

# **MACALISTER ELLIOTT AND PARTNERS LTD**

## **SURVEILLANCE VISIT REPORT FOR THE TRISTAN DA CUNHA ROCK LOBSTER FISHERY (*JASUS TRISTANI*)**

**CERTIFICATE No.: MEP-F-007  
SURVEILLANCE YEAR 3**

Undertaken by:

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&  
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MEP QA REF: 2208R07B



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## 1. GENERAL INFORMATION AND SUMMARY CONCLUSION

Fishery Name	Tristan da Cunha rock lobster			
Unit of Certification	Rock lobster ( <i>Jasus tristani</i> ) from the islands of the Tristan da Cunha group			
Species	<i>Jasus tristani</i> / <i>Jasus paulensis</i> (see Surveillance Report Year 1)			
Area	South Atlantic (FAO Area 47)			
Method of capture	Baited traps			
Client Address	Ovenstone Agencies (Pty) Ltd. Unit G7, Victoria Junction Prestwich Street, Green Point 8001 Cape Town, South Africa			
Client Contact Name	Andrew James, Dorrien Venn			
Client Telephone No.:	+27 21 4216169			
Client Email	Andrew James: andrew@eurex.co.za			
Certificate number	MEP-F-007			
Certificate Issue Date	20 June 2011			
Certificate Expiry Date	20 June 2016			
Audit stage	Year 1	Year 2	Year 3	Year 4
Audit experts	Jo Gascoigne, David Japp			
Surveillance Audit Date	June 9-12, 2014			
Audit recommendation	<p>The fishery is required to meet three conditions (one for each MSC Principle).</p> <p>Last year's audit concluded that the fishery was on track with the revised Client Action Plan (revised further to the <i>Oliva</i> incident). This year, the Client Action Plan was further revised (again due to the <i>Oliva</i>). MEP is happy that it remains consistent with the conditions and timeframe required.</p> <p><b>Condition 1</b> (a well-defined and transparent harvest control rule) has now been met at all four islands, in the form of a OMP at three of the four and a precautionary harvest control procedure at Nightingale Island that takes into account uncertainty associated with the grounding of the MV <i>Olivia</i>. <b>MEP felt that this condition can now be closed.</b></p> <p><b>Condition 2</b> (recording of bird interactions) continues to be met,</p>			

	<p><b>and has now been closed.</b></p> <p><b>Condition 3</b> (research plan) continues to be met, <b>and has now been closed.</b></p> <p>The fishery has therefore closed out all its conditions, and should remain certified for another year.</p> <p><b>Condition 4</b> (reference points – non-binding) may no longer be relevant <b>but has in any case been met further to the implementation of the harvest control rule process.</b></p>
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## 2. INTRODUCTION

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This report presents the conclusions of the third annual surveillance audit for the MSC-certified Tristan da Cunha rock lobster fishery (*Jasus tristani*). The fishery was certified on 20 June 2011 by the Conformity Assessment Body (CAB) MacAlister Elliott and Partners Ltd. The assessment team consisted of Jo Gascoigne (MEP lead auditor, P1), Johan Groeneveld (Oceanographic Research Institute, Durban, P2) and David Japp (CapFish, Cape Town, P3). The site visit for the audit was carried out by Jo and David on 9-12 June 2014. During the site visit, the following people were interviewed:

- Dr Andrew James, Ovenstone
- Dorrien Venn, Ovenstone
- Rebecca Pieterse, Ovenstone
- Prof. Doug Butterworth, MARAM
- Dr Sue Johnston, MARAM
- Clarence October, skipper of the *FV Edinburgh*
- Dr Ross Wanless (Birdlife South Africa)

Electronic communication:

- Dr P. Ryan, Percy Fitzpatrick Institute, University of Cape Town.

The original Client Action Plan was revised further to the *Oliva* incident at Nightingale. The fishery is audited against the revised action plan.

### 3. PRINCIPLE 1

#### 3.1 NIGHTINGALE FISHERY: AFTERMATH OF THE *OLIVA*

The 2012-13 season was the first season in which the commercial fishery at Nightingale was reopened after the *Oliva* incident, with a precautionary upper catch limit of 40 tonnes. Catch rates in the 2012-13 season were exceptionally high, for reasons which remain unknown, although it is assumed it relates to changes in catchability rather than biomass. A precautionary TAC was set for the 2013-14 season at the same level, and catch rates were even higher for this period (Table 1, Figure 1).

Table 1. Nominal catch rates at Nightingale (kg/trap) by month in different years (data provided by Ovenstone).

	September	October	November	December	January
2008	3.19	No fishing	7.26	5.41	4.39
2009	4.81	4.33	3.91	4.43	3.71
2010	3.93	No fishing	5.91	4.74	No fishing
2011	No fishing	No fishing	No fishing	No fishing	No fishing
2012	6.36	9.91	10.53	9.55	No fishing
2013	14.23	11.89	15.23	No fishing	No fishing

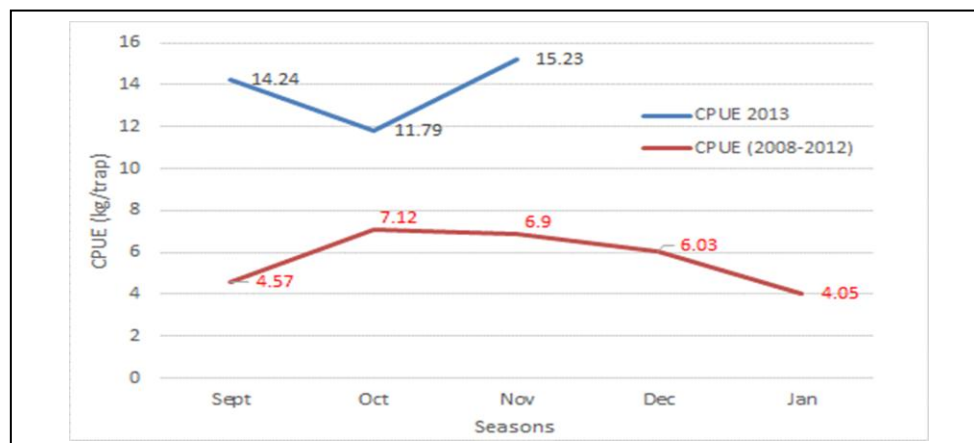
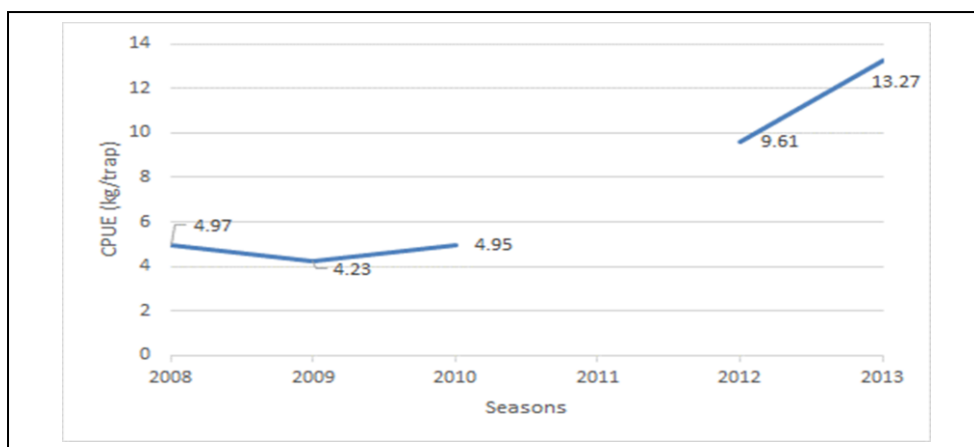


Figure 1. Trends in season average nominal CPUE at Nightingale (top) and comparison of monthly average for 2013 (blue) and 2008-2012 (red) (bottom) (data from Ovenstone).

MARAM's advice for Nightingale at the start of the 2013-14 season was as follows:

*The situation at Nightingale is unclear, given the unexpectedly high CPUEs experienced over the past season. It is necessary to see how these CPUEs might change over the immediate future before the reasons for these high values hopefully become more evident and allow a reliable assessment to be conducted. In the meantime, a PUCL (Precautionary Upper Catch Limit) of **40 MT** is recommended. This is to be taken in a minimum of two tranches of 20 tons/tranche in a normal commercial fishing pattern of 5-7 days duration. This value may be increased to 65 MT (the pre-OLIVA level) at a later stage of the season depending on the CPUEs attained during these tranches. The exact rule for this adjustment is yet to be formulated; a recommendation will be developed by September (quoted in Butterworth and Johnston 2013).*

MARAM proposed a decision rule for the TAC at Nightingale (Butterworth and Johnston 2013) based on the assumption that 65 t was a reasonable precautionary approach to the pre-*Oliva* TAC (72 t). Although the reason for the anomalously high CPUE rates is unclear, MARAM argued that it is reasonable to assume that the fishery could support this level of fishing.

Since the nominal CPUE at Nightingale has typically been similar in September, October and November, MARAM suggested using comparison of nominal CPUE rates for September, October and November pre-*Oliva* as the basis for deciding whether and how much to increase the TAC. They justify the use of nominal rather than standardised CPUE, because the main effect of standardisation was to remove month effects – thus nominal can be used when individual months are compared across years. Specifically, MARAM recommended the following rule, based on comparison with monthly CPUE rates for 2008-2010 (9 values in total):

- a) If the CPUE attained during the September-November period 2013 is larger than 8 of the 9 values, increase the TAC to 65 mt (threshold CPUE 4.4 kg/trap).
- b) If the CPUE is larger than 6 of the 9 values, increase the TAC to 52.5 mt (threshold CPUE 4.0 kg/trap).

As is clear from Table 1 above, CPUE in Sept-Nov 2013 was much higher than the threshold of 4.4 kg/trap for the full increase (average over the period, 13.9 kg/trap). The Tristan Fisheries Department on this basis decided to increase the TAC to 65 t.

This decision is supported by the updated 2014 stock assessment which included some robustness testing under various assumptions of the *Oliva* impact (adult mortality up to 25%, juvenile mortality up to 20% or 10% adult + 20% juvenile mortality) and a range of constant catch scenarios from 65-85 tonnes, which suggest that the biomass would rebuild to >90% of carrying capacity by 2033 under all the scenarios tested. Since the 2012-13 and 2013-14 catch rates suggest that at least adult mortality from the *Oliva* was overestimated, then it

seems that this analysis and decision-making process is logical and precautionary. Further details on stock status and harvest control rules at each island are given below.

### **3.2 ADVICE, TACs AND CATCHES**

An OMP is now in operation at Tristan (starting in the 2013-14 season) so that TAC is set automatically, with a periodic review of the OMP (initially every 3 years). The OMP is described in detail in last year's audit report (Year 2). OMPs have been proposed for Inaccessible and Gough on a similar basis, and the analysis is currently under review by the Tristan Fisheries Department, who are waiting for the results of this audit before taking a final decision – to ensure that selected OMPs are consistent with the MSC standard and the conditions on the fishery. The candidate and recommended OMPs, and the analysis process by which they have been tested, is considered in detail below. For Nightingale, the situation remains unclear, so the TAC continues to be set on a year-by-year basis by consideration of the most recent data available (see Section 3.1). Recent catches and TACs are given in Table 2 below, including (recommended) TACs for the 2014-15 season. In addition, a quota of 2.8 t was set aside for the pre-season surveys.

Table 2. TACs and catches for the 2012-13 and 2013-14 seasons, and recommended TACs for the 2014-15 season. TACs are set on the following basis: Tristan: 2012-13 – by Fisheries Department following MARAM advice, 2013-14 and 2014-15 – by OMP. Gough: 2012-13 and 2013-14 – by Fisheries Dept. following MARAM advice, 2014-15: proposed TAC based on recommended OMP. Inaccessible: 2012-13 – precautionary upper catch limit, 2013-14 – precautionary TAC, 2014-15 proposed TAC based on recommended OMP. Nightingale: 2012-13, 2013-14 – precautionary upper catch limit, 2014-15 – precautionary TAC.

<b>Island</b>	<b>2012-13 TAC (final)</b>	<b>2012-13 catch</b>	<b>2013-14 TAC (final)</b>	<b>2013-14 catch</b>	<b>2014-15 TAC</b>	<b>Basis for 2014-15 TAC</b>
Tristan	170	171	165	165.9	161	OMP
Inaccessible	70	70.4	70	70.9	73*	OMP*
Gough	95	95.6	95	95.6	100*	OMP*
Nightingale	40	39.4	65	66.2	65	ongoing review of post- <i>Oliva</i> recovery

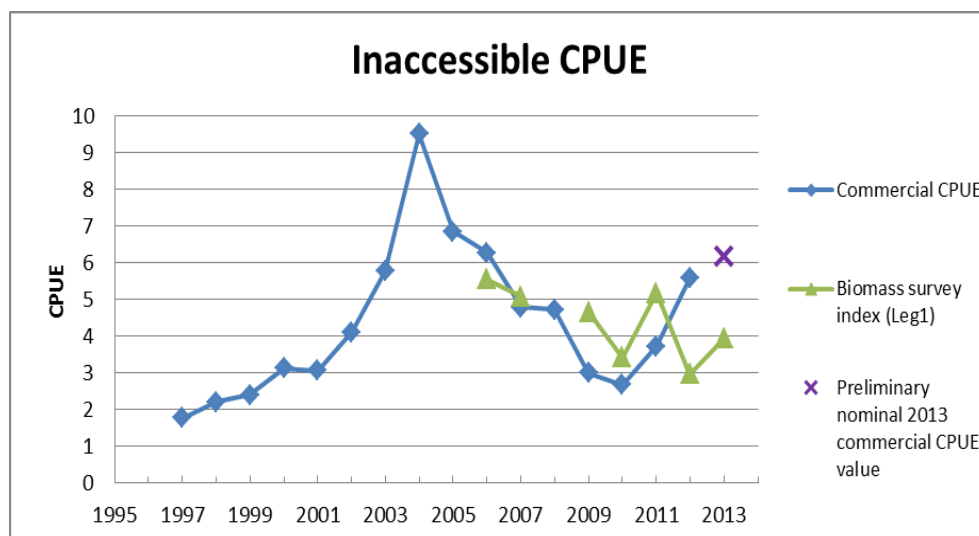
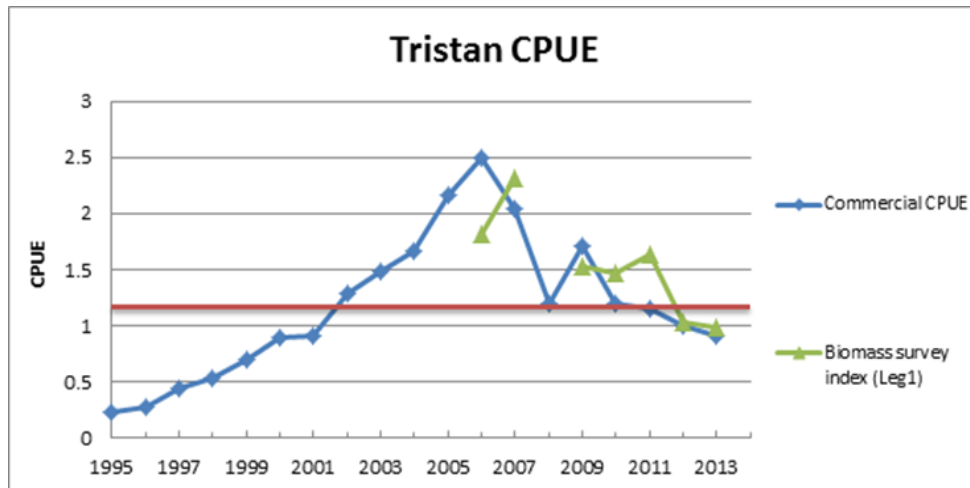
\*TACs may vary a little from the figure given depending on the final OMP selected by the Tristan Fisheries Department.

### **3.3 RECENT TRENDS IN CPUE**

Trends in standardised CPUE for each of the four islands are given in Figure 2 below, including mean annual commercial CPUE and pre-season biomass survey CPUE. (Details of

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how the commercial CPUE is standardised are given in the Certification Report for the fishery.) All the islands (apart from Nightingale) are seeing CPUE declining from a peak in the mid-2000s (late 2000s in the case of Gough). Based on the time series available so far, the stock assessment models suggest that this peak is most-likely driven by a pulse of high recruitment, and that these high CPUE rates are not feasible in the fishery under the ‘normal’ recruitment situation. (The results of the stock assessments are described below.) As noted above, recent trends in CPUE at Nightingale are unexpected (although encouraging) and while various hypotheses are possible, none are completely satisfactory – this fishery is being managed on a ‘wait and see’ basis.





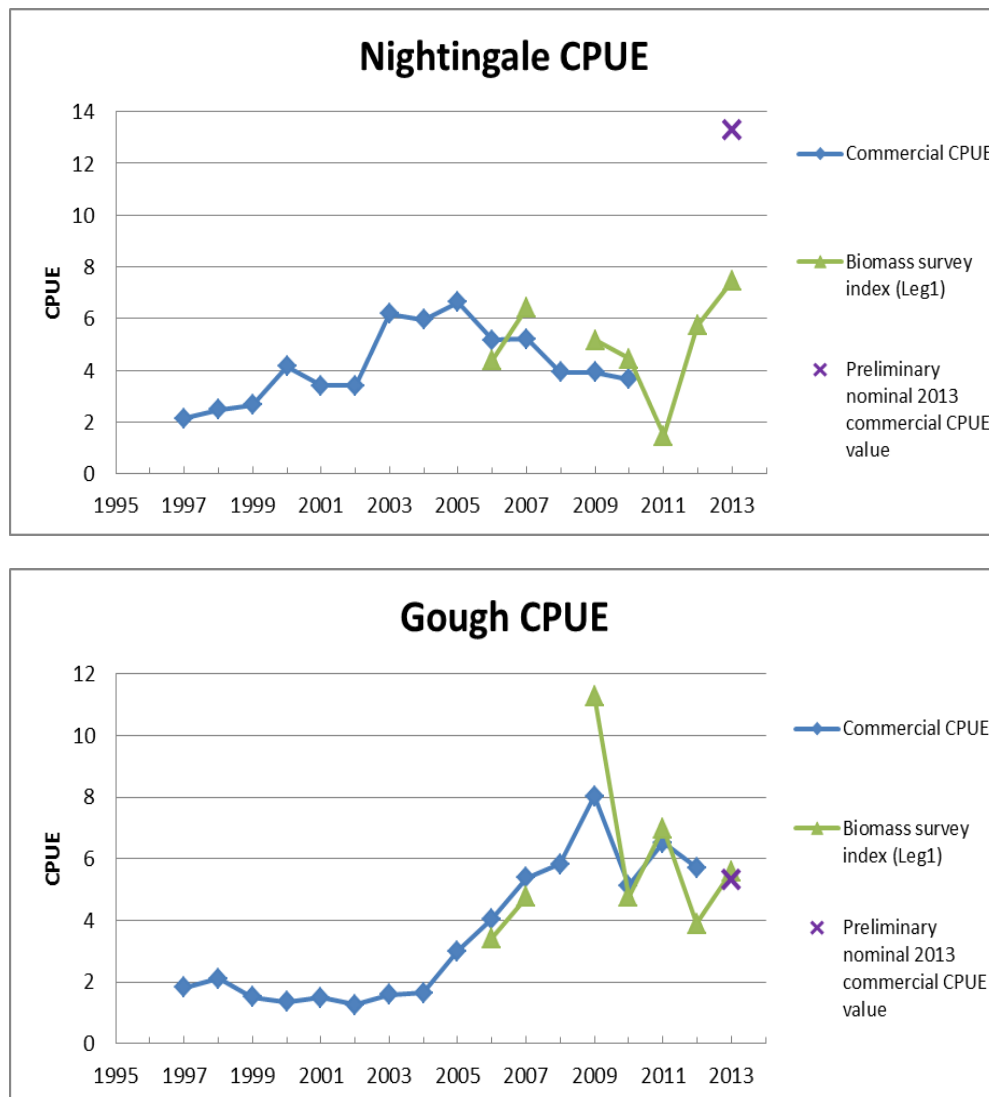


Figure 2. Trends in standardised CPUE (commercial fishery in blue, pre-season biomass survey in green), 1997-2012 (commercial fishery) and 2006-7 and 2009-13 (survey), as well as preliminary nominal CPUE for the 2013-14 fishery season (purple x). (Note that standardised and nominal CPUE values are not directly comparable.) The red line in the Tristan figure indicates the target CPUE value used in the OMP (Johnston 2014).

### 3.4 RECENT TRENDS IN CATCH-AT-LENGTH

In the 2012-13 season, the three outer islands showed an abrupt shift in the catch towards larger lobsters. At Tristan this was less marked, although the average size in the catch increased somewhat. This is particularly strange at Inaccessible, bearing in mind that the MLS was reduced from 68-66mm at the start of the season. Possible explanations include (Johnston and Butterworth 2014a):

- poor year classes have entered the fishery (i.e. fewer small lobsters relative to large)
- large year class(es) are passing through the population (i.e. more large lobsters relative to small) (this agrees with the estimates of the likely impact of recruitment from the

stock assessments, but does not explain the rather abrupt nature of the shift at three of the islands)

- increase in selectivity of large lobsters (for reasons unknown).

Currently, there is no means of distinguishing between these three hypotheses from the existing data. Large inter-annual variations in selectivity are a concern because the stock assessment relies on CPUE as a reliable biomass index. (However, since management is precautionary, it should be able to deal with these uncertainties.)

### **3.5 INCORPORATION OF MLS CHANGE AT INACCESSIBLE INTO THE ASSESSMENT**

The assessment models tracks biomass in 1mm size bins, so it was straightforward to incorporate the effect of the change in MLS at Inaccessible – i.e. model-estimated quantities relating to the fishery would sum results from size classes from 70mm upwards before the change, and 68mm upwards afterwards.

### **3.6 EXTERNAL REVIEW OF THE TRISTAN OMP PROCESS**

The second part of the MRAG external peer review of the fisheries management system, commissioned by the Tristan Government, was published in August 2013 (Edwards and Rademayer 2013). The review considered i) how the management system being put in place for Tristan rock lobster compares to management of other southern hemisphere rock lobster stocks, ii) the details of the model and coding used for the development and testing of the Tristan OMP and iii) some possible alternative formulations for the OMP. (Although only the Tristan case was considered, the authors note that their conclusions are applicable to the development of an OMP at the other three islands.)

In relation to point i), the review notes that an OMP approach is widely used for rock lobster management, including the South African, New Zealand and Australian fisheries for *Jasus* spp., and that most of these OMPs take an empirical approach, as does this one. The management approach for Tristan lobster is therefore consistent with what is considered to be best practice elsewhere.

In terms of point ii), MRAG identify a number of minor issues with the coding used by MARAM, but none of these had any substantive impact on the conclusions drawn from the comparison of different candidate MPs, the robustness testing of each candidate MP or the performance of the selected OMP for Tristan. MARAM have incorporated the relevant corrections in the code used for assessments since August 2013.

For point iii) MRAG testing alternative OMP formulations with different parameter values, and/or which incorporated trends in CPUE as well as the value compared to the target, and/or which included survey as well as CPUE data. The only alternative formulation which they recommended was the use of survey as well as CPUE data, because it allows the OMP to deal with changes in catchability in the commercial fishery over time ('effort creep'). They note, however, that the added complexity would make the OMP more difficult for stakeholders to understand in full, and that how to deal with this trade-off should be a decision for stakeholders. In addition, MRAG suggested that robustness testing could include changes in

stock productivity (growth schedule), as has been observed in the South African west coast rock lobster population, although they comment that it was not in practice likely to make much difference to the outcome. (MARAM note that they consider potential differences in growth schedule already, since they use two alternative growth models – but that until more tagging data are available there is not much more they can do in this regard.)

Overall, therefore, the MRAG review was regarded by the audit team as an endorsement of the OMP approach, both in general and in terms of how it has been implemented by MARAM. The detailed review is, however, extremely useful in ironing out small errors and in building confidence in the process.

### 3.7 STOCK STATUS AT EACH ISLAND

The stock assessments at each island were updated in 2014 to incorporate new data and to deal with some minor coding errors identified in the external review. The basic model remains as described in the Certification Report, and is not further described here. Some statistics from the model outputs are given in Table 2. This type of analysis is obviously not yet possible for Nightingale, since different assumptions about the impacts of the *Oliva* and the drivers of recent changes in CPUE lead to different outcomes. As noted above, the stock assessment for Nightingale suggested that in the long term (by 2033), the stock would recover to >90% of pristine biomass under a wide range of possible scenarios.

Inaccessible: Model 1 – update of 2013; Model 2 – allowed shift in selectivity to account for shift in catch-at-length in 2012-13; Model 3 (preferred) – allowed the parameters of the male and female selectivity curves to be estimated by the model.

Gough: As Inaccessible. Previously two growth models (the ‘Glass’ and the ‘Pollock’ models) have been used at Gough. Preliminary results from the tagging programme suggest that at Gough the Pollock model is a better fit to the data, so this model is used in the 2014 assessment.

Tristan: Extensive modelling work was undertaken last year as part of the OMP development process, and since the OMP is in operation a stock assessment is not required to provide advice on the TAC. For 2014, therefore, the 2013 reference case model was slightly revised to take account of MRAG’s suggestions.

Table 2. Outcome of 2014 stock assessments at each island (Johnston and Butterworth 2014a, Johnston and Butterworth 2013).

Island	Model	Ksp (tonnes)	Bsp(2013)/Ksp	Bsp(2014)/Ksp	Bsp(2014)/ Bsp(1990)
Inaccessible	Model 1	1421	0.87	0.89	3.72
	Model 2	1404	0.81	0.84	3.36
	<b>Model 3</b>	<b>1569</b>	<b>0.85</b>	<b>0.87</b>	<b>3.32</b>
Gough	Model 1	271	0.92	0.88	1.13
	Model 2	272	0.92	0.87	1.13

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	<b>Model 3</b>	<b>311</b>	<b>0.90</b>	<b>0.86</b>	<b>1.23</b>
Tristan	<b>Ref. case updated</b>	<b>1449</b>	<b>0.75</b>	<b>not estimated (2012 – 0.75)</b>	<b>2.17*</b>

\*Bsp(2013)/Bsp(1990)

In essence, these stock assessments suggest strongly that the spawner biomass is well above the MSY level at all three of the (non-impacted) islands. At Tristan, the spawner biomass is estimated to be at about three-quarters of the unfished level, while at Inaccessible and Gough it is even higher – most likely well above 80%. This means that the management has been successful at maintaining stock biomass at a high and precautionary level.

## 4. PRINCIPLE 2

### 4.1 AFTERMATH OF THE *OLIVA*: ENVIRONMENTAL IMPACTS

A dive survey of the wreck and the area around (report provided by the Tristan Fisheries Department) found a few non-native mussels (*Mytilus galloprovincialis*) on the wreck, which were removed, extensive growth of kelp around the wreck and almost no sea urchins (the latter two observations most likely related). The urchins were presumably smothered by the soya spill, and three years later have not apparently recovered. It was suggested that impacts in deeper water might be worse, because the soya lay there for longer, but conversely, urchins are important in the diet of lobster, and there is no evidence of the lobster caught at Nightingale being in poor condition, nor of any impacts on the (adult) population. Shoreline surveys were also carried out looking for evidence of new mussel settlement (evidence of establishment of this non-native species) and none was found, although sea conditions makes these surveys difficult.

Conversely, the skipper of the Edinburgh reports that although in the immediate aftermath of the *Oliva*, there were fewer urchins at Nightingale, now the situation has returned to normal (similar numbers of urchins discarded from the traps as prior to the *Oliva* incident). It may be that the depletion of urchins (and associated recruitment of kelp) is confined to the area closest to the wreck. He also confirms that the lobsters caught at Nightingale appear healthy and in good condition.

### 4.2 OCTOPUS RETAINED CATCH

Octopus catch for the last six seasons is given in Table 3. For 2013/14 it remained higher than the recent average at Tristan, and somewhere in line with the recent average at Gough (where catches have been variable). Catches at Nightingale and Inaccessible are not easy to compare with recent years because of changes to TACs due to the *Oliva*. Overall there are no particular causes for concern in relation to the exploitation of octopus populations.

Note that the data below for octopus catch at Tristan are probably not complete, because some Tristan fishermen discard octopus, while others take them for private consumption. For the other three islands, the data are more reliable.

Table 3. Octopus catch at each island, 2008/9 to 2013/14 (data from Tristan Fisheries Dept).

Fishing season	TRISTAN Total Octopus Catch (kgs)	GOUGH Total Octopus Catch (kgs)	NIGHTINGALE Total Octopus Catch (kgs)	INACCESSIBLE Total Octopus Catch (kgs)	TOTAL ALL ISLANDS Total Octopus Catch (kgs)
2008/2009	3864	1515	2310	5025	12714
2009/2010	4893	420	2115	8475	15903
2010/2011	6061	2295	2175	4395	14926
2011/2012	5372	990	0	4725	11087
2012/2013	6189	1035	480	2715	10419
2013/2014	6430	1005	375	3390	11200

### **4.3 INTERACTIONS WITH BIRDS**

The observers on the Edinburgh reported 83 interactions with birds during the 2013-14 season. Most interactions occurred off Inaccessible Island (68) which include 14 White-Billed Storm Petrels (one mortality), 41 Broad-Billed Prions (2 mortalities), seven Atlantic Petrels and three Pintado Petrels (no mortalities). Interactions at the other islands were fewer and no mortalities were recorded. The interactions are broken down to species (see Annex 1). A stakeholder comment (Ryan pers. comm.) was received requesting that in future, records of interactions also be broken down by island. This was subsequently done by the Tristan Fisheries Dept and these data are provided in Annex 1. The team were satisfied that Condition 2 had been appropriately addressed and that monitoring of bird interactions was ongoing and integrated into the reporting systems for the fishery.

## 5. PRINCIPLE 3

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### 5.1 NON-COMPLIANCE AND IUU

Tristan Fisheries Department confirm that Ovenstone have operated according to the concession agreement and the licence requirements, with no incidents of non-compliance (Annex 2).

In relation to external IUU fishing, the Edinburgh detected one vessel while in transit from the upper islands to Gough which may have been fishing illegally over a seamount in the Tristan EEZ – however, no visual contact could be made because the vessel left the area as the Edinburgh arrived. No gear was found either in that area or around any of the islands. Ovenstone hypothesise that the vessel may have been longlining, but there is no direct evidence available. No evidence of illegal lobster fishing was detected (vessels, sightings, gear, product on the market).

### 5.2 REGULATORY CHANGES IN THE FISHERY

The MLS remains 66mm at Inaccessible after a reduction from 68mm CL was agreed last year to reduce discards. The Fisheries Department have decided not to reduce it further to 65mm, despite a MARAM assessment that this would be a viable option (Johnston and Butterworth 2012). Discard rates are reported to have dropped by ~half (Andrew James and Dorrien Venn, Ovenstone, pers. comm.). The vessel logbook supports this observation. MLS at the other islands remains the same (70mm at Nightingale and Tristan and 75mm at Gough). There were no regulatory changes in the fishery in the 2013-14 season.

The number of powerboats at Tristan was increased from 9 to 12, with one additional powerboat introduced at the start of the 2013-14 season and two additional boats in December 2013 (after the peak of the season). The objective of this change is to ensure as far as possible that all or most of the TAC at Tristan is caught by the Tristan community, and that the Edinburgh does not have to come into Tristan waters to finish the TAC at the end of the season. Despite extremely difficult weather during the 2013-14 season (only 39 days in total where fishing was possible), the Edinburgh only had to take 13.9 t of the catch, compared to more than 49 tonnes the previous season.

### 5.3 RESEARCH

The tagging programme is continuing – an additional 12,000 tags were purchased in June 2014. There have been 31 tag returns at Gough, but only a very small number at the other islands so far. The second (February) trap survey has been discontinued, because it has proved impossible to implement it consistently at the same time each year, making the results difficult to interpret and useless for stock assessment. The pre-season survey has continued as described in previous reports.

The Darwin project is underway, and Dr Sue Scott has undertaken several short-term research trips to the island, notably diving on the wreck of the Oliva and carrying out benthic surveys in the vicinity, as well as snorkel surveys for juvenile lobsters. The longer-term post for a lobster biologist has not yet been filled, unfortunately.

## 6. PROCESS OF DEVELOPMENT OF OMPs AT EACH ISLAND

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### 6.1 TRISTAN

The process of developing candidate OMPs, robustness testing and agreeing an initial three-year OMP at Tristan is described in detail in the Year 2 audit report. It was also reviewed externally by MRAG, and found to be robust, precautionary and in line with global good practice for rock lobster fisheries (see above). The OMP is now in use to set TACs at Tristan.

### 6.2 INACCESSIBLE

The same basic structure was used for the candidate OMPs at Inaccessible as at Tristan (as set out in the Year 2 audit report). The OMPs take the following basic form:

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

(i.e. the TAC in a given year is based on the TAC in the current year, as adjusted by a current measure of stock status ( $I_y^{rec}$ ) compared to a target ( $I^{tar}$ ), with alpha as a tuning parameter (a larger value of alpha gives a larger change in the TAC for a given difference between  $I_y^{rec}$  and  $I^{tar}$ , as far as the inter-annual constraint allows).

As at Tristan, targets and measures ( $I$ ) were expressed in terms of catch rate (CPUE, kg/trap) because i) this is the data set available and is used in the stock assessment as a proxy for stock biomass, ii) it is a tangible measure where the meaning is easy to understand and iii) because catch rate itself is important in this fishery where costs have to be minimised. The default target is the average catch rate over the 2010-12 period (~4 kg/trap at Inaccessible).

MARAM tested seven candidate OMPs, as follows:

- CMP1: target CPUE 4 kg/trap, alpha=10, 5% TAC change constraint;
- CMP2: as CMP1 with alpha=5;
- CMP3: as CMPs 1 and 2 with alpha=2.5;
- CMP4: as CMP1 with  $I^{tar}$ =5;
- CMP3(10%): as CMP3 but with 10% TAC change constraint;
- CMP3+metarule1: as CMP3 but with two threshold catch rates defined below which the TAC change constraint is 20% - between the two target levels the constraint increases linearly – for metarule1 the threshold values are 3kg/trap and 2kg/trap
- CMP3+metarule2: as metarule1 but with thresholds set at 4kg/trap and 3kg/trap.

The CMPs were tested for robustness with the following tests (rather extreme scenarios were required to trigger the two metarules):

- RC: (reference case model – assumes 35% mortality of juveniles due to the *Oliva* (2011), as in previous years);
- R1: assumes flat selectivity (i.e. no decline in selectivity at larger sizes);
- R2: juvenile *Oliva* mortality increased from 35% to 95%;
- R3: imposes *Oliva* juvenile mortality of 95% on all year classes 0-7 and applies an ongoing ‘Allee effect’ to the stock-recruit relationship (recruitment failure at low biomass);
- R4: R3, plus imposes a one-off 75% over all year classes in 2014.



The performance of each CMP under the RC model (i.e. the scenario where nothing drastic happens to the stock other than an assumed 35% juvenile mortality from the *Oliva*) is given in Table 4 (the outcome of a constant catch of 70 t is also given, for comparison). All the CMPs have a >95% chance of resulting in a spawner biomass in 2033 above 50% of pristine spawner biomass ( $K$ ), as shown by the fact that the lower 5 percentile of  $B_{sp}(2033)/K_{sp}$  is greater than 0.5 in all cases. All of them also maintain the catch rate above 4 kg/trap. On this basis, they can all be regarded as rather precautionary.

CMP1 (target catch rate = 4,  $\alpha = 10$ ) gives the highest median average catch (~92 t/yr) and the highest lower 5%ile of average catch (86 t/yr). CMP3 and CMP3(10%) are identical, basically reflecting the fact that the fishery is taking only a relatively small percentage of the biomass, which therefore does not change much from year to year, resulting in turn in small changes in catch rates relative to the target, and therefore small changes to the TAC even when the 5% change constraint is relaxed (note that the average TAC change year to year is only 4.87% even for the least ‘conservative’ CMP, which is CMP1). Likewise, the metarules have no impact under this ‘normal’ scenario because the catch rate never drops below the upper threshold level. Setting the target catch rate to 5 kg/trap instead of 4 kg/trap (CMP4) gives a relatively small benefit in terms of catch rates (5.87 in 2022 compared to CMP3 at 5.61 and CMP1 at 5.5, likewise for 2032 4.97 compared to 4.5 and 4.2) with a trade-off of quite a big loss of catch (median average catch 73.4 t compared to 84.5 for CMP3 and 91.9 t for CMP1 – a median loss over 10 years of 111 t compared to CMP3 and 185 t compared to CMP1).

Table 4 (Table 1a in Johnston and Butterworth 2014b). Comparison of the performance of Inaccessible initial candidate OMPs under the RC model. All statistics reported below are median values unless otherwise stated.

CMP	$I^{tar}$	$\alpha$	TAC change constraint	catch rate (2022) (kg/trap)	catch rate (2032) (kg/trap)	median average annual catch, 2014- 2022 (t)	lower 5%ile of average annual catch, 2014- 2022 (t)	average TAC change year to year (%)	lower 5%ile $B_{sp}$ (2033) /K
<b>constant catch = 70 t</b>			-	5.93	5.31	70	70	0	0.59
<b>CMP1</b>	4.0	10	+5%, -5%	5.50	4.20	91.93	85.99	4.87	0.55
<b>CMP2</b>	4.0	5	+5%, -5%	5.51	4.29	90.12	83.81	4.47	0.55
<b>CMP3</b>	4.0	2.5	+5%, -5%	5.61	4.50	84.46	78.20	3.43	0.56
<b>CMP4</b>	5.0	10	+5%, -5%	5.87	4.97	73.37	60.18	4.02	0.58
<b>CMP3</b>	4.0	2.5	+10%, -	5.61	4.49	85.50	78.20	3.64	0.56

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(10%)			10%						
<b>CMP3 + metarule 1</b>	4.0	2.5	+5%, -5 to -20%	5.62	4.50	84.46	78.20	3.44	0.56
<b>CMP3 + metarule 2</b>	4.0	2.5	+5%, -5 to -20%	5.62	4.51	84.46	78.20	3.44	0.56

The robustness testing was done in detail for CMP3 (the various versions) and CMP4. An example is given here of the performance of CMP3 with and without the metarules under robustness test R4 (95% mortality in 2011 of year classes 0-7, 75% across the board mortality in 2014 plus a disproportionate reduction in recruitment at low biomass – the most extreme of the tests) (Figure 3). Obviously, the TACs decline considerably under these circumstances – down to just below 40t for CMP3, and down to almost nothing with the metarules in place. Nevertheless, it is striking that both with and without the metarules, the catch rate (a proxy for exploitable stock biomass) recovers quite fast – catch rates are back to 4kg/trap by ~2025 with the metarules and ~2 years later without. Biomass recovers to 50% of pristine biomass in roughly the same timeframe, and likewise the metarules do not make a great deal of difference, although they do speed up recovery slightly.

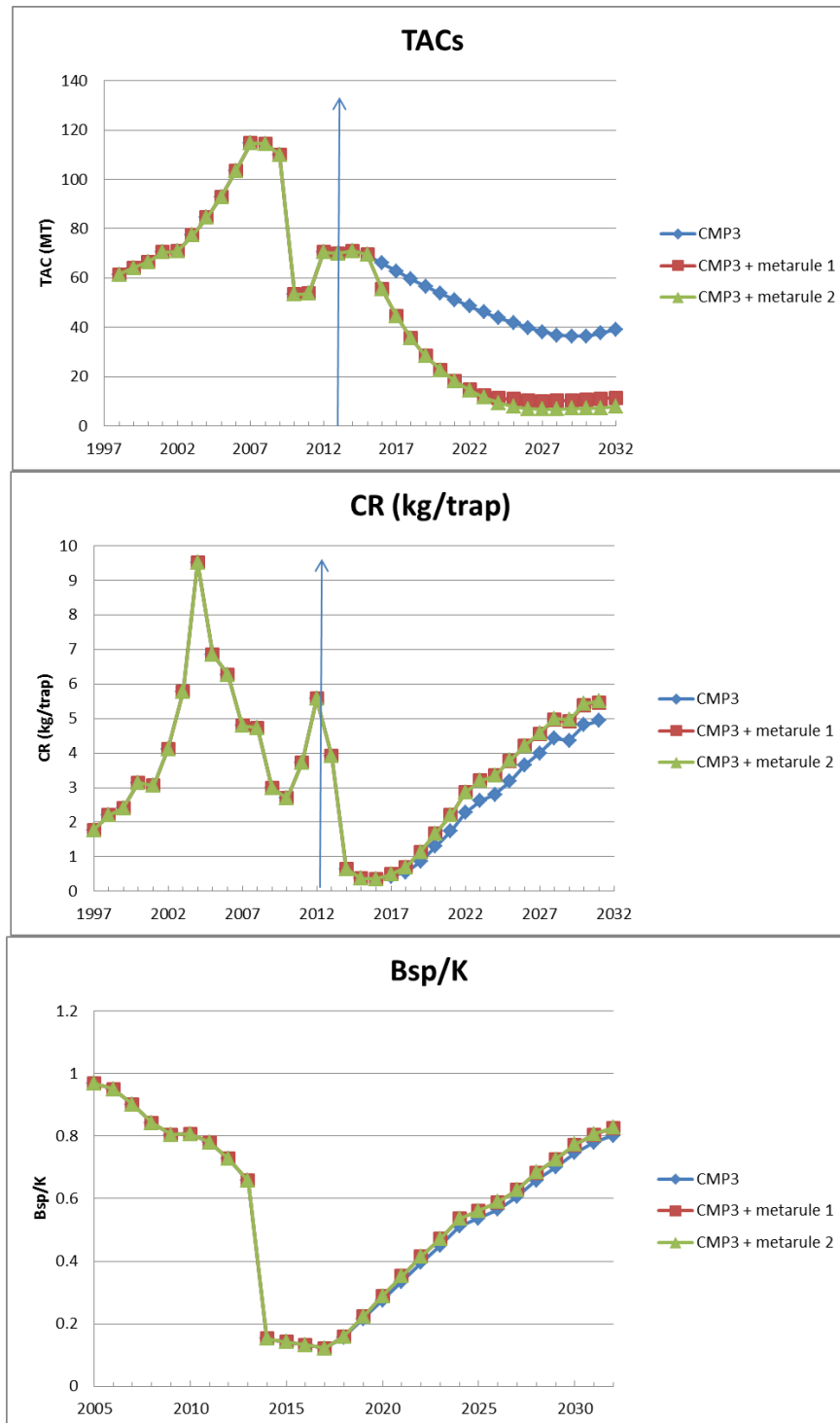


Figure 3 (Figure 2f in Johnston and Butterworth 2014b). Projected trends for Inaccessible in TAC (top), catch rate (middle) and spawner biomass relative to pristine spawner biomass, under CMP3 alone or with the addition of the two metarules.

It would be easy to say based on Figure 3 that the metarules are unnecessary, but of course, if such an event happened in reality, there would be a great deal of uncertainty and concern around what caused it, as well as no guarantee that it would be a one-off event as in the model. In practice therefore, if such extreme declines in catch rate were observed, it would most likely be appropriate to lift the 5% TAC change constraint. Under the more likely scenario (the RC model), the metarules would not in any case ever come into play. For this

reason, MARAM recommend applying metarule 1. (It is clear from Figure 3 above that the selection of metarule 1 vs 2 makes very little difference.)

Conclusion on Inaccessible OMP: MARAM recommend CMP3 with metarule 1. Although the robustness testing was not done on all the CMPs, it appears likely that they would all be robust. Overall, all the CMPs would meet the requirements of the MSC standard for a well-defined, transparent and precautionary harvest control rule. CMP1 gives the highest overall catch while remaining precautionary under normal conditions. However, given the uncertainties that remain around the *Oliva* impacts and some remaining problems with the stock assessment (poor fits to catch-at-length and discard percent), it seems prudent, as MARAM advise, to select a more precautionary rule. It is clear that CMP3, which has been tested for robustness, would be a precautionary choice appropriate to the requirements of the MSC standard. The OMPs are reviewed after three years, so the option remains to adjust the OMP at this stage, if desired. It also seems prudent to include a metarule, noting that under normal conditions it never applies.

### 6.3 GOUGH

The development of an OMP for Gough has been through a more or less identical process to that described above for Inaccessible. There is, however, one complication in relation to the target catch rate. In essence, as described above in relation to trends in CPUE, the stock assessment suggests that all the islands are coming down off a peak in catch rates (proxy for exploitable biomass) most likely driven by a spike in recruitment. For the three upper islands, catch rates have more or less returned to ‘normal’ levels (‘normal’ being defined based on the time series we have available) but for Gough, the peak was later and catch rates are still elevated. This means that the default target catch rate (average for the 2010-12 period) is not achievable over the long term. MARAM found in their models, however, that setting a lower target catch rate immediately resulted in a situation where the TAC initially increased rapidly before being brought back down as catch rates fell back. A more stable (and precautionary) outcome was achieved by initially setting a higher target, and allowing it to decrease over the first three years before fixing it at a lower value.

The candidate OMPs are as follows:

- CMP16: target catch rate 4.25 kg/trap in 2014 decreasing linearly to 3kg/trap in 2017 and remaining at 3,  $\alpha=10$ , 5% TAC change constraint;
- CMP19: as CMP16 but with initial target catch rate of 4.5kg/trap;
- CMP20: as CMP19 but with target decreasing to 2.8kg/trap in 2017;
- CMP20(10%): as CMP20 with 10% TAC change constraint
- CMP20+metarule1: as CMP20 but with metarule as for Inaccessible, with thresholds 1.5 and 0.5kg/trap;
- CMP20+metarule2: as above with thresholds 2 and 1kg/trap.

The robustness trial (R1) was a one-off 75% mortality event across all size classes in 2014.

Table 5 shows the output under ‘normal conditions’ – the reference case model. In this case, the catch is maintained at more or less current levels (range of median average catch 96-103 t; 2013-14 TAC 95t). The median catch rate is pushed down a little below the target (although this may be a function of the reference years selected), but does not drop below 2.4 kg/trap in

2032 (under CMP20). The biomass has a higher probability of dropping below 50% of pristine biomass compared to Inaccessible (lower 5%ile of biomass = 39% of pristine; median not given in Table XX but from the Figures provided by MARAM is ~70% of pristine biomass for all the CMPs).

Figure 4 shows the trajectories of the RC model under different CMPs. CMP20 gives higher catches on average, while the trajectories of the catch rates and biomass are very similar. On that basis, MARAM suggest CMP20 as the best-performing OMP.

Table 5 (Table 2a in Johnston and Butterworth 2014b). Comparison of the performance of Gough initial candidate OMPs under the RC model. All statistics reported below are median values unless otherwise stated.

CMP	$I^{tar}$	$\alpha$	TAC change constraint	catch rate (2022) (kg/trap)	catch rate (2032) (kg/trap)	median average annual catch, 2014-2022 (t)	Lower 5%ile of average annual catch, 2014-2022 (t)	average TAC change year to year (%)	Lower 5%ile <i>B<sub>sp</sub></i> (2033/K)
constant catch of 95 t			-	2.89	2.68	95	95	0	0.39
<b>CMP12</b>	<b>3.0</b>	<b>5</b>	+5%,-5%	2.52	2.58	105	100	2.71	0.39
<b>CMP16</b>	<b>4.25-3.0</b>	10	+5%,-5%	2.83	2.64	98.27	88.21	3.22	0.39
<b>CMP19</b>	<b>4.50-3.00</b>	10	+5%,-5%	2.87	2.63	96.03	86.27	3.15	0.39
<b>CMP20</b>	<b>4.50-2.80</b>	10	+5%,-5%	2.71	2.41	100.44	90.22	3.19	0.39
<b>CMP20(10% )</b>	<b>4.50-2.80</b>	10	<b>+10%,-10%</b>	2.67	2.78	103.00	90.51	4.16	0.39
<b>CMP20+ metarule1</b>	<b>4.50-2.80</b>	10	+5%,-5 to - <b>20%</b>	2.71	2.47	100.44	90.22	3.19	0.39
<b>CMP20+ metarule2</b>	<b>4.50-2.80</b>	10	+5%,-5 to - <b>20%</b>	2.71	2.73	100.44	90.00	3.24	0.40

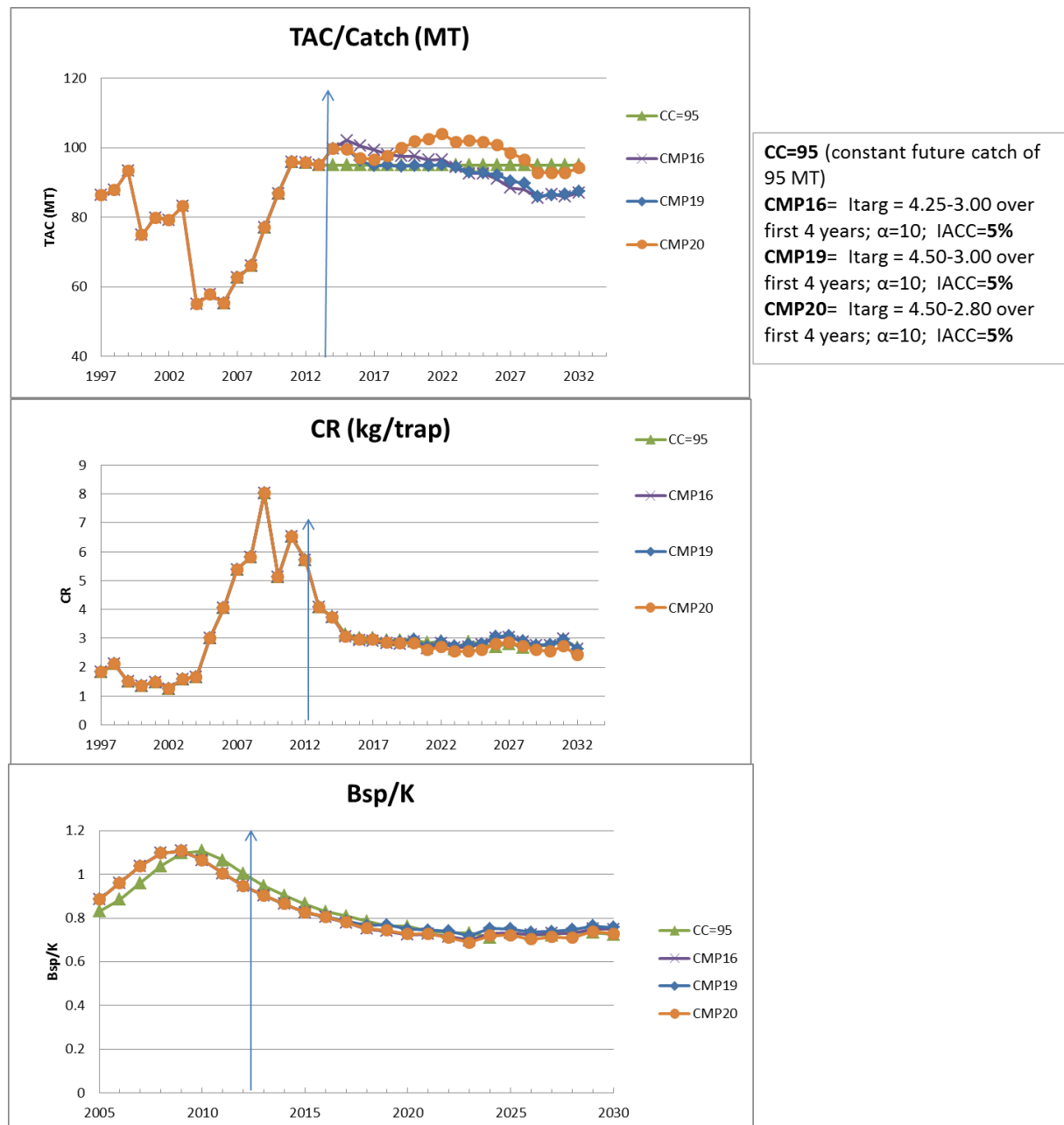


Figure 4 (Figure 3 in Johnston and Butterworth 2014b). Projected trends for Gough in TAC (top), catch rate (middle) and spawner biomass relative to pristine spawner biomass, under constant catch of 95t, CMP16, CMP19 and CMP20. CMP 20 with metarules were also considered but the trajectories were identical to CMP20.

Figure 5 shows the robustness testing for CMP20 (with and without the two metarule options). Under the scenario considered (one-off 75% mortality) the metarules impose a big penalty in TAC but also act to recover catch rates and biomass more quickly. Again, given that under normal circumstances the metarules don't apply, and given the concerns about precautionary management that would naturally arise under this type of scenario, the addition of a metarule seems prudent. MARAM recommend metarule 1, which takes slightly less penalty in TAC for a similar performance in terms of stock recovery, which appears a sensible choice.

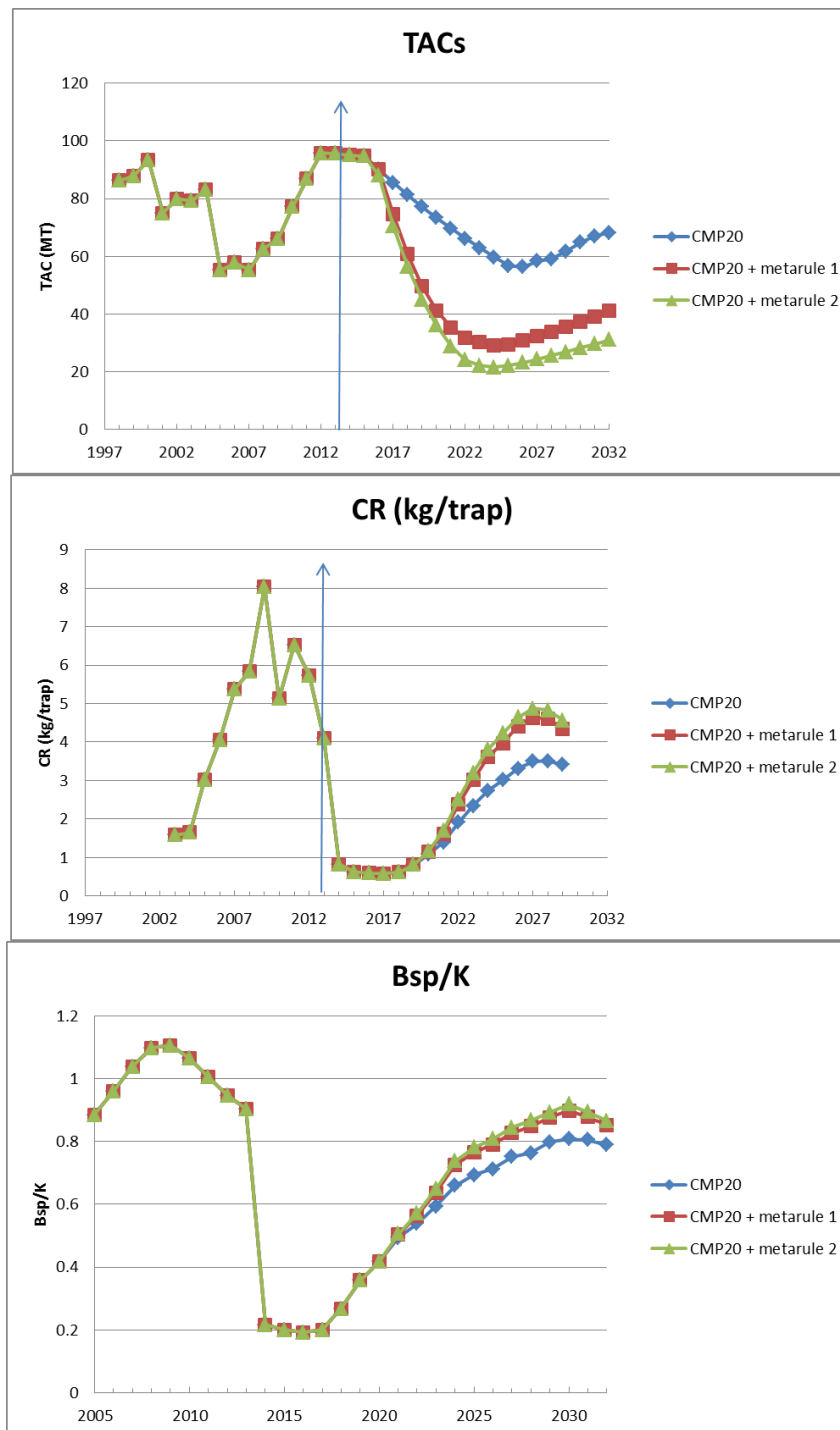


Figure 5 (Figure 5 in Johnston and Butterworth 2014b). Robustness testing for Gough CMP20, alone and with the two metarule options, under the assumption of a one-off 75% mortality event. Projected trends are shown in TAC (top), catch rate (middle) and biomass relative to pristine (bottom).

**Conclusion on Gough OMP:** MARAM recommend CMP20 with metarule 1. Unlike for Inaccessible where there was no clear ‘best option’, at Gough CMP20 appears to perform better than the other options considered in terms of the trade-off between catch and maintaining catch rates and stock biomass – it gives more catch for a very similar performance in terms of catch rate and biomass. It also seems prudent to apply a metarule. Again, this decision would be consistent with the MSC standard.

#### 6.4 NEXT STEPS AT INACCESSIBLE AND GOUGH

The next step in implementation of the OMPs at Inaccessible and Gough is for the Tristan Fisheries Department to review MARAM's work and the performance of the various CMPs and take a final decision on which CMP to implement at each island. The Fisheries Department is not obliged to accept MARAM's recommended course of action, and in fact, any of the CMPs evaluated at either would be constitute a well-defined, precautionary and transparent harvest control rule and would therefore be consistent with the MSC standard – although MARAM's recommendations are logical for the various reasons set out above. The selected OMP will be implemented for the 2014-15, 2015-16 and 2016-17 seasons and will thereafter be reviewed. At this point, the Tristan Fisheries Department can propose any changes it wishes, if it feels that the OMP has not operated satisfactorily. (In practice, there is not likely to be much significant change in the status of the resource between now and 2017, barring further accidents ...)

#### 6.3 NIGHTINGALE

The decision-making logic at Nightingale over the last three seasons since the *Oliva* is set out above. It has been agreed among stakeholders that for the moment there is no point in devising candidate OMPs for Nightingale, because of the uncertainty surrounding the status of the resource and the biological drivers behind the recent data. The audit team agreed with this conclusion.



## 7. PROGRESS ON IMPLEMENTING CLIENT ACTION PLAN

The fishery was certified with three formal conditions plus one *de facto* condition arising out of the use of the RBF for Principle 1. These are as follows:

- Condition 1: The fishery needs a more formal and transparent harvest control rule;
- Condition 2: The fishery should record quantitative data on interactions with ETP species (birds);
- Condition 3: The fishery should prepare a formal research plan;
- Condition 4: The fishery cannot be recertified using the RBF for Principle 1, and therefore requires reference points by the time of recertification.

Conditions 1-3 required that the client prepare an Action Plan (see Certification Report) with a timetable for how the conditions would be addressed. Since Condition 4 does not arise out of any scores <80, no formal Action Plan is required for this condition. However, the client chose to include it in the same way as the other formal conditions, to ensure that by the time of re-certification the issue has been addressed. We consider all four conditions below on the basis of the Action Plan, but it is important to note that the Action Plan in relation to Condition 4 has no implications for certification at this stage.

The Client Action Plan has been revised on an annual basis further to the ongoing effect of the *Oliva* at Nightingale, which has made the situation of the fishery there very unpredictable. The fishery management system for Nightingale has had to react to changing conditions at Nightingale on a year-by-year basis, as set out above. The audit team has reviewed the updated Action Plan annual (see also Year 2 audit report) and is satisfied that it remains consistent with achieving the conditions of the fishery in an appropriate time frame. The most recent iteration of the Client Action Plan is given in Annex 3.

### Condition 1

PIs	1.2.2 – Harvest control rules and tools
Issue	<p>While the team agreed that the harvest control approach had been successful up till now, it is not considered to be sufficiently well-defined or transparent. This means that should a difficult situation arise (such as an unexplained decline in CPUE) it might be difficult for the Tristan management authorities to take appropriate decisions to sustain the optimal social and economic benefits derived from the fishery.</p> <p><i>The management authorities need to define in advance the rules for setting the TACs under various circumstances. These rules should be transparent and accepted by all parties in the fishery.</i></p>
Action Plan Year 1	<p>Consult with MARAM and Tristan Fisheries Department on the status of the work – ongoing as new data are obtained.</p> <p>MARAM and Tristan Fisheries Department to cooperate in completing the refinement of the age structured population model being applied to the</p>

	<p>Nightingale data and then extend it to the other 3 islands. Variants of these models for each island will then be used as the operating models for simulation testing of alternative candidate control rules for each island. Ultimately one such rule will be selected for each island to achieve the desired trade-off between the objectives of improved future catch levels (with their associated socio-economic benefits) and low risks of unintended resource depletion. A process of consultation amongst all stakeholders in the fishery will take place to choose amongst the options for HCRs, given their different anticipated performances indicated in simulation trials, so as to best achieve the trade-offs desired by those stakeholders.</p>
<p>Actions during Year 1, and conclusion of Year 1 audit</p>	<p>In Year 1 (2011-12), the age-structured model was extended to all four islands to form the basis of the stock assessment for all islands. This stock assessment model was peer-reviewed by MRAG and found to be appropriate and robust.</p> <p>The work towards definition of control rules for each island was started during Year 1 (see Year 1 Audit Report). Further progress was, however, slowed by the <i>Oliva</i> incident – MARAM have put all their resources into trying to assess the long-term impacts on the fishery and the most appropriate management response, while the Fisheries Department has dealt with a considerable additional workload in terms of surveys, sampling and tagging. In fact, it is not clear that an OMP can be put in place for Nightingale (or probably for Inaccessible) until the medium and long-term impacts of the <i>Oliva</i> are clearer.</p> <p>The audit team during Year 1 noted that the fishery was behind with this condition due to the <i>Oliva</i> incident, but concluded that it was still on track to implement the Action Plan in full by the time of recertification.</p> <p><b>A revised timetable for this condition has been agreed between MEP, Ovenstone and the Tristan Fisheries Department, as follows:</b></p> <p><b>Year 2: Agree and implement OMP for Tristan</b>  <b>Year 3: Agree and implement OMP for the other three islands if possible – Nightingale may be set aside for a further year it remains difficult to evaluate the impact of the <i>Oliva</i>.</b>  <b>Year 4 (start of re-certification): OMP agreed and implemented at all four islands</b></p>
<p>Action Plan Year 2</p>	<p>Pre-<i>Oliva</i>: First trial implementation of the chosen harvest control rules to generate, if possible, the TAC recommendation for the 2012/13 season, but if not, then for the 2013/14 season.</p> <p>Revised: The above applies only to Tristan</p>
<p>Actions during Year 2</p>	<p>An OMP was agreed for Tristan (described in the Year 2 audit report). The TAC was fixed at 165 t for 2013-14 (instead of using the outcome of the OMP which would have led to a slightly higher TAC), because it was agreed that 165t would be more readily accepted by the Tristan Council and community.</p>

<p>Conclusion of Year 2 audit</p>	<p>The broad form of the HCR has been agreed in principle between the key stakeholders, although a few details remain to be worked out. Unless there are significant objections from the Island Council (thought unlikely since the Director of Fisheries has played a key role in the development of the HCR) then the rule will be implemented immediately and applied to the TAC for the 2013/12 season.</p> <p>The fishery is therefore back on course based on the revised timetable set out above.</p>
<p>Action Plan year 3 (revised)</p>	<p><b>A revised action plan for this condition has been agreed between MEP and stakeholders, further to the ongoing uncertainty around Nightingale, as given in Annex 3.</b></p> <p><b>Year 2: Develop and implement harvest control rule for Tristan (achieved, in the form of an OMP)</b></p> <p><b>Year 3: Develop harvest control rules for the other three islands to provide TAC for 2014-15 season (which may be in the form of an OMP or may be ad hoc in the case of Nightingale)</b></p> <p><b>Year 4: Continue to agree/implement HCRs at all islands.</b></p>
<p>Actions during Year 3</p>	<p><u>Tristan</u>: The OMP for Tristan Island has been agreed by the Tristan Fisheries Department, and used to set the TAC for the 2014-15 season at Tristan. The OMP process for Tristan was peer reviewed by MRAG and found to be appropriate and precautionary.</p> <p><u>Inaccessible and Gough</u>: It is agreed in principle that OMPs will be put in place for Inaccessible and Gough following the same format as for Tristan. Candidate OMPs have been proposed and tested by MARAM. Tristan Fisheries Department and the Island Council will now take a decision as to the most appropriate selection of OMP, based on MARAM's recommendations and the outcome of the MRAG review and this audit (as well as their own views and priorities). The conclusions of the MRAG review as to the evaluation process followed by MARAM can be applied here too, since the process is the same. In relation to the MSC certification of the fishery, it is the MEP audit team's view that any of the candidate OMPs would be consistent with the requirements of the MSC standard, but that MARAM's recommendations are logical and appropriate for various reasons (set out above).</p> <p><u>Nightingale</u>: The dynamics of the population at Nightingale, post-<i>Oliva</i>, remain uncertain. Although there is agreement that 'normality' has returned as regards the level of the TAC (see discussion above), recent catch rates have been unexpected; initially a record low immediately post-<i>Oliva</i> (resulting in the closure of the fishery) followed by very high catch rates when the fishery resumed in 2012, followed by even higher catch rates in 2013. Although various possible explanations are possible (migration to deeper water and back, consumption of soya, ecological changes, effects of the closure of the fishery, some, all or none of the above), none are certain and none are completely satisfactory. Furthermore, if there has been an impact on juveniles (from the <i>Oliva</i> oil spill) this should start to appear in the fishery only in the</p>

	<p>2015-16 season, giving another source of uncertainty.</p> <p>On this basis, none of the stakeholders consider that it is appropriate to develop an OMP for Nightingale at this point. Such a rule, based on current parameter estimates, risks being far off the mark as to the dynamics of the population. It makes little sense to try developing a longer-term OMP until the situation post-<i>Oliva</i> has settled down to something like normality, or at least, a reasonable level of inter-annual predictability.</p> <p>The MSC audit team accept the decision of the stakeholders to postpone the development of the OMP for Nightingale as an appropriate response to circumstances outside the control of the fishery. It is important to note, however, that neither the MSC standard nor the condition on the fishery explicitly require an OMP. Rather they require a well-defined harvest control rule, to be implemented in a transparent way. As noted above, the Client Action Plan has been slightly revised further to the situation at Nightingale (Annex 3).</p>
Evidence provided	Johnson and Butterworth 2014b, discussions with MARAM; see also review of progress on this condition in Audit Report Year 2.
Conclusion of Year 3 audit	<p><u>Tristan</u>: The OMP is in place. The condition is therefore closed.</p> <p><u>Inaccessible and Gough</u>:</p> <ul style="list-style-type: none"> <li>• There is agreement in principle that OMPs will be implemented from the selection of candidate OMPs reviewed by MARAM;</li> <li>• Tristan Fisheries Department are waiting for all input to be available (including this audit report) before taking a final decision;</li> <li>• As at Tristan, the OMPs will be implemented for three years and then reviewed;</li> <li>• All the OMPs put forward for consideration by the Fisheries Department are consistent with the MSC standard and the precautionary approach, in the view of the audit team (although the selections of MARAM are appropriate).</li> </ul> <p>On this basis, the audit team concluded that the condition could be closed for Inaccessible and Gough.</p> <p><u>Nightingale</u>: The MSC audit team considered that the decision-making process in the Nightingale fishery since the <i>Oliva</i> constitutes a well-defined and transparent harvest control rule, even if it is necessarily reactive to data rather than proactive for a given period (as are the OMPs). This is demonstrated by the history of the setting of precautionary upper catch limits / TACs at Nightingale since the <i>Oliva</i>, as set out in Section 3.1 above. In each year, initial decisions and changes mid-season have been made following a recommendation, either by consensus at a workshop of all the main stakeholders (2011 and 2012) or by a recommendation of MARAM (2013), which has been accepted by the Tristan Fisheries Department. The basis for these recommendations in each case is clear, and has been based on a precautionary approach with the objective of rebuilding sustainable catch rates at Nightingale as quickly as possible.</p>

	On this basis, the team considered that this condition can be closed for Nightingale.
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## Condition 2

PIs	2.3.3 – ETP species, information
Issue	<p>The fishery should keep quantitative data on close interactions with ETP species. This can take the form of noting the number of sea birds interacting with the Edinburgh – either suffering mortality or being released following the bird release protocol. It can be included in the observer protocol, or carried out by any other convenient means, as long as the data are quantitative and credible. The data should periodically be reviewed to ensure that mortality on ETP species from this fishery remains low.</p> <p><i>Interactions with ETP species, primarily birds, need to be monitored and incorporated into the Observer and Fishing log books.</i></p>
Action Plan Year 1	Include sea bird interaction in Observer and Fishing Logbooks.
Actions during Year 1	A section on seabird interactions has now been included in the captain's logbook for the Edinburgh (it was considered more appropriate to include it here than in the observer data forms, because seabird interactions all take place at night when the observers are off duty, but when an officer is on duty) (logbook form provided in last year's report). A crew member patrols the vessel periodically during the night looking for seabirds on board and releasing them as necessary – this crew member notes down the data for inclusion in the logbook.
Action Plan Year 2	Review the monitoring of sea bird interaction with the vessels and gear to ensure that mortality on ETP species from this fishery can be quantified and, if necessary, mitigated.
Action during Year 2	<p>The data set for interactions of the Edinburgh with birds has been updated, and is the subject of a paper currently in press with the South African Journal of Marine Science (Glass and Ryan in press). Overall, 723 birds have been detected to be involved in strikes on Edinburgh in the last three seasons, of which 39 were killed. There were 170 strikes in 2012/13 – broadly similar to the 2010/11 season and lower than the 2011/12 season (during which there were a couple of incidents which required putting on deck lights at night). As in previous years, nearly all the interactions are with various species of petrels. All the species are listed as 'least concern' and mortality is &lt;0.1% of island populations (Glass and Ryan in press).</p> <p>Ovenstone noted that Belize (registered flag state of the FV Edinburgh) are requiring a move to electronic logbooks. It has not yet been decided whether the bird data will be incorporated into the electronic system, or be collected by</p>

	another method.
Action Plan Year 3	Continue data analysis and review mitigation measures based upon analysis outputs. Table the first annual report on the interaction between the fishing gear and benthic fauna and flora.
Action during Year 3	Electronic logbooks have been implemented, and take the form of the previous paper logsheet, with the bird data recording incorporated. Paper logsheets continue to be completed at the request of the Tristan Fisheries Department. Bird data continues to be recorded and was provided to the audit team. There were in total 84 interactions and 3 mortalities in the 2013-14 season. Birds are identified to species (see Annex 1).
Evidence provided	Bird data (Annex 1)
Conclusion of audit	The condition continues to be met as required and has been closed. It is recommended that in future reports, bird interactions are broken down by island, as per the data set in Annex 1.

### Condition 3

PIs	3.2.4 – Research plan
Issue	<p>The fishery should work with the Tristan Fisheries Department to review existing research and make an assessment of key gaps in knowledge of the target species, by-catch species, ETP species, habitats and the wider eco system. On the basis of this analysis, the fishery should develop a prioritised research plan indicating where actions can be taken and where resources will be allocated as and when they become available.</p> <p><i>The fishery should develop a formal, strategic research plan.</i></p>
Action Plan Year 1	<p>Liaise with Tristan Fisheries Department, MRAG and MARAM to</p> <ul style="list-style-type: none"> <li>○ Identify good practice from existing certified fisheries of a similar scale;</li> <li>○ Agree research and information requirements with the Fisheries Department and MARAM;</li> <li>○ Make use of the MRAG review to formulate a strategic research plan;</li> <li>○ Agree on priorities for research</li> </ul>
Actions during Year 1	<p>The Tristan Fisheries Department prepared a draft research plan based on the research priorities identified by the <i>Oliva</i> incident and by the MRAG review of MARAM's stock assessment work (provided in last year's report). The draft research plan has been reviewed by MARAM and Ovenstone, but has not yet been formally agreed by all stakeholders.</p> <p>The research priorities identified in the draft plan are the following:</p> <ol style="list-style-type: none"> <li>i. To continue with test fishing at Nightingale until commercial fishing operations resume;</li> <li>ii. To assess the feasibility of conducting regular juvenile surveys at</li> </ol>

	<p>Nightingale, Inaccessible and Tristan and the usefulness of the data collected;</p> <p>iii. To conduct further tagging at all islands;</p> <p>iv. To develop and implement appropriate Management Procedures in consultation with stakeholders with the objective of maintaining (or recovering, where the <i>Oliva</i> spillage has had a negative impact) the Tristan Lobster stocks close to the agreed target reference points, agreed by the Tristan Island Council and other stakeholders;</p> <p>v. To continue with work related to the monitoring of the stock.</p>
Action Plan Years 2-5	<ul style="list-style-type: none"> <li>• Document a strategic research plan and circulate to interested parties;</li> <li>• Commence implementation of the plan;</li> <li>• Commence dissemination of research results to interested parties as they became available;</li> <li>• Continue to review research issues and priorities based upon best available information;</li> <li>• Continue to implement the strategic research plan and to adapt it based on the review above.</li> </ul>
Actions during Year 2	<p>The research plan was reviewed and revised by the Tristan Fisheries Department during 2012/13, based on the evolution of the situation at Nightingale, the development of the OMP process and the recommendations of the November 2012 workshop. Progress in research (notably tagging) is set out above. Implementation of the research plan during 2013/14 and 2014/15 will be supported by a UK Darwin Initiative project, as outlined above.</p>
Action Plan Year 3	<ul style="list-style-type: none"> <li>• Document a strategic research plan and circulate to interested parties;</li> <li>• Commence implementation of the plan;</li> <li>• Commence dissemination of research results to interested parties as they became available;</li> <li>• Continue to review research issues and priorities based upon best available information;</li> <li>• Continue to implement the strategic research plan and to adapt it based on the review above.</li> </ul>
Actions during Year 3	<p>The research plan was again revised and updated. The main new points are the following:</p> <ul style="list-style-type: none"> <li>• the Darwin project (see last year's report) has started with the short-term inputs, but the lobster biologist post has not yet been filled;</li> <li>• the pre-season survey continues as before, however the mid-season survey has been discontinued because it was found that the data were not useful for stock assessment, because of difficulties in running it consistently from year to year;</li> <li>• catch monitoring (tonnage, effort, catch-at-size and sex ratios) continues;</li> <li>• the tagging programme (aimed at getting an improved growth model for each island) continues – there was some delay in the 2013-14 season because the Fisheries Department hoped to get advice from the biologist to be recruited under the Darwin project (see below) but since that post has not been filled, it was decided to continue with tagging as</li> </ul>

	<p>in previous seasons;</p> <ul style="list-style-type: none"> <li>• attempts continue to survey juvenile lobsters at Nightingale and Inaccessible by snorkel, but this is not straightforward;</li> <li>• interactions with birds continue to be recorded;</li> <li>• the MRAG review process of the stock assessment and OMP has been completed (see description above)</li> </ul> <p>Research priorities remain more or less the same as last year, but have been updated to reflect the progress made, as follows:</p> <ol style="list-style-type: none"> <li>To resume commercial fishing operations at Nightingale with caution;</li> <li>To assess the feasibility of conducting regular juvenile surveys at Nightingale, Inaccessible and Tristan and the usefulness of the data collected, (Darwin Marine Project);</li> <li>To conduct further tagging at Nightingale, Gough, Inaccessible and Tristan for the 2014/15 season;</li> <li>To develop and implement appropriate Management Procedure for Gough and Inaccessible, this season in consultation with stakeholders with the objective of maintaining the Tristan Lobster stocks close to the agreed target reference points, agreed by the Tristan Island Council and other stakeholders;</li> <li>To continue with work related to the monitoring of the stock.</li> </ol>
Evidence provided	Research plan (Annex 4)
Conclusion of audit	The condition continues to be met as required and has been closed.

#### Condition 4 – *de facto* condition

PIs	1.1.2 – Reference points
Issue	<p>While the MEP team agreed with MARAM that the stock status is likely to be around or above <math>B_{MSY}</math>, the level of information available was not sufficient to say with a high degree of certainty that this is the case.</p> <p><i>Appropriate reference points for the stocks should be defined according to PI 1.1.2 (target and limit reference points). Management interventions should be put in place as necessary aimed at moving the stocks towards or maintaining them at or above the target reference points.</i></p>
Action Plan Year 1	Consult with MARAM and Tristan Fisheries Department on the status of the work.



### Third Surveillance – Report for Tristan da Cunha rock lobster fishery

Actions during Year 1	Work by MARAM on identifying suitable reference points as part of the OMP has not progressed since the <i>Oliva</i> incident, for reasons noted under Condition 1 above.
Action Plan Year 2	MARAM and Tristan Fisheries Department to cooperate in developing initial target and limit reference points from the trial implementation of the age structured population model at all 4 Islands.
Actions during Year 2	<p>A target reference point has been defined for Tristan as part of the OMP (see discussion for Condition 1 above). This has been agreed to be a three-year running average CPUE of 1.16 kg/trap/hour – slightly above the current three-year running average level (see Figure 1). Target reference points will be defined in the same way for the other three islands over the next 1-2 years, as set out in the new agreed timetable for Condition 1.</p> <p>A formal limit reference point has not yet been agreed or incorporated into the OMP process. If the OMP functions as required, a limit reference point will not be needed, but Tristan Fisheries Department are considering the requirement for a CPUE level defining ‘exceptional circumstances’ – as an additional precautionary measure. Discussions are underway between Tristan Fisheries Department, MARAM and Ovenstone as to how to deal with this. Options under discussion are as follows:</p> <p>To define the limit reference points:</p> <ul style="list-style-type: none"> <li>• Observed low point in the CPUE time series (~0.5-0.6 kg/trap/hr) vs.</li> <li>• 95% confidence intervals on predicted CPUE by stock assessment model.</li> </ul> <p>The first has the advantage that it is fixed rather than variable, and can be easily interpreted by the Tristan community, while the second has the advantage of being more closely tied in with the OMP – i.e. it potentially indicates some issue that the OMP is not dealing with well.</p> <p>To agree the actions to be taken if the limit reference point is reached:</p> <ul style="list-style-type: none"> <li>• Some action within the OMP framework e.g. suspending the TAC constraint, increasing the value of <math>\alpha</math> etc., vs.</li> <li>• Suspending the OMP and agreeing a TAC via an alternative pre-agreed rule or via an ad hoc discussion process with stakeholders.</li> </ul>
Action Plan Year 3	<ul style="list-style-type: none"> <li>• MARAM and Tristan Fisheries Department to review and revise target and limit reference points based on ongoing scientific assessment and management procedure analyses.</li> <li>• MARAM and Tristan Fisheries Department to develop and implement appropriate the implementation of OMP in consultation with stakeholders for Inaccessible and Gough Islands as well as a transparent harvest strategy at Nightingale island</li> </ul>
Actions during Year 3	As noted above, similar OMPs have been agreed for Inaccessible and Gough. The formulation proposed by MARAM includes a metarule to adjust the TAC constraint at low catch rates, which provides more clearly defined limit reference point options compared to the Tristan formulation (although it is not

	<p>yet clear what precise OMP formulation will be implemented).</p> <p>In any case, the new iteration of the MSC standard (due out in August 2014) is likely to have the explicit requirement for a limit reference point removed (PI1.1.2). From what MEP understands, it seems likely that the implementation of harvest control rules as set out above will already meet the new requirements at the 80 level, although until the final wording is out, it is impossible to know for sure.</p>
Evidence provided	OMP process as set out above
Conclusion of audit	As noted above, the Action Plan for this ‘condition’ is informal and indicative. The MEP team does not see any reason for concern about the fishery meeting the requirements for re-certification.

## 6. TRACKING AND TRACING OF FISH PRODUCTS

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The Chain of Custody report for this fishery (MEP 2010) concluded that the fishery is low risk and that Ovenstone therefore do not require Chain of Custody certification.

There have been no significant changes in products sold or buyers. There is still no product entering the market as MSC labelled.

## 7. CONCLUSION

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MEP conclude from this audit that the Tristan da Cunha rock lobster fishery **should** remain MSC certified for another year. All conditions have now been closed.

In line with Section 8 below, the next annual surveillance audit will be due before the 20<sup>th</sup> June 2015. The Re-assessment process will also need to commence before this date (should the client wish to continue with MSC Certification).

## 8. SURVEILLANCE SCORE

In accordance with the MSC Certification Requirements, the frequency of future surveillance visits was calculated for this fishery. The overall surveillance score is calculated by adding the scores from and matching those with the Surveillance Level (see the tables below).

This fishery's score was calculated at 4, which implies a normal surveillance level with annual on-site surveillance audits.

### Criteria to determine Surveillance Score

Criteria	Surveillance Score	This Fishery
1. Default Assessment Tree used?		
Yes	0	2
No	2	
2. Number of conditions		
Zero conditions	0	0
Between 1 – 5 conditions	1	
More than 5	2	
3. Principle level Scores		
≥85	0	2
≤85	2	
4. Conditions on outcome PIs?		
Yes	2	0
No	0	
Total Score		4

### Surveillance level

			Years after certification or recertification			
Surveillance score (from Table C3)	Surveillance level		Year 1	Year 2	Year 3	Year 4
2 or more	Normal Surveillance		On-site surveillance audit	On-site surveillance audit	On-site surveillance audit	On-site surveillance audit & recertification site visit
1	Remote Surveillance	Option 1	Off-site surveillance audit	On-site surveillance audit	Off-site surveillance audit	On-site surveillance audit & recertification site visit
		Option 2	On-site surveillance audit	Off-site surveillance audit	On-site surveillance audit	
0	Reduced Surveillance		Review of new information	On-site surveillance audit	Review of new information	On-site surveillance audit & recertification site visit

## 9. REFERENCES

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Butterworth and Johnston 2013. Recommendation regarding a within-season amendment of the TAC for Nightingale for the 2013/14 fishing season. MARAM/Tristan/2013/Aug/11.

Edwards and Rademayer 2013. Fisheries Advice to the Tristan da Cunha Administration. Phase II: Development of a new management plan for rock lobster fisheries in the Tristan da Cunha archipelago. MRAG Ltd London, 23 pp.

Johnston 2014. Comparative plots of commercial CPUE and biomass survey index data (Leg1) for the Tristan da Cunha group of islands. MARAM/Tristan/2014/Mar/05.

Johnston and Butterworth 2014a. Updated observer catch-at-length data from the commercial fisheries at the Tristan da Cunha group of islands. MARAM/Tristan/2014/Jan/01.

Johnston and Butterworth 2014b. Initial OMP candidates for the Inaccessible and Gough rock lobster fisheries. MARAM/Tristan/2014/Feb/03/V11.

Johnston and Butterworth 2013. Further updates to the 2013 Tristan da Cunha rock lobster assessment. MARAM/Tristan/2013/Oct/13.

Johnston and Butterworth 2012. Projections of various TAC options at Inaccessible under various scenarios. MARAM/Tristan/2012/Nov/15.

## ANNEX 1 – BIRD INTERACTIONS FOR THE MOST RECENT FISHING SEASON

### Interaction with ETP Species report

#### 2013/14 Season

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**Seabird mortality in the Tristan rock lobster fishery:** The main impact of the fishery for Tristan rock lobster *Jasus tristani* on seabirds at the Tristan archipelago and Gough Island is through night strikes, when petrels collide with the ship after being disorientated by ships' lights. Consideration should be given to banning fishing operations at night, at least on misty nights. The captain and crew of the *Edinburgh* are fully aware of the problem, which usually occurs on misty foggy nights, when the weather changes and vessel has to move anchor to find another lee, and do their utmost to prevent any mortalities.

This brief report summarises bird strikes and resultant mortality caused by the Tristan rock lobster fishery over the last season 2013/14. Due to a paper being written last year (Seabird night strikes and mortality in the Tristan rock lobster fishery, 2010/11-2012/13, Glass & Ryan 2013) there will not be another for several years until enough data is collected for comparison to previous years and any changes to fishing operations.

Since the Tristan sea fishery officers/observers have had 100% observer coverage aboard the *M. V. Edinburgh* during all fishing operations. There had been a decline in the number of bird mortalities, and more awareness of the importance in keeping all deck lights off and portholes and windows closed and covered with blinds or curtains. Having the bird data included in the logbooks, is also a constant reminder to the night watchman to keep lights to the minimum.

There still appears to be some confusion with seabird identifications reported by fishery observers and night watchman, and it is the intention to have made small laminated books listed with about the 13 most common bird species that lands on the vessel for easier identification. This will be done as soon as funding is sourced. Table 1 shows the number of birds and the species that interacted with the vessel during the 2013/14 season and the mortalities.

### Acknowledgements

The fisheries department would like to thank Clarence October and the crew of the *M.V. Edinburgh* for their continuous support to the fishery observers whilst working on-board.

### Third Surveillance – Report for Tristan da Cunha rock lobster fishery

DATE	ISLAND	WHITE-BILLED STORM PETREL		WHITE-FACE STORM PETREL		DIVING PETREL PINNAMIN		LITTLE SHEARWATER		SOFT-PLUMAGED PETREL		BROAD-BILLED PRION		ANTARCTIC		ATLANTIC PETREL		SPECTACLED PETREL		KERGUELEN PETREL		SOUTHERN GIANT PETREL		PINTADO PETREL		TOTAL
		(STORM PIGEON)		(SKIP/JACK)		(FLYING PINNAMIN)		(WHISLER,NIGHTHAWK)		(LITTEST WHITEBREAST)		(WHALEBIRD)		PRION		(WHITE-BREAST)		(RINGEYE)		(BLUE/NIGHTHAWK)		(NELLIE, STINKER)		(CAPE PIGEON)		BIRDS
29/8/13	INACCESSIBLE	1	A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
30/8/13	INACCESSIBLE	2	A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2
4/9/13	INACCESSIBLE	1	D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
15/9/13	INACCESSIBLE	11	A	-	-	-	-	-	-	-	-	18	A	-	-	-	-	-	-	-	-	-	-	-	-	29
5/10/13	INACCESSIBLE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	A	-	-	-	-	-	-	-	-	3
6/10/13	INACCESSIBLE	-	-	-	-	-	-	-	-	-	-	2	D	-	-	-	-	-	-	-	-	-	-	-	-	2
7/9/13	INACCESSIBLE	-	-	-	-	-	-	-	-	-	-	7	A	-	-	-	-	-	-	-	-	-	-	3	A	10
12/10/13	INACCESSIBLE	-	-	-	-	-	-	-	-	-	-	13	A	-	-	-	-	-	-	-	-	-	-	-	-	13
8/12/13	INACCESSIBLE	-	-	-	-	-	-	-	-	-	-	3	A	-	-	4	A	-	-	-	-	-	-	-	-	7
TOTAL BIRDS		15		0		0		0		0		43		0		7		0		0		0		3		68
MORTALITY & OBSERVATIONS		14 Alive/ Released, 1 Dead		NONE		NONE		NONE		NONE		41 Alive/ Released, 2 Dead		NONE		7 Alive/ Released		NONE		NONE		NONE		3 Alive/ Released		
DATE	ISLAND	WHITE-BILLED STORM PETREL		WHITE-FACE STORM PETREL		DIVING PETREL PINNAMIN		LITTLE SHEARWATER		SOFT-PLUMAGED PETREL		BROAD-BILLED PRION		ANTARCTIC		ATLANTIC PETREL		SPECTACLED PETREL		KERGUELEN PETREL		SOUTHERN GIANT PETREL		PINTADO PETREL		TOTAL
		(STORM PIGEON)		(SKIP/JACK)		(FLYING PINNAMIN)		(WHISLER,NIGHTHAWK)		(LITTEST WHITEBREAST)		(WHALEBIRD)		PRION		(WHITE-BREAST)		(RINGEYE)		(BLUE/NIGHTHAWK)		(NELLIE, STINKER)		(CAPE PIGEON)		BIRDS
1/9/13	TRISTAN	1	A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
TOTAL BIRDS		1		0		0		0		0		0		0		0		0		0		0		0		1
MORTALITY & OBSERVATIONS		1	1 Alive/ Released	NONE		NONE		NONE		NONE		NONE		NONE		NONE		NONE		NONE		NONE		NONE		
DATE	ISLAND	WHITE-BILLED STORM PETREL		WHITE-FACE STORM PETREL		DIVING PETREL PINNAMIN		LITTLE SHEARWATER		SOFT-PLUMAGED PETREL		BROAD-BILLED PRION		ANTARCTIC		ATLANTIC PETREL		SPECTACLED PETREL		KERGUELEN PETREL		SOUTHERN GIANT PETREL		PINTADO PETREL		TOTAL
		(STORM PIGEON)		(SKI/JACK)		(FLYING PINNAMIN)		(WHISLER,NIGHTHAWK)		(LITTEST WHITEBREAST)		(WHALEBIRD)		PRION		(WHITE-BREAST)		(RINGEYE)		(BLUE/NIGHTHAWK)		(NELLIE, STINKER)		(CAPE PIGEON)		BIRDS
23/9/13	GOUGH	-	-	-	-	4	A	-	-	-	-	1	A	-	-	-	-	-	-	-	-	-	-	-	-	5
28/9/13	GOUGH	-	-	-	-	1	A	-	-	-	-	1	A	-	-	-	-	-	-	-	-	-	-	-	-	2
22/11/13	GOUGH	-	-	-	-	-	-	1	A			-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
12/2/14	GOUGH	-	-	-	-	-	-	-	-	-	-	1	A	-	-	-	-	-	-	-	-	-	-	-	-	1
20/2/14	GOUGH	-	-	-	-	-	-	-	-	-	-	1	A	-	-	-	-	-	-	-	-	-	-	-	-	1
TOTAL BIRDS		0		0		5		1		0		4		0		0		0		0		0		0		10
MORTALITY & OBSERVATIONS		NONE		NONE		5 Alive/ Released		1 Alive/ Released		NONE		4 Alive/ Released		NONE		NONE		NONE		NONE		NONE		NONE		
DATE	ISLAND	WHITE-BILLED STORM PETREL		WHITE-FACE STORM PETREL		DIVING PETREL PINNAMIN		LITTLE SHEARWATER		SOFT-PLUMAGED PETREL		BROAD-BILLED PRION		ANTARCTIC		ATLANTIC PETREL		SPECTACLED PETREL		KERGUELEN PETREL		SOUTHERN GIANT PETREL		PINTADO PETREL		TOTAL
		(STORM PIGEON)		(SKIP/JACK)		(FLYING PINNAMIN)		(WHISLER,NIGHTHAWK)		(LITTEST WHITEBREAST)		(WHALEBIRD)		PRION		(WHITE-BREAST)		(RINGEYE)		(BLUE/NIGHTHAWK)		(NELLIE, STINKER)		(CAPE PIGEON)		BIRDS
6/9/13	NIGHTINGALE	-	-	-	-	-	-	-	-	-	-	1	A	-	-	-	-	-	-	-	-	-	-	-	-	1
7/9/13	NIGHTINGALE	-	-	-	-	-	-	-	-	-	-	1	A	-	-	-	-	-	-	-	-	-	-	-	-	1
8/9/13	NIGHTINGALE	-	-	-	-	-	-	-	-	-	-	1	A	-	-	-	-	-	-	-	-	-	-	-	-	1
TOTAL BIRDS		0		0		0		0		0		3		0		0		0		0		0		0		3
MORTALITY & OBSERVATIONS		NONE		NONE		NONE		NONE		NONE		2 Alive/ Released		NONE		NONE		NONE		NONE		NONE		NONE		



### Third Surveillance – Report for Tristan da Cunha rock lobster fishery

#### Summary of Bird Strike Data

<b>BIRD SPECIES</b>	<b>TOTAL BIRDS</b>
WHITE-BILLED STORM PETREL ( <i>STORM PIGEON</i> )	16
WHITE-FACE STORM PETREL ( <i>SKIPJACK</i> )	0
DIVING PETREL PINNAMIN ( <i>FLYING PINNAMIN</i> )	5
LITTLE SHEARWATER ( <i>WHISLER, NIGHTHAWK</i> )	1
SOFT-PLUMAGED PETREL ( <i>LITTEST WHITEBREAST</i> )	0
BROAD-BILLED PRION ( <i>WHALEBIRD</i> )	50
ANTARCTIC PRION	0
ATLANTIC PETREL ( <i>WHITE-BREAST</i> )	7
SPECTACLED PETREL ( <i>RINGEYE</i> )	0
KERGUELEN PETREL ( <i>BLUE NIGHTHAWK</i> )	0
SOUTHERN GIANT PETREL ( <i>NELLIE, STINKER</i> )	0
PINTADO PETREL ( <i>CAPE PIGEON</i> )	3
GRAND TOTAL	82
MORTALITY & OBSERVATIONS	78 Alive/ 4 Dead

## ANNEX 2 – LETTER FROM TRISTAN DIRECTOR OF FISHERIES RE COMPLIANCE BY OVENSTONE



Dr. Jo Gascoigne  
MacAlister Elliot and Partner Ltd  
56 High Street, Lymington  
Hampshire SO41 9AH  
United Kingdom

5<sup>th</sup> May 2014

DIRECTOR OF FISHERIES  
TRISTAN DA CUNHA  
SOUTH ATLANTIC OCEAN  
TDCU 1ZZ  
(via Cape Town, RSA)  
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### MSC ANNUAL AUDIT OF THE TRISTAN DA CUNHA FISHERY

In relation to Tristan's third annual audit for the MSC certification on the 9<sup>th</sup> - 13<sup>th</sup> June, I can confirm that Ovenstone have been operating to the concession agreement and according to our licensing requirements.

There have been no incidents or issues of non-compliance since certification, and the Tristan Fisheries Department and the community in general are happy with the way things are going in the fishery.

A research plan was presented at the last audit, and has been updated. A Darwin Marine project is currently underway at Tristan since February this year, with biologists working with the Fisheries Department on a contract basis until 2015, during this time we hope to finalise the research plan going forward.

MARAM's work, which was to look at Harvest Control Rules (HCR) and Operating Management Procedures (OMP), is still ongoing, last year it was implemented at Tristan and it is hoped that they will be put in place this season, for Gough and Inaccessible. MARAM's recommendations will be presented at the MSC audit in June, and will be discussed with the Fisheries Director who will present it to the Fishing Committee and Island Council in July on his return to Tristan, so that everyone will be on-board prior to setting the TAC's for the 2014/15 season.

This season 2013/14 we have been using the new design logbooks for a second season to include bird data, which will be updated. As a scientific paper was written up by the Fisheries department and

### **Third Surveillance – Report for Tristan da Cunha rock lobster fishery**

Percy FitzPatrick Institute, UCT Cape Town last year, there will be several years before enough data is collected to compile another.

Yours sincerely,

A handwritten signature in black ink, appearing to read 'J. Glass', is shown within a light gray rectangular border.

James Glass

## ANNEX 3 – REVISED CLIENT ACTION PLAN

### *Tristan Lobster Fishery MSC Assessment*

#### *Client Action Plan - Revised 26 May 2014*

Ovenstone Agencies (Pty) Ltd welcomes the positive outcome of the MSC assessment of the Tristan Lobster Fishery. Ovenstone undertakes, in cooperation with the Tristan da Cunha Government, to implement this Action Plan in response to the three conditions raised by the assessment team.

The fishery was certified with three formal conditions. These are as follows:

- Condition 1: The fishery needs a more formal and transparent harvest control rule;
- Condition 2: The fishery should record quantitative data on interactions with ETP species (birds);
- Condition 3: The fishery should prepare a formal research plan;

#### **Action 1: Condition 1 – PI 1.1.2**

The assessment report states that:

While the team agreed with the MARAM stock assessment team that the stock status is likely to be around or above  $B_{MSY}$ , the level of information available was not sufficient to say with a high degree of certainty that this is the case.

*Within three years, appropriate reference points for the stocks should be defined according to PI 1.1.2 (target and limit reference points). Within five years there should be management interventions in place as necessary aimed at moving the stocks towards or maintaining them at or above the target reference points.*

#### **Action Plan**

The definition of appropriate reference points for the Tristan lobster stocks is central to the work being undertaken by MARAM and the Tristan Fisheries Department under Condition 2 below. This work is ongoing. Work on this condition started in Year 1, but progress was delayed due to the Oliva incident. A revised time table for the completion of the work on this condition was agreed between the Certifying Body (CB-MEP) and Client (Ovenstone and Tristan Fisheries Department) as detailed below:

### Third Surveillance – Report for Tristan da Cunha rock lobster fishery

Our time scale for action will be:

#### Year 1

#### Action

- September 2011 – June 2012
- Consult with MARAM and Tristan Fisheries Department on the status of the work.

#### Year 2

- July 2012 – June 2013
- MARAM and Tristan Fisheries Department to cooperate in developing initial target and limit reference points from the trial implementation of the age structured population model at all 4 Islands. Agree and implement a Harvest Control Rule (HCR) through an Operational Management Procedure (OMP) for Tristan Island

#### Year 3

- July 2013 – June 2014
- MARAM and Tristan Fisheries Department to review and revise target and limit reference points based on ongoing scientific assessment and management procedure analyses.
  - MARAM and Tristan Fisheries Department to develop and implement appropriate the implementation of OMP in consultation with stakeholders for Inaccessible and Gough Islands as well as a transparent harvest strategy at Nightingale<sup>1</sup> island

#### Year 4

- July 2014 – June 2015
- Agree and implement an appropriate OMP for Nightingale, such that by Year 4 (the start of the recertification process) the fisheries at all 4 islands have functional OMPs.

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<sup>1</sup> Harvest Control Rules are implicit in the OMPs. For Nightingale Island a harvest strategy will be implemented that is consistent with the OMPs for Gough and Inaccessible Islands but which additionally takes into account the uncertainty associated with the impact of the *MV Olivia* grounding.

## Action 2: Condition 1 – PI 1.2.2

The assessment report states that:

While the team agreed that the harvest control approach had been successful up till now, it is not considered to be sufficiently well defined or transparent. This means that should a difficult situation arise (such as an unexplained decline in CPUE) it might be difficult for the Tristan management authorities to take appropriate decisions to sustain the optimal social and economic benefits derived from the fishery.

*The management authorities need to define in advance the rules for setting the TACs under various circumstances. These rules should be transparent and accepted by all parties in the fishery.*

### Action Plan

We will continue to support the research of MARAM, who are working with the Tristan Fisheries Department towards the development of transparent harvest control rules (management procedures) for the Tristan Fishery. As stated in the assessment report, this work is ongoing and at an advanced stage of development.

Our time scale for action will be:

#### Action

August 2010

- Consult with MARAM and Tristan Fisheries Department on the status of the work.

### Year 1

2011 – June 2012

- MARAM and Tristan Fisheries Department to cooperate in completing the refinement of the age structured population model being applied to the Nightingale data and then extend it to the other 3 islands. Variants of these models for each island will then be used as the operating models for simulation testing of alternative candidate control rules for each island. Ultimately one such rule will be selected for each island to achieve the desired trade-off between the objectives of improved future catch levels (with their associated socio-economic benefits) and low risks of unintended resource depletion. A process of consultation amongst all stakeholders in the fishery will

take place to choose amongst the options for HCRs, given their different anticipated performances indicated in simulation trials, so as to best achieve the trade-offs desired by those stakeholders.

## **Year 2**

July 2012 – June 2013

- First trial implementation of the chosen harvest control rule for Tristan to generate the TAC recommendation for the 2013/14 season.

## **Year 3**

July 2013 – June 2014

- Continue to collate the fisheries dependent and independent data for incorporation into the age structured model. Continue to develop the age structured model and agree and implement the harvest control rules for Inaccessible and Gough Islands and Nightingale (with modification and a precautionary approach) and generate TACs for 2014/15 season.

## **Year 4**

July 2014 – June 2015

Agree and implement the HCRs and OMPs for all Tristan Island fishery areas and review all the chosen rules to ensure they remain appropriate for the status of the fishery at each Island.

### **Action 3: Condition 2. PI 2.3.3**

The assessment report states that:

The fishery should keep quantitative data on close interactions with ETP species. This can take the form of noting the number of sea birds interacting with the Edinburgh – either suffering mortality or being released following the bird release protocol. It can be included in the observer protocol, or carried out by any other convenient means, as long as the data are quantitative and credible. The data should periodically be reviewed to ensure that mortality on ETP species from this fishery remains low. Further to the above, observations of fishing impacts on benthic fauna and flora will be measured to ensure that the habitat is not impacted by the fishing gear.

*Interactions with ETP species, primarily birds, need to be monitored and incorporated into the Observer and Fishing log books.*

### **Action Plan**

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We will liaise with the Tristan Fisheries Department to include close seabird interactions with the vessels in the Observer reports.

We will instruct the officers of the Edinburgh and any other fishing vessels deployed in the future to log interactions with sea birds in the fishing logbook. Observers will monitor interactions between the fishing gear and the benthic fauna and flora and table an annual report.

#### Year 1

#### Action

August – September 2011

- Include sea bird interaction in Observer and Fishing Logbooks.

#### Year 2

July 2012 – June 2013

- Review the monitoring of sea bird interaction with the vessels and gear to ensure that mortality on ETP species from this fishery can be quantified and, if necessary, mitigated.

#### Year 3 – 5

July 2013 onwards

Continue data analysis and review mitigation measures based upon analysis outputs. Table the first annual report on the interaction between the fishing gear and benthic fauna and flora.

### Action 4: Condition 3 – PI 3.2.4

The assessment report states that:

The fishery should work with the Tristan Fisheries Department to review existing research and make an assessment of key gaps in knowledge of the target species, by-catch species, ETP species, habitats and the wider eco system. On the basis of this analysis, the fishery should develop a prioritised research plan indicating where actions can be taken and where resources will be allocated as and when they become available.

*The fishery should develop a formal, strategic research plan.*

#### Action Plan

We are pleased that the assessment team has highlighted this.

1. We already support research aimed at developing transparent harvest control rules.



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2. The Tristan Island Council has recently formulated a Strategic Development Plan that recognises the need for a long term strategy for the management of the lobster resource to ensure that optimal social and economic benefits continue to be derived from the fishery.
3. The Tristan Island Council has recently commissioned MRAG to review the Tristan Lobster management system and the scientific work and resource management advice provided by MARAM. One outcome of this review will be advice on the long term strategy and objectives of research on the lobster fishery.

We, and the Tristan Fisheries Department, recognise that our work to develop a formal, strategic research plan will need to meet SG80 requirements identified by the MSC, which are to provide:

- A strategic approach to research;
- Reliable and timely information to guide management;
- Results that are disseminated to interested parties in a timely fashion.

Our timescale for action to achieve these goals will be:

#### **Year 1**

#### **Action**

August 2011 – July 2012

- Liaise with Tristan Fisheries Department, MRAG and MARAM to
  - Identify good practice from existing certified fisheries of a similar scale;
  - Agree research and information requirements with the Fisheries Department and MARAM;
  - Make use of the MRAG review to formulate a strategic research plan;
  - Agree on priorities for research.

#### **Year 2 – 5**

July 2012 onwards

- Document a strategic research plan and circulate to interested parties;
- Commence implementation of the plan;
- Commence dissemination of research results to interested parties as they became available;
- Continue to review research issues and priorities based upon best available information;
- Continue to implement the strategic research plan and to adapt it based on the review above.

## ANNEX 4 – REVISED RESEARCH PLAN

4<sup>th</sup> May 2014

### Tristan lobster fishery research plan

#### **1. Research conducted and Data Collected**

**Fisheries- independent surveys:** Annual biomass surveys are carried out from the *MV Edinburgh* at each island. These surveys since 2006 were previously carried out twice per season, prior to the start of the fishing season and after completion of quotas. Fishing 4 transects at Nightingale, 5 transects at Inaccessible and 8 transects at each of Gough and Tristan with each round of fishing. Now due to the inconsistent (different months, etc) of the end of season survey, this one has been discontinued. The *MV Edinburgh* sets 9 small mesh (50mm) traps (monster) per line at selected depths along transects perpendicular to the coast at each island. The catch rate information resulting from these transects will shortly be incorporated into assessments as an additional index of abundance, as well as the size distribution of the catches which, because of the smaller lobsters taken by the small-meshed traps will also give an improved indication of incoming recruitment. At a later stage, the planned Management Procedure for the resource may be refined to include these data as well as CPUE as indices of abundance.

**Catch monitoring:** Commercial CPUE is constantly monitored and all catch and effort data are submitted to MARAM for GLM standardisation before input to assessment models. Future work will attempt stratification at a smaller spatial scale. Approximately 5000 random samples are collected at each island every season to monitor sex ratios and size at maturity with the aim of improving the biological information base on which management is based. This data also provide size composition data which are used as input to the assessment model. In combination this data also provide information on the volume and size composition of discards, which is also taken into account in the assessment model.

**Tagging:** As part of the remedial action to manage the impact of the *Oliva* casualty, a tagging program was implemented at Nightingale, Inaccessible and Tristan in January 2012. The objective is to collect growth data (currently limited) which will improve the age structured assessment model presently being refined by MARAM. It is the intention to conduct further tagging on a regular basis at all islands in the future. Over time this information will also be input to the assessment model as the recaptures will provide independent information on the magnitude of fishing mortality.

Tagging for the 2013/14 season was going to be delayed until the Fisheries post under the Darwin Plus project was fulfilled. However, the fisheries post was not filled during the latter

part of 2013 as planned so 2000 lobsters were tagged at Gough Island in November - December during the 2013/14 season. In January two biologist came to Tristan to complete the Gough Marine survey and spent a few months at Tristan, although neither of them have had any experience of tagging, so could provide no further recommendations, than what is currently being done. Two types of tags were ordered and have arrived at Tristan, these will be used during the 2014/15 fishing season, hopefully starting when the fisheries biologist with tagging experience comes down in September 2014.

**Test Fishing:** Following the grounding of the *MV Oliva* on 16 March 2011 and the subsequent closure of fishing at Nightingale, the fishery has been closely monitored beginning with a series of test fishing, and trial commercial fishing which has now cease. Given that catches from the 2012/13 season were excellent, the Fisheries Department considered it is safe to reopen the fishery at Nightingale, but to adopt a precautionary approach, so the TAC for Nightingale for the 2013/14 season was set at 65 mt, which was easily caught. The same approach was applied to Inaccessible, setting a TAC of 70 mt which was also caught. The setting of the TAC at Nightingale will continue to be closely monitored, until there is a series of CPUE data that can determine that it is safe to do otherwise.

**Juvenile lobster assessment program:** Independent juvenile count studies were carried out at Nightingale in January (Juvenile Report 2013), and it was the intention to carry on for another year, so that the biologist (Darwin Project) station on the island in consultation with the Fisheries Department would determine the viability of such surveys and establish whether a continued juvenile survey program should be carried out to obtain a better understanding of juvenile abundance and trends at these islands both in terms of measuring the impact of the *Oliva* on the larval and juvenile life stages at Nightingale and Inaccessible, and providing insight into the longer term recruitment dynamics in this fishery. If the results are positive it will be incorporated into the Marine Management Plan. No experimental trap fishing with smaller mesh <50 has been carried out to date as planned. However, due to the Gough survey this year during January-February and other commitments only two transects were done at Nightingale (Juvenile survey report 2014).

**Data collection ETP species:** The Tristan Fisheries Department participates in the ACAP process, including on-going collection of data on seabirds and seabird interactions with the fishery a paper -Seabird night strikes and mortality in the Tristan rock lobster fishery, 2010/11-2012/13 was produce last year. Data recording birds landing on the fishing vessel has been incorporated into the fishing logbooks.

**Review of stock assessment and management frameworks for the Tristan da Cunha lobster fishery:** The fishery is undergoing review by the Marine Stewardship Council (MSC),

which will provide feedback on the current stock assessment and management frameworks. The stock assessment is conducted by the Marine Resource Assessment and Management group (MARAM) at the University of Cape Town, with updated assessments presented to the MSC during the review process. Following the MSC review, assessments will be finalised and form the basis of an Operational Management Procedure (OMP) for the fishery.

Last year the OMP was discussed by all stakeholders and recommendations for the HCR was put in place for Tristan, The Total Allowable Catch (TAC) is based on a 3-year averaged Catch Per Unit Effort (CPUE) with an inter-annual TAC change constraint of  $\pm 5\%$ , and will run for three years. Once developed, it will provide management advice for the fishery. MRAG in UK supported the management process by reviewing each stage of its development, in two stages;

1: to examine the stock assessments for each of the islands as they were produced by MARAM.

2: to examine the OMP itself and providing an independent opinion on its suitability as a management framework. The OMP was then given approval by the Tristan Island Council.

During the MSC audit in June 2014, it is the intention to discuss the development of OMP/HCRs for Gough and Inaccessible. Nightingale's OMP/HCR will have to be developed with caution, due to the wreck of the *Oliva* and recovery of the fishery.

## **2. Objectives**

To continue to collect fisheries dependent and independent data for incorporation into the age structured assessment model.

To review and revise target and limit reference points based on on-going scientific assessment and management procedure analyses.

To review the Tristan Lobster management system and the scientific work with the fisheries biologists (Darwin Project).

To formulate a Strategic Development Plan approved by the Island Council that recognises the need for a long term strategy for the management of the lobster resource (to be effected through the development and implementation of Management Procedures) to ensure that optimal social and economic benefits continue to be derived from the fishery.

New electronic fishing logbooks were introduced at the start of the 2013-2014 season, and works well, although the fisheries department wish to remain with the printed logbooks until further notice.

### 3. Research Priorities

Research priorities have been set based upon an analysis of data requirements to fill gaps in the knowledge and management of the fishery. However, given the results of the test fishing at Nightingale the impacts of the *Oliva* is not as critical as previously thought, but should still be monitored. Key areas that have been identified are:

- The casualty on the larval and juvenile life stages at Nightingale and Inaccessible;
- The impact of the *Oliva* casualty on the adult population at Nightingale;
- Tagging and data collection by way of a biological sampling program to improve lobster growth rate assessment, a key input function for the resource modelling work;
- Data collection to improve knowledge of larval settlement and juvenile recruitment.

Based on the above, the research priorities are set out below:

- vi. To resume commercial fishing operations at Nightingale with caution;
- vii. To assess the feasibility of conducting regular juvenile surveys at Nightingale, Inaccessible and Tristan and the usefulness of the data collected, (Darwin Marine Project);
- viii. To conduct further tagging at Nightingale, Gough, Inaccessible and Tristan for the 2014/15 season;
- ix. To develop and implement appropriate Management Procedure for Gough and Inaccessible, this season in consultation with stakeholders with the objective of maintaining the Tristan Lobster stocks close to the agreed target reference points, agreed by the Tristan Island Council and other stakeholders;
- x. To continue with work related to the monitoring of the stock.

Future research/monitoring by the Fisheries Department have now become easier, after the purchase of a 8.5m RIB, although we have not had it operating for a full fishing season yet.

The Darwin Marine project (**Sustainable management of the marine environment and resources of Tristan da Cunha**) is currently underway and will run to December 2015.

Having a biologist resident on Tristan is going to help training of islanders in species recognition, dive surveys and monitoring techniques, so building capacity to be better able to respond to any future events which may threaten the marine environment. The main activities of the Darwin funded project are shown in Table 1, of which some overlap with Tristan's lobster fishery research plan.



Table 1: Activities to be conducted during the implementation of the Darwin Marine Project at Tristan da Cunha

Project summary	Measurable Indicators	Progress and Achievements April 2013 - March 2014	Actions required/planned for next period
<p><b>Goal/Impact</b></p> <p>The marine and terrestrial environments are managed for the conservation of wildlife and sustained incomes of the local population adaptively and responsively to threats of climate change and man-made disasters</p>		(report on any contribution towards positive impact on biodiversity or positive changes in the conditions of human communities associated with biodiversity e.g. steps towards sustainable use or equitable sharing of costs or benefits)	
<p><b>Purpose/Outcome</b></p> <p>The project will increase our understanding of the functioning of the marine ecosystems of the Tristan islands, and local capacity will be built to take better informed decisions on the sustainable management of the lobster resource and conservation of the wider marine environment, including tackling threats from the introduction of alien species,</p>	<p>Tristan da Cunha (TDC) government continues implementing surveys once project is completed in scientifically robust way.</p> <p>Management plan utilised by TDC Government and resource users.</p> <p>Modifications to fisheries</p>	<p>In its first 3 months of field operation, the project team have completed the Gough survey which is a major milestone. Efforts will now be made to increase the pool of local divers and train more local people in survey techniques to allow future sustainability. Initial research on the</p>	<p>Review of fisheries data collection and storage carried out</p> <p>Further research on <i>Jasus tristani</i> life cycle</p> <p>Further research on other key marine species and habitats, and interactions with lobsters</p>

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pollution from shipping incidents and climate change	management arising from results of project research	Tristan lobster has started and will be continued.	Standard Operating procedures for surveys produced, and confirmation of monitoring methodologies  Marine contingency plan refined and training delivered on implementation  Training delivered to larger pool of Tristan divers.
<b>Output 1.</b>  1. Information base for sustainable marine and fishery resource management developed	Survey data for the 4 islands presented in reports by mid year 2  Species lists compiled for the 4 islands by mid year 2	The Gough survey has been completed and new survey work undertaken at Nightingale and Tristan. Reports of this work are in preparation, and species lists will be included. This indicator will be met, but it doesn't fully capture the work on <i>Jasus tristani</i> being undertaken by the project.	
Activity 1.1 Research on the biology of Tristan lobster (larval and juvenile stages) completed to assist fishery management		Started: monitoring of juvenile lobsters in rock pools at Nightingale and Tristan underway, and pueruli settlement traps constructed and deployed.  Lobster diet experiments (laboratory) begun.	
Activity 1.2 Status of alien introductions from rig and Oliva wreck established; eradication attempted if feasible		Dive at <i>Oliva</i> site completed and photos/video taken; mussels removed. Dive at oil rig is high priority for next period. Status of porgy fish being assessed.	



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Activity 1.3 Shallow subtidal sites surveyed on Gough by diving (complementing EIDP023 work on “top islands”)		Completed – report in preparation.
Activity 1.4 Identification of Tristan marine species by experts is continued and species lists are compiled		Contract for sponge identification let; other samples en route to UK and experts to be identified for further work in the next period.
<b>Output 2.</b> Capacity built for sustainable marine & fishery management	Five Islanders able to undertake marine survey work & complete survey forms, recognise potential alien species by mid year 2	Two islanders participated in the Gough survey and project diving work and are developing good skills. Refresher training is needed for other local divers and is planned for next period.
Activity 2.1 Training provided for a range of islanders in marine survey work, data collection, recognition of potential alien species, as well as building dive experience of local divers.		Training has focused on two members of the Fisheries Department so far, but opportunities are being sought to expand to more local divers. Local research training is being investigated for the next period.
Activity 2.2 Training provided for fisheries officers in data acquisition and processing		Basic training in some loggers and software has been provided, but more is planned for the next period.
<b>Output 3.</b> Capacity increased for marine incident response	Five personnel trained on survey/response following an incident by quarter 1 of year 2  Detailed contingency plan produced and consulted locally by mid year 2	This plan will be developed in conjunction with a plan being developed for oiled wildlife response through a separate project (RSPB-funded). This should be on track for delivery as in the indicators.

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Activity 3.1 Detailed contingency plan produced and consulted locally,		Draft contingency plan for introduced species in the marine environment will be refined and expanded in the next period.
Activity 3.2 Local personnel trained on survey/response following a future incident		Not started – will be begun in the next period.
<b>Output 4.</b> Capacity to assess effects of climate change in the marine environment enhanced	Methodology developed and tested by End of Project  Five islanders trained in the implementation of the methodology by End of Project	Establishing monitoring sites is at an early stage ,as is assessing potential methods that will be easy for the local team to repeat. The indicator still seems appropriate.
Activity 4.1 Toolkit and methodology developed and tested to monitor the impact of climate change on the marine environment.		Assessment of potential monitoring sites and methods has begun; suitable monitoring sites have been identified on Gough and Tristan. Developing the toolkit and methodology will be progressed in the next period.
Activity 4.2 Training of selected islanders involved in marine survey work		Basic in-water training has been provided to two local divers (as above); this will be expanded in the next period.
<b>Output 5.</b> Marine management plan developed for Tristan da Cunha	National workshops well attended by all local stakeholders including scientific, conservation, fisheries and general public.  External consultation process completed by End of Project  Management plan document	This work is yet to start and will commence in the final year of the project; all information collected by the project team will feed into the marine management plan. The indicator seems appropriate.

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	completed by End of Project	
Activity 5.1. National workshop organised and held to develop management and zonation plan for the marine environment that draws together previous and ongoing data and studies		Not started yet.
Activity 5.2. Consultation process with external marine experts in the UK		Not started yet.