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Towards a Tristan da Cunha 'Blue Belt' Marine Protection Strategy

Meeting Report

Meeting held on the 10th July 2018 at the Foreign and Commonwealth Office, London

Document Control

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Author	Date	Summary of changes	Version
Hannah Thomas	12 July	Initial draft developed, with individual presentation summary reviews received from RSPB, BAS, Cefas and MMO	0.1
Hannah Thomas	6 August	MMO comments addressed. Executive summary inserted, with supplementary information moved to annexes.	0.2
Oliver Yates	9 August	Comments and edits from Cefas participants	0.2
Hannah Thomas	3 October	Cefas/MMO comments and edits addressed	0.3
Hannah Thomas	9 October	Additional Cefas/MMO comments addressed. Final draft produced.	0.4
Hannah Thomas	20 October	RSPB edits incorporated	0.5

Acronyms

BAS	British Antarctic Survey
CEFAS	Centre for Environment, Fisheries and Aquaculture Sciences
FCO	Foreign and Commonwealth Office
IMO	International Maritime Organisation
IUU	Illegal, Unreported and Unregulated (fishing)
MMO	Marine Management Organisation
MCA	Maritime and Coastguard Agency
MPA	Marine Protected Area
PSSA	Particularly Sensitive Sea Area
RSPB	Royal Society for the Protection of Birds
TdC	Tristan da Cunha
TdCG	Tristan da Cunha Government

Executive Summary

As part of the UK Government's Blue Belt Programme, the Government of Tristan da Cunha (TdCG) has committed to adopting a marine protection strategy by 2020. In July 2017, a workshop developed an action plan to fill existing scientific evidence gaps and to establish key milestones towards the development of its marine protection strategy. On 10th July 2018, the TdCG Administrator convened a follow-up meeting for Blue Belt partners and stakeholders from FCO, Cefas, MMO, BAS and RSPB **to discuss progress and consider options for a marine protection strategy**.

Updates from stakeholders based on work conducted over the preceding 12 months suggested three biologically important ecosystems within the TdC EEZ for consideration within any marine protection strategy: the inshore ecosystems around islands; the seamount ecosystems; and the offshore ecosystems that constitute the majority of the EEZ.

The **inshore ecosystems** are known to be important for marine biodiversity (including seabirds and mammals) and are protected by a management zone 50 nm around each island, within which only lobster fishing is permitted under licence, plus some subsistence fishing by the Tristan da Cunha community and the crew of the single licenced lobster vessel.

The importance of **seamount ecosystems** for marine biodiversity was reaffirmed via aggregated species distribution maps revealing "hotspots" for several vulnerable species of seabirds and fur seals. Research survey results from the RRS *James Clark Ross* (JCR) identified biodiversity associated with the seamounts was dominated by pelagic silver fish above the seamounts, and a benthic community that includes Vulnerable Marine Ecosystem (VME) indicator species. Several species of cetacean were sighted around the seamounts, and commercially important finfish species recorded via fishing surveys were predominantly bluenose warehou and rose fish.

Offshore ecosystems, particularly areas in the north west of the EEZ that were not associated with any known geographical features, were identified as important habitat for seabirds at specific times of year. Preliminary results of satellite-tracked blue and mako sharks showed that tagged individuals spent more than 60% of their time in the Tristan EEZ. More comprehensive evidence was required to evaluate the importance of the offshore area for biodiversity.

The **principle threats to biodiversity** in the Tristan EEZ are benthic trawling and longline fishing on the seamounts and the potential incidents arising from international shipping traffic passing close to the islands. An interim evaluation of the commercial fishery catch and survey data indicates that recent catches of bluenose warehou are unlikely to be sustainable and precautionary catch limits have been provided to TdCG for consideration. Preliminary results indicate trawling may impact VMEs on the seamounts, whilst longline fishing has a seasonally high level of seabird bycatch. Further conservation measures are required to reduce those impacts, and education and awareness should improve handling and live release of sharks. Investigations have identified that vessel management via a mandatory PSSA is not possible without the extension of SOLAS to Tristan da Cunha, the conditions of which may be prohibitively difficult for TdC to comply with.

Based on the available evidence, the workshop discussed **options for a marine protection strategy** that would enable Tristan da Cunha to protect the vulnerable species and ecosystems whilst maintaining sustainable fishing. The relative benefits of designating a marine protected area (MPA) compared with a broader spatial planning approach were discussed.

The workshop participants agreed that to support an evidence-based decision on the most appropriate marine protection strategies for Tristan da Cunha, the Island Council would benefit from an **Evidence and Options Paper** outlining the growing body of relevant research and presenting marine management options.

Background

In September 2016, the UK Government made a commitment to establishing protection for 4 million square kilometres of ocean around the UK Overseas Territories (UKOTs)¹ by 2020. To achieve this goal, the Foreign and Commonwealth Office (FCO) tasked the Centre for Environment, Fisheries and Aquaculture Science (Cefas) and the Marine Management Organisation (MMO) with supporting the UKOT governments to deliver the 'Blue Belt Programme', conducting scientific research and developing bespoke management and enforcement strategies for each of the UKOTs. The Blue Belt Programme works alongside, and in partnership with, several non-governmental organisations and national programmes that are also providing support to the UKOTs for protection and sustainable use of their marine environments.

The Government of Tristan da Cunha (TdCG) has committed to adopting a marine protection strategy by 2020. In July 2017, TdCG convened a three-day workshop to establish current knowledge of the Tristan da Cunha (TdC) marine environment, develop an action plan to fill information gaps, and plot a course for a 2020 declaration of a marine protection strategy that would allow for the sustainable development of TdC fisheries (Blue Belt 2017). The Blue Belt Programme and partners have been following the action plan established in the 2017 workshop, undertaking the necessary scientific surveys and analyses, and investigating the possible management options. Much of this work is still ongoing.

The TdCG Administrator Sean Burns visited the UK in July 2018 and convened a one-day meeting for TdC Blue Belt Programme, partners and stakeholders from FCO, Cefas, MMO, BAS and RSPB to discuss progress on the action plan and to consider possible options for a marine protection strategy.

This report presents summarised points from presentations and discussions during that meeting. For brevity, acronyms have been used, and are written in full on the inside cover page. Participants are listed in Appendix 1 and the draft agenda circulated prior to the meeting can be found in Appendix 2.

Session 1: Review of work completed to date

Presentations were given by representatives of the RSPB, BAS, Cefas and MMO to highlight work undertaken in the preceding 12 months (see Appendix 3). A summary of the salient points of the presentations with potential management implications is as follows:

Seabirds:

- Within the TdC EEZ, aggregated seabird data show that the 50 nm mile zone and seamounts are important for multiple species of seabirds (e.g. Atlantic yellow-nosed albatross; Tristan albatross; great shearwater; Northern rockhopper penguin; spectacled petrel) and fur seals;
- In the Northwest of the EEZ there are two areas favoured by multiple species ('honeypotting') but the reason for this is not yet known. There are also pelagic areas of apparent significance in the East of the EEZ, potentially influenced by being at the end of the Walvis Ridge;
- In the austral Autumn season, the hotspots change to reveal a focus on Yakhont, McNish and RSA seamounts, but these results demonstrate strong movement patterns in particular species, rather than a location shift for all species;

Other species:

- A significant proportion of lobster larvae return to settle on one of the four TdC islands.
- Shark satellite tracking revealed pelagic sharks spent >60% of their time in the TdC EEZ.
- Research survey results from the RRS *James Clark Ross* (JCR) identified biodiversity associated with the seamounts was dominated by pelagic silver fish above the seamounts.

¹ St Helena, Ascension & Tristan da Cunha; British Indian Ocean Territory; Pitcairn; South Georgia & the South Sandwich Islands; British Antarctic Territory

Rose fish were identified (in addition to bluenose) as one of the most commonly occurring commercially important finfish species on the seamounts.

Bluenose warehou:

Preliminary data from bluenose longline monitoring and fishing surveys suggest several important aspects for consideration:

- The current level of exploitation of bluenose is likely to be unsustainable. High levels of resource extraction from each seamount in turn represents a boom and bust fishery;
- Bluenose populations around the TdC islands may not be repopulating the seamounts, meaning that seamounts may need to be treated as separate stocks;
- High levels of seabird bycatch occurs during the chick-provisioning period and pre-migration;
- Continuing the bluenose tagging programme is critical to confirm exchange of adults between the seamounts;
- Preliminary analysis of the impacts of trawling on Vulnerable Marine Ecosystems (VMEs) conducted on board the RRS *James Clark Ross* show the abundance of VME was six times higher in areas that were not trawled recently, compared with frequently trawled areas;
- A hiatus in trawling would permit the use of limited effort from longline fishing to establish sustainable catch limits for the fishery;
- If trawling is permitted to continue, it is recommended that immediate measures are introduced to reduce the impact on VMEs, these being: VME encounter rules, improved reporting by vessels and the establishment of a fishing 'footprint', where trawling is only permitted where the habitat has already been exposed to trawling pressure;
- Implementing a seasonal closure of the longline fishery would prevent seabird bycatch during the most sensitive period;
- Undertaking an analysis of shark and seabird bycatch to determine the contributory factors (e.g. season, depth, hooks, gear configuration) would support the development of appropriate mitigation measures.

Compliance and enforcement for fishing activity:

- A compliance and intelligence hub has been established with the National Maritime Information Centre (NMIC) to monitor Illegal, Unreported, and Unregulated (IUU) fishing activity;
- Flag States are now contacted with regard to possible infringements of state-flagged vessels so that appropriate enforcement action can be undertaken;
- A programme of satellite surveillance is now underway, involving the collation and analysis of satellite data to identify high risk areas for IUU fishing activity and to support the process of investigating illegal activity in TdC waters.

Other human activities:

- Designating a PSSA and its associated protection measures in TdC waters would require TdCG to be a signatory to the IMO Convention on Safety of Life at Sea (SOLAS). As TdC is not a SOLAS signatory, current work is assessing the SOLAS obligations in more detail and looking at other options;
- A parallel assessment of domestic legislation currently in place reveals that new legislation would be necessary to implement a shipping no-go area (or other similar measures) within Territorial Waters (<12nm from shore).

Session 2 – Possible marine protection strategies

Participants were invited to consider possible management measures for TdC waters that would address the key threats to TdC's important biodiversity and habitats whilst permitting revenue from sustainable fisheries. The subsequent discussion focused upon the **key elements likely to form any marine protection strategy for TdC**: appropriate protection measures for each of the key ecosystems – inshore, seamount and offshore; and maintaining sustainable fisheries – before considering the **possible strategies that could deliver the objectives** and their relative merits.

Protecting inshore ecosystems

There are **existing management measures** currently in place which restrict fishing activity to lobster fishing using traps and hoop nets within 50nm of the TdC islands. These measures are already contributing significantly to marine protection.

Protecting seamount ecosystems

The seamounts in TdC waters are important areas for biodiversity and management measures currently in place do not sufficiently mitigate against the impacts of trawling and longlining, particularly on VMEs, seabirds and sharks.

With regard to **spatial protection for fish populations**, the evidence gathered so far suggests that bluenose populations on individual seamounts may be isolated and therefore self-sustaining (i.e. one seamount population may not repopulate another), which would require a precautionary management regime for individual seamounts. The trade-offs associated with full or partial seamount fishing restrictions were discussed.

Seamounts are highly sensitive habitats, particularly vulnerable to damage by trawling. **Measures to protect vulnerable benthic habitats** include enforcing move-on rules where threshold limits of VME indicator species are caught, or limiting fishing to areas that are less sensitive or have been impacted beyond recovery already. Implementing longlining poses a much lower risk to vulnerable benthic habitats.

Seamounts are very **important foraging areas for seabird and seal populations**. Longlining can present a significant threat to important seabird populations, if not properly managed. In some cases, where seabird abundance is extremely high, technical mitigation measures are simply not enough, and a seasonal restriction on fishing activity is required. The evidence to date suggests certain seabird species are highly aggressive between February and May, during chick provisioning and pre-migration. This makes them particularly susceptible to longline fishing. A seasonal closure would immediately limit the impact on those seabird species during this period, and more data collection would confirm the most appropriate combination of conservation measures when fishing is permitted.

Protection measures are required for sharks caught in trawl nets (typically bottom-dwelling six-gill sharks) and on longlines. If sharks are caught alive, then provision of guidance is important to ensure crew are aware how to release them safely (e.g. from the hauling bay) and observer presence is needed to ensure the measures are followed.

The long-term management of fisheries involves an iterative process of implementation, review and adjustment of conservation measures. Prior to making any long-term decision, it was noted that understanding the **benefits and disadvantages of different approaches to management of the seamount areas** would help support the TdC Island Council make informed decisions.

Protecting the wider offshore ecosystems

With the exception of the seamounts, there have been no surveys of the offshore habitats and it was not possible to conclude what levels of protection would be most appropriate. Historic human activities in these areas were limited to pelagic fishing for tuna species, which would not impact the benthic habitats.

The **Southern bluefin tuna** quota is managed by the Commission for Conservation of Southern Bluefin Tuna (CCSBT). Closing Tristan waters to fishing for southern bluefin tuna would not affect existing CCSBT quota allocation and would not serve as a whole-life cycle sanctuary for such a highly

migratory species. However, by managing the tuna fishing within the TdC EEZ, it could be possible to regulate tuna fishing carefully through licence conditions and positively influence the management of tuna fishing elsewhere by engaging with CCSBT Member States to improve fishing practices. This would depend on there being sufficient demand for licences to be able to leverage wider change.

As TdC waters support a high abundance of **seabirds**, it would be important to ensure any licenced tuna fishing vessels adhere to strict conservation measures and carry observers, as they present a significant risk of seabird bycatch. Where such conditions present challenges (e.g. practicalities of getting observers on board, ability to assess compliance with the licence conditions), alternative options could be considered (e.g. 100% electronic monitoring on vessels, as adopted in Australia).

Maintaining sustainable fisheries

The TdC Island Council have been clear that they wish to maintain a sustainable fishery or fisheries on the seamounts or elsewhere in the EEZ. Such fisheries would provide an additional income and an important second revenue in case the existing lobster fishery became less socio-economically viable. If there was a desire to re-establish a fishery that had previously been closed, the group discussed how a marine protection strategy might support such a change in management measures.

It was noted that **management plans within any marine protection strategy** can, and should, be reviewed at regular intervals, and that a significant change in management could be incorporated into such a review process. While some management plan review cycles are short (e.g. 2-3 years), others can be very long (e.g. 20 years) so it would be necessary to consider an appropriate review cycle for TdC.

Given that developing a fishery has inherent risks to biodiversity, an **Environmental Impact Assessment (EIA)** or similar mechanism would be advisable prior to the change in management to ensure any potential impacts are effectively mitigated against.

Possible protection strategies

To explore the possible management configurations that would make up any marine protection strategy in more detail, participants were invited to describe their ideas, which included various different management configurations, such as no-take zones, fisheries zones and other possible resource use areas (see Appendix 4).

Key discussion points raised were:

- A no-take zone covering (for example) 96% of the EEZ but excluding the inshore and seamount areas would not mitigate the current threat caused by fishing, as current fishing operations are only associated with those habitats;
- To develop an effective marine protection strategy, fishery impacts need to be managed on the seamounts in order to tackle the real and significant threats, rather than declaring a no-take zone where very limited impacts occur;
- A significant no-take zone protecting representative habitats could prove very effective at leveraging further long-term funding to Tristan for marine management;
- Closing one of the seamounts entirely to fishing would likely reduce the Total Allowable Catch (if seamount populations are isolated), which could potentially affect the economic potential of the fishery;
- Compliance with some of the proposed licence conditions would likely be dependent on sufficient demand for fishing within TdC waters, though this is not currently a prospect.
- Designating a single, large MPA would be comparable with the South Georgia & South Sandwich Islands marine protection strategy, safeguarding key habitats and biodiversity whilst ensuring sustainable fishing is permitted to generate long-term income for the island;
- A spatial planning approach identifying one or more MPAs as well as separate fisheries management zones could also be considered by the Island Council.
- Any designation of MPAs would make a significant contribution toward reaching the CBD 2020 marine protection targets;

- The wording of the Blue Belt mandate had been purposefully unspecific in order to provide flexibility for TdCG to determine which marine protection strategy they consider to be the most appropriate

Session 3 – process and timings for establishing a marine protection strategy

Having considered options for a marine protection strategy, the discussion focused upon how and when the appropriate strategy would be decided upon. The TdCG Administrator advised the group that the TdC Island Council will be meeting in November, and the marine protection strategy issue will be introduced at that meeting. More detailed information can then be provided for the TdC Island Council to make further decisions in 2019. The group agreed that this decision should be as evidence-based as possible. It was noted that the structure and delivery of an Evidence and Options Paper is being discussed within the Blue Belt workplan to support the TdC Island Council decision-making process. The proposed structure and broad content of a marine management plan could be included in the Evidence and Options Paper for the Island Council to consider, and as results from supporting research become available, they could be added into the appropriate sections.

The TdC Administrator thanked all participants for their contributions and drew the meeting to a close.

Appendix 1: Participants

Participant	Institute & Position/ Area of Expertise
Barnes, David	BAS – Marine ecologist
Bamford, Kylie	FCO – Head of Conservation for the Overseas Territories
Bell, James	Cefas – Fisheries & ecosystem scientist
Burns, Sean	FCO – Tristan da Cunha Government, Administrator
Collins, Martin	Cefas – Programme Director, Blue Belt Programme
Hall, Jonathan	RSPB – Head of Overseas Territories
McGuinness, Mark	FCO – Tristan da Cunha Desk Officer
Carnegie, Chris	FCO – Tristan da Cunha UK Representative
McPherson, Katie	MMO – Blue Belt Head of Compliance & Enforcement
Morley, Simon	BAS – Marine ecologist
Schofield, Andy	RSPB – UK Overseas Territories Officer
Steinfurth, Antje	RSPB – Centre for Conservation Science, Conservation Scientist
Stockill, Joanna	MMO – Head of Blue Belt Integrated Marine Management
Thomas, Hannah	MMO – Blue Belt Integrated Marine Management
Yates, Oliver	Cefas – Cefas Lead on TdC Blue Belt Work

Appendix 2: Draft Workshop Agenda

Chair: Sean Burns

11:30 Arrival and coffee

12:00 Introduction (15 minutes)

Sean Burns (Chair) will provide opening remarks. Rapporteurs will be assigned to record discussions for sections of the agenda.

12:15 Session 1 (1 hour): Review work completed to date

Brief updates on progress made against the main priorities established in the FCO workshop held in July 2017. To minimise the time required for presentations, reference to background documents is encouraged (circulated prior to meeting).

12:15 – 12:30 - RSPB

12:30 – 12:45 - BAS

12:45 – 13:15 - Bluebelt Programme (CEFAS/MMO)

13:15 Lunch (30 mins)

13:45 Session 2 (1 hour): Marine protection design options

Discussion will be held on the potential design options and associated implications for management that may be relevant for Tristan da Cunha, based on existing examples of marine protection strategies and with consideration of Tristan's unique set of circumstances.

Output: An outline of an 'Options paper' presenting possible spatial management configuration options to inform a decision by the Tristan da Cunha Island Council on an appropriate marine protection strategy (MPA configuration or marine plan), for Tristan da Cunha.

14:45 Session 3 (45 mins): Marine protection process and timings

The eventual marine protection strategy will be supported by a marine management plan in some form (MPA management plan or marine spatial plan), which will incorporate relevant information from a group of stakeholders. The timings associated with developing the plan and a period for consultation need to be established, taking into consideration the Tristan da Cunha Island Council schedule of meetings.

Output: A road map for development and consultation of the marine management plan.

15:15 Wrap up and final remarks (Sean Burns)

15:30 Close

Appendix 3: Summary of talks

These summaries reflect the content of the talks given by each of the presenters and do not necessarily represent the position of the TdCG, the FCO or any of the other participants.

[Andy Schofield \(RSPB\) – with input from Antje Steinfurth \(RSPB\)](#)

Andy outlined the methodological challenges involved with seabird GPS tagging and analysis of tracking data into time spent per survey area unit by species. He described the RSPB's bird, shark and mammal tracking data in TdC waters, and he highlighted that since the entire EEZ is very important for multiple species, these data have been analysed according to their significance in order to draw out the specific areas that are of particular importance. He and Antje provided interpretations:

- Within the TdC EEZ, 50 nm mile zone and seamounts are very important for multiple species of seabirds (e.g. Atlantic yellow-nose albatross; Tristan albatross; great shearwaters; Northern rockhopper penguin; spectacled petrel) and fur seals during the breeding season.
- In the Northwest of the EEZ there are two particular areas that are favoured by multiple species ('honeypotting') but the reason for this is not yet known
- In the austral Autumn season, the hotspots change to reveal a seabird focus on Yakhont, McNish and RSA seamounts, but these results demonstrate strong movement patterns in particular species, rather than a location shift for all species.
- Shark tagging data reveals that in general sharks follow fishing vessel routes, but some do spend considerable time (several months) around the TdC seamounts before moving considerable distances towards mainland Africa.
- Given the multi-species approach taken for this particular analysis, it was not possible to distinguish individual annual life-cycle phases e.g. incubating, chick-rearing etc. but the year was divided into quarters/seasons (spring, summer, autumn, winter). If there is interest and/or conservation concern for a specific species, this analysis should be at the species-level.
- The northern rockhopper penguin on Nightingale Island is the only species for which sufficient GPS data are available during winter. During this time they show high variability in foraging locations across the EEZ (hot spots around the islands and east of the EEZ), while birds from Gough Island travelled south/southeast towards and across the Sub-Antarctic Front. Northern rockhoppers on Gough start breeding a month later than populations on the northerly islands and the incubation period falls into the defined spring season. Breeding cycle discrepancy would need to be considered when looking into temporary fisheries closures to benefit given species.
- An overarching scientific paper is now being written up for submission to a peer-reviewed journal.

[Simon Morley \(BAS\)](#)

Simon presented a summary of the James Clark Ross research cruise which targeted TdC Blue Belt priorities. The survey focused on the seamounts to explore the potential to develop a fishery and to manage the associated biodiversity. He described the particular species that had been sighted around the seamounts (killer whale; shepherd's beak whale) and described the distinctive patterns of bird movements around the seamounts that should influence management decisions. He provided an overview of the breadth of work done:

- acoustic monitoring and recording of marine mammal vocalisations;
- swath bathymetry to survey the offshore area (complementing the existing inshore survey results) that particularly targeted Yakhont (E & W) and Crawford (E & W) seamounts;
- sea floor photographs demonstrating the seamount biodiversity;
- small benthic and pelagic trawls and acoustic surveys of the seamounts;
- bongo netting for zooplankton and Avani trawls sampling the surface for plastics and larvae;
- pelagic camera trapping for sharks and other pelagic species;

- Conductivity-Temperature-Depth (CTD) surveys to model the oceanography of the region
- Simon highlighted the results from the larval dispersal studies, which revealed that a significant proportion of lobster larvae return to settle on TdC islands, whereas bluenose larvae are currently predicted to spend an extra six months in midwater and therefore are almost all dispersed away from TdC. This result might suggest that new bluenose arrivals come from South America (or elsewhere). Ongoing analysis aims to provide advice to TdCG about indicators of health in their marine ecosystem and provide the evidence for designation of further marine protection.

James Bell (Cefas)

James described Cefas work investigating and reviewing the bluenose fishery (longline and trawling) and assessing the impact of the trawl fishery. Preliminary results were presented:

Bluenose fishery review

- Three distinct periods of bluenose catch can be seen from the data: an initial but short fishing period that represents the greatest tonnage (almost 800 tonnes in 1997-98, mostly taken by demersal trawls); a subsequent period between 2000-01 that builds up steadily to 400 tonnes in 2005-06 before ceasing in 2007-08 and a third phase between 2014-15 to the present. This pattern appears to represent a cycle of boom and bust in a long-lived fishery, which would ideally be avoided if the fishery were to be sustainably managed;
- Longline surveys were undertaken at RSA and McNish seamounts and around Gough Island to obtain standardised estimates of abundance. Previously, the assumption was that there is bluenose population around Gough Island that helps sustain the stocks on the seamounts but preliminary data suggest this may not be the case, and that seamount stocks may be self-sustaining, which has clear implications for management decisions;
- Work has been done to improve the capacity of TdC observers on vessels and several trips have been observed by Cefas scientists;
- Preliminary recommendations to the TdCG from the work so far are:
 - Continuation of the tagging programme would be beneficial;
 - A comparative assessment of bycatch would provide evidence for management options (e.g. seasonal closures); and
 - Precautionary catch limits and bycatch reduction targets would reduce the risk of overexploiting the bluenose stock and causing associated mortality of non-target species.

Trawl fishing impact assessment

- Trawling has been undertaken intermittently in the TdC EEZ since 1997-98, with the most recent period starting 2014-15 and focusing on the Yakhont and McNish seamounts;
- A trawl fishing survey involved bathymetric surveys, topographic modelling, fishing data, and camera and trawl samples;
- Results highlighted that abundance of Vulnerable Marine Ecosystems (VMEs) was six times higher in areas that were not trawled, which would suggest that trawling is removing VME indicator species, but these analyses are still ongoing and conclusions are not yet quantitative;
- Precautionary recommendations from this work are:
 - Prohibiting trawling until the fisheries assessment work is complete would significantly reduce the risk of overexploitation before conclusions can be made;
 - VME encounter rules and improved reporting by vessels would reduce the impact on biodiversity, should trawling be permitted to continue;
 - Establishing a fishing 'footprint' that identifies area already exposed to trawling pressure would also reduce the impact, should it be permitted to continue.

Discussion: With regard to using significance to identify drivers of change, it was suggested that looking at effect size would be more important than significance, as very highly significant drivers may

only have a very small impact and management decisions should be based upon mitigating the effects that have the greatest impact, even if the uncertainty is still considerable. The tagging programme is principally aimed at establishing whether or not adult fish exchange between each of the seamounts where fishing occurs. One concern about the tagging programme is that Ovenstones are reluctant to fish at Crawford seamount and if there is no catch at Crawford, it will not be possible to determine whether any tagged fish have moved to this seamount. A further concern about bottom trawling is that the levels of removal of target species are unsustainable.

Hannah Thomas and Katie McPherson (MMO)

MMO had focused upon three priority areas that had been identified in the July 2017 workshop, and progress against each was described in turn. Hannah described progress towards **developing a Particularly Sensitive Sea Area (PSSA)** to protect important and vulnerable biodiversity from the risk of shipping-related collisions. The key points were:

- Possible shipping management measures within a PSSA would be a Traffic Separation Scheme (TSS) to manage the heavy vessel traffic across the north of the EEZ, and an appropriate Area To Be Avoided (ATBA) to form a no-go zone for ships around the islands in the TdC archipelago;
- Designating a PSSA and its associated protection measures in TdC waters would require being a signatory to the IMO Convention on Safety of Life at Sea (SOLAS), as the appropriate instrument for regulating international vessel traffic, and having the associated domestic legislation in place. TdC has not currently had SOLAS extended to it so current work is looking at assessing the obligations associated with having SOLAS extended to cover TdC;
- A parallel assessment of domestic legislation currently in place reveals that new legislation would be necessary to implement a shipping no-go area (or other similar measures) within Territorial Waters (<12nm from shore).

Katie described the work underway to establish a **surveillance and enforcement strategy** for TdC, which included the following points:

- A compliance and intelligence hub has been established with the National Maritime Information Centre (NMIC) to monitor real-time Illegal, Unreported, and Unregulated (IUU) fishing activity;
- Flag States are now contacted with regard to possible infringements of state-flagged vessels so that appropriate enforcement action can be undertaken;
- A programme of satellite surveillance is now underway, involving the collation and analysis of satellite data to identify high risk areas for IUU fishing activity and to support the process of investigating illegal activity in TdC waters.

Hannah discussed the **options for an appropriate marine protection strategy** for TdC, which included the following points:

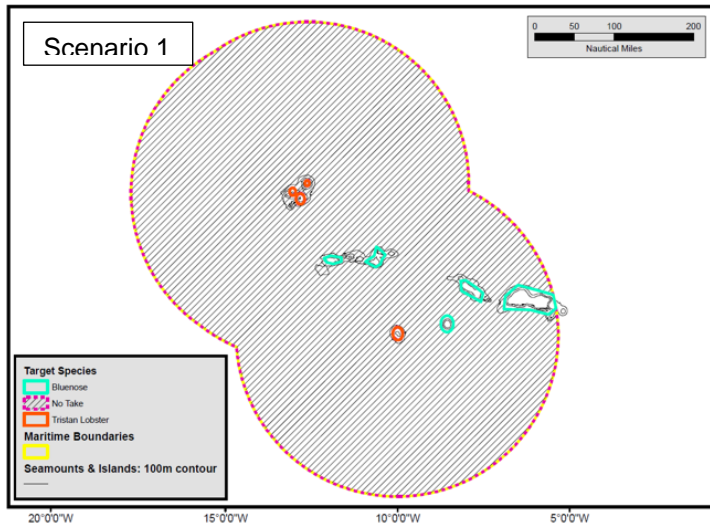
- Marine Protected Areas (MPAs) are a very effective tool where the primary objective is conserving biodiversity. Useful examples of very large scale MPAs that have incorporated sustainable use are South Georgia & the South Sandwich Islands MPA, and the Great Barrier Reef Marine Park;
- A marine spatial planning approach is gaining huge support internationally as a tool for delivering biodiversity and ecosystem protection alongside sustainable resource use (e.g. fishing). Seychelles have designated their entire EEZ as a marine spatial plan, including several very large MPAs for biodiversity, and specific zones for fisheries management and sustainable tourism development;
- Both options could be considered by TdC as effective ways to deliver biodiversity protection and sustainable resource use. MMO have agreed with TdCG they will develop a draft paper for the Island Council to describe these approaches and to highlight the possible pros and cons of applying each one in various contexts.

Appendix 4: Suggestions for management scenarios

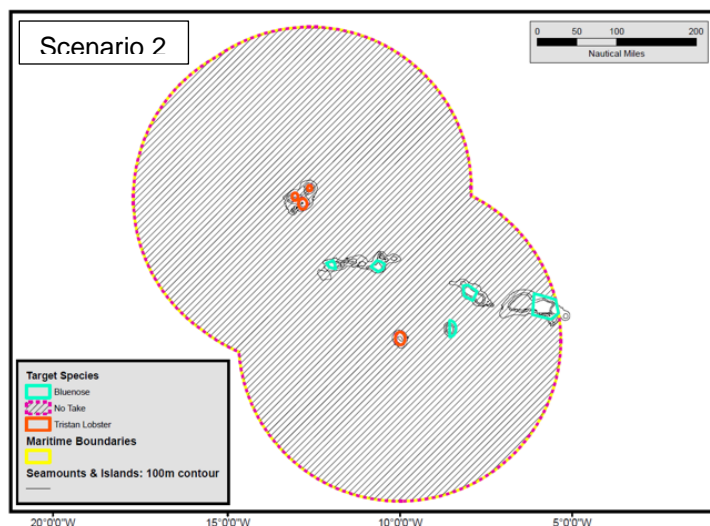
During the course of the meeting, participants were invited to sketch out some thoughts as to what spatial management measures might look like. Two participants – James Bell (Cefas) and Jonathan Hall (RSPB) – offered some ideas. Their ideas are presented here, but these do not necessarily represent the views of the wider group and are not Blue Belt Programme suggestions.

Suggestion 1

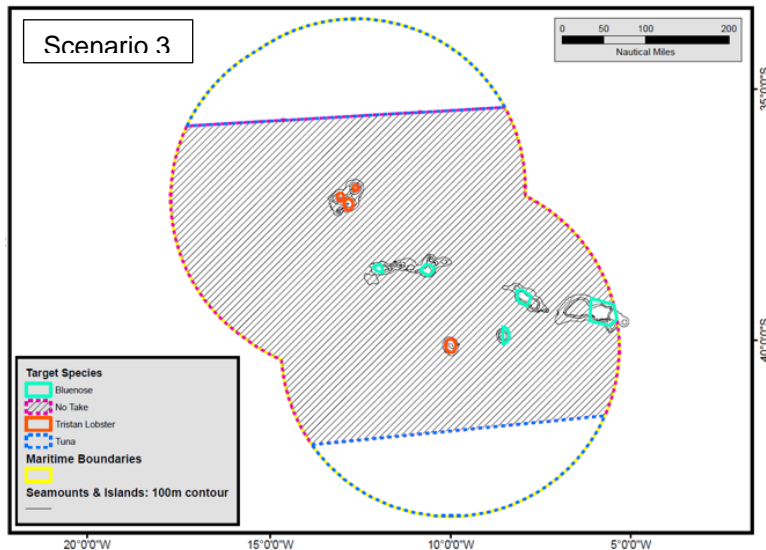
James Bell (Cefas) suggested three possible spatial fisheries management scenarios for TdC:



The first scenario suggested a zoned MPA across the entire EEZ that permitted lobster potting around the islands, bluenose fishing over the seamounts, and remaining area as a no-take area.



The second scenario suggested a very similar zoned MPA configuration, with the same zones for lobster fishing, but with bluenose fishing zones covering only half of any permitted seamount (to take account of the possibility that there was no exchange of adult bluenose between the seamounts). The remaining area was suggested as no-take.



The third scenario suggested a smaller zoned MPA covering the central section (including the same lobster and bluenose areas as the second scenario, and with the remaining area as a no-take), and then two pelagic fishing zones for albacore and Southern bluefin tuna occupying the (non-MPA areas) in the north and south.

Suggestion 2

Jonathan Hall (RSPB) presented some thoughts on possible management measures for biodiversity and fisheries, which identified the following suggested areas for inclusion within a marine protection strategy for the TdC EEZ:

Jonathan suggested that designating the entire EEZ as a zoned MPA would bring the most long-term benefits for Tristan and would be a more appropriate option than Marine Spatial Planning. He considered that five-year reviews would be a crucial component of this, as would be long-term UK Government funding for surveillance and enforcement.

Jonathan suggested the design of such a MPA could look as follows:

- Category 6 Sustainable Use Areas
 - o Lobster and potential future fishing areas out to 12nm around the four islands
 - o Bluenose fishing areas on the seamounts
 - o Potential 'community insurance area' for possible future tropical tuna fishery
- Category 1 Fully-Protected Areas for Representative Protections
 - o Formalise TdCG visionary existing 12-50nm strict protections around all four islands
 - o At least one of the four main seamounts as representative protection / an insurance refuge (which one tbc depending on Discovery results)
 - o Representative large pelagic areas in northern and southern eco-regions (south of Gough could potentially incorporate a 'Southern Bluefin Tuna Sanctuary')
 - o An area to representatively encompass some of the rich and dynamic frontal system

Management of such a MPA could look as follows:

- Shark sanctuary- i.e. a ban on the targeted killing, taking and possessing of sharks (Tristanians do not eat shark, and emulates existing protections in Ascension)
- Seasonal fishing closure of seamount fishery for seabird bycatch (timing tbc)
- 100% observer coverage on fisheries
- Ban on purse-seining and associated FADs
- All fisheries to explicitly have to aim for MSC certification
- A possible 'community insurance area' specifically left closed as back-up until new fishery criteria fulfilled:
 - o Legal requirement for compulsory pilot period, based on MSC pre-assessment criteria, before permanent licensing
- Resource rent reviews: ensure Tristan's licence fees bear a fair relation to market value
- Major decision urgently needed by Tristan Council on ending bottom-trawling, which a destructive practice that garners high-profile and many concerns, especially on seamounts....