

Marine Stewardship Council (MSC) 4th Surveillance Audit Report

Tristan da Cunha Rock Lobster

On behalf of

Ovenstone Agencies

Prepared by

Control Union (UK) Limited

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Role	Signature	Date
Originator:	H. Jones	27 th October 2021
Reviewer:	M. Deleau	08 th November 2021
Approver:	T. Tsuzaki	12 th November 2021



Glossary

Acronym	Definition
Вмѕч	Biomass at which the equilibrium yield is equal to MSY
CDR	Client Draft Report
CL	Carapace Length
CPUE	Catch Per Unit of Effort
ETP	Endangered, Threatened or Protected
FAO	Food and Agriculture Organisation (United Nations)
FCO	Foreign and Commonwealth Office (UK Government)
FCRG	Fisheries Certification Requirements and Guidance
FMP	Fisheries management plan
GL(M)M	General Linear (mixed) Model
HCR	Harvest control rule
l _{tar}	Target level of standardised CPUE
Ιυυ	Illegal, unreported or unregulated fishing
К	Growth coefficient
MARAM	Marine Resource Assessment and Management Group, in the Dept. of Mathematics and Applied Mathematics, UCT
МСМ	Marine and Coastal Management (South African Government)
MLS	Minimum Legal Size
MSY	Maximum sustainable yield
L∞	Asymptotic Length
ОМР	Operational Management Procedure
PCDR	Public Comment Draft Report
PCR	Public Certification Report
PUCL	Precautionary Upper Catch Limit
TAC	Total allowable catch
TdC	Tristan da Cunha
то	Technical oversight
UCT	University of Cape Town
UoA	Unit of Assessment
UoC	Unit of Certification
RBF	Risk-Based Framework
VBGF	von Bertalanffy Growth Function
VMS	Vessel monitoring system (satellite monitoring)



1. Executive Summary

The fourth annual surveillance audit of the Tristan da Cunha rock lobster fishery for *Jasus tristani* was undertaken on Monday 18th October 2021. The audit was undertaken as an offsite audit with two remote assessors from CU UK – Hugh Jones as Team Leader and Principle 2 expert and Johan Groeneveld as Principle 1 and 3 expert. It was conducted in conjunction with the reduced reassessment audit for this fishery. Present on the audit were the managers from Ovenstone (client), Tristan da Cunha Fisheries Department as well as representation from the MARAM stock assessment group. All persons participated remotely using conference calling software.

This was the 4th surveillance audit of the fishery since recertification in 2016, when the fishery was recertified with a single condition which was closed at the year 1 audit. The present audit focused on the changes in the fishery since the year 3 audit.

For Principle 1, new stock assessments were produced for Inaccessible Island and Gough Island which continue to show the stock in good health. Updated management plans for all four islands have been provided to the assessment team and TACs continue to be set at levels consistent with these. No Performance Indicators required rescoring at this audit.

For Principle 2, updated records of bycatch and Endangered Threatened and Protected (ETP) species interactions were provided to the assessment team. Observer records were also provided and analysed by the team. There have been no significant changes to bycatch rates or interactions with ETP species, and reviews of the fishery footprint showed no significant change either. There was a temporal change in effort in the 2020/2021 season following the loss of the FV Geo Searcher in 2020, but this did not change the overall impression of the fishery. The team found no reason to review scoring against any of the Principle 2 Performance Indicators of the fishery at this audit based on the information provided.

For Principle 3, an updated fishery management plan for the fishery has been produced for 2021 with the most recent information on data describing the fishery and its governance, newly collected data, updated assessments and OMP reviews. No non-compliance issues were reported during the 2020/2021 fishing season as reported by the Fisheries Department. The team found no reason to review scoring against any of the Performance Indicators of the fishery at this audit.

Following consideration of all stakeholders' inputs and new information provided by the client the fishery assessment team concludes that the fishery should remain certified against the MSC standard.



2. Report details

2.1 Surveillance information

Table 1– Surveillance announcement							
1	Fishery name						
	Tristan da Cunha rock lo	bbster					
2	Unit(s) of Assessment (UoA)					
	Species Rock lobster (Jasus tristani)						
	Stock	From the islands of the Tristan da Cunl	ha group				
	Geographical range of the fishery The islands of the Tristan da Cunha group. UoA 1: Tristan UoA 2: Inaccessible UoA 3: Gough UoA 4: Nightingale						
	Method of capture	Baited traps and hoop nets					
	Client group	Ovenstone Agencies Management under jurisdiction of the Tristan da Cunha Fisheries Department, Island Council and Administrator.					
	Other eligible fishers	none					
3	Date certified		Date of expiry				
	First certified: 20 Jun 20 Recertified: 15 Decemb	011; er 2016	14 Jun 2022				
4	Surveillance level and t	уре					
	Level 4 – this surveillance was an off-site assessment based on MSC derogation 3 for off-site visit while the Covid situation remains between March 2021 and March 2022. <u>https://mscportal.force.com/interpret/s/article/Derogation-3-Covid-19-Fishery-and-Chain-of-Custody- Remote-Auditing</u> All fishery information is available from <u>https://fisheries.msc.org/en/fisheries/tristan-da-cunha-rock- lobster/@@assessments</u>						
5	Surveillance number						



	4th Surveillance		x		
6	Proposed team leader				
	Name	Hugh Jones			
	Areas of responsibility	Team Leader, Principle 2, Traceability, N	ASC process requirements		
	Competency criteria (Annex PC)	Dr Jones has completed the required Fishery Team Leader MSC training modules for the V2.2 Fisheries Certification Process Requirements including ISO9001 lead auditor training.			
		It is proposed that Dr Hugh Jones will act as team leader and Principle 2 for this surveillance and will be responsible for bringing together the work of the team's principle experts. Hugh will also have primary responsibility for ensuring that the certification requirements and process are being met at each stage of the process. His Principle 2 work experience comes from bycatch and food web studies, development of management and monitoring programmes and environmental impacts studies on a range of fisheries. He has worked as a Principle 2 assessor for > 3 years. Table PC3.3 Competencies and Qualification requirements for Principle 2 are met			
	Conflict of interest in relation to this fishery	CU UK have reviewed and found no con	flict of interest for this fishery.		
	On-site or off-site	Off-site			
	CV	On request			
7	Proposed team members				
	Name	Dr Johan Groeneveld			
	Areas of responsibility	Principle 1 and 3			
	Competency criteria (Annex PC)	Dr Johan Groeneveld is a fisheries so working in marine fisheries and their im on marine environments. He completed deep-water lobsters <i>Palinurus gilchristi</i> fisheries in 2001 and has worked in fish	cientist with over 25 years' experience ppacts on target and bycatch species, and d a PhD on the biology and ecology of the and <i>Palinurus delagoae</i> in relation to their peries research and management for two		

deep-water lobsters *Palinurus gilchristi* and *Palinurus delagoae* in relation to their fisheries in 2001 and has worked in fisheries research and management for two governments, South Africa (1995-2006) and Oman (2007-2008). He is presently a senior scientist at the Oceanographic Research Institute and an Honorary Professor at the University of KwaZulu Natal in Durban, South Africa. He has a strong publication record in the peer-reviewed literature and is on the editorial board of the journals 'Fisheries Research', and 'Western Indian Ocean Journal of Marine Science'. Dr Groeneveld is a member of the MSC Peer-Review College, and has been involved in assessments, pre-assessments, audits and peer-reviews against the MSC Standard over the past 10 years. For lobster, he participated in full MSC assessments of the Bahamas (2018), Saint Paul and Amsterdam (2019) and Tristan da Cunha (2010) fisheries, peer reviews for the Normandy and Jersey lobster fishery, Western Australian lobster fishery, and pre-assessment of two



		South African lobster fisheries. Dr Groeneveld's experience and capacity mean Table PC3.1-4 Competencies and Qualification requirements for Principle 1-3 are met. He has completed the required Fishery Team member MSC training modules for the new V2.01 Fisheries Certification Requirements				
	Conflict of interest in relation to this fishery	CU UK have reviewed and found no conflict of interest for this fishery				
	On-site or off-site	Off-site				
	cv	CV available on request				
		·				
8	Audit/review time and	dlocation				
	The off-site audit commenced on the 18 th October 2021 by video conference. The time of the call and means of joining the call are available on request. Stakeholders were encouraged to provide information either through the <u>MSC stakeholder input form</u> or by arranging for a remote meeting with the assessment team in the week of the audits.					
9	Assessment and review	w activities				
	 During the audit, Control Union (UK) Limited (CU UK) communicated with the client and any relevant stakeholders and used any available up to date information to assess and review; Any changes to the fishery and its management including those to management systems, regulation and relevant personnel assessments; Any changes to the scientific base of information such as stock; Harmonization against the other fisheries certified on the MSC program Any developments or changes within the fishery that may impact on traceability and the ability to segregate MSC from non-MSC products; Any other significant changes in the fishery. 					
10	Stakeholder opportun	ities				
	Stakeholders were end by arranging for a remo	couraged to provide information either through the MSC stakeholder input form or ote or in person meeting with the assessment team in the week of the audits.				



3. Background

This report is the fourth surveillance audit of the second MSC assessment cycle for the Tristan da Cunha rock lobster fishery for *Jasus tristani* (a junior synonym for *Jasus paulensis* occurring in the South Atlantic) around the four main islands of the Tristan da Cunha group (treated as separate UoAs). The fishery was re-certified on 15th December 2016 with one condition on PI 1.2.2 for UoA1 (Tristan). This condition was closed out on the 1st Surveillance audit. The 2nd audit was held as an on-site audit. The third surveillance audit was delayed by covid 19 and eventually took place in November 2020 as an offsite meeting.

3.1 Version details

Table 2. Fisheries programme documents versions

Document	Version number
MSC Fisheries Certification Process	Version 2.2
MSC Fisheries Standard	Version 1.3 (scoring)
MSC General Certification Requirements	Version 2.4.1
MSC Reporting Template	Version 2.1

3.2 Unit(s) of Assessment (UoA)

Control Union (CU UK) confirms that the fishery under audit remains within in the scope of the MSC Fisheries Standard (7.4 of the MSC Fisheries Certification Process v2.2):

- The target species is not an amphibian, reptile, bird or mammal;
- The fishery does not use poisons or explosives;
- The fishery is not conducted under a controversial unilateral exemption to an international agreement;
- The client or client group does not include an entity that has been successfully prosecuted for a forced or child labour violation in the last 2 years and submitted a completed forced and child labour policy statement;
- The client or client group does not include an entity that has been convicted for shark finning violations within the last 2 years;
- The fishery has in place a mechanism for resolving disputes, and disputes do not overwhelm the fishery;
- The fishery is not an enhanced fishery as per the MSC FCP v.2.2 7.4.6; and
- The fishery is not an introduced species-based fishery as per the MSC FCP v2.2 7.4.7.

CU UK confirms that the client group has submitted the completed 'Certificate Holder Forced and Child Labour Policies, Practices and Measures Template' prior to the start of this assessment.



The current Unit of Assessments (UoA) is given in Table 3.

Table 3. Unit(s) of Assessment (UoA)

Species	Rock lobster (<i>Jasus tristani</i>)			
Stock	From the islands of the Tristan da Cunha group			
Geographical range of the fishery	The islands of the Tristan da Cunha group. UoA 1: Tristan UoA 2: Inaccessible UoA 3: Gough UoA 4: Nightingale			
Method of capture	Baited traps and hoop nets			
Client group	Ovenstone Agencies Management under jurisdiction of the Tristan da Cunha Fisheries Department, Island Council and Administrator.			
Other eligible fishers	none			

3.3 Principle 1

3.3.1 Stock status

3.3.1.1 <u>Tristan (UoC 1)</u>

The updated 2020 assessment of the Tristan lobster resource (Johnston & Butterworth 2020a) estimated spawning biomass (Bsp) relative to carrying capacity (K) to be Bsp/K = 0.75, indicating a healthy resource. The updated general linear model (GLM) -standardized powerboat CPUE series for Tristan extended the time series from the 1994/1995 to 2020/2021 seasons (Johnston & Butterworth 2021d). The GLM analysis has been improved since the previous MSC reassessment, to account for overall fishing efficiency changes as informed by the data on fishermen's names. The standardized CPUE trend increased by 30% since 2019 and is well above the target reference level (I_{tar}) (Figure 1; (Johnston & Butterworth 2021d)). The trend has fluctuated around the I_{tar} over the past 5 years.





Figure 1. Rescaled GLM powerboat CPUE series for Tristan Island including adjustment for changing fisherman efficiency over time. The current OMP 2020 CPUE target Jtar=1.0 and limit Jlim = 0.70 are shown (equivalent to the previous Itar and the I_{lim} values) (Johnston & Butterworth 2021d).

3.3.1.2 Inaccessible Island (UoC2)

The updated 2021 assessment of the Inaccessible lobster resource (Johnston & Butterworth 2021f) estimated current spawning biomass (Bsp) to be 85% of the pristine level (Bsp/K = 0.85) indicating a very healthy state, and similar to the previous (2018) assessment. The updated GLMM-standardized longline CPUE series extends from 1997 to 2020/2021 (Johnston & Butterworth 2021e). The standardized CPUE for the latest season (9.680 kg / trap) is the second highest on record since 1997/1998, and well above the I_{tar} (Figure 2). The trend has remained above the I_{tar} for the past 9 years.



Figure 2. Inaccessible standardised CPUE relative to Itar (5 kg/trap) and Ilim (3 kg/trap) values (Johnston & Butterworth, 2021I).



3.3.1.3 Gough Island (UoC3)

The updated 2021 assessment of the Gough lobster resource (Johnston & Butterworth 2021c) estimated current spawning biomass (Bsp) to be 86% of the pristine level (Bsp/K = 0.86) indicating a very healthy state, and similar to the previous (2018) assessment (0.85). The updated GLMM-standardized longline CPUE series extends from 1997 to 2020/2021 and the standardized value is presently just above the I_{tar} (Figure 3). A difference between the nominal and standardized values for the latest season is explained by the majority of the 2020 season's catch being taken in months for which the relative catchability is poor, and longer tranches taken in these later months (which will reduce the nominal CPUE value). The change in fishing strategy resulted from the loss of the FV *Geo Searcher* at Gough in October 2020 – at the beginning of that fishing season. The trend has fluctuated around the I_{tar} since 2006.



Figure 3. Gough standardised CPUE relative to the current I_{tar} and L_{lim} values. (Johnston & Butterworth, 2021k)

3.3.1.4 Nightingale Island (UoC4)

The updated 2020 assessment (Johnston & Butterworth 2020b) estimated current spawning biomass (Bsp) to be between 75% and 85% of the pristine level indicating a healthy state. The updated GLMM-standardized longline CPUE series extended from 1997/1998 to 2020/2021 (Johnston & Butterworth 2021e).. The value for the latest season (10.05 kg/trap) is again on an upward trend and more than double the I_{tar} value (5.0 kg/trap) (Figure 4).





Figure 4. Nightingale standardised CPUE relative to the current I_{tar} (5 kg/trap and I_{lim} (3 kg/trap) values (Johnston & Butterworth, 2021d).

3.3.2 Harvest strategy

The harvest strategy across UoCs remains target-based, relying on setting a TAC for each island each year, based primarily on trends in annually updated GLM standardized CPUE indices, but survey data are also used in some instances. The TAC response to changes in the CPUE index relative to target (Itar) and limit (I_{lim}) reference levels is specified as a set of decision rules within OMPs developed by MARAM for each island individually (Table 4). The selection of OMPs take account of forward projections of catch, Bsp/K and commercial catch rates, which take uncertainty into account through a series of robustness and sensitivity tests. The TAC recommendations derived from the OMP outputs (Johnston & Butterworth 2021a) are ratified by the Tristan Fisheries Department and the Island Council, after review of events during the fishing season (for example, loss of FV *Geo Searcher* and replacement with FV *Edinburgh* in 2020) and considering relevant socio-economic information (for example, effects of Covid-19 pandemic). In the most recent season, these events have caused some roll-overs of TACs between years. Decisions that departed from TAC recommendations have been more conservative, following a precautionary management strategy. OMPs for Tristan and Nightingale were updated in 2020, and for Gough and Inaccessible they were updated in 2021 (see Table 4).

	Island	Bsp/K	l _{tar} (kg/trap)	l _{lim} (kg/trap)	2020/2021 GLM std CPUE	TAC in tonnes 2020/21 (2019/20)	
UoC1	Tristan	0.75	1.287 *	0.9*	1.454*	120 (120)	
UoC2	Inaccessible	0.85	5.0	3.0	9.68	98 (93)	
UoC3	Gough	0.86	5.5	3.0	6.178	100 (105)	
UoC4	Nightingale	0.75-0.85	5.0	3.0	10.049	89 (85)	

Table 4. Most recent Bsp/K estimates, target (Itar) and limit (Ilim) reference points, and TACs per island.

*Itar and I_{lim} at Tristan is based on Powerboat CPUE series (kg/gear/hour); at the outer islands it is based on kg/trap of monster traps.

The harvest strategy incorporates an open fishing season (25th August – 30th April) for the outer islands of Nightingale, Inaccessible and Gough. This is sometimes extended under a licence amendment. The



season is closed from June until the 25th August. The vessel usually departs Cape Town for the start of the season mid-August to do independent biomass lobster surveys before commencing commercial fishing early in September (Glass 2015). The closed season coincides with the female egg-bearing season (May – October) and moulting in *J. tristani*. The fishing season for the Tristan local powerboats is from the 1st July until the 30th of April unless an extension is granted on the licence into May, if only a small amount of TAC is left to catch, without a closed season. The rationale is that traps are not set overnight (when most berried animals are caught).

3.3.3 Harvest Control Rules

Harvest Control Rules (HCR) are "well-defined pre-agreed rules or actions used for determining a management action in response to changes in indicators of stock status with respect to reference points" and are explicitly defined within a set of OMPs which have been adopted for all four islands for the purpose of TAC recommendations. The OMPs specify the data to be used and define how TACs are set in response to changes in the standardized CPUE trend (annually updated) in relation to reference points. The OMPs also incorporate Exceptional Circumstances rules, and specify the conditions under which they are activated, and the actions that must then be undertaken.

OMPs for all four islands have the same form, as set out below:

$$TAC_{y+1} = TAC_y + \alpha (I_y^{rec} - I^{tar})$$

where

 I_{v}^{rec} is the average of the GLM standardized CPUE over the last three years (y-2, y-1,y),

I^{tar} is the CPUE target index, and

 α is a tuning parameter – the larger the α value, the more "responsive" the OMP is to changes in the catch rate in the future.

A rule to control the inter-annual TAC variation is also applied. The baseline % TAC change relative to the previous year ("max V%") is restricted to a maximum of either max V% up and max V% down:

If $TAC_{y+1} < (1 - \max V\% \text{ down})TAC_y$	then $TAC_{y+1} = (1 - \max V\% \text{ down}) TAC_y$
If $TAC_{y+1} > (\max V\% \text{ up}) TAC_y$	then $TAC_{y+1} = (\max V\% up) TAC_y$

Furthermore a maximum TAC (ceiling) or a minimum TAC (floor) may be imposed, where the latter is subject to Exceptional Circumstances (EC) rules where if I_y^{rec} drops below I_{lim} , the ECs apply and TAC decrease constrains are overridden.

An overcatch (above the TAC) of more than 0.5 MT at any island in a given season is taken off the TAC allocated for the following season. Roll-overs (when the TAC has not been fully caught in a fishing season) were implemented in the most recent (2021) TAC recommendations (Johnston & Butterworth 2021e; Johnston & Butterworth 2021h).

3.3.4 Information and monitoring

Extensive data are available to support the harvest strategy, such that there is a good understanding of stock structure, stock productivity, fleet composition and other aspects of stock dynamics. Data include: long-term commercial logbook data on fishing effort and catch per island (stratified by season,



area, soak time, trap type, fishing depth of gear); size, sex ratio, maturity and discard proportions collected by on-board observers (100% coverage); annual biomass surveys (since 2006) using small-mesh traps; tagging for growth, movement and population studies; and ad hoc data on genetic stock structure and lobster diet by size and area.

3.3.5 Assessment approach

OMP revisions per island take place on a rotational basis – each 3-4 years – with assessment updates conducted more regularly. The latest OMP revisions took place in 2020 (Tristan and Nightingale) and in 2021 (Gough and Inaccessible). Sophisticated age-structured production models are applied that follows cohorts with removal of catch, natural mortality and discard mortality. Recruitment is modelled in terms of fluctuations around expected mean recruitment from a generalized stock recruitment function couched in terms of the pre-equilibrium ('virgin') female spawning biomass (Bsp/K). Catch numbers at age are modelled separately for commercial and survey data. Commercial selectivity at length is modelled as logistic curves changing over time. Values of discard mortality and natural mortality are fixed rather than estimated. Population dynamics are initialized in 1990 based on an estimated fraction of virgin spawning biomass and a fixed fishing proportion of 0.01 prior to 1990.

The models (for individual islands) are fitted to the following data: GLM standardized CPUE data (accounting for season, area, soak time, depth and gear effects in log-book data per island); catch data; biomass survey index data; catch-at-length data from observers and surveys; and discard percentage data (Table 5). Model fitting proceeds by minimizing the total negative log-likelihood, with likelihood contributions defined for each data component and a penalty function is applied for residuals around the stock recruitment function. A Bayesian approach is used to model prior distributions of stock recruitment function, survey and commercial selectivity, and initial age structure. The above age-structured assessment models are implemented in the AD Model Builder framework, are consistent with the different sources of available data and biological information and accounts for uncertainty in a quantitative manner (see below).

The fitted assessment models provide a framework for forward projection of stock biomass and CPUE under different management regimes for testing of OMPs and EC rules, and hence are fully supportive of the HCR.





 Table 5. Gough 2021 revised reference case (RC) assessment results. The green dashed lines indicate the

 2018 assessment's estimated values (Johnston & Butterworth, 2021f).

3.3.6 Uncertainty in the assessment

The different elements of the assessment are rigorous in accounting for uncertainty about biological and fishery processes. A probabilistic approach to evaluating stock status in relation to reference points is implemented through forward projection of the age-structured assessment model in developing and testing the OMPs and EC rules and formulating advice on TACs. The approach taken in



this testing is to consider the operational properties of the management procedures in terms of exploitable and spawning biomass, CPUE, recruitment and TACs, for which 95% prediction envelopes are provided. For example, stochastic trajectories for a candidate OMP (CMP5.5, I_{tar} set as 5.5 kg/trap) for Gough (Johnston & Butterworth 2021b) are projected for catch, spawning biomass (Bsp/K) and commercial catch rates, showing the 5th and 95th percentiles

3.3.7 Catch profiles

The fishery began in 1949, but data on catches per island are only available since the 1967/68 fishing season (DFT 2020; Roscoe 1979) (Figure 5). Catches peaked in the 1971/72 and 1975/76 seasons at Gough Island, and in the 1974/75 and 1976/77 seasons at Inaccessible. Exceptionally large catches during this period coincide with an increase in fishing effort (larger monster traps introduced), when two new longliners entered the fishery, and another vessel was upgraded. Catches made since 1991 have been under TAC management, i.e., output control, set by the FD. In 1993, the Natural Resources Department (now the Fisheries Department) was established on Tristan Island and has been responsible for the collection of catch and fishing effort information. Over the past three decades, Tristan Island has consistently yielded larger catches than the fisheries around Nightingale, Inaccessible and Gough islands.



Year

Figure 5. Catch profiles at the four islands for the period 1967 – 2020 (DFT 2020).

Catch related to IUU fishing is considered insignificant around Inaccessible, Nightingale and Tristan based on information provided by the concessionaire (Table 6) but may occur infrequently around Gough.

Table 6. IUU estimates for 2001-2009.	*Based on actual	observations	of IUU v	vessels,	landing a	nd export
documentation. # No. of sightings of po	tential IUU vessels;	nominal 10 to	ns IUU e	stimate	d	

Season	IUU (MT)
2001/02	40
2002/03	45
2003/04	34.90*
2004/05	43.48*



Season	Ιυυ (ΜΤ)
2005/06	20
2006/07	20
2007/08	10#
2008/09	10#

Some subsistence fishing for lobsters occurs at Tristan, estimated to be < 5 MT per year (J. Glass pers. Comm.).

3.3.8 Total Allowable Catch (TAC) and catch data

Table 7. Total Allowable Catch (TAC) and landing data.

Year	TRISTAN	GOUGH	NIGHTINGALE	INACCESSIBLE	TRISTAN	GOUGH	NIGHTINGALE	INACCESSIBLE	TRISTAN	GOUGH	NIGHTINGALE	INACCESSIBLE
		Quot	:a (t)		1	Landin	gs (t)			% Quota	a landed	
2016-17	120	110	75	81	119.5	105.1	75.9	81.7	99.6	95.5	101.2	100.9
2017-18	120	116	79	85	105.2	116.3	79.1	85.4	87.7	100.3	100.1	100.5
2018-19	120	111	83	89	111.5	111.8	83.7	89.6	92.9	100.7	100.8	100.7
2019-20	120	105	85	93	129	117.2	84.7	92.8	107.5	111.6	99.6	99.8
2020-21	120	100	89	98	122.3	81	89.3	99.2	101.9	81.0	100.3	101.2

3.4 Principle 2

3.4.1 Observers

There is no significant update on the observer program details from previous audits. It is the Fisheries Department policy to try and maintain a 100% Sea Fishery Observer coverage on all vessels licence to fish within Tristan's EEZ.

3.4.2 Bycatch

The only significant bycatch from the fishery is octopus (*O. vulgaris* and *O. magnificus*) which comprises of > 5% of the catch per annum in two of the four UoAs (Table 8). The octopus catch for the last five seasons is summarised in Table 8. The Fishery Management Plan (FMP) for 2020 notes that most of the octopus bycatch was landed by the FV *Geo Searcher*/FV *Edinburgh*, with the Tristan island fleet only landing a small portion. The different fishing practices and gear types of the FV *Edinburgh* provide a possible reason for the higher catches of octopus. Gear is set by the FV *Edinburgh* and left to soak for 24 hours, whilst the Tristan island fleet set gear for approximately 10 hours per day only (DFT 2020). The FV *Edinburgh* is able to access deeper waters (DFT 2020) also which may influence octopus catchability. Finally, octopus is more often caught during the winter months when catches of octopus show



increased landings due to the fishery operating later in the season than usual, a result of the loss of the FV *Geo Searcher* (Table 8).

FISHING SEASON	TRISTAN	GOUGH	NIGHTINGALE	INACCESSIBLE	TRISTAN	GOUGH	NIGHTINGALE	INACCESSIBLE
		Landed w	eight (kg)			% c	atch	
2016/2017	4,544	8,082	1,732	8,555	3.5	7.0	2.1	9.5
2017/2018	3,072	4,120	438	2,640	2.7	3.2	0.5	2.8
2018/2019	3,491	1,787	1,759	6,126	2.8	1.5	1.9	6.2
2019/2020	2,758	4,095	1,810	3,472	1.9	3.2	1.9	3.4
2020/2021	2,793	4,779	6,050	7,650	2.1	5.4	6.2	7.0

Table 8. Octopus catches by UoA between 2016 and 2021 in kg and as percentage of total catch (landedweight plus discards estimated at 10%). Catches over 5% in bold as octopus is considered main.

Beyond the catches of octopus, minor catches of discards remain in line with those identified in the last certification report (Gascoigne et al. 2016) and without any significant change in fishing practice or location remain relevant. The results of a 2013 report "Tristan Rock Lobster (*J tristani*) fishery bycatch: Initial Report (2013)," by Latham cited in the 2020 FMP (DFT 2020) remains the key document. The fishery discards are updated in the 2020 FMP and these discards which comprise <5% of the catch total across all species consist of the following species:

- Argobuccinium tristanensis (Tristan Whelk)
- Nemadactylus monodactylus (Five Finger)
- Sebastes capensis (False Jacopever)
- Helicolenus mouchezi (Soldier)
- Bassanago neilseni (Hairy Conger)
- *Henrica sp.* (Starfish)

Five finger is the most abundant of these and they are known predators of rock lobster. There is anecdotal evidence of increasing biomass of this species around Tristan (DFT 2020). This is thought to be the reduction of its use as bait in Tristan fisheries (J. Glass pers comm.)

3.4.3 Bait

The bait used in the traps are MSC certified South African hake heads. The bait tally varies annually. A general estimate is the following: 30 tons utilised by the Tristan Island powerboats, and 100 tons (three fishing trips) for the vessel (FV *Geo Searcher/FV Edinburgh*). The island fishermen occasionally substitute a small percentage of five finger *Nemadactylus monodactylus* into their nets when they catch them accidentally in their gear (DFT 2020).



3.4.4 ETP

Seabirds remain the principal species group of concern in the fishery for ETP species from their interaction with the main vessel fishing vessel (FV Edinburgh/FV Geo Searcher). The interactions of seabirds with the vessel tends to occur in a small number of events (one or a handful per year) when the vessel is forced to turn on the deck lights at night, usually when the vessel has to move the anchor which can't be avoided and for which lights are needed (Ryan et al. 2021; Glass & Ryan 2013). According to the latest available data, bird strikes occurred on 13% of fishing nights between 2013 and 2021 with mortality from those strikes at 4% (Ryan et al. 2021). Bird interactions with the vessel do not typically occur during normal fishing operations. Because the interactions occur at night and priority is given to handling the birds correctly to avoid mortality, identification to species is not always confirmed. Ryan et al. (2021) confirms that the principal species involved are mainly prions Pachyptila spp. and storm petrels of family Oceanitidae. Better data are now available on interactions of the FV Edinburgh with birds, due to Condition 2 on the initial certification (see Gascoigne et al., (2011)). These data are summarised annually in the audit reports and a paper was published (Glass & Ryan 2013) on the initial results. This has now been updated for the 2021 paper (Ryan et al. 2021). Bird interaction numbers available for the fishery from 2013 onwards are shown in Table 10 and are reported by Ryan et al. (2021). Condition of birds has been recorded also allowing mortality events to be considered (Table 11).

In total, there are eight confirmed species which interact with the vessel. The majority of interactions occurred at Inaccessible (Table 10). There was a total of 70 confirmed bird mortalities over this eight-year period representing an average percentage mortality across all species of 2.8%. Post-release mortality rates (unobserved mortality) are not known directly from the UoA, but birds are handled carefully and dried out if water-logged and observer data includes condition / fate information ratings ranked at five levels as summarised in Table 9. This confirms that from 199 interaction events only 13% resulted in any direct mortality and > 50% resulted in the sea birds being released in healthy (A1) or minor injury (A2) condition. Due to the fate codes being attributed at the incident level (a single bird interaction or 50 birds interacting are both a single occurrence) the proportion of mortality occurrences should be qualified against the overall rate of mortality which averages 2.8% across all species. Ryan et al. (2021) using a slightly different analysis concluded that mortality was 4%.

Fate code	Number of occurrences
AO =Alive condition not determined	52 (26%)
A1= Alive in healthy condition	100 (50%)
A2= Alive with minor injuries	14 (7%)
A3= Alive with life threatening injuries not likely to survive	0
D = dead	26 (13%)
Unknown / not recorded	8 (4%)

Table 9. Bird interactions outcome with fate / condition code from interaction. Total number of occurrences = 199. Note an occurrence may include multiple birds and therefore the fate code describes the overall outcome of the incident not individual outcomes.



Table 10. Summary table of interaction events from the UoAs of seabirds between 2013 and 2021. Source: J. Glass - Tristan da Cunha's Director of Fisheries.

Year	Island	White bellied storm petrel	White faced storm petrel	Diving petrel	Atlantic petrel	Soft plumaged petrel	Little shearwater	Prions	Cape petrel	Unidentified
2013	Gough	1	0	0	0	0	1	2	0	5
2013	Inaccessible	12	0	0	7	0	0	41	3	0
2013	Nightingale	0	0	0	0	0	0	3	0	0
2014	Gough	6	0	0	0	0	0	0	0	0
2014	Inaccessible	22	63	12	0	36	8	27	0	213
2014	Nightingale	21	36	0	12	31	8	27	0	13
2014	Unknown	0	0	0	0	0	0	1	0	0
2015	Gough	16	0	0	0	0	0	20	0	3
2015	Inaccessible	11	7	6	10	0	0	14	0	1
2016	Gough	0	3	0	0	0	1	3	0	0
2016	Inaccessible	3	5	0	0	0	0	4	0	0
2017	Gough	118	5	0	0	0	4	76	0	1
2017	Inaccessible	98	11	0	1	0	12	16	0	0
2017	Nightingale	13	7	0	0	0	10	0	0	0
2018	Gough	6	5	0	0	0	3	8	0	0
2018	Inaccessible	2	20	0	9	1	13	12	0	0
2018	Nightingale	0	0	0	3	0	0	0	0	0



Year	Island	White bellied storm petrel	White faced storm petrel	Diving petrel	Atlantic petrel	Soft plumaged petrel	Little shearwater	Prions	Cape petrel	Unidentified
2019	Gough	16	11	0	0	0	4	12	0	0
2019	Inaccessible	24	43	0	2	0	26	13	0	14
2019	Nightingale	4	0	0	0	0	1	180	0	15
2020	Inaccessible	0	0	0	0	0	0	0	0	153
2021	Gough	0	2	0	1	0	0	2	0	0
2021	Inaccessible	12	0	0	3	0	24	7	0	0
2021	Nightingale	19	3	0	0	0	18	27	0	7
Total		404	221	18	48	68	133	495	3	425
% total int species	teractions across	22.3	12.2	1.0	2.6	3.7	7.3	27.3	0.2	23.4



 Table 11. Summary table of mortality events from the UoAs of seabirds between 2013 and 2021. Notes: There were no mortality events in some years (2013, 2014),

 2021 season is only partial in year data. The notes column indicates circumstances of the mortality event if recorded. The final row is the % mortality of total

 interactions, dividing the total number of interactions by total mortality of species * 100. Source: J. Glass - Tristan da Cunha's Director of Fisheries.

Year	Island	White bellied storm petrel	White faced storm petrel	Diving petrel	Atlantic petrel	Soft plumaged petrel	Little shearwater	prions	Cape petrel	unidentified	Total Mortality	notes
2015	Gough	2	0	0	0	0	0	2	0	1	5	
2015	Inaccessible	0	0	0	3	0	0	4	0	0	7	
2016	Gough	0	0	0	0	0	0	1	0	0	1	Adverse weather conditions
2017	Gough	3	0	0	0	0	2	0	0	0	5	
2017	Inaccessible	1	0	0	0	0	2	0	0	0	3	Deteriorating weather conditions. Overcast, rain.
2018	Gough	1	0	0	0	0	0	2	0	0	3	
2018	Inaccessible	0	0	0	0	0	3	7	0	0	10	Deteriorating weather conditions. Overcast, raining
2019	Gough	4	3	0	0	0	0	4	0	0	11	Overcast / raining at night
2019	Inaccessible	1	0	0	0	0	0	0	0	0	1	
2019	Nightingale	0	0	0	0	0	0	3	0	2	5	Due to recovering Power Boats at 21:00 hours, ship's lights on, overcast, strong wind and raining.
2020	Inaccessible	0	0	0	0	0	0	0	0	7	7	Due to deteriorated weather conditions, heavy rain and overcast, 146 birds landed on board, of these 7 dead, all recorded by observer Warren Glass.
2021	Nightingale	3	0	0	0	0	0	4	0	5	12	Two Separate incidences 1. Overcast and heavy rain throughout the day and night 2. Vessel dropping anchor and recovering Power Boats in the darkness, ship's deck lights on, overcast and raining.



Year	Island	White bellied storm petrel	White faced storm petrel	Diving petrel	Atlantic petrel	Soft plumaged petrel	Little shearwater	prions	Cape petrel	unidentified	Total Mortality	notes
Total mo species	rtality of	15	3	0	3	0	7	27	0	15	70	
% total m species	nortality by	21.4	4.3	0	4.3	0	10	38.6	0	21.4		
% mortal interaction	ity of total ons	3.7	1.4	0.0	6.3	0.0	5.3	5.5	0.0	3.5		Average percentage mortality across all species = 2.8%



3.4.5 Habitats and Ecosystem

No Significant changes.

3.4.6 Principle 2 overall conclusion

The assessment team reviewed the available information provided by client and stakeholders and found no change in scoring required across P2 components.

3.5 Principle 3

3.5.1 Governance, policy and fisheries specific management systems

There have been no significant changes in the management framework of the fishery since the 2016 reassessment (Gascoigne et al. 2016; Ovenstone 2021). The fishery falls entirely under Tristan da Cunha jurisdiction (local law consistent with British Overseas Territorial laws), where it is managed by the Tristan Fisheries Department with input from stakeholders through the Fisheries Council and making recommendations to the Island Council (DFT 2020), with the Administrator approving final decisions.

3.5.2 Compliance and enforcement

The fishery remains tightly monitored with nearly 100% observer coverage on the vessels (FV *Geo Searcher* up to October 2020; FV *Edinburgh* thereafter) at the outer islands. During the 2019 / 2020 fishing season, observers were carried on all vessel deployments to the outer islands, except for the mop-up operation to catch the last of the TAC at Tristan Island in March / April 2020 because of Covid-19 restrictions. A restricted number of power boats are used at Tristan (operated by islanders) and all landings are closely monitored and catches tallied (data provided on TAC reconciliation from logbooks). No incidents of non-compliance were reported during the 2019 / 2020 fishing season nor the 2020/2021 season (confirmed via letter from the fisheries department to the CAB).

3.5.3 Principle 3 overall conclusion

No change in scoring required.

3.6 Traceability

There are no changes relevant to traceability which are different from those published in the PCR (Gascoigne et al. 2017).



4. Results

4.1 Surveillance results overview

4.1.1 Total Allowable Catch (TAC) and Catch Data

The TAC and catch data for the UoCs are shown below.

Table 12.	Total Allowable	Catch (TAC)	and landing	data.

Year	TRISTAN	GOUGH	NIGHTINGALE	INACCESSIBLE	TRISTAN	GOUGH	NIGHTINGALE	INACCESSIBLE	TRISTAN	GOUGH	NIGHTINGALE	INACCESSIBLE
	Quota (t)					Landin	gs (t)			% Quota	a landed	
2016-17	120	110	75	81	119.5	105.1	75.9	81.7	99.6	95.5	101.2	100.9
2017-18	120	116	79	85	105.2	116.3	79.1	85.4	87.7	100.3	100.1	100.5
2018-19	120	111	83	89	111.5	111.8	83.7	89.6	92.9	100.7	100.8	100.7
2019-20	120	105	85	93	129	117.2	84.7	92.8	107.5	111.6	99.6	99.8
2020-21	120	100	89	98	122.3	81	89.3	99.2	101.9	81.0	100.3	101.2

4.1.2 Summary of conditions

The fishery was certified with one condition on UoA 1 and no conditions on the other UoAs. This condition was closed out at 1^{st} Surveillance audit (Table 13).

Table 13. Summary of Assessment Conditions (closed out)

Condition number	Performance indicator (PI)	Status before audit	Status after audit	Pl original score	Pl revised score
1	1.2.2	New	closed	75	90

4.1.3 Recommendations

none

4.2 Rescoring Performance Indicators

None

4.3 Conditions

4.3.1 Closed Conditions

N/a



4.3.2 Progress against Conditions

N/a

4.4 Client action plan

N/A



4.5 Principle level scores

Table 14. Summary of Performance Indicator level scores

Principle of the Fisheries Standard	UoC 1	UoC 2	UoC 3	UoC 4
Principle 1 – Stock status	84.4	96.3	96.3	87.9
Principle 2 – Minimising environmental impacts	89.0	89.3	89.3	89.3
Principle 3 – Effective management	93.0	93.0	93.0	93.0

4.1 Summary of PI Level Scores

Princi	Compo-	Weight	Ы		Score			
-ple	nent	-ing	number	Performance indicator	UoC 1	UoC 2	UoC 3	UoC 4
1 Outcome	Outcome	0.5	1.1.1	Stock status	80	100	100	90 rev.
			1.1.2	Reference points	80	100	100	90
			1.1.3	Stock rebuilding	-	-	-	90
	Manage-	0.5	1.2.1	Harvest Strategy	90	90	90	90
	ment		1.2.2	Harvest control rules and	90	90	90	90
			1.2.3	Information and monitoring	90	90	90	90
			1.2.4	Assessment of stock status	100	100	100	100
2	Retained	0.2	2.1.1	Outcome	90	90	90	90
	species		2.1.2	Management	90	90	90	90
			2.1.3	Information	90	90	90	90
	Bycatch	0.2	2.2.1	Outcome	100	100	100	100
	species		2.2.2	Management	100	100	100	100
			2.2.3	Information	95	100	100	100
	ETP	0.2	2.3.1	Outcome	95	95	95	95
	species		2.3.2	Management	95	95	95	95
			2.3.3	Information	85	85	85	85
	Habitats	0.2	2.4.1	Outcome	80	80	80	80
			2.4.2	Management	85	85	85	85
			2.4.3	Information	80	80	80	80
	Eco-	0.2	2.5.1	Outcome	80	80	80	80
system	system		2.5.2	Management	85	85	85	85
			2.5.3	Information	85	85	85	85
3	Govern-	0.5	3.1.1	Legal and customary	100	100	100	100
	ance and Policy		3.1.2	Consultation, roles and	100	100	100	100
			3.1.3	Long term objectives	80	80	80	80
			3.1.4	Incentives for sustainability	100	100	100	100
	Fishery-	0.5	3.2.1	Fishery specific objectives	90	90	90	90
	specific		3.2.2	Decision making processes	95	95	95	95
manage		3.2.3	Compliance and	100	100	100	100	



Princi	Compo-	Weight	PI	Doutourona Indicator	Score			
-ple	nent	-ing	number	Performance indicator	UoC 1	UoC 2	UoC 3	UoC 4
	ment		3.2.4	Research plan	80	80	80	80
	system		3.2.5	Management performance	90	90	90	90



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6. Evaluation processes and techniques

6.1 Site visits

The Year 3 audit was scheduled for early 2020 but was postponed by COVID-19. A notification was sent to stakeholder confirming this on 6th April 2020.

The new date of certificate expiry for the fishery is 14th June 2022 following the 6 month addition from the <u>MSC COVID -19 derogation</u>.

Stakeholders were informed of the surveillance and site visit location by email on 9th October 2020 following the announcement on the MSC website on the 9th October 2020. They were invited to submit comments and attend the site visit. No comments were received prior to the audit.

The off-site audit took place on 18th October 2021. Present were:

- Johan Groeneveld (CU UK assessor)
- Hugh Jones (CU UK Team leader and assessor)
- Janine Nelson (Ovenstone)
- James Glass (TdC Fisheries Department)
- Doug Butterworth and Susan Johnson (MARAM)
- Mathias Deleau CU UK (observer)

6.2 Stakeholder participation

The stakeholder participation was engaged through the MSC website and stakeholder notification sent all registered stakeholders on the CU UK database.

Response was received from James Glass (TdC Fisheries Department) and Doug Butterworth and Susan Johnson (MARAM) who took part in the site visit. The details of their contributions are provided throughout the report.



7. Stakeholder Input

No written stakeholder response on the MSC template was received as part of this audit. Oral responses from participants in the site visit are included as part of the text of this report and cited accordingly.

Topic of discussion	opening meeting and client meeting and stakeholder meeting.				
Date	18/10/2021				
Format of	conference call _MS teams				
discussion					
Scope of Audit/Assessment	Species	Rock lobster (<i>Jasus tristani</i>)			
Addity Assessment	Stock	From the islands of the Tristan da Cunha group			
	Geographical range	The islands of the Tristan da Cunha group.			
	of the fishery	UoA 1: Tristan			
		UoA 2: Inaccessible			
		UoA 3: Gough			
		UoA 4: Nightingale			
	Method of capture	Baited traps and hoop nets			
	Client group	Ovenstone Agencies			
		Management under jurisdiction of the Tristan da Cunha			
		Fisheries Department, Island Council and Administrator.			
	Other eligible	none			
	fishers				
Audit team	Hugh Jones (team leade	er and Principle 2) and Johan Groeneveld (Principle 1 and 3)			
members present	Mathias Deleau – CU U	K observer			
Client	Janine Nelson				
representation					
	James Glass – TdC fisheries				
Stakeholder	James Glass – TdC fishe	ries			
Stakeholder representation	James Glass – TdC fishe Doug Butterworth – MA	ries NRAM			
Stakeholder representation	James Glass – TdC fishe Doug Butterworth – MA Susan Johnson - MARAI	ries ARAM M			
Stakeholder representation Summary of main	James Glass – TdC fishe Doug Butterworth – MA Susan Johnson - MARAI Full discussion on P1 sc the models and the fivil	ries NRAM M pring with Doug B raising points in relation to the sensitivity of ag of E within the model from 2009 value. Provides E in relative			
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Stakeholder representation Summary of main points	James Glass – TdC fishe Doug Butterworth – MA Susan Johnson - MARAI Full discussion on P1 sc the models and the fixin terms but not absolute All participants otherwi Principle 2 – RBF on oct	ries ARAM <u>M</u> pring with Doug B raising points in relation to the sensitivity of ng of F within the model from 2009 value. Provides F in relative terms should be considered in P1 scoring. se happy with Principle 1 ACDR scores. opus. All participants agreed that the scores suggested by the			
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Action points to	For P2				
follow	Bait use data from Janine				
	Darwin marine project report from James				
	CEEAS octopus report from James				
	For P1 and P3				
	Comments to consider on:				
	Sensitivities runs for the OMPs and fixed E for the models which give relative mortality				
	but not in absolute terms . Fixed from 2009(?)				
	Conflict resolution – wage issue strike at start of 2021 season with agreement made				
	and review in 2021.				
	Processing weight discrepancy (3 t) – 4%				
Addition info	3001, Histor, da, Canha, AA, Y45, MSC – 🗖 🗙				
	1254 <u>8</u> @ % 6 💐 4 🖬 🗖 Leave ⊻				
	Participants ··· ×				
	Ŭ Ŭ Ŭ Ŭ Ŭ Ŭ E Suas insta				
	Janie Heton Sooan Hollowy X Mathias Deleau X James Glass (Guest) Program (Banding Composition)				
	i Denai •				
	Johan Groenverd Doug Suttemonth				
	e Mathais Deleau e				
	Contensional Conte				
	Andrew James				
	· · · · · · · · · · · · · · · · · · ·				
CAB response	Accepted (no score change - additional evidence presented)				
code					



8. Revised Surveillance Program

This audit is to be held remotely under the MSC covid derogation 3 in effect for this fishery.

Surveillance level	Year 1	Year 2	Year 3	Year 4
4	Onsite	Onsite	Offsite	Offsite with RRA under covid 3 derogation.

9. Harmonised fishery assessments

N/a