

# ***South Georgia & the South Sandwich Islands Marine Protected Area 5-year Review***

## ***Report to the Government of South Georgia and the South Sandwich Islands***

This report has been compiled by the Independent Chair of the Advisory Group to synthesis the outcomes and advice provided by the Advisory Group through the MPA Review Process (August 2017 – September 2018).

### Context of the Review

The South Georgia and South Sandwich Islands Marine Protected Area (SGSSI MPA) was established in 2012 to protect and conserve the region's rich and diverse marine life, whilst allowing sustainable and carefully regulated fisheries. A set of objectives was established against which the effectiveness of the MPA could be assessed. Further protection measures were introduced in 2013. The South Georgia and the South Sandwich Islands Marine Protected Area Management Plan was published in 2013 and is available on the [GSGSSI website](#).

The objectives of the SGSSI MPA are to:

- conserve marine biodiversity, habitats and critical ecosystem function
- ensure that fisheries are managed sustainably, with minimal impact on associated and dependent ecosystems
- manage other human activities including shipping, tourism and scientific research to minimise impacts on the marine environment
- protect the benthic fauna from the destructive effects of bottom trawling
- facilitate recovery of previously over-exploited marine species
- increase the resilience of the marine environment to the effects of climate change
- prevent the introduction of non-native marine species

The Government of South Georgia and the South Sandwich Islands (GSGSSI) committed to undertake a review of the effectiveness of the SGSSI MPA every 5 years.

GSGSSI established an ad-hoc Advisory Group to oversee the first review due in 2018 and to provide advice for consideration by the Government. GSGSSI appointed an independent chair to manage the review process and provided the secretariat to support the chair in conducting the review.

### Advisory Group and Terms of Reference for the Review

GSGSSI established four Terms of Reference (TOR) for the Advisory Group:

- TOR 1: Consider how scientific understanding of the South Georgia Maritime Zone has developed since 2013
- TOR 2: Provide any initial evidence-based assessment of the effectiveness of current management measures and advice on the degree to which evidence might support any revisions to management measures
- TOR 3: Review, and assess the effectiveness of, existing monitoring measures for evaluating the extent to which the objectives of the sustainable use MPA are met
- TOR 4: Contribute to priorities for future scientific research, including any new research and monitoring that may be necessary

The Advisory Group comprised experts from the key sectors engaged with South Georgia and the South Sandwich Islands covering the following sectors:

- Scientific representation
- NGO representation
- Fishing Industry representation
- Tourism Industry representation

The full list of the Advisory Group members is included as Annex 1.

## Summary of Activities Comprising the Review

GSGSSI invited written submissions from stakeholders to inform the review process in August 2017, and there was a second call on the GSGSSI website for any additional information in June 2018. All submissions received are available on the GSGSSI website (see Supplementary Materials).

Two 2-day evidence-based workshops were hosted at the British Antarctic Survey (BAS) in Cambridge in November 2017 and June 2018. Participation in the first workshop confined to the Advisory Group members. For the second workshop the Chair and Secretariat invited other stakeholders to present relevant information for the Review. The Secretariat set-up a Dropbox account to which all the Advisory Board members had access and used this as a repository for all the information relevant to the Review process.

To inform the first workshop a Background Paper was prepared collating relevant evidence based on current research, bringing together information gathered through a Darwin Plus funded workshop hosted at BAS in May 2017 on existing datasets and research activities. This Background Paper was updated with new information that became available between the two workshops. This comprised both published papers and presentations by invited experts to the second workshop. The Background Paper has been updated to take account of this new evidence and any commercially sensitive or confidential information removed before making it public. It will be made available on the GSGSSI website ([www.gov.gs/](http://www.gov.gs/)).

The Chair and the Secretariat produced a Record of each workshop. These Records were circulated to Advisory Board members for review. Comments, omissions and corrections received from the Advisory Board members were incorporated into an agreed, amended Record for each workshop. The agreed Records of the [November 2017](#) Workshop and the [June 2018](#) Workshop are available on the GSGSSI website.

## Recommendations

The recommendations that the Advisory Group came to over the review process are presented here under each Term of Reference. Further details and the evidence base together with a summary of the discussions leading to these recommendations can be found in the supplementary materials, and in particular the detailed Records of the two workshops.

**TOR 1:** *Consider how scientific understanding of the South Georgia Maritime Zone has developed since 2013*

A significant amount of scientific research has been undertaken since 2013 which has greatly increased our knowledge of the biodiversity of South Georgia and the South Sandwich Islands and the threats it faces, as evidenced by the Background Paper which was informed by over 200

relevant, peer-reviewed papers published since 2013. The Background Paper was reviewed, informed and revised. This revised paper forms an excellent state of knowledge reference paper of the region and a significant product of this Review. One critical realisation was that there is much more knowledge and evidence for South Georgia compared to the South Sandwich Islands. Consequently, caution must be exercised when making decisions impacting South Georgia and the South Sandwich Islands where the actual evidence may only relate directly to South Georgia.

Workshop 1 identified 10 key potential changes and threats to the SGSSI ecosystem:

- Fisheries
- Stock/species recovery
- Climate change
- By-catch
- Non-native species (introductions and eradications)
- Mining and mineral extraction
- Heavy Fuel Oils
- Volcanic activity
- Other changes and threats such as bird strike and iceberg scour

Evidence was reviewed for each of these and concerns noted. Climate change in particular poses a serious threat to the SGSSI ecosystem. Noting the growing evidence of climate impacts in the region, the Advisory Group highlighted the need to continue to monitor whether the current management measures are achieving their objectives and whether implementation of any measure requires modification.

**TOR 2:** *Provide any initial evidence-based assessment of the effectiveness of current management measures and advice on the degree to which evidence might support any revisions to management measures*

Six management measures are listed in the SGSSI MPA Management Plan:

1. Seasonal Closure of the Krill Fishery

**Management Objective:** *to reduce the risk of competition between the krill fishery and krill-dependent predators during their breeding season*

- Overall there is confidence that the objective of the seasonal closure is largely being met. However, there is evidence (including new evidence in respect of the South Sandwich Islands) of some additional risk for some penguin species during the breeding seasons from fishing at the beginning and end of the season which may not be mitigated by the temporal closure. An extension to the seasonal closure at the start and end of the season should be considered
- The growing evidence of climate impacts in the region was noted, so a recommendation is to continue to monitor whether the current management measure is achieving its objective and whether implementation of the measure requires modification

2. South Georgia and Clerke Rocks No-Take Zones

**Management Objectives:** *protect the shallow inshore environment around South Georgia and Clerke Rocks from any form of fishing activity; protect spawning aggregations of mackerel icefish and other*

*species of benthic-spawning fish; protect the foraging grounds of land-based predators that forage with 12nm of South Georgia, notably gentoo penguins and imperial shags; facilitate recovery of marbled rock-cod (Notothenia rossii) population, whose juveniles inhabit inshore areas; protect the serpulid reef on the shelf in the area of Clerke Rocks.*

- Overall there is confidence that the objectives are being met, although the lack of knowledge of the foraging ranges of some predator species means the protection of land-based predator foraging grounds is only partial fulfilled.
- Recent evidence suggests that chinstrap penguins forage beyond 12nm and so extending the no-take zone beyond 12nm could be considered
- Data gaps should be picked up in the Research and Monitoring Plan

### 3. South Sandwich Islands No-Take Zones and Pelagic Closed Areas

**Management Objectives:** *Protection of the shallow inshore environment around the South Sandwich Islands from any form of fishing activity; protection of spawning aggregations of benthic spawning fish; protection of the benthic fauna from any form of fishing activity in the non-take zone; protect the foraging grounds of land-based predators that forage within 12nm of the South Sandwich Islands.*

Discussions on the future for the South Sandwich Islands generated the most debate and the most polarised views which ultimately could not be reconciled. The NGO representation are united in their call for complete protection for the South Sandwich Islands for which they see a clear scientific rationale to conserve this global biodiversity hotspot. The views of the scientific and fisheries representation on the Advisory Group differed and the details of this are recoded in the workshop reports and associated statements as listed under Supplementary Materials at the end of this report. Ultimately this remains unresolved and no clear recommendation can be made in this Report.

There were some general comments made about the current objectives which are recorded here for completeness.

- Overall it was felt the current objectives are being met, however the lack of knowledge regarding spawning fish at SSI meant the protection of spawning aggregations might only be being partially fulfilled
- Recent evidence suggests Adélie and chinstrap penguins forage beyond 12nm and so extending the no-take zone beyond 12nm could be considered
- Data gaps should be picked up in the Research and Monitoring Plan

### 4. Shag Rocks No-Take Zone

**Management Objectives:** *protection of the shallow inshore environment around Shag Rocks from any form of fishing activity; protection of juvenile toothfish; protection of spawning aggregations of benthic spawning fish; protection of the benthic fauna from any form commercial fishing activity; protection of foraging areas of marine predators.*

- Overall it was felt that the objectives are being met in conjunction with the Additional Management Measures (point 6 below)
- Monitor pelagic bycatch of juvenile toothfish in the Research and Monitoring Plan

5. (Nine) Benthic Closed Areas (BCAs)

**Management Objectives:** *Protection of sensitive benthic fauna; provide refugia for adult toothfish.*

- Reviewing the objectives of each individual BCA suggests that the management measure is appropriate. The general question of whether the BCAs are in the correct location remains unanswered, but is being addressed using deep water cameras
- The seamount adjacent to the North East South Georgia Benthic Closed Area should be a priority in benthic surveying to establish whether it should be included within the BCA network
- Priority may also be given to research in data poor areas, for example Protector Shoals which could be a stepping stone for toothfish movement between 48.3 and 48.4
- The E2 and E9 hydrothermal vents at the SSI are now well described and also exhibit unique fauna. There should be an exclusion zone/closure of specific sites in order to protect them
- GSGSSI should develop a mechanism to respond and protect other important sites as they are found

6. Additional Measures (*no bottom trawling; no bottom fishing <700m; no bottom fishing >2,250m; winter only toothfish fishery; no daytime setting; additional limits on some by-catch species; conservation measures applied to MPA*)

- It was felt that overall the Additional Measures in place as a result of fishery management are assisting in meeting the MPA objectives
- We recommend that, for clarity, each Additional Measure is directly linked to specific MPA objectives

The discussions were focused on each of the above management measures to assess whether they are effective based on the evidence available. Fuller details can be found in the Workshop Records.

**TOR 3:** *Review, and assess the effectiveness of, existing monitoring measures for evaluating the extent to which the objectives of the sustainable use MPA are met*

Seven key principle conservation objectives for the MPA are identified in the SGSSI Management Plan and evaluation was framed around each of these seven objectives:

1. Conserve marine biodiversity, habitats and critical ecosystem function

- There will be different answers to these questions based on region, depth and species, and different scales of knowledge between land-based and marine species. There are data for some areas e.g. benthic communities.
- Overall it was considered that this objective is probably being met, but not all data are available – the region from 700m-2250m is relatively well understood however other areas are lacking in data. There is more knowledge on assemblages than biodiversity and a potential need to develop indices/proxies for biodiversity. Focus should be on areas most likely to change.

2. Ensure that fisheries are managed sustainably, with minimal impact on associated and dependent ecosystems
  - Based on current evidence, including independent review by the Marine Stewardship Council (MSC) and the Commission for the Conservation of Antarctic Marine Living resources (CCAMLR) peer review, there is sustainable management of the toothfish and icefish fisheries, and of the krill fishery at current fishing levels.
  - Overall it was felt this objective is being met and current activities should continue.
3. Manage other human activities including shipping and scientific research, to minimise environmental impacts on the marine environment
  - IAATO continues to ensure close engagement with GSGSSI and effective visitor management. There are good processes in place, but no monitoring of outputs and/or impacts.
  - Overall, the objective is being met in many areas, and still needs to be determined in others. Further research and monitoring are required.
4. Protect the benthic marine organisms from the destructive efforts of bottom trawling
  - The ban on all bottom trawling ensures this objective is met, the recommendation is to continue current enforcement.
5. Facilitate recovery of previously over-exploited marine species
  - This can be difficult to assess for many species – how do you define ‘recovered’ if there are no baseline data on pre-exploitation population sizes? It might be more appropriate to re-word the objective to ‘facilitate the process of recovery...’
  - Overall it was decided that this objective is being met and that associated management measures should be continued.
  - It is recommended that an agreed list of exploited species should be created with an assessment of what, if any, monitoring measures are in place or need establishing for each one.
  - Given the uncertainty surrounding the impacts of climate change, ensuring populations are stable and self-regulating may be the best possible, achievable outcome.
6. Increase the resilience of the marine environment to the effects of climate change
  - The MPA management measures should help improve the health of the ecosystem by reducing stressors to the system, thus potentially making it more able to cope with impacts from climate change
  - Overall, it was considered that this objective was probably being met, but because of the uncertainty around what the effects of climate change might be, more work is needed.
7. Prevent the introduction of non-native marine species

- There are adequate guidelines in place to minimise the risk of introductions, but it would be difficult to prevent establishment if an invasion occurred.
- There is a need to identify key risk areas and potential pathways of introduction.
- Overall it was felt this objective was probably being met, but with scope for additional research.

**TOR 4:** *Contribute to priorities for future scientific research, including any new research and monitoring that may be necessary*

Based on the status of knowledge drawn together under TOR1, and through reviewing the assessments of management measures considered under TOR 2 and 3, data gaps for the relevant measures were consolidated. A Research & Monitoring Plan (RMP) needs to be developed and areas identified for additional work in order to meet objectives could be considered for purposes of future funding proposals to e.g. Darwin Plus. The current Darwin Plus funded project “Building data resources for managing the South Georgia & South Sandwich Islands Marine Protected Area (2017-2019)” is in a good position to take forward the RMP. The workshop being planned for late 2018/early 2019 will be a good venue to begin this process and the Advisory Group endorsed this approach. The RMP should look beyond the next 5 years and is a journey towards subsequent MPA reviews. Research planning may need to fit into funding cycles. Identifying the costs of research may illustrate that answers to some questions can be achieved relatively cost-effectively.

The RMP should be a living document that can have both short-term and long-term goals. There may need to be a de-coupling of the science review vs. the management review e.g. the Ross Sea MPA has a 5-year science review but a 10-year management review. Acknowledging the two separate stages makes it an open and more transparent process.

The need for data transparency and accessibility to experts and the public was noted as an important element. A web-based interface may give better access to these data to everyone and should be considered.

## Areas of Disagreement

The review provided a forum for the full range of views to be presented and considered regarding the effectiveness of the South Georgia and the South Sandwich Islands Marine Protected Area and its management objectives. The Advisory Group had a specific remit as defined in its four Terms of Reference. During wide ranging discussions throughout the process three key areas of disagreement emerged which are noted here for consideration both in the light of the current review and associated recommendations, but also in the context of planning future reviews.

1. The NGO representation expressed frustration that the composition of the scientific representation on the Advisory Group was drawn from too narrow a range of expertise. The present scientific representation was drawn from those areas that provide the scientific advice to Government i.e. CEFAS and BAS, plus one independent expert whose specialism is similar. The NGO representation felt that a second independent academic from a wider specialism would better balance the debate.
2. Positions on the future protection/management of the South Sandwich Islands differed between different stakeholder groups from recommending complete protection of the South Sandwich Islands to continuing with the current management objectives. These diverse views could not be reconciled.

3. Correspondence was received from some members of IUCN which calls into question the current classification of the SGSSI MPA. The MPA was designated as a Category VI Protected Area with sustainable use of natural resources. IUCN has been discussing definitions and some think that SGSSI no longer qualifies as a Category VI MPA. Some discussion is noted in the Workshop Record, but this debate falls outside the Terms of Reference for this Review. SGSSI should track this debate in order to evaluate what implications this might have for the future management of MPAs.

## Summary

The Advisory Group welcomed the opportunity to participate in the review process, acknowledging the importance of undertaking a 5-yearly review of the effectiveness of the South Georgia and the South Sandwich Islands MPA. The discussions were held in an open, honest and transparent forum and I consider that everyone who felt they needed to be part of the review process had the opportunity to participate.

Four key summary points can be made:

- There was agreement that the current MPA is achieving its intended objectives as laid out in the Management Plan but noting that 5 years is a very short time to identify trends. There was also some comment as to whether these are the correct management objectives going forward, but this discussion is outside the Terms of Reference of this Review.
- There was broad agreement about a range of additional measures outlined in the report that could be considered for implementation before the next 5-year review.
- There was no agreement over the NGOs recommendation for complete protection of the South Sandwich Islands and the conservation benefits that would result from this.
- There was agreement on the need to develop a Research and Monitoring Plan for the SGSSI MPA and this could be separated from the MPA review process. The Advisory Group recognised the existence of the current Darwin Plus funded project “Building data resources for managing the South Georgia & South Sandwich Islands Marine Protected Area (2017-2019)” and felt that the development of the Research and Monitoring Plan could be taken forward as part of this project and their planned workshop in late 2018/early 2019.

**Dr Colin Clubbe**

**Independent Chair of the SGSSI MPA Review Group**

**September 2018**



## Annex 1 – Composition of the appointed Advisory Group

<b>Participant</b>	<b>Affiliation</b>
<i>Chair</i>	
Dr Colin Clubbe	Royal Botanic Gardens, Kew
<i>Science Representation</i>	
Dr Phil Trathan	British Antarctic Survey
Dr Susie Grant	British Antarctic Survey
Dr Mark Belchier	British Antarctic Survey
Dr Chris Darby	Centre for Environment, Fisheries & Aquaculture Science
Dr Marta Soeffker	Centre for Environment, Fisheries & Aquaculture Science
Dr Alistair Dunn	Ministry for Primary Industries, New Zealand *independent
<i>Fishing Industry Representation</i>	
Mr Alex Reid	Polar Limited / Toothfish and Icefish Operators
Mr Peter Thompson	Argos Froyanes Ltd / Toothfish Operators
Ms Cilia Holmes Indahl <sup>1</sup> Mr Pål Skoguard <sup>2</sup>	Aker BioMarine Antarctic AS / Krill Operators
<i>Tourist Industry Representation</i>	
Dr Damon Stanwell-Smith <sup>3</sup>	International Association of Antarctica Tour Operators
<i>NGO Representation</i>	
Dr Sarah Davie	World Wide Fund for Nature (WWF) UK
Mr Simon Reddy	Great British Oceans / The Pew Charitable Trusts
<i>Secretariat</i>	
Mr James Jansen	GSGSSI
Miss Sue Gregory	GSGSSI

<sup>1</sup> Attended Workshop 1 (November 2017, first day)

<sup>2</sup> Alternative representative attending Workshop 2 (June 2018)

<sup>3</sup> Unable to attend Workshop 2 and no alternative available