



Australian Government

Department of the Environment and Energy

Assessment of the

WESTERN AUSTRALIAN

TYCRAFT GIANT CLAM WILDLIFE TRADE

OPERATION

APRIL 2019

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This report should be attributed as '*Assessment of the Western Australian, Tycraft Wildlife Trade Operation April 2019* Commonwealth of Australia 2019'.

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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EXECUTIVE SUMMARY OF THE ASSESSMENT OF THE WESTERN AUSTRALIAN TYCRAFT GIANT CLAM WILDLIFE TRADE OPERATION

In January 2019, Tycraft Pty Ltd (Tycraft) submitted an application for export approval of the harvest of *Tridacna maxima* (giant clam) to the Department of the Environment and Energy for assessment under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) as a Wildlife Trade Operation (WTO) against the Australian Government *Guidelines for the Ecologically Sustainable Management of Fisheries – 2nd Edition*. A public comment period was open from 24 January 2019 to 14 March 2019.

Tycraft Giant Clam Wildlife Trade Operation

Tycraft is located in the Cocos (Keeling) Islands, an Australian external territory approximately 2750 km north west of Perth, Western Australia (WA). Fishery management is delivered by the WA Government under a Service Delivery Arrangement with the Australian Government. Tycraft operates under the *Fish Resources Management Act 1995 (WA)(CKI)* and an Instrument of Exemption to take *T. maxima*. The operation collects wild *T. maxima* as broodstock for its aquaculture facility to raise juvenile giant clams for the international aquarium trade. The broodstock spawn, developing larvae are raised in a laboratory, and juvenile clams are harvested for export. Management of the wild collection is based (primarily) on input and output controls. These controls include quota levels, restricted harvest area and hand collection and is supported by a monitoring program of the clam's abundance.

Target stocks

Tycraft harvests *T. maxima* as broodstock for its commercial land-based aquaculture facility. There is also a recreational harvest of the clam with estimates from monitoring that indicate its take is close to its maximum sustainable yield and that extremely conservative catch limits (both recreational and commercial) should be assigned (Evans et al 2016). The *State of the Fisheries and Aquatic Resources (WA) 2016/17* (Newman et al 2018) publication reports that monitoring data shows a decline in relative stock abundance of *T. maxima* before they reach a size of sexual maturity. Heavy fishing pressure (primarily from recreational take) is presumed to contribute to this reduction, with further monitoring required to monitor sustainability of these stocks. A Non-Detriment Finding report by the Department in 2015 concludes that at the proposed level of harvest and with the method of collection (hand collection) it is unlikely the operation is detrimental to the *T. maxima* population at the Cocos (Keeling) Islands and to the survival of the species in the wild.

Protected species and ecosystems

Due to the highly selective harvesting method (hand collection) and the small number of individuals permitted to be taken, there have been no recorded interactions with protected species and the impacts from the collection on the aquatic ecosystem are considered negligible. Taking current management measures into consideration the Department considers that it is unlikely that fishing activity in the fishery will cause serious or irreversible impact to the ecosystem and associated food chains.

Conclusion

Following assessment against the Fisheries Guidelines at Section 2, the Tycraft giant clam operation has been found to meet the requirements of the EPBC Act subject to the conditions outlined in Section 4. On this basis, the Department considers that declaration of the harvest operations of the Tycraft giant clam operation as an approved wildlife trade operation for three years until 15 April 2022, is appropriate. Unless a specific time frame is provided, each condition must be addressed within the period of the approved wildlife trade operation declaration.

SECTION 1: ASSESSMENT SUMMARY OF THE WESTERN AUSTRALIAN TYCRAFT GIANT CLAM WILDLIFE TRADE OPERATION 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	8 of 9	1 of 9		The management regime is effective Effective governing legislation is in place for fisheries in the Cocos (Keeling) Islands (the <i>Fish Resources Management Act 1995 (WA)(CKI)</i>). The legislation will be replaced by the <i>Aquatic Resources Management Act 2016 (WA)(CKI)</i> when enacted. Broad public consultation will be undertaken when the new Act comes into force. An Instrument of Exemption places appropriate management conditions and reporting requirements on Tycraft's giant clam operation. Community engagement and consultation takes place in relation to fishery management on the Islands.
Principle 1 (target stocks)	7 of 11 (3 of 11 n/a)	1 of 9		Very low level harvest of target stocks Estimates of the overall take of <i>Tridacna maxima</i> in the Cocos (Keeling) Islands indicate that its catch is close to maximum sustainable yield. Abundance monitoring occurs at least annually and detailed surveys with assessment reports are done approximately three yearly. Monitoring, catch data, and community consultation informs the levels set for the take of broodstock giant clam for aquaculture purposes. The management measures in place limit take to a very low level. Given this the target stock is considered unlikely to be overharvested from this operation.
Principle 2 (bycatch and TEPS)	5 of 12 (7 of 12 n/a/)			No Bycatch and Unlikely to impact TEPS Bycatch and impacts on Threatened, Endangered or Protected Species (TEPs) is unlikely due to the small scale and highly selective fishing method (hand collection).
Principle 2 (ecosystem impacts)	3 of 5 (1 of 5 n/a)	1 of 5		Very low risk of any ecosystem impact

				Management measures mitigate the risk of significant impacts to the ecosystem by a highly selective harvesting method (hand collection); a small number of clams are permitted to be taken, and the areas for take are restricted. The management response is effective in minimising the impact of the operation on the ecosystem.
EPBC requirements	Meets	Partially meets	Does not meet	
Part 12	Meets			Very low risk to key ecological features Given the highly selective harvesting method (hand collection) and the operation's low harvest level, the operation is not considered to have significant impact to key ecological features identified for the North-west Marine Region.
Part 13				Not applicable
Part 13A	Meets			The fishery is consistent with the Objects of Part 13A. Declaration of the operation as a wildlife trade operation for three years, until 15 April 2022 is recommended, subject to conditions detailed in Section 4 of this report.
Part 16	Meets			The fishery is managed in a precautionary manner.

Notes:

Assessment history:

Information on previous assessments for the Tycraft giant clam operation is available on the Department's website at:
<https://www.environment.gov.au/marine/fisheries/wa/giant-clams>.

1st assessment finalised September 2010 – WTO with four conditions

2nd assessment finalised October 2011 – WTO with three conditions

3rd assessment finalised November 2013 – WTO with three conditions

4th assessment finalised April 2016 – WTO with three conditions

Fishery Reporting:

Annual report – reported through the WA State of the Fisheries and Aquatic Resources reports.

- [Status reports of the fisheries and aquatic resources of Western Australia 2016/17 \(Appendix 3\)](#) (page 227)

Key links:

Fishery information page on the WA Department of Primary Industries and Regional Development (DPIRD) website

- Fishing and Aquaculture - <http://www.fish.wa.gov.au/Fishing-and-Aquaculture/Pages/default.aspx>

- Rules for Sustainable fishing [Indian Ocean Territories Proposed rules for sustainable fishing Cocos \(Keeling\)](#)

Enforcing legislation

- [Fish Resources Management Act 1994](#) (WA) (CKI)(FRMA, will be replaced by the [Aquatic Resources Management Act 2016](#) (WA)(CKI), when enacted)

- [Fish Resources Management Regulations 1995](#) (WA)(CKI)

Ecological Risk Assessment

- Department of the Environment (2015) *Non-detriment finding for the export of giant clams Tridacna maxima from the Cocos (Keeling) Islands, Australia by Tyrcraft Pty Ltd (Commercial in confidence)*
- Hourston, M. 2010. [Review of the exploitation of marine resources of the Australian Indian Ocean Territories](#): the implications of biogeographic isolation for tropical island fisheries. Fisheries Research Report No. 208. Department of Fisheries, Western Australia.

Stock assessment and reports:

- [Invertebrate Research at Cocos \(Keeling\) Islands 2013](#)
- [Invertebrate and Reef Health Research at Cocos \(Keeling\) Islands 2016](#)
- *Invertebrate and Reef Health Research at Cocos (Keeling) Islands 2019 (in prep)*

Other

- [Department of Infrastructure, Regional Development and Cities – Cocos Keeling Islands](#) (Australian Government)
- [Department of Infrastructure, Regional Development and Cities – Cocos Keeling Islands, Legal framework and administration](#)
- [Marine bioregional plan for the North-west marine region, 2012](#), Australian Government, Department of Sustainability, Environment, Water, Population and Communities.

SECTION 2: DETAILED ANALYSIS OF THE WESTERN AUSTRALIAN TYCRAFT GIANT CLAM WILDLIFE TRADE OPERATION 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.	Meets Governing legislation and general information describing the management regime are available online on the Western Australian Department of Primary Industries and Regional Development (DPIRD) Fisheries website, and the Australian Government Department of Infrastructure, Regional Development and Cities (DIRDC) external territories website (link accessible in Section 1: Notes). An Instrument of Exemption provides an exemption to Tycraft to take <i>Tridacna maxima</i> broodstock for its commercial aquaculture operation and places management conditions on its operation.
Be developed through a consultative process providing opportunity to all interested and affected parties, including the general public	Partially meets The Cocos (Keeling) Islands giant clam operation is regulated and managed by WA under the <i>Fish Resources Management Act 1994</i> (WA) (CKI) through a service delivery arrangement with the Australian Government Department of Infrastructure, Regional Development and Cities (DIRDC) and an Instrument of Exemption granted by DIRDC. The management arrangements for the operation and the Instrument of Exemption did not involve a public consultation process. Management of the WA fisheries may be subject to public consultation when the <i>WA Aquatic Resources Management Act</i> comes into force.
Ensure that a range of expertise and community interests are involved in individual fishery management committees and during the stock assessment process.	Meets The WA Government (DPIRD) Fisheries Research Reports include stock assessments for the operation (Bellchambers 2013, Evans 2016, DPIRD 2019 (in prep)). Stock assessments take into consideration the management conditions for the take of <i>T.maxima</i> by Tycraft in their Instrument of Exemption.

Be strategic, containing objectives and performance criteria by which the effectiveness of the management arrangements are measured.	Meets Performance measures are articulated in the Instrument of Exemption. Reporting against performance criteria is publically available through the annual State of the Fisheries and Aquatic Resources report (link accessible in Section 1: Notes).
Be capable of controlling the level of harvest in the fishery using input and/or output controls.	Meets The harvest level of <i>T.maxima</i> broodstock is controlled through a quota in the Instrument of Exemption (in force from March 2016 to 30 June 2019). Processes are underway for the exemption to be re-issued when its expires in June. The Exemption limits take to no more than 450 individuals over the three years of the Exemption and to no more than 250 in a 12 month period (commencing on 1 July and ending on 30 June). Harvest collection reports (Statutory Catch and Effort Returns) are provided to DPIRD according to the Exemption.
Contain the means of enforcing critical aspects of the management arrangements.	Meets There are on-land inspections approximately twice annually by DPIRD compliance staff. The majority of enforcement effort is aimed at ensuring the operator is following management arrangements.
Provide for the periodic review of the performance of the fishery management arrangements and the management strategies, objectives and criteria.	Meets Regular performance reviews are built into the management regime. The operation's performance is reviewed annually and reported where specified in the annual State of the Fisheries and Aquatic Resources report (link accessible in Section 1: Notes).
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.	Meets Due to the benign harvesting method (hand collection) and small take, impacts on the wider marine ecosystem are considered to be negligible. Even so, monthly reports are provided to the WA government as part of the conditions of the Instrument of Exemption during the harvest period.

Requires compliance with relevant threat abatement plans, recovery plans, the National Policy on Fisheries Bycatch, and bycatch action strategies developed under the policy.	Meets <p>There is negligible impact on bycatch, protected species and the ecosystem due to the benign harvesting method (hand collection). The Tycraft giant clam operation is compliant with relevant Commonwealth plans and policies.</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.	Meets <p>Stock assessments have been undertaken of <i>T. maxima</i> at the Cocos (Keeling) Islands (CKI) by the WA Fisheries Department (Bellchambers 2013 and Evans 2016). Data used in these assessments draws on surveys in 2011 and 2014 on the distribution, abundance and size of giant clam populations at CKI. Ongoing annual abundance monitoring is in place. An updated fisheries report on research and monitoring using 2018 survey data is in preparation with completion expected in 2019.</p> <p>Performance measures detailed in the Tycraft Instrument of Exemption include monthly operational and harvest reporting to the DPIRD.</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.	Meets <p>Stock assessments have been undertaken of <i>T. maxima</i> at the Cocos (Keeling) Islands by the WA Fisheries Department (Bellchambers 2013 and Evans 2016). Data used in these assessments draws on surveys in 2011 and 2014 on the distribution, abundance and size of giant clam populations at CKI. Ongoing annual abundance monitoring is in place. An updated fisheries report on research and monitoring using 2018 survey data is in preparation with completion expected in 2019.</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 giant clam (<i>T. maxima</i>) harvested in this operation is known to occur globally in an area bounded by East Africa and the Red Sea to the west, southern Japan to the north and Polynesia to the east.</p> <p>Stock assessments have been undertaken of <i>T. maxima</i> at the Cocos (Keeling) Islands by the WA Fisheries Department (Bellchambers 2013 and Evans 2016). Data used in these assessments draws on surveys in 2011 and 2014 on the distribution, abundance and size of giant clam populations at CKI. The surveys studied giant clams at approximately 70 sites at CKI. No significant difference in standing stock estimates of <i>T. maxima</i> at CKI was observed between 2011 and 2014. Recent abundance monitoring is reporting a decline in relative stock abundance before they reach a size of sexual maturity.</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>The WA government Instrument of Exemption for Tycraft allows a maximum of 450 broodstock <i>T. maxima</i> to be taken from CKI waters in the three year term of the Exemption and up to 250 <i>T. maxima</i> in any one year period. Tycraft is the only operation with commercial take of giant clam on CKI (which is for its aquaculture operation). The current scale of the Tycraft wild take is small and the target species is considered unlikely to be overharvested from this operation.</p> <p>The current level of recreational harvest of giant clams at the CKI is unknown. Estimates of catch have been calculated to provide an indication of the potential recreational harvest. Estimates of recreational take indicate that catches of <i>T. maxima</i> continue to be close to maximum sustainable yield.</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</p> <p>The Department of Fisheries stock assessment of giant clams at the CKI (Evans 2016) using survey data from 2011 and 2014 provides abundance and sustainable harvest estimates for giant clams. A comparison of survey data has shown that density of <i>T. maxima</i> at CKI has not changed between 2011 and 2014 and that densities are higher than estimates for other equivalent populations elsewhere regionally or globally. Also, no significant difference in standing stock estimates of <i>T. maxima</i> at CKI was observed between 2011 and 2014. An optimal annual harvest of 136,803 is calculated using estimates of total <i>T. maxima</i> standing stock. These estimates are for recreational harvest only. With the exception of Tycraft's small number (up to 450 over three years) taken for aquaculture broodstock purposes, there is no commercial fishing for giant clams at CKI. The current scale of the operation is small. Giant clams are considered unlikely to be overharvested from Tycraft's small wild take.</p> <p>The life history characteristics and accessibility of giant clams make them particularly vulnerable to overfishing. Giant clams are slow growing, have high mortality, and as protandrous hermaphrodites (born male and change to female) exhibit a selective mode of spawning that is dependent on adult density. As a result, populations can become unsustainable when densities decline below a critical level. For these and other reasons a low quota is set in the WA Instrument of Exemption for the take of <i>T. maxima</i> by Tycraft.</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>Partially meets</p> <p>The WA government Instrument of Exemption requires the level of harvest to be controlled through a quota setting. The quota is a maximum of 450 <i>T. maxima</i> over the three years of the Exemption and no more than 250 in any one year period. Controls supporting this include conditions in the Instrument of Exemption requiring lodgement of harvest collection reports to the WA government. These management measures limit the level of harvest, however there are no species specific reference points that trigger further management actions for the operation. The low harvest is considered sustainable for <i>T.maxima</i>.</p>

1.1.7 There are management strategies in place capable of controlling the level of take.	Meets The level of take is controlled through management measures within the Instrument of Exemption. This includes daily logs that are available for inspection of the number of giant clams taken. All giant clams must be retained at Tycraft's aquaculture facility and no clams are to be returned to the wild (unless authorised). All take of giant clams must be included in Statutory Catch and Return records submitted monthly to the WA government. These measures are considered sufficient for the scale and methods used in the operation.
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 as part of the operation due to the highly 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 The management response has a high chance of achieving the catch and stock level objective given estimates of recreational take, set quotas in the Instrument of Exemption, statutory catch and return records, and ongoing abundance monitoring.
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 The target stock (<i>T. maxima</i>) is not considered to be overfished. Annual estimates of recreational take is approximately 56,160. An optimal harvest estimate is 55,271. These numbers indicate catch of <i>T. maxima</i> is close to maximum sustainable yield. A small take of <i>T. maxima</i> is allowed by Tycraft in CKI for its aquaculture operation through an Instrument of Exemption granted by DIRDC. DIRDC applies a precautionary approach to granting the Instrument of Exemption to take these species.

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>Not applicable</p> <p>The target stock (<i>T. maxima</i>) is not considered to be overfished. However, annual estimates of recreational take indicate that catches of <i>T. maxima</i> continue to be close to maximum sustainable yield.</p>
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.	<p>Not applicable</p> <p>Due to the highly selective fishing method (hand collection), there is no capture of bycatch.</p>
Assessment	
2.1.2 There is a risk analysis of the bycatch with respect to its vulnerability to fishing.	<p>Not applicable</p> <p>Due to the highly selective fishing method (hand collection), there is no capture of bycatch.</p>
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.	<p>Not applicable</p> <p>Due to the highly selective fishing method (hand collection), there is no capture of bycatch.</p>
2.1.4 An indicator group of bycatch species is monitored.	<p>Not applicable</p> <p>Due to the highly selective fishing method (hand collection), there is no capture of bycatch.</p>

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 considered appropriate given the low risk posed to bycatch species posed by the hand collection of <i>T.maxima</i> .
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 (in particular the hand collection of <i>T. maxima</i>) 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 For each collection of <i>T.maxima</i> a daily log is kept that includes the date and number taken. The applicant makes observations about the distribution and local population levels of <i>T.maxima</i> in the area of collection. The highly selective harvesting method (hand collection), the relatively small take, and the small defined collection area reduces the risk of capture and/or mortality of protected species to very low levels.
Assessments	
2.2.2 There is an assessment of the impact of the fishery on endangered, threatened or protected species.	Meets For each collection of <i>T.maxima</i> a daily log is kept that includes the date and number taken. The applicant makes observations about the distribution and local population levels for the giant clam in the area of collection. The highly selective harvesting method (hand collection), the relatively small take, and the small defined collection area reduces the risk of capture and/or mortality of protected species to very low levels.
2.2.3 There is an assessment of the impact of the fishery on threatened ecological communities.	Not Applicable There are no EPBC listed threatened ecological communities in the area of the operation.

Management responses	
2.2.4 There are measures in place to avoid capture and/or mortality of endangered, threatened or protected species.	Meets The highly selective harvesting method (hand collection), the relatively small take, and the small defined collection area reduces the risk of capture and/or mortality of protected species to extremely low levels.
2.2.5 There are measures in place to avoid impact on threatened ecological communities.	Not Applicable There are no EPBC listed threatened ecological communities in the area of the operation.
2.2.6 The management response, considering uncertainties in the assessment and precautionary management actions, has a high chance of achieving the objective.	Meets Conditions imposed on the operation (targeted harvest and low level of take) are likely to ensure that fishing is conducted in a way that is likely to be effective in avoiding impacts to protected species and ecological communities.
Objective 3 - The fishery is conducted, in a manner that minimises the impact of fishing operations on the ecosystem generally.	
Information requirements	
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.	Meets There is no collection of information directly on the impact of the operation on the local ecosystem. The operation has a relatively small take of <i>T.maxima</i> , up to 450 over the three year period of the Instrument of Exemption and no more than 250 in any one year period. There is a much higher annual take from recreational users which is estimated at 56,160. Abundance monitoring has indicated this level is close to maximum sustainable yield. Community education and guidelines are in place to help manage this area of take. The highly selective harvesting method (hand collection), the relatively small take, and the small defined collection area reduces the risk of the operation's impact to a very low level.

Assessment	
<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>Partially meets</p> <p>The Instrument of Exemption requires data collection and reporting on the location and harvest of <i>T. maxima</i>. Information on the impact of the operation is not collected, therefore there is no data available to carry out risk analyses on the susceptibility of various ecosystem components. However, the highly selective harvesting method (hand collection), the relatively small take, and the small defined collection area reduces the risk of impact on ecosystem components to a very low level.</p>
Management responses	
<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 fishing method is unlikely to impact the ecosystem. Management measures include a highly selective harvesting method (hand collection), a relatively small take, and a small defined collection area, to reduce potential damage to the ecosystem.</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 level, or where action is indicated by application of the precautionary approach.</p>	<p>Not applicable</p> <p>There are no decision rules based on monitoring that trigger further management responses. The Instrument of Exemption held by the operator can be cancelled at any time in writing if considered necessary by the WA government. Impacts on the ecosystem from the operation are considered to be very low.</p>

<p>2.3.5 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, considering precautionary management actions, appear to have a high chance in achieving the objective due to the harvest method of the operation (hand collection). Also, under the general management arrangements in place, the impact of this operation on the ecosystem is likely to be minimal.</p>
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SECTION 3: ASSESSMENT OF WESTERN AUSTRALIAN TYCRAFT GIANT CLAM WILDLIFE TRADE OPERATION 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 operation in relation to decisions under Part 13A.

Part 10 – Strategic assessments Division 2 Assessment of Commonwealth-managed fisheries

Not applicable as the Cocos (Keeling) Islands are not a Commonwealth managed fishery.

Part 12 – Identifying and monitoring biodiversity and making bioregional plans

Section 176 Bioregional Plans	Comment
(5) Minister must have regard to relevant bioregional plans	Meets The Marine Bioregional Plan for the North West Marine Region (2012) identifies a number of key ecological features present in the area of the fishery, including listed turtles, seabirds and migratory shorebirds, sharks and whales. However, there is no evidence to suggest any systematic change to species diversity or richness caused by the Tycraft operation, indicating fishing effort is not having a material impact on the food chain or trophic structure. Given the low impact fishing method (hand harvest) used in the fishery and the mitigation measures in place, impact to key ecological features is considered low.

Part 13A – International movement of wildlife specimens

Section 303BA Objects of Part 13A
(1) The objects of this Part are as follows: (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 303 CG Minister may issue	Comment
<p>(3) The Minister must not issue a permit unless the Minister is satisfied that:</p> <p>(a) the action or actions specified in the permit will not be detrimental to, or contribute to trade which is detrimental to:</p> <p>(i) the survival of any taxon to which the specimen belongs; or</p>	<p>Meets</p> <p>Given the operation's management arrangements in place to monitor and control the level of harvest of the CITES species (<i>Tridacna maxima</i>) and noting the minimal level of the CITES species being exported under the operation, the Department considers that the Tycraft Giant Clam Wildlife Trade Operation will not be detrimental to the survival of any taxon to which the CITES specimen belongs in the short to medium term. A condition on the wildlife trade operation declaration for the operation includes annual reporting requirements, which will allow the Department to monitor the status of CITES specimens harvested by the operation.</p>
<p>(ii) the recovery in nature of any taxon to which the specimen belongs; or</p>	<p>Meets</p> <p>The CITES specimens that are harvested as part of the operation are not considered to be over fished in Cocos (Keeling) Islands. Management arrangements are in place including catch limits and spatial closures to ensure that ongoing levels of harvest are ecologically sustainable.</p>
<p>(iii) any relevant ecosystem (for example, detriment to habitat or biodiversity); and</p>	<p>Meets</p> <p>Recognising the fishing method (hand collection), and the small scale of the harvest (up to 450 individuals over the three year period of the Instrument of Exemption and no more than 250 individuals in any one year) the potential for the operation to impact any relevant ecosystem generally is considered low. The Department is satisfied that the operation is managed in a way that minimises the impact of fishing operations on the ecosystem generally.</p>
Section 303DC Minister may amend list (non CITES species)	Comment
<p>(1) The Minister may, by legislative instrument, amend the list referred to in section 303DB [list of exempt native specimens] by:</p> <p>(a) doing any of the following:</p> <p>(i) including items in the list;</p> <p>(ii) deleting items from the list;</p>	<p>Not applicable</p> <p>The Tycraft operation only harvests the CITES listed species <i>T. maxima</i> and is therefore not eligible for listing on the List of Exempt Native Specimens (LENS).</p>

<p>(iii) imposing a condition or restriction to which the inclusion of a specimen in the list is subject;</p> <p>(iv) varying or revoking a condition or restriction to which the inclusion of a specimen in the list is subject; or</p> <p>(b) correcting an inaccuracy or updating the name of a species.</p>	
<p>(1A) In deciding to amend the LENS, the Minister must rely primarily on outcomes of any assessment under Part 10, Divisions 1 or 2</p>	<p>Not applicable</p> <p>The area in which Tycraft operates Coco (Keeling) Islands is not a Commonwealth managed fishery.</p>
<p>(1C) The above does not limit matters that may be considered when deciding to amend LENS.</p>	<p>Not applicable</p> <p>The Tycraft giant clam operation only harvests the CITES listed species <i>T. maxima</i> and is therefore not eligible for listing on the LENS.</p>
<p>(3) Before amending the LENS, the Minister must consult:</p> <p>(a) other Minister or Ministers as appropriate; and</p> <p>(b) other Minister or Ministers of each State and self-governing Territory as appropriate; and</p> <p>(c) other persons and organisations as appropriate.</p>	<p>Not applicable</p> <p>The Tycraft giant clam operation only harvests the CITES listed species <i>T. maxima</i> and is therefore not eligible for listing on the LENS.</p>
<p>Section 303FN Approved wildlife trade operation</p>	<p>Comment</p>
<p>(2) The Minister may, by instrument published in the <i>Gazette</i>, declare that a</p>	<p>The instrument to declare the fishery as an approved wildlife trade operation under section 303FN will be registered on the Federal Register of Legislation (FRL) and a link to the instrument made available</p>

specified wildlife trade operation is an approved wildlife trade operation for the purposes of this section.	through the Department's website. Under subsection 56(1) of the <i>Legislation Act 2003</i> (CTH), registration on the FRL meets the requirements for gazettal.
(3) The Minister must not declare an operation as an approved wildlife trade operation unless the Minister is satisfied that: (a) the operation is consistent with the objects of Part 13A of the Act; and	Meets The Tycraft giant clam operation is consistent with Objects of 13A – see assessment against the Guidelines (Section 2).
(b) the operation will not be detrimental to: (i) the survival of a taxon to which the operation relates; or (ii) the conservation status of a taxon to which the operation relates; and (ba) the operation will not be likely to threaten any relevant ecosystem including (but not limited to) any habitat or biodiversity; and	Meets The Tycraft giant clam operation will not be detrimental to the survival or conservation status of a taxon to which it relates, nor will it threaten any relevant ecosystem, within the next three years given the management measures currently in place, which include limited area for harvest, low level of harvest, hand collection, specimens not being able to be returned to the wild (unless written permission is given from the WA Department of Fisheries), and record keeping and reporting requirements.
(c) if the operation relates to the taking of live specimens that belong to a taxon specified in the regulations – the conditions that, under the regulations, are applicable to the welfare of the specimens are likely to be complied with; and	Not applicable The <i>Environment Protection and Biodiversity Conservation Regulations 2000</i> (EPBC Regulations) do not specify Crustacea or fish (that includes giant clams) as a class of animal in relation to the welfare of live specimens.
(d) such other conditions (if any) as are specified in the regulations have been, or are likely to be, satisfied.	Not applicable No other conditions are specified in relation to commercial fisheries in the EPBC Regulations.

<p>(4) In deciding whether to declare an operation as an approved wildlife trade operation the Minister must have regard to:</p> <p>(a) the significance of the impact of the operation on an ecosystem (for example, an impact on habitat or biodiversity); and</p>	<p>Meets</p> <p>The Tycraft giant clam operation will not have a significant impact on any relevant ecosystem within the next three years, given the management measures currently in place, which include the arrangements described above at s303FN 3(b).</p>
<p>(b) the effectiveness of the management arrangements for the operation (including monitoring procedures).</p>	<p>Meets</p> <p>The management arrangements that will be employed for the Tycraft giant clam operation, as outlined in section 4 and in the assessment against the Guidelines (Section 2), are likely to be effective.</p>
<p>(5) In deciding whether to declare an operation as an approved wildlife trade operation the Minister must have regard to:</p> <p>(a) whether legislation relating to the protection, conservation or management of the specimens to which the operation relates is in force in the State or Territory concerned; and</p> <p>(b) whether the legislation applies throughout the State or Territory concerned; and</p> <p>(c) whether, in the opinion of the Minister, the legislation is effective.</p>	<p>Meets</p> <p>The Tycraft giant clam operation is managed under the <i>Fish Resources Management Act 1994 (WA)(CKI)</i> and the <i>Fish Resources Management Regulations 1995 (WA)(CKI)</i>.</p> <p>The <i>Fish Resources Management Act 1994 (WA)(CKI)</i> applies throughout the waters of the Cocos (Keeling) Islands.</p> <p>The Department considers that the legislation is likely to be effective.</p> <p>The operation will come under new legislation: the <i>Aquatic Resources Management Act, 2016</i> when enacted.</p>
<p>(10) For the purposes of section 303FN, an operation is a wildlife trade operation if, and only if, the operation is an operation for the taking of specimens and:</p> <p>(a) the operation is a small scale operation.</p>	<p>Meets</p> <p>The Tycraft Giant Clam Wildlife Trade Operation is a small scale operation.</p> <p>The collection of <i>T. maxima</i> broodstock by Tycraft for its aquaculture operation has the characteristics of a small scale operation as specified in Regulation 9A.20(3) as:</p>

	<ul style="list-style-type: none"> the area harvested is small (restricted to selected waters within the Cocos (Keeling) Islands the activity is restricted to a single operator who is the holder of an Instrument for Exemption to undertake the activity from a Licensed Fishing Boat, and over the next three years (with the re-issuing of the Instrument of Exemption), the number of broodstock specimens collected from the wild is restricted to a small number.
(10A) In deciding whether to declare that a commercial fishery is an approved wildlife trade operation for the purposes of this section, the Minister must rely primarily on the outcomes of any assessment in relation to the fishery carried out for the purposes of Division 1 or 2 of Part 10.	<p>Not applicable</p> <p>No assessment of the Tycraft giant clam operation has been carried out under Part 10 of the EPBC Act as the area in which Tycraft operates Cocos (Keeling) Islands is not a Commonwealth managed fishery.</p>
(10B) Subsection (10A) does not limit the matters that may be taken into account in deciding whether to declare that a fishery is an approved wildlife trade operation for the purposes of this section.	
Section 303FR Public consultation	Comment
<p>(1) Before making a declaration under section 303FN, the Minister must cause to be published on the Internet a notice:</p> <p>(a) setting out the proposal to make the declaration; and</p> <p>(b) setting out sufficient information to enable persons and organisations to consider adequately the merits of the proposal; and</p> <p>(c) inviting persons and organisations to give the Minister, within the period specified</p>	<p>Meets</p> <p>A public notice, which set out the proposal to declare the Tycraft giant clam operation an approved wildlife trade operation, and included the application from Tycraft, was released for public comment on 24 January 2019 to 28 February 2019, a total of 24 business days. An extension to the public comment period was issued on 11 February 2019 with a closing date of 14 March 2019, a cumulative total of 34 business days.</p>

<p>in the notice, written comments about the proposal.</p> <p>(2) A period specified in the notice must not be shorter than 20 business days after the date on which the notice was published on the Internet.</p>	
<p>(3) In making a decision about whether to make a declaration under section 303FN, the Minister must consider any comments about the proposal to make the declaration that were given in response to the invitation in the notice.</p>	<p>Not applicable</p> <p>One comment on the proposal was received in the public consultation period, which was from the Australian Government Department of Infrastructure, Regional Development and Cities (DIRDC). The submission supports the approval of Tycraft's wildlife trade operation to harvest <i>T.maxima</i>.</p>
<p>Section 303FT Additional provisions relating to declarations</p>	<p>Comments</p>
<p>(1) This section applies to a declaration made under section 303FN, 303FO or 303FP.</p>	<p>A declaration for the Tycraft Giant Clam Wildlife Trade Operation will be made under section 303FN.</p>
<p>(4) The Minister may make a declaration about a plan or operation even though he or she considers that the plan or operation should be the subject of the declaration 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 declaration is to specify the period, circumstances or condition.</p>	<p>The standard conditions applied to commercial wildlife trade operations include:</p> <ul style="list-style-type: none"> • operation in accordance with the management regime • notifying the Department of changes to the management regime, and • annual reporting in accordance with the requirements of the Australian Government <i>Guidelines for the Ecologically Sustainable Management of Fisheries – 2nd Edition</i>. <p>The wildlife trade operation instrument for Tycraft specifies the standard and any additional conditions be applied.</p>
<p>(8) A condition may relate to reporting or monitoring.</p>	<p>One of the standard conditions relates to reporting.</p>

(9) The Minister must, by instrument published in the <i>Gazette</i> , revoke a declaration if he or she is satisfied that a condition of the declaration has been contravened.	Not applicable
(11) A copy of an instrument under section 303FN, or this section is to be made available for inspection on the internet.	The instrument for the Tycraft giant clam operation made under sections 303FN and the conditions under section 303FT will be registered as a notifiable instrument and made available through the Department's website.

Part 16 – Precautionary principle and other considerations in making decisions

Section 391 Minister must consider precautionary principle in making decisions	Comment
<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>Given the management regime for the operation including: the highly selective harvesting method (hand collection), the relatively small take, and the small defined collection area, precautionary measures are considered to be in place to prevent serious or irreversible environmental damage being caused by this operation.</p>

SECTION 4: TYCRAFT GIANT CLAM WILDLIFE TRADE OPERATION – SUMMARY OF ISSUES REQUIRING CONDITIONS, APRIL 2019

Issue	Condition
<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>Condition 1:</p> <p>Operation of the Tycraft Giant Clam Wildlife Trade Operation will be carried out in accordance with the management regime under the <i>Fish Resources Management Act 1994 (WA)(CKI)</i> and a current valid Instrument of Exemption issued under Section 7(2)(e) of this Act.</p> <p>Condition 2:</p> <p>Tycraft Pty Ltd to inform the Department of the Environment and Energy of any material changes to the legislated permit conditions 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 conditions 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 <i>Guidelines for the Ecologically Sustainable Management of Fisheries - 2nd Edition</i> and include a description of the fishery, management arrangements in place, research and monitoring outcomes, recent catch data for all sectors of the</p>	<p>Condition 3:</p> <p>Tycraft Pty Ltd 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>. These reports must be provided to the Department by 30 September each year. The reports must include:</p> <ul style="list-style-type: none"> • the number of <i>Tridacna maxima</i> harvested from the wild for broodstock • details of any mortalities of broodstock • results of mating and rearing trials and the number of specimens reared, lost through brood mortality, numbers sold and those held as stock.

Issue	Condition
<p>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. 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>	

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