



Australian Government

Department of the Environment and Energy

Assessment of the
**NEW SOUTH WALES SEA URCHIN AND TURBAN
SHELL RESTRICTED FISHERY**

October 2018

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This report should be attributed as '*Assessment of the New South Wales Sea Urchin and Turban Shell Restricted Fishery October 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 and Energy 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 and Energy or the Australian Government.

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EXECUTIVE SUMMARY OF THE ASSESSMENT OF THE NEW SOUTH WALES SEA URCHIN AND TURBAN SHELL RESTRICTED FISHERY

On 09 August 2018, the NSW Department of Primary Industries (DPI) submitted an application for the NSW Sea Urchin and Turban Shell Restricted Fishery (SUTSRF) (the fishery) to the Department of the Environment and Energy (the Department) for assessment under the provisions of Part 13 (protected species) and Part 13A (wildlife trade) of the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act), against the Australian Government 'Guidelines for the Ecologically Sustainable Management of Fisheries – 2nd Edition'. A public comment period was open from 15 August 2018 – 12 September 2018.

Management arrangements

The NSW SUTSRF operates in NSW waters using hookah and hand picked harvesting to target sea urchins and turban shells. NSW DPI manages the fishery in accordance with the NSW *Fisheries Management Act 1994* and Fisheries Management (General) Regulation 2010.

Harvesting levels are controlled through input controls (limited access and area closures) and output controls (quota management and size limits). The limited access to the fishery consists of 37 endorsements and the area closures provide reference points for stock assessment purposes and refuge for the target species. The quota management consists of a Total Allowable Commercial Catch (TACC) for Red Sea Urchin of 60 tonnes and size limits of 75 mm (shell diameter) applies to Sydney and Military Turban Shells.

The fishery is considered to be of relatively low risk due to the nature of the harvest method (hand collection) and the existing management arrangements. The management regime for the fishery is likely to ensure that harvesting is conducted in a manner that is not detrimental to the species collected or the broader ecosystem.

Target stocks

Target species include Red Sea Urchin (*Heliocidaris tuberculata*), Purple Sea Urchin (*Centrostephanus rodgersii*), Green Sea Urchin (*Heliocidaris erythrogramma*), Sydney Turban Shell (*Turbo torquatus*), Military Turban Shell (*T. militaris*), and Green Turban Shell (*T. undulatus*). There are no byproduct or bycatch species. The stock status for Green Sea Urchins is uncertain and for Red Sea Urchins and turban shells is undefined, leading to uncertainty as to the sustainability level for harvesting these species. However, the relatively small scale of the fishery and commensurate management measures mean that overfishing would be unlikely.

Protected species, ecological communities and ecosystem impacts

As the fishery harvests by hand, impacts to the marine environment, ecological communities, threatened, endangered and protected species are unlikely.

Conclusion

In 2015 the Department determined the NSW SUTSRF to be listed as a wildlife trade operation (WTO) until 25 October 2015. This assessment found the management regime is likely to be successful in minimising impacts on target stock, and that the fishery has a negligible impact on bycatch, byproduct and the ecosystem. Therefore product taken in the fishery should be included in the list of exempt native specimens under Part 13A of the EPBC Act until 31 March 2028.

SECTION 1: ASSESSMENT SUMMARY OF THE NSW SEA URCHIN AND TURBAN SHELL RESTRICTED 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		<p>The management regime is effective.</p> <p>The overall management regime for the fishery aims to ensure that fishing is conducted in a manner that does not lead to overfishing.</p> <p>Management arrangements are annually reviewed. While there are no fishery specific objectives, strategies, and performance measures, general objectives and performance criteria contained in state legislation will ensure the fishery is adequately managed. Due to the harvesting method, the fishery is considered to have a low risk for bycatch and adverse impacts on the wider marine ecosystem.</p>
Principle 1 (target stocks)	5 of 11	3 of 11 (1.1.2, 1.1.5, 1.1.6)	3 N/A	<p>Generally robust management of target stocks.</p> <p>1.1.2 - NSW Resource Assessment Framework assesses target stocks on an annual basis, however, more data collection and consistencies within the data collection would provide a more robust assessment of target stocks.</p> <p>1.1.5 – Further data collection and consistencies within the data would enable further development of stock productivity estimate.</p> <p>1.1.6 – Development of species-specific reference points for Green and Purple Sea Urchins would enable more definitive and sustainable management arrangements.</p>
Principle 2 (bycatch and TEPS)	7 of 12		5 N/A	<p>Negligible risk for bycatch and protected species interactions due to the highly selective fishing method.</p>
Principle 2 (ecosystem impacts)	4 of 5	1 of 5 (2.3.4)		<p>Ecological risk is inherently low due to the fishing method used.</p> <p>2.3.4 – There are no decision rules that trigger further management responses when monitoring detects impacts on selected ecosystem indicators. However, due to the scale and risk of the fishery this is not warranted.</p>

EPBC requirements	Meets	Partially meets	Does not meet	Details
Part 12			N/A	Not applicable. The fishery operates within state waters only, and therefore does not impact on a Commonwealth marine area.
Part 13			N/A	Not applicable. The fishery operates in state waters only, and is not subject to the provisions under Part 13 of the EPBC Act.
Part 13A	3 of 7		4 N/A	The fishery is consistent with the Objects of Part 13A, the Department recommends that product from this fishery be included in the list of exempt native specimens for a period of five years, until 31 March 2028.
Part 16	All met			The Department considers that precautionary measures are in place to prevent serious or irreversible environmental damage being caused by this fishery.

Notes:**Assessment history:**

- Information on the previous assessment for the NSW Sea Urchin and Turban Shell Fishery is available on the Department's website at <http://environment.gov.au/marine/fisheries/nsw/sea-urchin-turban-shell>.
 - 1st assessment finalised November 2015 – Exempt from export approval until 25 October 2018 while an approved wildlife trade operation (WTO) is in place for the fishery. The list of exempt native specimens (LENS) was amended. Export approval was subject to five conditions.

Fishery reporting, including annual reports:

- Annual report – The most recent full public reports of the status of the key stocks in this fishery are contained in the following:
 - Status of Fisheries Resources in NSW 2013-14 Full Report at https://www.dpi.nsw.gov.au/_data/assets/pdf_file/0008/598436/INT16-61462-Attachment-C-Status-of-Fisheries-Resources-in-NSW-2013-14-Full-Report-406-pages-updated.pdf

Key links for information relevant to managing the fishery:

- Fishery information is available via the following NSW DPI links:
 - NSW Sea Urchin and Turban Shell Restricted Fishery at <https://www.dpi.nsw.gov.au/fishing/commercial/fisheries/sea-urchin-and-turban-shell-restricted>
 - Sea Urchins at https://www.dpi.nsw.gov.au/_data/assets/pdf_file/0008/375938/Sea-Urchins.pdf
- Fisheries Research and Development Corporation (FRDC).
 - Flukes and Tracey 2007 – Urchin Control at <http://frdc.com.au/Media-and-Publications/FISH/FISH-Vol-22-3-/Urchin-control>
 - FRDC Benchmarking Australia's national fisheries status reporting system at <http://www.frdc.com.au/project/2013-233>
 - FRDC Diving Methods at <http://fish.gov.au/Fishing-Methods/Diving>

Management arrangements:

- The fishery is managed under state legislation and regulations. Additional management measures can be found via the following links:
- NSW Commercial Fisheries Administration Guide 2016 at www.dpi.nsw.gov.au/_data/assets/pdf_file/0009/370818/NSW-Commercial-Fisheries-Administration-Guide.pdf

Enforcing legislation:

- NSW Fisheries Management Act 1994 at <https://www.legislation.nsw.gov.au/#/view/act/1994/38>
- NSW Fisheries Management (General) Regulations 2010 at <https://www.legislation.nsw.gov.au/#/view/regulation/2010/475>
- Fisheries Compliance and Enforcement Policy and Procedure 2011 at http://www.dpi.nsw.gov.au/_data/assets/pdf_file/0010/639874/Fisheries-compliance-prosecution-policy-and-procedure.pdf

Harvest strategy:

- NSW Commercial Fishing Catch and Effort Reporting at <https://www.dpi.nsw.gov.au/fishing/commercial/catch-effort> and https://www.dpi.nsw.gov.au/_data/assets/pdf_file/0011/753149/New-South-Wales-Sea-Urchin-and-Turban-Shell-Catch-and-Effort-Logbook.pdf

Ecological risk assessment:

- NSW DPI has produced a Review of Environmental Factors (REF) draft document for the fishery aiming to identify and assess the impacts of this fishery – this has not yet been published.

Stock assessments:

- Worthington and Blount 2003 - Research to develop and manage the sea urchin fisheries of NSW and eastern Victoria at <http://frdc.com.au/project/1999-128>
- NSW DPI Status of fisheries resources in NSW 2014-15 at https://www.dpi.nsw.gov.au/_data/assets/pdf_file/0006/692646/INT16-161027-DRAFT-Status-fisheries-resources-NSW-2014-152-Summary.pdf
- NSW DPI Stock status summary and stock assessment report 2018 – Sea Urchin and Turban Shell Fishery - Red Sea Urchin (*Heliocidaris tuberculata*) (not online)

SECTION 2: DETAILED ANALYSIS OF THE NSW SEA URCHIN AND TURBAN SHELL RESTRICTED 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 New South Wales (NSW) Sea Urchin and Turban Shell Restricted Fishery (SUTSRF) (the fishery) is managed by the NSW Department of Primary Industries (NSW DPI) under the NSW <i>Fisheries Management Act 1994</i> and the Fisheries Management (General) Regulation 2010 (see web links above).</p> <p>NSW DPI has published a guide for the fishery (see web links above) which summarises the administrative managements for commercial fisheries in NSW.</p>
Be developed through a consultative process providing opportunity to all interested and affected parties, including the general public.	<p>Meets</p> <p>Consultative process to manage fishery</p> <p>The fishery has four consultation bodies: Ministerial Fisheries Advisory Committee, Commercial Fishing NSW Advisory Council, Working Groups and Total Allowable Fishing Committee (TAFC).</p> <p>The Ministerial Fisheries Advisory Committee and Commercial Fishing NSW Advisory Council have been established to provide advice to the NSW Minister of Primary Industries on strategic policy issues and advice relating to the commercial fishing industry.</p> <p>Working groups are formed on a needs basis to provide expert advice on specific issues. The TAFC has responsibility under the NSW <i>Fisheries Management Act 1994</i> to determine the annual Total Allowable Commercial Catch (TACC) and invites the general public to comment on the TACC.</p> <p>Task-based working groups and advisory councils consist of a range of expertise that are involved in the stock assessment process to advise on issues relating to management of fisheries resources in NSW.</p> <p>Public interest involvement consists of the TAFC inviting public submission on appropriate TACC established under the NSW <i>Fisheries Management Act 1994</i>.</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>Range of expertise involved</p> <p>See above for a description of working groups and committees.</p>
Be strategic, containing objectives and performance criteria by which the effectiveness of the management arrangements are measured.	<p>Partially meets</p> <p>Has general objectives and performance criteria, but not fishery specific</p> <p>There are no fishery specific objectives and performance indicators for this fishery. The fishery is managed consistent with the objectives of the <i>Fisheries Management Act 1994</i>. Main data inputs measuring performance of</p>

	target species is catch and effort, catch per unit effort and, for Red Sea Urchins (<i>Heliocidaris tuberculata</i>) only, a biomass estimate.
Be capable of controlling the level of harvest in the fishery using input and/or output controls.	<p>Partially Meets</p> <p>Controls have capacity to limit harvest</p> <p>The level of harvest is controlled through input and output controls. Input controls include: limited access (37 endorsements) to the fishery and area closures in which a number of fishing sub-zones have been closed to provide reference points for stock assessment purposes and refuge for all target species.</p> <p>Output controls include: quota management in which Red Sea Urchins (<i>Mesocentrotus franciscanus</i>) are subject to a TACC of 60 tonnes and size limits (75 mm shell diameter applies to Sydney Turban Shells (<i>Turbo torquatus</i>) and Military Turban Shells (<i>T. militaris</i>)). Real time quota reporting is used as a tool for the quota management output measure in which fishers are required to report fishing activity and quota usage using a FisherMobile App that helps monitor and control the level of harvest in the fishery.</p> <p>The stock status is uncertain for Green Sea Urchin and undefined for Red Sea Urchin and turban shell species, however catch per effort unit are measured to assess abundance.</p>
Contain the means of enforcing critical aspects of the management arrangements.	<p>Meets</p> <p>Effective enforcement capability</p> <p>The fishery has effective enforcement capability. NSW Fisheries Compliance Enforcement Policy and Procedure 2011 compliance measures include: regular and random formal inspections, reviewing mandatory reporting of information by licence/permit holders, tactical patrols and analysing organisational information. These compliance measures are enforced by the NSW Fisheries Management (General) Regulation 2010; Fisheries Compliance Unit (FCU) (enforces compliance actions) and NSW DPI Resources Regulator Advisory Committee (regulates, advises and oversees compliance actions).</p>
Provide for the periodic review of the performance of the fishery management arrangements and the management strategies, objectives and criteria.	<p>Meets</p> <p>Performance reviews provided for</p> <p>The TAFC determines and reviews the annual TACC for the fishery and is subject to review on an annual basis. NSW DPI monitors the fishery's harvest to ensure that species such as the Red Sea Urchin are within regional catch limits. Annual reviews of management arrangements for other target species are carried out as part of the resource assessment process.</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>Meets</p> <p>Capability to manage impacts on wider marine ecosystem</p> <p>Harvesting sea urchins decreases the risk of creating barrens in which food sources are depleted from the ecosystem. Due to the harvesting method, the fishery is considered to have a low risk for adverse impacts on the wider marine ecosystem.</p>
Requires compliance with relevant threat abatement plans, recovery plans, the National Policy on Fisheries Bycatch, and bycatch action strategies developed under the policy.	<p>Meets</p> <p>Due to the harvesting method, the fishery is considered to have negligible bycatch, byproduct and ecosystem impacts. There are no relevant plans and policies to take into consideration.</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>Information collection system in place appropriate to the scale of the fishery</p> <p>Fishery independent monitoring was carried out regarding sea urchin stock biomass in 2003 (Worthington and Blount 2003) providing a model for stock assessment and ongoing monitoring of sea urchin biomass. Fisheries independent monitoring has not been carried out for turban shells.</p> <p>Fishery dependent research consists of a Resource Assessment Framework incorporating a standardised method of reporting on the exploitation status of fish stocks across all commercial fisheries in NSW. Monitoring consists of daily catch records by species levels reported via logbooks. Real time catch data is collected for Red Sea Urchin using a FisherMobile App. Fishers are required to make pre-fish reports before leaving port and a post-landing reports, including the validated weight of Red Sea Urchin before transfer. Turban shells, Green and Purple Sea Urchins are not required to be recorded via the FisherMobile App.</p>
Assessment	
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>Partially Meets</p> <p>Stock assessments regular for some species</p> <p>NSW carries out regular assessment of stock status through the Resource Assessment Framework (see web links above). This assessment framework includes an annual review and interpretation of available data by fisheries scientists, however there is a lack of data is available for some species (e.g. Red and Green Sea Urchins and Turban Shells). In 2016 an external review of the framework was made to provide advice on whether the current measures or other frameworks best address the future needs for sustainable management of NSW fishery resources. Recommendations were made to transition to the National Status of Australian Fish Stocks (SAFS), however some species (e.g. sea urchins) are not a SAFS reported species.</p>
1.1.3 The distribution and spatial structure of the stock(s) has been established and factored into management responses.	<p>Meets</p> <p>Distribution and spatial structure factored into management responses</p> <p>Broad scale distribution of stocks have been taken into account in distributing the Red Sea Urchin TACC. Red Sea Urchin TACC is capped in proportion to the estimated biomass in each of the five management regions. The TACC is allocated equally to each endorsement holder. Adequate spatial structure for all target stocks is controlled via area closures, however there are no distribution management arrangements for Green Sea Urchin (<i>Heliocidaris erythrogramma</i>), Purple Sea Urchin (<i>Centrostephanus rodgersii</i>) and turban shells (<i>Turbo ssp.</i>).</p>
1.1.4 There are reliable estimates of all removals, including commercial (landings and discards), recreational and indigenous, from the	<p>Meets</p> <p>Reliable estimates of commercial take</p>

fished stock. These estimates have been factored into stock assessments and target species catch levels.	There are reliable estimates of commercial removals for all species in the fishery. These estimates are generated using catch and effort data (see web links above) and are factored into management arrangements. Recreational fishing is not monitored but estimates are likely to be less than 5 tonnes. There are no estimates for Indigenous fishing.
1.1.5 There is a sound estimate of the potential productivity of the fished stock/s and the proportion that could be harvested.	Partially Meets Further development of stock productivity would be beneficial The stock status for Green Sea Urchins is uncertain, Red Sea Urchins and turban shells stock status is undefined, while Purple Sea Urchins are considered moderately fished. Further stock productivity estimates will help measure the sustainability of the fishery and ensure that the target species are not being overfished.
Management responses	
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.	Partially Meets Reference points are in place There is a 60 tonne Red Sea Urchin TACC. This TACC is considered sustainable for Red Sea Urchin in NSW (Worthington and Blount 2003). Sydney and Military Turban Shells have a minimum size limit of 75mm (shell diameter) to manage take. These management measures limit the level of harvest, however there are no species specific reference points that trigger further management actions for the fishery.
1.1.7 There are management strategies in place capable of controlling the level of take.	Meets TACC, limited entry. The level to take is controlled through management measures such as limited access via endorsements, area closures, quota management for Red Sea Urchin, and size limits for Sydney and Military Turban Shells. These measures are adequate for the scale and method of the fishery.
1.1.8 Fishing is conducted in a manner that does not threaten stocks of byproduct species.	Not applicable There are no byproduct species taken in the fishery due to the selective fishing method used (hand collection).
(Guidelines 1.1.1 to 1.1.7 should be applied to byproduct species to an appropriate level)	
1.1.9 The management response, considering uncertainties in the assessment and precautionary management actions, has a high chance of achieving the objective.	Meets Given the fishing method and catch and effort data collected for this fishery, the management response has a high chance of achieving the objective.
If overfished, go to Objective 2: If not overfished, go to PRINCIPLE 2:	
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.	
Management responses	

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.	Not applicable No target stocks are currently considered to be overfished. More data on stock status would be preferred.
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.	Not applicable No target stocks are currently considered to be overfished.
PRINCIPLE 2 - Fishing operations should be managed to minimise their impact on the structure, productivity, function and biological diversity of the ecosystem.	
Objective 1 - The fishery is conducted in a manner that does not threaten bycatch species.	
Information requirements	
2.1.1 Reliable information, appropriate to the scale of the fishery, is collected on the composition and abundance of bycatch.	Meets Bycatch unlikely Bycatch is unlikely due to the highly selective fishing method.
Assessment	
2.1.2 There is a risk analysis of the bycatch with respect to its vulnerability to fishing.	Meets Risk analysis of bycatch vulnerability has been conducted. NSW DPI produced a draft Review of Environmental Factors Sea Urchin and Turban Shell Fishery in 2006 (known as REF). This document was developed aiming to identify and assess whether or not the fishery has any potential impacts on the environment. There is unlikely to be adverse impacts on bycatch.
Management responses	
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.	Not applicable Due to the highly selective fishing method (hand collection), there is no capture of bycatch.
2.1.4 An indicator group of bycatch species is monitored.	Not applicable

	Monitoring of an indicator group of bycatch species is not necessary due to the low risk posed by the harvesting method. NSW DPI state that there has been no incidence of bycatch in the fishery.
2.1.5 There are decision rules that trigger additional management measures when there are significant perturbations in the indicator species numbers.	Not applicable There are no specific decision rules that trigger additional management measures. This is appropriate given the negligible risk posed to the bycatch species.
2.1.6 The management response, considering uncertainties in the assessment and precautionary management actions, has a high chance of achieving the objective.	Meets The management arrangements are likely to have a high chance of achieving the objective of fishing being conducted in a manner that does not threaten bycatch.
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.	
Information requirements	
2.2.1 Reliable information is collected on the interaction with endangered, threatened or protected species and threatened ecological communities.	Meets Reliable records of interactions All operators are required to report on interactions with protected species in their logbook. The fishery is not known to interact with any endangered, threatened or protected species.
Assessments	
2.2.2 There is an assessment of the impact of the fishery on endangered, threatened or protected species.	Meets Robust ERA conducted and risks identified as low, or suitable management practices in place. NSW DPI produced a draft REF (see 2.1.2). The purpose of the report was to assess the likelihood of potential impacts of fishing activity on the environment (including biological, ecological, physical, economic and social considerations). The report found that the potential impact with threatened or protected species was low.
2.2.3 There is an assessment of the impact of the fishery on threatened ecological communities.	Meets Robust ERA conducted and risks identified as low, or suitable management practices in place. NSW DPI produced a draft REF in 2005. The report found that the risk on threatened ecological communities is negligible.
Management responses	
2.2.4 There are measures in place to avoid capture and/or mortality of endangered, threatened or protected species.	Not applicable Endangered, threatened and protected species interactions are considered negligible, therefore no specific management measures are considered required.
2.2.5 There are measures in place to avoid impact on threatened ecological communities.	Not applicable There are no interactions with threatened ecological communities.

<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>Meets</p> <p>The management arrangements are likely to have a high chance of achieving the objective of ensuring that fishing 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>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>Information is collected for some target species. Impacts to the ecosystem and environment are considered a low risk due to the highly selected fishing method.</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 susceptibility of each of the following ecosystem components to the fishery.</p> <ol style="list-style-type: none"> Impacts on ecological communities <ul style="list-style-type: none"> • Benthic communities • Ecologically related, associated or dependent species • Water column communities Impacts on food chains <ul style="list-style-type: none"> • Structure • Productivity/flows Impacts on the physical environment <ul style="list-style-type: none"> • Physical habitat • Water quality 	<p>Meets</p> <p>NSW produced a Review of Environmental Factors</p> <p>NSW DPI produced a draft Review of Environmental Factors (REF) aiming to identify and assess where the activity of the fishery has potential impacts on the environment, including biological, ecological, physical, economic and social impacts. The REF indicates:</p> <ol style="list-style-type: none"> There are unknown impacts on ecological communities in regards to interactions with species, assemblages, habitats and biological diversity. Although this is unknown, NSW DPI states that the risk is designated low due to the low level of activity and small harvest levels in the fishery. Impacts are low. Flukes and Tracey 2007 state that sea urchins are known to strip areas bare of seaweed known as barrens. Harvesting sea urchins decreases the risk of creating barrens in which food sources are depleted from the ecosystem. Impacts on food chains from harvesting turban shells are considered low due to the harvesting method. Impacts on are negligible to the physical habitat due to highly selective removal by hand.
<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>Management actions in place</p> <p>Fishing method is unlikely to impact the ecosystem. Management measures include limited access to the fishery, area closures, quota management and size limit to reduce any potential damage to the ecosystem.</p>
<p>2.3.4 There are decision rules that trigger further management responses when</p>	<p>Partially Meets</p>

monitoring detects impacts on selected ecosystem indicators beyond a predetermined level, or where action is indicated by application of the precautionary approach.	There are no decision rules that trigger further management responses when monitoring detects impacts on selected ecosystem indicators. However, due to the scale and risk of the fishery this is not warranted.
2.3.5 The management response, considering uncertainties in the assessment and precautionary management actions, has a high chance of achieving the objective.	Meets The management arrangements, considering precautionary management actions, appear to have a high chance in achieving the objective due to the harvest method of the fishery (hand collection).

SECTION 3: ASSESSMENT OF THE NSW SEA URCHIN AND TURBAN SHELL RESTRICTED 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>Not applicable</p> <p>The fishery operates in NSW waters and does not operate within a bioregional plan area where a bioregional plan is required.</p>

Part 13 – Species and communities

The fishery operates in state waters only, therefore Part 13 accreditation is not application to this fishery.

Part 13A – International movement of wildlife specimens

Section 303BA Objects of Part 13A	
<p>(1) The objects of this Part are as follows:</p> <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. 	<p>The management arrangements for the fishery have been assessed as consistent with the general guidance provided in the objects of Part 13A as:</p> <ul style="list-style-type: none"> • the fishery will not harvest any Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) listed species • there are management arrangements in place to ensure that the resource is being managed in an ecologically sustainable way (see Table 1) • the operation of the fishery is unlikely to be unsustainable and threaten biodiversity within the next ten years, and <p>the Environment Protection and Biodiversity Conservation Regulations 2000 do not specify fish as a class of animal in relation to the welfare of live specimens.</p>
Section 303 CG Minister may issue permits (CITES species)	Comment
<p>(3) The Minister must not issue a permit unless the Minister is satisfied that:</p> <ul style="list-style-type: none"> (a) the action or actions specified in the permit will not be detrimental to, or contribute to trade which is detrimental to: 	<p>Not applicable</p> <p>The fishery does not harvest species listed under CITES.</p>

(i) the survival of any taxon to which the specimen belongs; or	
(ii) the recovery in nature of any taxon to which the specimen belongs; or	Not applicable The fishery does not harvest species listed under CITES.
(iii) any relevant ecosystem (for example, detriment to habitat or biodiversity); and	Not applicable The fishery does not harvest species listed under CITES.
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: (a) doing any of the following: (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.	Meets The Department recommends specimens that are or are derived from fish or invertebrates harvested in the NSW Sea Urchin and Turban Shell Restricted Fishery as defined in the management regime in force under the <i>Fisheries Management Act 1994</i> (NSW) and the Fisheries Management (General) Regulation 2010 (NSW), 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 31 March 2028 .
(1A) In deciding to amend the LENS, the Minister must rely primarily on outcomes of Part 10, Div. 1 or 2 assessment	Not applicable The fishery is not managed by the Commonwealth.
(1C) The above does not limit matters that may be considered when deciding to amend LENS.	Meets The Department 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 NSW Sea Urchin and Turban Shell Restricted Fishery was made available on the Department's website from 15 August 2018 to 12 September 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
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<p>(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.</p> <p>(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.</p>	<p>Meets</p> <p>The Department has accounted for the precautionary principle in the preparation of its advice in relation to a decision under section 303DC.</p> <p>Given the limited access, area closures, quota management, size limit on species, and the annual monitoring of harvest against historic catch and effort data, precautionary measures are in place to prevent serious or irreversible environmental damage being caused by this fishery.</p>
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SECTION 4: NSW SEA URCHIN AND TURBAN SHELL RESTRICTED FISHERY – SUMMARY OF ISSUES AND RECOMMENDATIONS, OCTOBER 2018

Issue	Recommendations / Part 13 Conditions
<p><u>General Management</u></p> <p>Export decisions relate to the arrangements in force at the time of the decision. To ensure that these decisions remain valid and export approval continues uninterrupted, the Department of the Environment and Energy 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. This includes operational and legislated amendments that may affect sustainability of the target species or negatively impact on byproduct, bycatch, EPBC Act protected species or the ecosystem.</p>	<p>Recommendation 1:</p> <p>Operation of the Fishery will be carried out in accordance with the Management Plan in force under the <i>Fisheries Management Act 1994</i> (NSW).</p> <p>Recommendation 2:</p> <p>The NSW Department of Primary Industry to inform the Department of the Environment and Energy of any intended material changes to the Fishery management arrangements that may affect the assessment against which <i>Environment Protection and Biodiversity Conservation Act 1999</i> decisions are made.</p>
<p><u>Annual Reporting</u></p> <p>It is important that reports be produced and presented to the Department annually in order for the performance of the fishery and progress in implementing the recommendations in this report and other managerial commitments to be monitored and assessed throughout the life of the declaration. 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 recommendations. 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:</p> <p>The NSW Department of Primary Industry to produce and present reports to the Department of the Environment and Energy annually as per Appendix B of the <i>Guidelines for the Ecologically Sustainable Management of Fisheries - 2nd Edition</i>.</p>

REFERENCES

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