf>.
- Commonwealth fisheries harvest strategy policy and guidelines, September 2007 – http://www.agriculture.gov.au/fisheries/domestic/harvest_strategy_policy

Ecological Risk Assessment

- Ecological risk management strategies for Commonwealth commercial fisheries – <https://www.afma.gov.au/sustainability-environment/ecological-risk-management-strategies>.
 - Guide to AFMA's ecological risk management, June 2017.
- Ecological risk assessment and management reports, including AFMA's guide to ecological risk management and the policy for undertaking ecological risk assessments — <https://www.afma.gov.au/sustainability-environment/ecological-risk-management-strategies>.

Bycatch Mitigation

- Bycatch reports, publications and identification guides — <https://www.afma.gov.au/sustainability-environment/bycatch-discarding/bycatch-reports-publications-id-guides>.
- Bycatch and discarding workplans — <https://www.afma.gov.au/sustainability-environment/bycatch-discarding/bycatch-discard-workplans>.
 - Bycatch strategy: Mitigating protected species interactions and general bycatch 2017—2022, Fisheries management paper no. 15, Australian Fisheries Management Authority, Canberra ACT.
 - Northern Prawn Fishery bycatch and discarding work plan 2014—2016.
- Northern Prawn Fishery bycatch strategy 2015—2018 at <https://www.afma.gov.au/sites/g/files/net5531/f/uploads/2014/02/NPF-Bycatch-Strategy-2015-18-FINAL-VERSION.pdf>.

Stock assessments

- Northern Prawn Fishery stock assessments 2015–2018 (see Buckworth et al. 2015).
- Northern Prawn Fishery data summaries — <https://www.afma.gov.au/fisheries/northern-prawn-fishery/data-summaries>.
- Integrated monitoring program for the Northern Prawn Fishery 2018–2021: Spawning survey tabulated data July 2018 – https://www.afma.gov.au/sites/g/files/net5531/f/uploads/2018/07/Integrated-Monitoring-Program-for-the-Northern-Prawn-Fishery-2018-2021-spawning-survey-tabulated-data_Jul18.pdf.

SECTION 2: DETAILED ANALYSIS OF THE COMMONWEALTH NORTHERN PRAWN FISHERY AGAINST THE GUIDELINES FOR THE ECOLOGICALLY SUSTAINABLE MANAGEMENT OF FISHERIES (2ND EDITION)

Guidelines criteria	Comment
THE MANAGEMENT REGIME	
The management regime does not have to be a formal statutory fishery management plan as such, and may include non-statutory management arrangements or management policies and programs. The regime should:	
Be documented, publicly available and transparent.	<p>Meets</p> <p>The Australian Fisheries Management Authority (AFMA) and the Northern Prawn Fishery Industry Pty Ltd (NPF Industry) co-manage the Northern Prawn Fishery (the fishery) in accordance with the <i>Northern Prawn Fishery Management Plan 1995</i> (NPF Management Plan) made under the <i>Fisheries Management Act 1991</i> (Cth). Fishing is regulated by the <i>Fisheries Management Regulations 1992</i> (Cth). The management arrangements are publicly available (see links to management arrangement under Notes above). The NPF Management Plan and Determinations and Directions are published on the Federal Register of Legislation website. The ‘Industry code of practice for responsible fishing’ sets out the principles and standards expected for all operators (Pownall and Jarrett 2004).</p>
Be developed through a consultative process providing opportunity to all interested and affected parties, including the general public.	<p>Meets</p> <p>Key stakeholders have opportunities to consult with AFMA via the NPF Resource Assessment Group (NPF RAG). The Fisheries Management Act mandates public consultation in relation to developing plans of management.</p>
Ensure that a range of expertise and community interests are involved in individual fishery management committees and during the stock assessment process.	<p>Meets</p> <p>Membership of the NPF RAG includes fishery managers, scientists and economists, fishing operators, state and territory government agencies, environmental non-government organisations, and recreational fishers. The NPF RAG disseminates information and advice regarding stock sustainability and impacts to non-target species and the marine environment to the NPF Management Advisory Committee (NORMAC) and AFMA. Operational procedures, policies and guidelines are available at https://www.afma.gov.au/about/fisheries-management-policies.</p>
Be strategic, containing objectives and performance criteria by which the effectiveness of the management arrangements are measured.	<p>Meets</p> <p>The Fisheries Management Act contains broad objectives and performance criteria. Fishery-specific objectives, performance measures, and performance criteria are outlined in the NPF Management Plan and the <i>Harvest strategy for the Northern Prawn Fishery under input controls 2014</i> (NPF Harvest Strategy). The NPF Harvest Strategy also contains decision rules and reference points for target and byproduct species, and includes management actions for target stocks (Dichmont et al. 2014). Since 2003, decision rules and trigger limits are based on MEY. The NPF RAG is required to address any reference point that is triggered for byproduct species. The NPF Management Plan is under review to ensure it meets the objectives of the revised harvest strategy policy and associated guidelines, and the bycatch policy and associated guidelines for all Commonwealth-managed fisheries (see DAFF 2013; DaWR 2018a; 2018b; 2018c; 2018d).</p>

<p>Be capable of controlling the level of harvest in the fishery using input and/or output controls.</p>	<p>Partially meets</p> <p>The fishery area extends from the low water mark (in state waters) to the outer edge of the Australian Fishing Zone along approximately 6000 kilometres of coastline from Cape York in Queensland to Cape Londonderry in Western Australia. The fishery is managed by the following input (effort) controls:</p> <ul style="list-style-type: none"> • Entry is limited (maximum 52 vessels) • Mandatory statutory fishing rights (SFRs) place restrictions on the gear used (e.g. length of headrope, minimum mesh size), and the number of vessels (including requirements for using vessel monitoring systems (VMS), bycatch reduction devices (BRDs), turtle exclusion devices (TEDs) etc.) • Fishing closures – Permanent closures aim to minimise impacts to seagrass beds, large reef outcrops, and areas where low stock density occurs. Temporary closures aim to limit overfishing of undersized prawns, protect spawning areas, and reduce fishing effort. The fishing seasons can be closed at any time if a pre-determined catch limit is not reached. Fishing bans apply to trawling in daylight hours. • Trip limits for byproduct species • Permitted species—take of sharks, rays and skates is prohibited.
<p>Contain the means of enforcing critical aspects of the management arrangements.</p>	<p>Meets</p> <p>Fishing rules are described in the annual fishery guidance booklet for operators. VMS is mandatory on all trawlers. AFMA regularly monitors VMS, which provides information on fishing effort and locations. Logbook records are verified against catch returns for target and byproduct species. On-board observers monitor catches, fishing effort and protected species interactions. A gear monitoring program collects data on the size and speed of vessels, and configurations for TEDs and BRDs.</p>
<p>Provide for the periodic review of the performance of the fishery management arrangements and the management strategies, objectives and criteria.</p>	<p>Meets</p> <p>The fishery's performance is reviewed regularly. The NPF Management Plan outlines obligations for ongoing assessments of the effectiveness of performance measures and reporting. AFMA's annual reports contain a statement in relation to performance measures. Catch trigger limits based on maximum economic yield require regular collection and analysis of catch data to allow for in-season calculations. In 2013, AFMA determined that the NPF Harvest Strategy would be reviewed at five-year intervals (Dichmont et al. 2014). The first review of the harvest strategy is in progress.</p>
<p>Be capable of assessing, monitoring and avoiding, remedying or mitigating any adverse impacts on the wider marine ecosystem in which the target species lives and the fishery operates.</p>	<p>Meets</p> <p>AFMA's ecological risk assessment for the effects of fishing (ERAEF) method is used to assess the impacts to target, byproduct, bycatch and protected species, habitats and ecological communities. The ERAEF has four stages – scoping, level 1 analysis based on expert judgement, level 2 empirical analysis, and level 3 analysis using modelling. The ERAEF method begins with the risks to all species considered to be high. Issues or risks of lower concern are then progressively screened with each stage (Griffiths et al. 2007). Impacts are monitored via analysis of logbook and processor records, e-monitoring and observer reports. A number of measures are used to address impacts, including the NPF Bycatch and Discarding Workplan. Compliance risks are reviewed annually.</p>

	Compliance measures include mandatory VMS on all trawl vessels, inspections of vessels and fishing activities. The NPF RAG reviews and addresses any issues that arise through regular monitoring activities.
Requires compliance with relevant threat abatement plans, recovery plans, the National Policy on Fisheries Bycatch, and bycatch action strategies developed under the policy.	<p>Partially meets</p> <p>The fishery complies with a number of relevant policies, plans and strategies, including the <i>Recovery plan for marine turtles in Australian waters</i> (DoEE 2017), and <i>Threat abatement plan for the impacts of marine debris on vertebrate wildlife of Australia's coasts and oceans</i> (DoEE 2018). Fishing operations in Commonwealth waters are required to comply with the <i>Commonwealth fisheries bycatch policy</i> (DaWR 2018a) and the <i>Guidelines for the implementation of the Commonwealth fisheries bycatch policy</i> (DaWR 2018c).</p> <p>While the fishery does not comply with all aspects of approved conservation advices and recovery plans for sawfishes, AFMA anticipate that future research will address the regional priority recovery and threat abatement actions identified in the following plans, policies and strategies.</p> <ul style="list-style-type: none"> • <i>Approved conservation advice for <u>Pristis clavata</u> (Dwarf Sawfish)</i> (DEWHA 2009), • <i>Approved conservation advice for <u>Pristis pristis</u> (Large-tooth Sawfish)</i> (DoE 2014), • <i>Approved conservation advice for Green Sawfish</i> (DEWHA 2008), and • <i>Sawfish and river sharks multispecies recovery plan</i> (DoE 2015). <p>Any research or surveys for sawfishes should also consider the <i>Protocols for surveying and tagging sawfishes and river sharks</i> (Kyne and Pillans 2014), and the <i>Survey guidelines for Australia's threatened fish. EPBC Act survey guidelines 6.4</i> (DSEWPac 2011b).</p>
PRINCIPLE 1 - A fishery must be conducted in a manner that does not lead to over-fishing, or for those stocks that are over-fished, the fishery must be conducted such that there is a high degree of probability the stock(s) will recover.	
Objective 1 - The fishery shall be conducted at catch levels that maintain ecologically viable stock levels at an agreed point or range, with acceptable levels of probability.	
Information requirements	
1.1.1 There is a reliable information collection system in place appropriate to the scale of the fishery. The level of data collection should be based upon an appropriate mix of fishery independent and dependent research and monitoring.	<p>Meets</p> <p>The fishery primarily targets six prawn species – White (Common) Banana Prawn (<i>Penaeus merguensis</i>), Redleg Banana Prawn (<i>P. indicus</i>), Grooved Tiger Prawn (<i>P. semisulcatus</i>), Brown Tiger Prawn (<i>P. esculentus</i>), Blue Endeavour Prawn (<i>Metapenaeus endeavouri</i>), and Red Endeavour Prawn (<i>M. ensis</i>). Catches for Black Tiger Prawn (<i>P. monodon</i>), Western King Prawn (<i>Melicertus latisulcatus</i>), and Redspot King Prawn (<i>M. longistylus</i>) are much lower. Catch data is available on the fishery webpage (see Notes for links). Key byproduct species include squid (<i>Loliginidae</i> sp.), scampi (<i>Nephropidae</i> sp.), bugs (<i>Scyllaridae</i> sp.), scallops (<i>Pectinidae</i> sp.) and a variety of finfish species.</p> <p>Logbooks are used to record target and byproduct species, discards, protected species interactions, and fishing operations (e.g. area fished, time, gear, and fishing method). Catch data is verified against seasonal landing records. Data for target species, bycatch and protected species are also recorded by AFMA's independent scientific observers and the crew member observer (CMO) program. Fishery data is analysed by AFMA and provided to CSIRO as part of ongoing research initiatives (see Buckworth et al. 2015; Laird 2016; CSIRO 2018).</p>

	<p>The Australian Bureau of Agriculture and Resource Economics (ABARES) independently evaluates the biological and economic status of Commonwealth-managed fishery's (see Patterson et al. 2018). The Status of Australian Fish Stocks Reports is published bi-annually and provides up-to-date information regarding the biological, catch and effort data for key species stocks (see Stewardson et al. 2016).</p>
<p>Assessment</p>	
<p>1.1.2 There is a robust assessment of the dynamics and status of the species/fishery and periodic review of the process and the data collected. Assessment should include a process to identify any reduction in biological diversity and/or reproductive capacity. Review should take place at regular intervals but at least every three years.</p>	<p>Partially meets</p> <p>A full stock assessment is undertaken every second year. Stock assessments for the six target species are undertaken by different methods. A full bio-economic assessment model (sex and size structure) is run biennially for Grooved Tiger, Brown Tiger, Red Endeavour, and Blue Endeavour prawns. A Bayesian hierarchical production model is also used for Red Endeavour Prawns (Patterson et al. 2018). A separate assessment is undertaken for Redleg Banana Prawns every year. White Banana Prawns are highly variable from year to year and the most effective way to maintain the sustainability of the stock is to ensure the production of eggs is optimised every year. This is achieved through spatial and seasonal closures together with an escapement management approach controlled by in-season MEY catch triggers. A number of research studies have contributed to the optimal management of White Banana prawns (Stewardson et al. 2016; Patterson et al. 2018). ABARES <i>Fishery status report 2018</i> indicates White Banana Prawn, Brown Tiger Prawn, Grooved Tiger Prawn and Blue Endeavour Prawn stocks are 'not overfished' with regard to biomass, and 'not subject to overfishing' with regard to fishing mortality over the preceding two years. Redleg Banana Prawn stock biomass was 'uncertain' in 2016, and 'not subject to overfishing' the following year. In 2016 fishing mortality was 'not subject to overfishing', but was assessed as 'uncertain' in 2017 due to low recruitment and declining catch rates (Patterson et al. 2018). Due to a lack of information, Red Endeavour Prawn stocks are classified as 'uncertain' (Patterson et al. 2018) or 'undefined' (Stewardson et al. 2016). An up-to-date stock assessment for this species is required. There is very little information for Black Tiger Prawn and the two king prawn species, although these species are often taken in low numbers.</p>
<p>1.1.3 The distribution and spatial structure of the stock(s) has been established and factored into management responses.</p>	<p>Meets</p> <p>The distribution of all prawn species is well-known, although there is some uncertainty regarding the number of biological stocks across northern Australia, and the boundaries between these stocks (Stewardson et al. 2016). AFMA facilitates ongoing surveys and research to better understand prawn populations. The available information is factored into the management arrangements.</p>
<p>1.1.4 There are reliable estimates of all removals, including commercial (landings and discards), recreational and indigenous, from the fished stock. These estimates have been factored into stock assessments and target species catch levels.</p>	<p>Meets</p> <p>Data for the commercial fishery is taken from logbooks and validated against processor records. White Banana Prawn, Grooved Tiger Prawn, and Brown Tiger Prawn account for almost 80 per cent of the total annual catch from the fishery, followed by endeavour prawns and Redleg Banana Prawns, several other commercially valuable prawn species and a number of byproduct species. Offshore Constitutional Settlement arrangements with WA, NT and Queensland limit the take of byproduct species, and allow licensed operators to collect prawn broodstock. A maximum of three broodstock permits may be active at any one time. The harvest by recreational and Indigenous fishers is unknown, but is considered negligible.</p>

<p>1.1.5 There is a sound estimate of the potential productivity of the fished stock/s and the proportion that could be harvested.</p>	<p>Meets Annual catch is highly variable and influenced by environmental factors. However, sound estimates of productivity information is available through regular monitoring, catch data and biological information to allow a sound estimate of productivity.</p>
<p>Management responses</p>	
<p>1.1.6 There are reference points (target and/or limit), that trigger management actions including a biological bottom line and/or a catch or effort upper limit beyond which the stock should not be taken.</p>	<p>Meets Reference points and decision rules for target stocks are described in the NPF Directions and Closures 2017; NPF Harvest Strategy, and NPF Management Plan (see Notes for web links). In 2003, NORMAC adopted maximum economic yield (MEY) as the preferred method for determining stock sustainability. The fishery uses proxy reference points, which must ensure stocks remain sustainable (see NPF Harvest Strategy).</p>
<p>1.1.7 There are management strategies in place capable of controlling the level of take.</p>	<p>Partially meets The fishery has a strong management framework in place to control effort. The management framework for the primary target species (brown and grooved tiger prawns, and banana prawns) is scientifically robust and established with the core objective of constraining effort. ABARES <i>Fishery status reports 2018</i> indicates current management arrangements are unable to fully control the level of harvest for Redleg Banana Prawn stocks. The ABARES report also considers that the “harvest strategy is poorly suited to the current low stock biomass for this species, and provides no direction for a progressive reduction in effort as the stock approaches the limit reference point” (Patterson et al. 2018, p. 65). AFMA has informed the Department that a stock assessment for this species is currently being revised . Given the ongoing risk in relation to effort creep, any future review of the harvest strategy should investigate measures that improves certainty. Fishing effort must be continually monitored and adequate management actions implemented to minimise the risk for effort creep.</p>
<p>1.1.8 Fishing is conducted in a manner that does not threaten stocks of byproduct species.</p>	<p>Meets Although fishing effort is moderate, the management arrangements impose restrictions on the take of byproduct species. Memorandums of Understanding between the Commonwealth and relevant states and NT limit the amounts for key byproduct species that are taken in state and territory managed fisheries.</p>
<p>(Guidelines 1.1.1 to 1.1.7 should be applied to byproduct species to an appropriate level)</p>	
<p>1.1.9 The management response, considering uncertainties in the assessment and precautionary management actions, has a high chance of achieving the objective.</p>	<p>Meets There is a medium to high chance that fishing operations will maintain ecologically viable stock levels through regular stock assessments and monitoring.</p>
<p>If overfished, go to Objective 2: If not overfished, go to PRINCIPLE 2:</p>	
<p>Objective 2 - Where the fished stock(s) are below a defined reference point, the fishery will be managed to promote recovery to ecologically viable stock levels within nominated timeframes.</p>	
<p>Management responses</p>	

<p>1.2.1 A precautionary recovery strategy is in place specifying management actions, or staged management responses, which are linked to reference points. The recovery strategy should apply until the stock recovers, and should aim for recovery within a specific time period appropriate to the biology of the stock.</p>	<p>Not applicable A precautionary recovery strategy is not required as no target species is considered overfished. However, regular stock surveys will increase stock status certainty.</p>
<p>1.2.2 If the stock is estimated as being at or below the biological and/or effort bottom line, management responses such as a zero targeted catch, temporary fishery closure or a 'whole of fishery' effort or quota reduction are implemented.</p>	<p>Not applicable See 1.2.1 above.</p>
<p>PRINCIPLE 2 - Fishing operations should be managed to minimise their impact on the structure, productivity, function and biological diversity of the ecosystem.</p>	
<p>Objective 1 - The fishery is conducted in a manner that does not threaten bycatch species.</p>	
<p>Information requirements</p>	
<p>2.1.1 Reliable information, appropriate to the scale of the fishery, is collected on the composition and abundance of bycatch.</p>	<p>Meets Accurate and up-to-date data collection allowed at-risk species to be identified, and suitable management actions to be implemented in a timely manner. Operators are required to record all bycatch species, including those listed threatened, endangered or protected (TEPS) in catch logbooks. Bycatch data is also collected by AFMA's scientific observers and by industry under the CMO program. Data from logbooks and observer reports (scientific and crew members) are provided to CSIRO for ongoing research (Raudzens 2007; Buckworth et al. 2015; Fry et al. 2015; CSIRO 2018). The data indicates that species of sawfishes and sea snakes account for the majority of bycatch in the fishery (see Notes for links to AFMA protected species reports). At-risk species include Narrow (Knifetooth) Sawfish (<i>Anoxypristis cuspidata</i>), Dwarf Sawfish, Large-tooth Sawfish, and Green Sawfish (<i>Pristis zijsron</i>). There is a lack of information in relation to the distribution and biological structure of sawfish populations in northern Australia. AFMA is committed to working with CSIRO and NPF Industry to conduct further research that aims to minimise impacts to non-target species (Buckworth et al. 2015). The Part 13 accreditation for this fishery includes a condition to ensure sufficient ongoing monitoring (electronic or human) to allow AFMA to evaluate the nature and level of impacts of fishing on EPBC Act protected species. It is appropriate that re-accreditation of the management plan under Part 13 of the EPBC Act is subject to the same condition (see Part 13 Condition A at section 4).</p>
<p>Assessment</p>	
<p>2.1.2 There is a risk analysis of the bycatch with respect to its vulnerability to fishing.</p>	<p>Meets</p>

	<p>The fishery has an ERA conducted every five years, which accounts for the whole area of the fishery including all species and ecological communities. A revised ERA for this fishery is currently in progress. In 2012, AFMA facilitated an ERA that included a sustainability assessment for fishing effects (SAFE). Zhou et al. (2015) concentrated on impacts of fishing in the Joseph Bonaparte Gulf Banana Prawn sub-fishery, which was not covered in the 2012 SAFE ERA. . The assessment used the sustainability assessment for fishing effect (SAFE) method, which is based on the indicator—reference point system traditionally used in fishery stock assessments. Fishing mortality rate is the key indicator while reference points are based on fishing effort, gear configuration, catch efficiency, escapement rate, and life history parameters. The assessment was limited to those species listed on CSIRO’s bycatch monitoring database, but does not clearly identify risks to vulnerable species of sawfish and sea snakes. Previous risk assessments indicate the impact of fishing on bycatch is low (see Griffiths et al. 2007; Raudzens 2007; AFMA 2008; Zhou 2011; AFMA 2012). However, sawfish and sea snake bycatch remains high. Any future risk assessment should be indicative of the whole fishing area to provide a stronger analysis of the risks posed by this fishery.</p>
<p>Management responses</p>	
<p>2.1.3 Measures are in place to avoid capture and mortality of bycatch species unless it is determined that the level of catch is sustainable (except in relation to endangered, threatened or protected species). Steps must be taken to develop suitable technology if none is available.</p>	<p>Partially meets</p> <p>A number of management measures in place in the fishery contribute to minimising bycatch, including mandatory use of a turtle excluder device and bycatch reduction device, and seasonal or permanent closures. Management responses identified above have resulted in significant bycatch reductions for turtles (99%), rays (36%), sharks (17%), and sea snakes (5%) (Brewer et al. 2006). Milton et al. (2009) also found significant reductions in sea snake bycatch, with further reductions possible with the implementation of Popeye Fishbox BRD or Fisheye BRD in this fishery. AFMA has facilitated a number of studies that aim to mitigate bycatch (for example, Brewer et al. 2007; Raudzens 2007; Gerner and Maynard 2010; Laird et al. 2016).</p> <p>However, there are ongoing concerns in relation to the amount of bycatch for sawfishes and sea snakes. AFMA and NPF Industry are committed to improving outcomes for these species through a research strategy that includes studies that aim to better understand how sawfish interact with the fishing gear, and refining bycatch reduction devices to minimise the fishery’s impact on protected species.</p> <p>A condition has been included under Part 13 of the EPBC Act that will require AFMA to facilitate ongoing research that aims to increase knowledge of sea snake and sawfish interactions with fishing gear, and to develop appropriate decision rules to minimise bycatch (see Part 13 conditions at Section 4).</p>
<p>2.1.4 An indicator group of bycatch species is monitored.</p>	<p>Partially meets</p> <p>AFMA is undertaking preliminary monitoring to better understand the behaviour of sawfishes inside the trawl net.</p>
<p>2.1.5 There are decision rules that trigger additional management measures when there are significant perturbations in the indicator species numbers.</p>	<p>Partially meets</p> <p>No performance measures have been implemented to mitigate impacts to sawfish species. Developing appropriate decision rules is challenging due to the lack of up-to-date biological information for sawfish species in the fishery. The management plan for this fishery is subject to conditions under Part 13 of the EPBC Act that require AFMA and NPF Industry to implement strategies to improve species-level identification and facilitate research that aims to mitigate impacts to sawfishes and sea snakes (see Part 13 conditions at Section 4).</p>

<p>2.1.6 The management response, considering uncertainties in the assessment and precautionary management actions, has a high chance of achieving the objective.</p>	<p>Partially meets</p> <p>Bycatch mitigation measures have shown to be effective for some species such as turtles. However, there is a need to significantly reduce the incidental capture and mortality of sawfishes and sea snakes in this fishery to improve confidence that the fishery is able to meet the objective to conduct fishing in a manner that does not threaten bycatch species. Therefore, the Part 13 reaccreditation for this fishery is subject to a condition that requires AFMA to facilitate ongoing research that aims to increase knowledge of sawfish and sea snake interactions with fishing gear, and to develop appropriate decision rules to minimise the incidental capture and mortality for these species (see Part 13 conditions at Section 4).</p>
<p>Objective 2 - The fishery is conducted in a manner that avoids mortality of, or injuries to, endangered, threatened or protected species and avoids or minimises impacts on threatened ecological communities.</p>	
<p>Information requirements</p>	
<p>2.2.1 Reliable information is collected on the interaction with endangered, threatened or protected species and threatened ecological communities.</p>	<p>Meets</p> <p>Information is collected via catch logbooks, the CMO program, and independent on-board observers. This information forms part of the TEPS interaction reports, which is published each quarter. NORMAC estimates that mitigation measures introduced over the past two decades have contributed to a decline in bycatch of more than 50 per cent. AFMA's TEPS reports from the fourth quarter (Oct–Dec) 2013 to third quarter (Jul–Sep) 2018, the fishery has reported 314 interactions with marine turtle species (Cheloniidae), including 208 reported as unidentified turtle species. Ninety-eight per cent of turtles were released alive.</p> <p>A total of 2,246 interactions with sawfish species (Pristidae) occurred with 64 per cent released alive. Sixty-eight per cent of the overall sawfish interactions (n=1,528) were not reported to species level.</p> <p>A total of 42,299 interactions occurred with sea snake species (Hydrophiinae) of which 76 per cent were released alive. Sea snakes are not identified at species level in AFMA's protected species report, which makes it difficult to assess the potential impact to at-risk species. Although the Department has been informed that AFMA has a fairly good understanding of the seasnake species and catch ratios for this fishery. Scientific observers and CMOs photograph all seasnakes caught in the fishery. These photographs are then used for analysis by CSIRO to determine species. CSIRO provide milestone reports to AFMA every year, which includes an assessment of the sustainability of each species.</p> <p>No threatened ecological communities occur in the area in which the fishery operates.</p> <p>The Part 13 reaccreditation for this fishery includes a condition to ensure sufficient ongoing monitoring (electronic or human) to evaluate the nature and level of impacts of fishing on EPBC Act protected species (see Part 13 conditions at section 4).</p>
<p>Assessments</p>	
<p>2.2.2 There is an assessment of the impact of the fishery on endangered, threatened or protected species.</p>	<p>Partially meets</p> <p>AFMA (2012) provides the most up-to-date assessment of risk to TEPS in this fishery, and follows previous assessments by Griffiths et al. (2007), AFMA (2008), and Zhou (2011). Each of these risk assessments indicate the fishery's risk to TEP species is low. However, the fishery continues to discard high numbers of sea snakes and</p>

	<p>sawfishes. Commercial fishing has been identified as the main threat to Dwarf Sawfish, and Large-tooth Sawfish, which are listed vulnerable under the EPBC Act (DEWHA 2008; DoE 2014).</p> <p>Given the high numbers of sawfish discard in this fishery, conditions have been included under Part 13 of the EPBC Act to ensure that AFMA and NPF Industry engage in future research initiatives and the adoption of adequate measures that aim to minimise the impacts to sawfish populations before the next assessment under the EPBC Act for this fishery (see Part 13 conditions at Section 4).</p>
<p>2.2.3 There is an assessment of the impact of the fishery on threatened ecological communities.</p>	<p>Not applicable</p> <p>There are no threatened ecological communities in the area in which the fishery operates.</p>
<p>Management responses</p>	
<p>2.2.4 There are measures in place to avoid capture and/or mortality of endangered, threatened or protected species.</p>	<p>Partially meets</p> <p>AFMA has implemented a number of mitigation measures to help minimise the impact on TEP species. Measures such as TEDs and BRDs help to minimise impacts of fishing for many TEP species (Milton 2001; Milton et al. 2009). However, ongoing research and studies is required to minimise the incidental capture and survival for sawfishes and sea snakes. Therefore, the Department has placed conditions on the Part 13 accreditation for this fishery to ensure that further research is conducted to better understand sawfish interactions, and to implement appropriate management measures to mitigate impacts on sawfish species.</p>
<p>2.2.5 There are measures in place to avoid impact on threatened ecological communities.</p>	<p>Not applicable</p> <p>See 2.2.3 above.</p>
<p>2.2.6 The management response, considering uncertainties in the assessment and precautionary management actions, has a high chance of achieving the objective.</p>	<p>Partially meets</p> <p>The incidental capture and mortality of sawfishes and sea snakes remains a significant challenge for this fishery, and must be reduced to acceptable levels to improve the likelihood that fishing can be conducted in a manner that avoids mortality of, or injuries to TEP species (see Part 13 conditions at Section 4).</p>
<p>Objective 3 - The fishery is conducted, in a manner that minimises the impact of fishing operations on the ecosystem generally.</p>	
<p>Information requirements</p>	
<p>2.3.1 Information appropriate for the analysis in 2.3.2 is collated and/or collected covering the fishery's impact on the ecosystem and environment generally.</p>	<p>Meets</p> <p>Robust methods of data collection are in place, including a gear monitoring program, mandatory catch reports, CMO program and independent scientific observers, and vessel monitoring systems. AFMA has facilitated research and monitoring programs to understand the risk of fishing to the marine environment (Kenyon et al. 2015). The Part 13 reaccreditation for this fishery is subject to a condition to ensure monitoring (electronic or human) is ongoing to evaluate the nature and level of impacts of fishing on EPBC Act protected species (see Condition A at Section 4).</p>
<p>Assessment</p>	
<p>2.3.2 Information is collected and a risk analysis, appropriate to the scale of the fishery and its potential impacts, is conducted into the</p>	<p>Meets</p>

<p>susceptibility of each of the following ecosystem components to the fishery.</p> <ol style="list-style-type: none"> 1. Impacts on ecological communities <ul style="list-style-type: none"> • Benthic communities • Ecologically related, associated or dependent species • Water column communities 2. Impacts on food chains <ul style="list-style-type: none"> • Structure • Productivity/flows 3. Impacts on the physical environment <ul style="list-style-type: none"> • Physical habitat • Water quality 	<p>The 2012 ERA and other studies found the fishery has a very low impact to the marine environment (Griffiths et al. 2007; AFMA 2008; Zhou 2011; AFMA 2012). Zhou et al. (2015) found the effect of fishing on the marine environment is low in the Joseph Bonaparte Gulf area of the fishery.</p> <p>Under the EPBC Act, a person may not take an action that has, will have, or is likely to have, a significant impact on the ecological character of a wetland of international importance listed under the Ramsar Convention. The area of the fishery includes waters adjacent to the following Ramsar wetlands:</p> <ul style="list-style-type: none"> • Ord River Floodplain Ramsar site (WA), and • Cobourg Peninsula Ramsar site (NT) and • Kakadu National Park Ramsar site (NT). <p>AFMA has advised that no fishing has occurred in areas adjacent to the Ord River Floodplain and Kakadu National Park Ramsar sites. The fishery does operate within the area adjacent to the Cobourg Peninsula Ramsar site. In 2011, an area of sea adjacent to the Ramsar site was declared a fishery management area under the <i>Fisheries Act 1988</i> (NT). Fishing in this area is managed by the <i>Cobourg Fishery Management Area Management Plan 2011</i> with advice from an independent advisory committee.</p> <p>Ecological risk assessments do not consider the fishery's potential impact on the ecological character of these wetlands. Although any potential impacts may be considered low or negligible, it is important that future ecological risk assessments consider those impacts of fishing on the three Ramsar wetlands that occur adjacent to the fishery area.</p>
<p>Management responses</p>	
<p>2.3.3 Management actions are in place to ensure significant damage to ecosystems does not arise from the impacts described in 2.3.1.</p>	<p>Meets</p> <p>The fishery's impacts on the marine environment is managed through a system of closures and effort restrictions (described above). Fishing is prohibited in approximately two per cent of the fishery area. A further eight per cent is subject to seasonal closures. AFMA may legislate additional closures through Directions and Decision notices. The numbers of byproduct species is restricted via memorandums of understanding with the states and NT. Management arrangements mandate the use of BRDs on all trawl vessels in the fishery. TEDs are also required for all trawlers except when trawling below 200m because turtles are not known to feed at lower depths. The use of BRDs has contributed to mitigating the ecological impacts of trawling (for example, Brewer et al. 2007; Gerner and Maynard 2010; Kangas and Morrison 2013; Laird et al. 2016).</p> <p>The ecological risk assessment report indicates the fishery does not pose a high risk to protected species. However, AFMA's protected species reports indicate high sawfish and sea snake bycatch. While many species have benefited from the use of BRDs, the annual capture of sea snakes and sawfishes remains high. There is very little information in relation to the ecological impacts of high mortalities for these species (Stewardson et al. 2016).</p>
<p>2.3.4 There are decision rules that trigger further management responses when monitoring detects impacts on selected ecosystem indicators beyond a predetermined</p>	<p>Meets</p> <p>While there are no performance measures or decision rules in place, studies have found very little impact from trawling operations on the substrate (AFMA 2012; Kangas and Morrison 2013; Stewardson et al. 2016), and to TEP species (Griffiths et al. 2007; AFMA 2008; Zhou 2011; AFMA 2012; Zhou et al. 2015).</p>

level, or where action is indicated by application of the precautionary approach.	
2.3.5 The management response, considering uncertainties in the assessment and precautionary management actions, has a high chance of achieving the objective.	Meets There is a high chance of conducting fishing in a manner that minimises the impact of fishing operations on the ecosystem generally.

SECTION 3: ASSESSMENT OF THE COMMONWEALTH NORTHERN PRAWN FISHERY AGAINST THE REQUIREMENTS OF THE EPBC ACT

The table below is not a complete or exact representation of the EPBC Act. It is intended to show that the relevant sections and components of the EPBC Act have been taken into account in the formulation of advice on the fishery in relation to decisions under Part 13 and Part 13A.

Part 12 – Identifying and monitoring biodiversity and making bioregional plans

Section 176 Bioregional Plans	Comment
(5) Minister must have regard to relevant bioregional plans	<p>Partially meets</p> <p>The area of the fishery encompasses the North Marine Region and the eastern most portion of the North-west Marine Region. The <i>Marine bioregional plan for the north marine region 2012</i> identifies six conservation values of regional priority, and six human-driven pressures of regional priority (DSEWPaC 2012a). The <i>Marine bioregional plan for the north-west marine region 2012</i> identified 12 conservation values of regional priority, and 11 human-drive pressures of regional priority. Key conservation values and pressures are summarised below (DSEWPaC 2012b).</p> <p>A number of conservation values and pressures of regional priority are described in the respective marine bioregional plans, however they are not unduly impacted by this fishery. The management arrangements in place, including mitigation measures have reduced the fishery’s impact on marine turtles, inshore dolphins, seabirds, and dugong, while other conservation values do not, or are unlikely to occur in the area of the fishery. In addition, AFMA and the NPF Industry have demonstrated a commitment to mitigate impacts to protected species through a research strategy, monitoring program, and bycatch and discarding workplan, and the mandatory use of bycatch mitigation devices (Laird et al. 2016).</p> <p>Bycatch is assessed as a pressure <i>of concern</i> to sawfishes and sea snakes in both marine bioregions. These species are vulnerable due to their biological characteristics, such as slow growth rates and low fecundity. Trawling is identified as a major pressure on all sawfish and river shark (<i>Glyphis</i>) species in Australian waters, and on sea snake populations (DSEWPaC 2012a). Developing appropriate mitigation measures for these species is a key challenge for this fishery.</p> <p>Climate-related issues (climate change and changes to hydrological regimes) and marine debris are examples of pressures that occur across the fishery, and impact on multiple conservation values. The available knowledge and predictive modelling suggests that these pressures will increase over time. Confidence in predicting impacts from climate-related pressures will be enhanced by significantly improving the knowledge gaps. Changes in hydrological regimes is considered a pressure <i>of concern</i> for sawfishes and river sharks and <i>of potential concern</i> for the Gulf of Carpentaria coastal zone. In the north-west marine bioregion, changes in hydrological regimes is a pressure <i>of concern</i> for sawfish and <i>of potential concern</i> for inshore dolphins. Changes in hydrological regimes can cause siltation, changes to water chemistry, and can impact lifecycle cues for some commercially fished stocks (DSEWPaC 2012b). Scientific and anecdotal evidence suggest that this is currently having an impact in this fishery. Prawn</p>

	<p>stocks are vulnerable to changes in hydrological regimes due to their reliance on environmental factors such as rainfall and river outflows, which can act as lifecycle cues for recruitment and stock productivity (CoA 2017).</p> <p>Fishing activity is low or negligible in areas adjacent to the Ord River Floodplain and Kakadu National Park wetlands. Fishing in the area adjacent to the Cobourg Peninsula is managed under the <i>Cobourg Fishery Management Area Management Plan 2011</i> made under the NT Fisheries Act. The Cobourg Fishery Management Area Management Plan contains restrictions on licences, catch shares, fishing gear, area of operation, and seasonal closures. Given the low level of fishing effort in the areas adjacent to Ramsar sites, and the management arrangements in place including seasonal closures, the Department considers that action taken by individual fishers, acting in accordance with the management arrangements for the fishery, is unlikely to have a significant impact on the ecological character of these Ramsar sites.</p>
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Part 13 – Species and communities

Accreditable plan, regime or policy (Division 1, Division 2, Division 3, Division 4)	Comment
<p>s. 208A (1) (a-e) , s.222A (1) (a-e), s.245 (1) (a-e), s.265 (1) (a-e)</p> <p>Does the fishery have an accreditable plan of management, regime or policy?</p>	<p>Meets</p> <p>Yes, there is an accreditable management regime. The fishery will be managed in accordance with the <i>Northern Prawn Fishery Management Plan 1995</i> made under the <i>Fisheries Management Act 1991</i> (Cth), and <i>Fisheries Management Regulation 1992</i> (Cth).</p>
Division 1 Listed threatened species, Section 208A Minister may accredit plans or regimes	Comment
<p>(f) Will the plan, regime or policy require fishers to take all reasonable steps to ensure that members of listed threatened species (other than conservation dependent species) are not killed or injured as a result of the fishing?</p>	<p>Partially meets</p> <p>Yes, there are specific measures in place to mitigate the risk to listed threatened species, which has been demonstrated to be effective for most species.</p> <p>The management plan for the fishery was accredited in December 2013. The management arrangements have not significantly changed since this accreditation was granted. However, the Part 13 reaccreditation for this fishery is subject to conditions to ensure the ongoing protection for threatened species listed under the EPBC Act (see Part 13 Conditions at Section 4). The management arrangements in place in the fishery continue to require that operators must take all reasonable steps to prevent the killing or injuring of members of listed threatened species.</p>
<p>(g) And, is the fishery likely to adversely affect the survival or recovery in nature of the species?</p>	<p>Partially meets</p> <p>There were interactions reported since the most recent assessment in December 2013. AFMA informs the Department of any interactions with migratory species through quarterly protected species reports. These reports indicate that the fishery continues to have frequent interactions with listed migratory species, including 189 Green Sawfish, 51 Dwarf Sawfish,</p>

	<p>39 Large-tooth Sawfish, and 1,528 unidentified sawfish species. Two-thirds (68%) of sawfish species were released alive. AFMA has implemented a number of mitigation measures including a fishery-specific bycatch mitigation workplan, and a requirement that all vessels use TEDs and BRDs. These measures have reduced the effect of fishing to a number of listed threatened species, including turtles and seabirds. While there are obvious risks to listed threatened species, AFMA has given an undertaking to further develop its research initiatives and monitoring programs with the aim to better understand how sawfish species interact with fishing gear, and to implement suitable mitigation measures that minimise the effect of fishing on these species. Given the current management arrangements in place in the fishery, AFMA's ongoing commitment to mitigate the fishery's impacts to listed threatened species, and the conditions under Part 13 of the EPBC Act, the Department considers the fishery is not likely to adversely affect the survival or recovery in nature of any listed threatened species in the short-term.</p>
<p>Division 2 Migratory species, Section 222A Minister may accredit plans or regimes</p>	<p>Comment</p>
<p>(f) Will the plan, regime or policy require fishers to take all reasonable steps to ensure that members of listed migratory species are not killed or injured as a result of the fishing?</p>	<p>Partially meets</p> <p>Yes, there are specific measures in place to mitigate the risk to listed migratory species, which has been demonstrated to be effective for most species.</p> <p>The management plan for the fishery was accredited in December 2013. The management arrangements for the fishery have not significantly changed since this accreditation was granted. However, the Department considers that the inclusion of conditions on the Part 13 accreditation for this fishery is appropriate to ensure the ongoing protection for species listed as migratory under the EPBC Act (see Part 13 conditions at Section 4).</p> <p>The management arrangements in place in the fishery continue to require that operators must take all reasonable steps to prevent the killing or injuring of members of listed migratory species or a population of that species.</p>
<p>(g) And, is the fishery likely to adversely affect the conservation status of a listed migratory species or a population of that species?</p>	<p>Partially meets</p> <p>There were interactions reported since the most recent assessment in December 2013. AFMA informs the Department of any interactions with migratory species through quarterly protected species reports. The high numbers of interactions include 42,299 sea snakes, 439 Narrow Sawfish as well as numbers for the three sawfish species described above, and 314 marine turtles. The range of mitigation measures used in the fishery have resulted in the majority of animals being released alive, including 76 per cent of sea snakes, 66 per cent of Narrow Sawfish, and 98 per cent of marine turtles.</p> <p>Given the mitigation measures in place, and AFMA's commitment to ongoing research and development, the Department considers that all reasonable steps are being taken to prevent the killing or injuring of members of listed migratory species or a population of that species in the short-term.</p>

Division 3 Whales and other cetaceans, Section 245 Minister may accredit plans or regimes	Comment
(f) Will the plan, regime or policy require fishers to take all reasonable steps to ensure that cetaceans are not killed or injured as a result of the fishing?	<p>Meets</p> <p>Yes, there are specific measures in place to mitigate the risk to cetaceans, which has been demonstrated to be effective.</p> <p>The management arrangements for the fishery have not significantly changed since the accreditation was granted in December 2013.</p> <p>Given the management arrangements in place in this fishery, the Department considers that all reasonable steps are being taken to prevent the killing or injuring of cetaceans and the capture of any cetaceans would be incidental to and not the purpose of the operation of the fishery.</p>
(g) And, is the fishery likely to adversely affect the conservation status of a species of cetacean or a population of that species?	<p>Meets</p> <p>Yes, there were interactions reported since the most recent assessment in December 2013. AFMA informs the Department of any interactions with cetacean species through quarterly protected species reports. There were two interactions with dolphins, with both animals released alive.</p> <p>Given the low numbers of interactions and AFMA's commitment to ongoing research and development, the Department considers the current operation of the fishery is not likely to adversely affect the conservation status of a species of cetacean or a population of that species in the short-term.</p>
Division 4 Listed marine species, Section 265 Minister may accredit plans or regimes	Comment
(f) Will the plan, regime or policy require fishers to take all reasonable steps to ensure that members of listed marine species are not killed or injured as a result of the fishing?	<p>Partially meets</p> <p>Yes, the prescribed management arrangements includes strategic measures to reduce the risk of interactions with listed marine species.</p> <p>The management arrangements for the fishery have not significantly changed since the accreditation was granted in December 2013. However, the Department considers that the inclusion of conditions on the Part 13 accreditation for this fishery is appropriate to ensure the ongoing protection for marine species listed under the EPBC Act (see Part 13 conditions at Section 4).</p> <p>The management arrangements in place in the fishery continue to require that operators take all reasonable steps to prevent the killing or injuring of listed marine species.</p>
(g) And, is the fishery likely to adversely affect the conservation status of a listed marine species or a population of that species?	<p>Partially meets</p> <p>Yes, there were interactions reported since the most recent assessment in December 2013. AFMA informs the Department of any interactions with listed marine species through quarterly protected species reports. These reports indicate the fishery frequently interacts with listed marine species, including 42,299 sea snakes, 2,246 sawfishes (see above), and 314 marine turtles.</p>

	<p>Given the current management arrangements in place in the fishery, AFMA's ongoing commitment to mitigate the fishery's impacts to listed marine species, and the conditions under Part 13 of the EPBC Act, the</p> <p>AFMA has implemented mitigation measures to help minimise the impacts to listed marine species, including the mandatory use of BRDs and TEDs. AFMA is committed to reviewing and improving existing measures, and has developed a bycatch mitigation work plan, and research strategy to help identify and better understand bycatch issues to ensure appropriate management actions are implemented.</p> <p>Although there are risks to listed marine species (see Section 4), the Department considers the current operation of the fishery is not likely to adversely affect the conservation status of a listed marine species or a population of that species in the short-term.</p>
<p>Section 303AA Conditions relating to accreditation of plans, regimes and policies</p>	<p>Comment</p>
<p>(1) This section applies to an accreditation of a plan, regime or policy under section 208A, 222A, 245 or 265.</p>	<p>Recommend accreditation under sections 208A, 222A, 245 and 265.</p> <p>The Department recommends that the management regime for the Commonwealth Northern Prawn Fishery be accredited under sections 208A, 222A, 245 and 265.</p>
<p>(2) The Minister may accredit a plan, regime or policy under that section even though he or she considers that the plan, regime or policy should be accredited only:</p> <p>(a) during a particular period; or</p> <p>(b) while certain circumstances exist; or</p> <p>(c) while a certain condition is complied with.</p> <p>In such a case, the instrument of accreditation is to specify the period, circumstances or condition.</p>	<p>To satisfy the requirements of sections 208A, 222A, 245, and 265, we recommend the Commonwealth Northern Prawn Fishery be accredited under Part 13 subject to conditions that require that AFMA continue to monitor and report interactions with EPBC Act-listed species, direct future research and development initiatives towards identifying and mitigating the effects of fishing on sawfishes and sea snakes (see Section 4).</p> <p>Condition A:</p> <p>The Australian Fisheries Management Authority to ensure there is sufficient ongoing monitoring (electronic or human) to evaluate the nature and level of impacts of fishing on EPBC Act protected species.</p> <p>Condition B:</p> <p>The Australian Fisheries Management Authority to ensure that interactions with species of sawfish and sea snakes are minimised by facilitating research and monitoring programs that contribute to:</p> <ul style="list-style-type: none"> • understanding the unique characteristics of sawfish and sea snake interactions with the fishing gear, • understanding the population dynamics, including size and structure of sawfish species populations that occur within the fishing area, and • implementing appropriate mitigation measures that aim to increase the survival of sawfish and sea snake species. <p>Condition C:</p>

	The Australian Fisheries Management Authority to develop an education program or materials that improve the accurate identification of sawfish and sea snake species.
(7) The Minister must, in writing, revoke an accreditation if he or she is satisfied that a condition of the accreditation has been contravened.	Not applicable.

Part 13A – International movement of wildlife specimens

Section 303BA Objects of Part 13A	
(1) The objects of this Part are as follows: <ul style="list-style-type: none"> (a) to ensure that Australia complies with its obligations under CITES and the Biodiversity Convention; (b) to protect wildlife that may be adversely affected by trade; (c) to promote the conservation of biodiversity in Australia and other countries; (d) to ensure that any commercial utilisation of Australian native wildlife for the purposes of export is managed in an ecologically sustainable way; (e) to promote the humane treatment of wildlife; (f) to ensure ethical conduct during any research associated with the utilisation of wildlife; and (h) to ensure the precautionary principle is taken into account in making decisions relating to the utilisation of wildlife. 	
Section 303DC Minister may amend list (non CITES species)	Comment
(1) The Minister may, by legislative instrument, amend the list referred to in section 303DB [list of exempt native specimens] by: <ul style="list-style-type: none"> (a) doing any of the following: <ul style="list-style-type: none"> (i) including items in the list; (ii) deleting items from the list; (iii) imposing a condition or restriction to which the inclusion of a specimen in the list is subject; (iv) varying or revoking a condition or restriction to which the inclusion of a specimen in the list is subject; or (b) correcting an inaccuracy or updating the name of a species. 	The Department recommends that specimens that are or are derived from fish or invertebrates harvested in the Commonwealth Northern Prawn Fishery, as defined in the <i>Northern Prawn Fishery Management Plan 1995</i> in force under the <i>Fisheries Management Act 1991</i> (Cth) and <i>Fisheries Management Regulations 1992</i> (Cth), but not including <ul style="list-style-type: none"> ▪ specimens that belong to eligible listed threatened species, as defined under section 303BC of the EPBC Act, or ▪ specimens that belong to taxa listed under section 303CA of the EPBC Act (Australia's CITES list). be included in the list of exempt native specimens until 06 January 2024.
(1A) In deciding to amend the LENS, the Minister must rely primarily on outcomes of Part 10, Div. 1 or 2 assessment	Meets The fishery was assessed under Part 10 of the EPBC Act in December 2003. In conducting its assessment, the Department considered that actions taken in the fishery would not have an unacceptable or unsustainable impact on a Commonwealth marine area over a period of five years while AFMA implemented recommendations to improve the management of the fishery. Consequently, the <i>Northern Prawn Fishery Management Plan 1995</i> was

	accredited under section 33 of the EPBC Act. Since that time, AFMA has reviewed the management arrangements, and implemented stronger measures to ensure that stocks continue to be fished sustainably.
(1C) The above does not limit matters that may be considered when deciding to amend LENS.	Meets The Department considers that it has taken into account all matters relevant to making an informed decision to amend the list of exempt native specimens to include product taken in this fishery.
(3) Before amending the LENS, the Minister must consult: (a) other Minister or Ministers as appropriate; and (b) other Minister or Ministers of each State and self-governing Territory as appropriate; and (c) other persons and organisations as appropriate.	Meets The submission from the Australian Fisheries Management Authority was made available on the Department's website from 11 September 2018 to 15 October 2018 . No comments were received.

Part 16 – Precautionary principle and other considerations in making decisions

Section 391 Minister must consider precautionary principle in making decisions	Comment
(1) Minister must take account of the precautionary principle in making a decision, to the extent that the decision is consistent with other provisions under this Act. (2) The precautionary principle is that lack of full scientific certainty should not be used as a reason for postponing a measure to prevent degradation of the environment where there are threats of serious or irreversible environmental damage.	Meets The precautionary principle has been considered in preparing advice about the amendment of the list of exempt native specimens under section 303DC.

SECTION 4: COMMONWEALTH NORTHERN PRAWN FISHERY – SUMMARY OF ISSUES REQUIRING CONDITIONS, DECEMBER 2018

Issue	Recommendation
<p>General Management Export decisions relate to the management arrangements in force at the time of any decision(s) made under the EPBC Act. To ensure that the decision(s) remain valid and export approval continues uninterrupted, the Department of the Environment and Energy (the Department) needs to be advised of any changes that are made to the management regime and make an assessment that the new arrangements are equivalent or better, in terms of ecological sustainability, than those in place at the time of the original decision(s). This includes operational and legislated amendments that may affect the sustainability of the target species or negatively impact on byproduct, bycatch, EPBC Act protected species or the ecosystem.</p>	<p>Recommendation 1: Operation of the Northern Prawn Fishery will be carried out in accordance with the <i>management regime</i> under the <i>Northern Prawn Fishery Management Plan 1995</i>, the <i>Fisheries Management Regulations 1992</i> (Cth), and the <i>Fisheries Management Act 1991</i> (Cth).</p> <p>Recommendation 2: The Australian Fisheries Management Authority to inform the Department of the Environment and Energy of any intended material changes to the Northern Prawn Fishery management arrangements that may affect the assessment against which <i>Environment Protection and Biodiversity Conservation Act 1999</i> decisions are made.</p>
<p>Annual reporting It is important that the Australian Fisheries Management Authority (AFMA) produces and presents reports to the Department annually in order for the performance of the fishery and progress in implementing the Part 13A recommendations and the Part 13 conditions described in this report and other managerial commitments to be monitored and assessed throughout the life of the export approval. Annual reports should follow Appendix B to the 'Guidelines for the Ecologically Sustainable Management of Fisheries - 2nd Edition' and include a description of the fishery, management arrangements in place, research and monitoring outcomes, recent catch data for all sectors of the fishery, status of target stock, interactions with EPBC Act protected species, impacts of the fishery on the ecosystem in which it operates and progress in implementing the Department's conditions and recommendations described in the previous assessment for the fishery. Electronic copies of the guidelines are available from the Department's website at http://www.environment.gov.au/resource/guidelines-ecologically-sustainable-management-fisheries.</p>	<p>Recommendation 3: The Australian Fisheries Management Authority to produce and present reports to the Department of the Environment and Energy annually as per Appendix B of the 'Guidelines for the Ecologically Sustainable Management of Fisheries - 2nd Edition'.</p>
<p>Ongoing monitoring for protected species As an outcome of the 2013 assessment of this fishery, the Australian Fisheries Management Authority (AFMA) agreed to ensure that there was sufficient ongoing monitoring (electronic or human) to evaluate the nature and level of impacts of fishing on EPBC Act protected species.</p>	<p>Condition A: The Australian Fisheries Management Authority to ensure there is sufficient ongoing monitoring (electronic or human) to evaluate the nature and level of impacts of fishing on EPBC Act protected species.</p>

Issue	Recommendation
<p>This fishery has historically reported high numbers of interactions with some species of conservation interest over the past two decades, although the rates of mortality has decreased over the same period due to adequate management arrangements and innovative improvements in the design of bycatch mitigation devices.</p> <p>The Department acknowledges that fishery-dependent and independent monitoring measures for bycatch and protected species interactions are already in place in the fishery, including the scientific and crew member observer programs, logbook reporting and fishery independent surveys. The implementation of adequate monitoring practices and accurate reporting are key steps in achieving conservation outcomes.</p> <p>Therefore, it is appropriate that continued export approval is subject to a condition that AFMA continue to monitor and report protected species interactions, using fishery-dependent and independent sources, with the aim to minimise such interactions (see Condition A).</p>	
<p><u>Information on Bycatch and Protected Species</u></p> <p>Ongoing research and development has shown current bycatch mitigation measures to be effective in reducing the capture and mortality of some protected species such as marine turtles, sharks and rays. Previous assessment reports for this fishery indicate that bycatch numbers have been reduced by over 50 per cent across the fishery due to industry innovation and management measures such as the mandatory use of bycatch mitigation devices and fishery closures (Fry and Miller 2013; AFMA 2014).¹ Innovative mitigated measures, such as the Popeye fishbox BRD, have delivered significant reductions in catches of sea snakes (Raudzens 2007; AFMA 2014). However, the frequency of interactions for some protected species remains considerably high.</p> <p>According to AFMA's protected species interaction reports, the fishery has reported 2,246 sawfish interactions since the Department's 2013 assessment for this fishery. Two-thirds (66%) of that number were discarded alive, and one percent reported as injured when released. ² Green Sawfish, Dwarf Sawfish, and Large-tooth Sawfish are listed vulnerable under the EPBC Act. These three</p>	<p><u>Condition B:</u></p> <p>The Australian Fisheries Management Authority to ensure that interactions with species of sawfish and sea snakes are minimised by facilitating research and monitoring programs that contribute to:</p> <ul style="list-style-type: none"> • understanding the unique characteristics of sawfish and sea snake interactions with the fishing gear, • understanding the population dynamics, including size and structure of sawfish species populations that occur within the fishing area, and • implementing appropriate mitigation measures that aim to increase the survival of sawfish and sea snake species.

¹ Australian Fisheries Management Authority 'Northern Prawn Fishery bycatch and discarding workplan, November 2014—October 2016' Australian Fisheries Management Authority, Canberra ACT, Available at <https://www.afma.gov.au/sustainability-environment/bycatch-discarding/bycatch-discard-workplans>.

² Australian Fisheries Management Authority 'Interactions with protected species' Australian Fisheries Management Authority, Canberra ACT, Available at <https://www.afma.gov.au/sustainability-environment/protected-species-management/protected-species-interaction-reports>.

Issue	Recommendation
<p>species and the Narrow Sawfish are also listed as migratory under the EPBC Act, and critically endangered under the International Union for Conservation of Nature (IUCN) red list.</p> <p>Sea snake bycatch represents the largest amount of individuals captured in the fishery. Previous assessments for this fishery identified Large-headed Sea Snake (<i>Hydrophis pacificus</i>) and Spectacled Sea Snake (<i>Disteira kingii</i>) as requiring ongoing attention to minimise the effects of fishing. Short-nosed Sea Snake (<i>Aipysurus apraefrontalis</i>), which may occur in the western most portion of the fishery area, is listed as critically endangered and marine under the EPBC Act, and as critically endangered on the IUCN Red List (DSEWPaC 2011a). The Department acknowledges the past efforts and ongoing commitment from AFMA and industry to minimise the incidental capture of protected species. AFMA's research program indicates an ongoing commitment to addressing the threats to these species, including consideration for key objectives identified in relevant recovery plans (DoE 2015) and/or conservation advices (DEWHA 2008; 2009; DoE 2014).</p> <p>Given the high bycatch rate, the Part 13 reaccreditation for this fishery is subject to a condition that requires the continuation of research and monitoring programs that aim reduce sawfish bycatch and improve survival rates (see Condition B).</p>	
<p><u>Accurate species-level data</u></p> <p>Accurate species identification is vital for conservation efforts and forms the basis for developing suitable mitigation measures. Accurately distinguishing between species helps to identify those species most at risk of fishing, and provides increased confidence that fishing activities do not hinder their recovery. Developing appropriate mitigation measures begins with accurately identifying the species of interest, and understanding its biological and geographical parameters. It is important that any relevant information that is collected is then used to inform the development of mechanisms to minimise the effects of fishing on these species.</p> <p>The Department notes that protected species interactions data is derived from logbook records and the scientific and crew member observer programs. AFMA, in collaboration with CSIRO, have implemented an awareness and training program to improve the ability of fishing operators to accurately identify protected species.</p> <p>Previous assessment reports indicate that logbooks contain sawfish identification guides, and require fishers to report interactions to species level. However, the</p>	<p><u>Condition C</u></p> <p>The Australian Fisheries Management Authority to develop an education program or materials that improve the accurate identification of sawfish and sea snake species.</p>

Issue	Recommendation
<p>majority of sawfish interactions are not categorised by species. Approximately 68 per cent (n=1,528) of sawfishes were reported as unidentified over the past five years. Accurate identification is an objective of the recovery plan for sawfish and river sharks (DoE 2015).</p> <p>Currently, there is no requirement to record sea snakes to species level. However, sea snake interactions continue to be much higher than other species groups encountered in this fishery. In addition, very little is known about interaction rates for individual sea snake species, which raises concerns regarding the cumulative impact of interactions on individual species. It is recognised that species-level identification of sea snakes may not be feasible due to the high risk for injury to crew members. However, it is important that managers and operators are proactive in developing the skills and knowledge to identify sea snakes to species level. Identification at a lower level will improve the scientific understanding of their population and distribution in the fishery, and subsequently improve confidence in any prediction of risks to sea snake species from fishing. This information can be used to identify sea snake species that may be most vulnerable to the effects of fishing, and to develop appropriate measures to reduce sea snake capture and mortality.</p> <p>Given the knowledge gaps for sawfish and sea snake species, the Part 13 reaccreditation for this fishery is subject to conditions that aim to improve the species-level reporting for both sawfish and sea snake species (see Condition C).</p>	

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