

**SOUTH GEORGIA AND SOUTH SANDWICH ISLANDS MARINE PROTECTED  
AREAS: EXISTING PROTECTION AND PROPOSALS FOR FURTHER  
PROTECTION**



**CONSULTATION DOCUMENT**

**OCTOBER 2012**

# 1. Background

## 1.1 What is a marine protected area?

“A clearly defined geographical space, recognised, dedicated and managed, through legal or other effective means, to achieve the long-term conservation of nature with associated ecosystem services and cultural values”<sup>1</sup>. IUCN further categorizes the different levels of management that such areas can be afforded<sup>1</sup>, ranging from strictly protected or 'no-take' (Category I) areas to those areas which are managed for sustainable use of natural resources (Category VI) or other multiple uses.

At the World Summit on Sustainable Development in 2002, governments committed to: “*the establishment of marine protected areas... based on scientific information, including representative networks by 2012*”. This was followed in 2004 by the agreement of Parties to the Convention on Biological Diversity to “*establish comprehensive, effectively managed, and ecologically representative networks of marine protected areas by 2012*” (COP VII, Decision VII/28).

## 1.2 Categories of Marine Protected Areas

The following categories of marine protected area have been identified by the International Union for the Conservation of Nature IUCN<sup>1</sup>.

Category	Name	Purpose
Ia	Strict Nature Reserve	Managed mainly for science
Ib	Wilderness Area	Managed mainly for wilderness protection
II	National Park	Ecosystem conservation & recreation
III	National Monument	Managed for conservation of specific natural features
IV	Habitat / Species Management Area	Managed mainly for conservation through management intervention
V	Protected Landscape / Seascape	Landscape / seascape conservation & recreation
VI	Protected Area with Sustainable Use	Managed for sustainable use of natural resources / ecosystems

## 1.3 Why is there a need for marine protected / managed areas?

The UK is signatory to a number of multilateral environmental agreements, including *inter alia*, the Convention on Biological Diversity, the Convention on Migratory Species and the

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<sup>1</sup> Dudley N (Ed.) 2008. Guidelines for Applying Protected Area Management Categories. Gland, Switzerland: IUCN. 86pp. ISBN: 978-2-8317-1086-0

Convention on the Conservation of Antarctic Living Resources. As a UK Overseas Territory, South Georgia therefore has responsibility for protecting areas of the sea and the sea floor under its jurisdiction which provide critical habitat for species and communities and ecosystem processes that maintain and sustain biodiversity in the region. In so doing, the Government of South Georgia and the South Sandwich Islands (GSGSSI) recognises the need to use the best available scientific evidence to underpin options and proposals for protection. GSGSSI has already taken the first steps in protecting the South Georgia and South Sandwich Islands Maritime Zone (SGMZ) and has indicated that it plans to make further closures.

GSGSSI sees little advantage in protecting large areas of the SGMZ where there are no current risks or threats to species or communities. If new threats to such areas, species or communities arise in the future, then appropriate protection will be considered. Precautionary protection may also be appropriate in some areas to ensure that future risks are minimised; however this must be balanced with the desire to avoid closures that will have no effect on conservation in practice and may prejudice other conservation actions in the future.

GSGSSI has prioritised proposals for spatial or temporal closures where there is evidence to support one or more of the following:

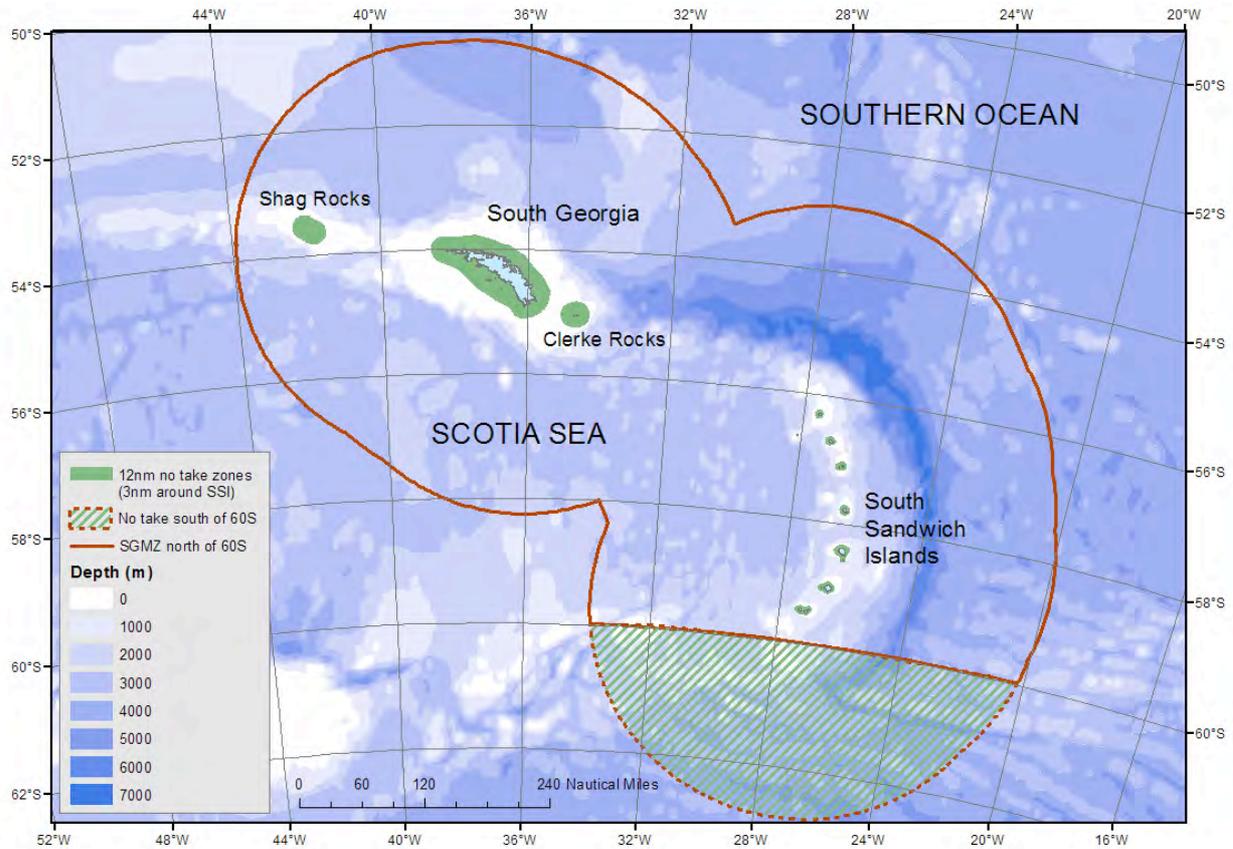
- To protect unique, rare, or high biodiversity areas;
- To protect vulnerable or sensitive areas;
- To maintain critical aspects of ecosystem function, e.g. highly productive areas;
- To support fisheries management, e.g. create closed areas for critical life-history stages;
- To protect multiple-use areas to coordinate activities and minimise cumulative impacts;
- To maintain the integrity of representative examples of marine ecosystems;
- To increase resilience to climate change or other environmental changes;
- To protect reference sites for scientific research.

In considering how to protect important habitats and communities or particular species or features of the SGMZ it is apparent that some areas are deserving of protection immediately, whereas other communities or features may not be immediately threatened, but worthy of partial protection, or precautionary protection for representative areas. In such cases GSGSSI wishes to engage with stakeholders to understand how such communities or features might be protected whilst also maintaining the interests of key stakeholders. In these cases GSGSSI has developed alternative options and welcomes feedback on these proposals.

## **2. Current Marine Protected Areas in the South Georgia and South Sandwich Islands Maritime Zone**

In February 2012 GSGSSI passed legislation that established the South Georgia and South Sandwich Islands Marine Protected Area, which encompassed the entire Maritime Zone north of 60° S. The large IUCN Category VI MPA includes a number of IUCN Category 1b “No-

take Zones”. Full details of the MPA are presented in the SGSSI MPA Management Plan at [http://www.sgisland.gs/download/MPA/MPA%20Plan%20v1-1.01%20Feb%2027\\_12.pdf](http://www.sgisland.gs/download/MPA/MPA%20Plan%20v1-1.01%20Feb%2027_12.pdf).



The following measures are included in the existing MPA:

1. Bottom trawling is prohibited throughout the entire South Georgia and South Sandwich Islands MPA.
2. Bottom fishing is prohibited in waters where the depth of the seabed is shallower than 700 metres.
3. The various no-take zones within the South Georgia and South Sandwich Islands MPA were designated with the following conditions:

**Table 2.1 Summary of protection in current South Georgia MPA no-take zones.**

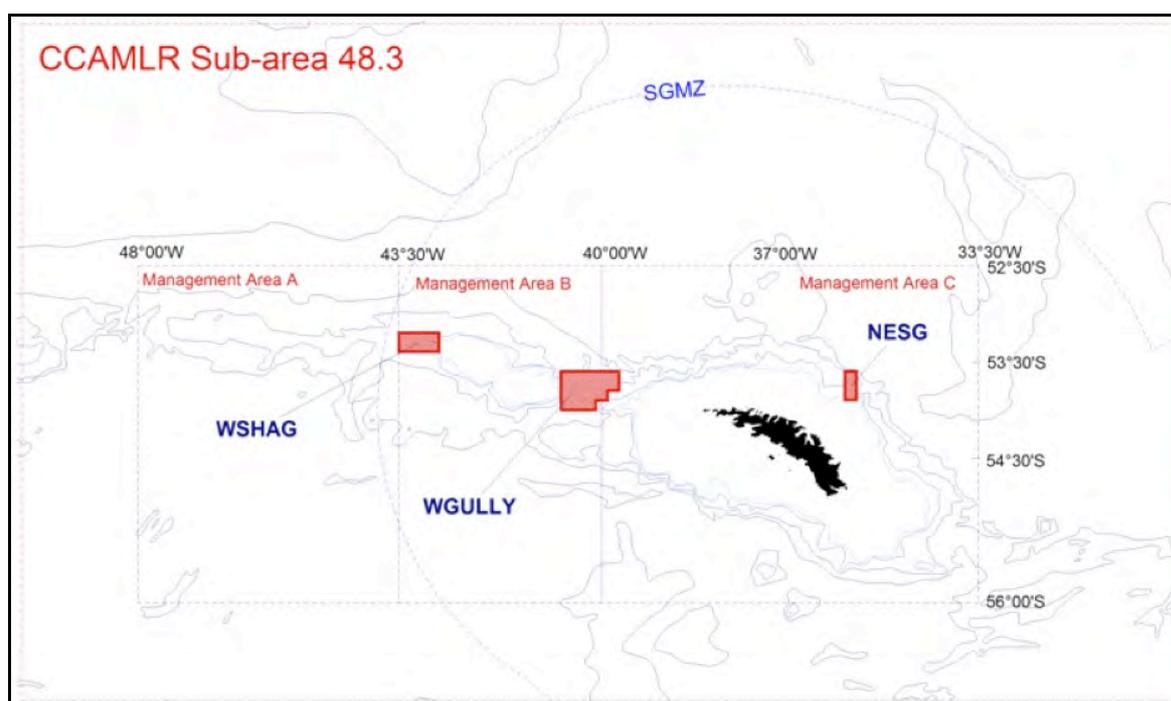
<b>Zone</b>	<b>Boundaries</b>	<b>Protected features</b>	<b>Conservation objectives</b> To conserve & protect:
South Georgia No-take Zone	Between: (1) a line 12 nautical miles from the baselines around the coast of South Georgia; and (2) mean high water at spring tide.	The seabed, overlying water and associated organisms in an area of 13,899 km <sup>2</sup>	The shallow marine environment around South Georgia including: 1. The spawning grounds of many fish species, including mackerel icefish. 2. The inshore foraging areas of marine predators such as gentoo penguins, cormorants, petrels and prions.
Clerke Rocks No-take Zone	Between: (1) a line 12 nautical miles from the baselines around Clerke Rocks and the Office Boys; and (2) mean high water at spring tide.	The seabed, overlying water and associated organisms in an area of 1,923 km <sup>2</sup>	The shallow marine environment to the SE of South Georgia including: 1. The spawning grounds of many fish species, including mackerel icefish. 2. The inshore foraging areas of marine predators such as gentoo penguins, cormorants, petrels and prions. 3. The “spirulid reef” at approximately 55° 00’ S, 34° 31’ W.
Shag Rocks No-take Zone	Between: (1) a line 12 nautical miles from the baselines around Shag Rocks and Black Rock; and (2) mean high water at spring tide.	The seabed, overlying water and associated organisms in an area of 2,337 km <sup>2</sup>	The shallow marine environment of the Shag Rocks shelf incorporating: 1. The principal recruitment area for juvenile Patagonian toothfish. 2. Spawning grounds of mackerel icefish. 3. A key foraging area for black-browed albatross, Antarctic fur seals and baleen whales.
South Sandwich Islands No-take Zones	Between: (1) lines 3 nautical miles from the baselines around the coasts of the South Sandwich Islands; and (2) mean high water at spring tide.	The seabed, overlying water and associated organisms in areas that total 2,272 km <sup>2</sup>	The shallow marine environment around each of the South Sandwich Islands including: 1. The inshore foraging grounds of marine predators. 2. The spawning grounds of fish species.

### 3. Current Reduced Impact Areas and Additional Protection in the South Georgia and South Sandwich Islands Maritime Zone

A number of other spatial closures already exist in current fisheries licencing agreements, but which could become part of the MPA planning process in the SGMZ; these include a number of reduced impact areas (RIA) and the seamounts to the south of South Georgia.

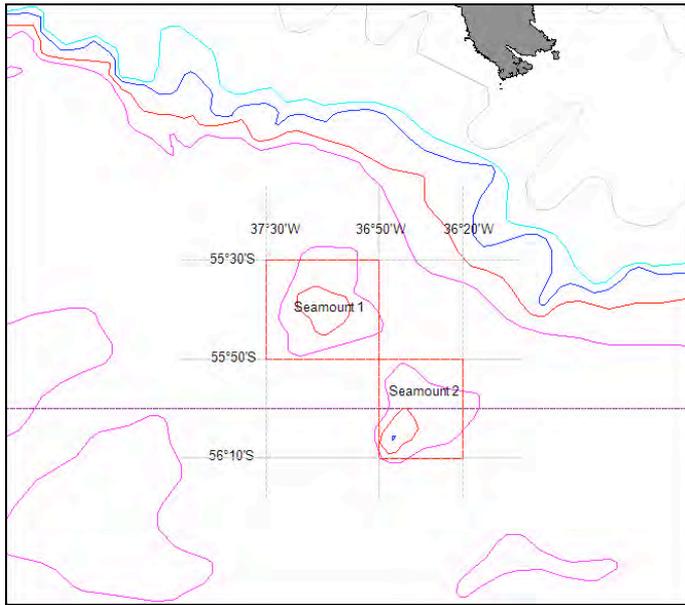
#### 3.1 Reduced Impact Areas

The RIAs were first introduced in 2008 in order to protect areas of known high benthic biodiversity in the depth zones used by the long-line fishery for Patagonian toothfish. These areas are currently closed to the commercial toothfish fishery, although a limited amount of experimental fishing is permitted in order to allow toothfish to be tagged and tags recaptured from fish that may have moved into the area from other locations. Such experimental access is important for management of the toothfish fishery.



#### 3.2 Southern seamounts

The southern seamounts were first closed at the start of the 2012 Patagonian toothfish season. These seamounts have rarely been targeted by the commercial toothfish fishery, but they are known to be refugia for large toothfish that may make an important contribution to the spawning stock biomass. The seamounts may also be the location of important benthic biodiversity. The areas are currently closed as part of the GSGSSI fisheries licencing arrangements.



### 3.3 Kemp Seamount and caldera

The Kemp Seamount and caldera at the south-western edge of the South Sandwich arc is known to be an area with a number of different chemosynthetic habitats, including: white smoker vent fields and extensive areas of diffuse flow. Holothurians dominate sedimented areas in the centre of the caldera, with abundant ophiuroids on basalt outcrops; the dominant type of holothurians change with depth. The area is currently closed as part of the GSGSSI fisheries licencing arrangements.

## 4. Proposals for new spatial protection in the South Georgia and South Sandwich Islands Maritime Zone

### 4.1 Planning Workshop

A science planning workshop was held at BAS, Cambridge between 18 and 19 April 2012, in order to develop proposals for further closures/restrictions within the current South Georgia MPA. The workshop was attended by approximately 30 scientists, including individuals with expertise in benthic fauna, nekton, plankton, oceanography, air breathing predators, and general marine ecology, and in the fisheries of the Scotia Sea. Individuals attended from BAS, GSGSSI, JNCC, the University of Oxford, MRAG and the University of Paris.

The workshop considered how best to protect the biodiversity and ecosystem processes within the SGMZ, and developed recommendations based on the expert opinion of those present. Cogniscent of the different requirements for protection in the pelagic and benthic realms the workshop considered the various current and potential threats to the pelagic and benthic domains, and developed separate candidate protection proposals for each domain.

GSGSSI plans to implement spatial and temporal protection based on some of the recommendations and proposals from the MPA workshop, and is also actively considering a number of additional recommendations from the workshop (see Tables 4.1 and 4.2 below). Decisions on all of these proposals will be informed by feedback from stakeholders.

Some recommendations may require further consideration over a longer time-frame, particularly those related to the fishery for Antarctic krill. The commercial harvest for Antarctic krill is managed throughout the Antarctic by the Commission for the Conservation of Marine Living Resources (CCAMLR). CCAMLR manages the fishery using a precautionary approach, utilizing an ecosystem based framework. Over the next few years CCAMLR plans to design a new management approach for the fishery, taking into account issues such as the resource needs of dependent species (including fish, seabirds, and marine mammals), reducing the spatial aggregation of harvesting, and incorporating ecosystem changes brought about by climate variability and change. As the krill fishery currently operates in FAO Area 48, including in areas under the jurisdiction of GSGSSI, it will be important for GSGSSI to understand how the new CCAMLR management system will be developed and implemented. Thus, it will be necessary for GSGSSI to understand how the new CCAMLR approach will operate before it can implement certain recommendations from the MPA workshop; this will be particularly important with respect to protection of representative areas in the pelagic domain.

#### **4.2 Pelagic Protection: Existing Protection and New Proposals**

The main threats in the pelagic realm are related to the krill and icefish fisheries. The current level of the krill fishery (55,000 tonnes in 2012) is well below the CCAMLR limit for Subarea 48.3 (279,000 tonnes), which includes the SGMZ. A primary concern with the krill fishery is to ensure that dependent predators (e.g. penguins, fur seals, whales and fish) are not adversely affected by the fishery. The breeding season is particularly important as many of the predators are feeding young and constrained to forage in a limited area.

In Table 4.1, the measures shaded in green are already implemented as part of the existing South Georgia MPA. GSGSSI envisages that some of the recent recommendations and proposals from the MPA workshop, shaded in blue in the table, will be translated into spatial protection under revised MPA legislation.

GSGSSI welcomes feedback on all of these proposals (P1 to P7, including any sub-options) and how they should be implemented into spatial and temporal protection. GSGSSI notes that implementing Options P5, P6, and P7 will require further understanding about how the new CCAMLR krill management process will function.

#### **4.3 Benthic Closed Areas: Existing Protection and New Proposals**

Bottom trawling is already banned throughout the MPA, so the main threats to the benthos are the impacts of longlining and trophic links between the benthos and krill. Under the

existing regulations in the MPA bottom longlining is only allowed in depths greater than 700 m and the fishery rarely fishes deeper than 2,200 m. Thus any impact is limited to a narrow band around the edge of the shelf.

In Table 4.2, the measures shaded in green are already implemented as part of the existing South Georgia MPA. GSGSSI envisages that some of the recent recommendations and proposals from the MPA workshop, shaded in blue in the table, will be translated into spatial protection under revised MPA legislation.

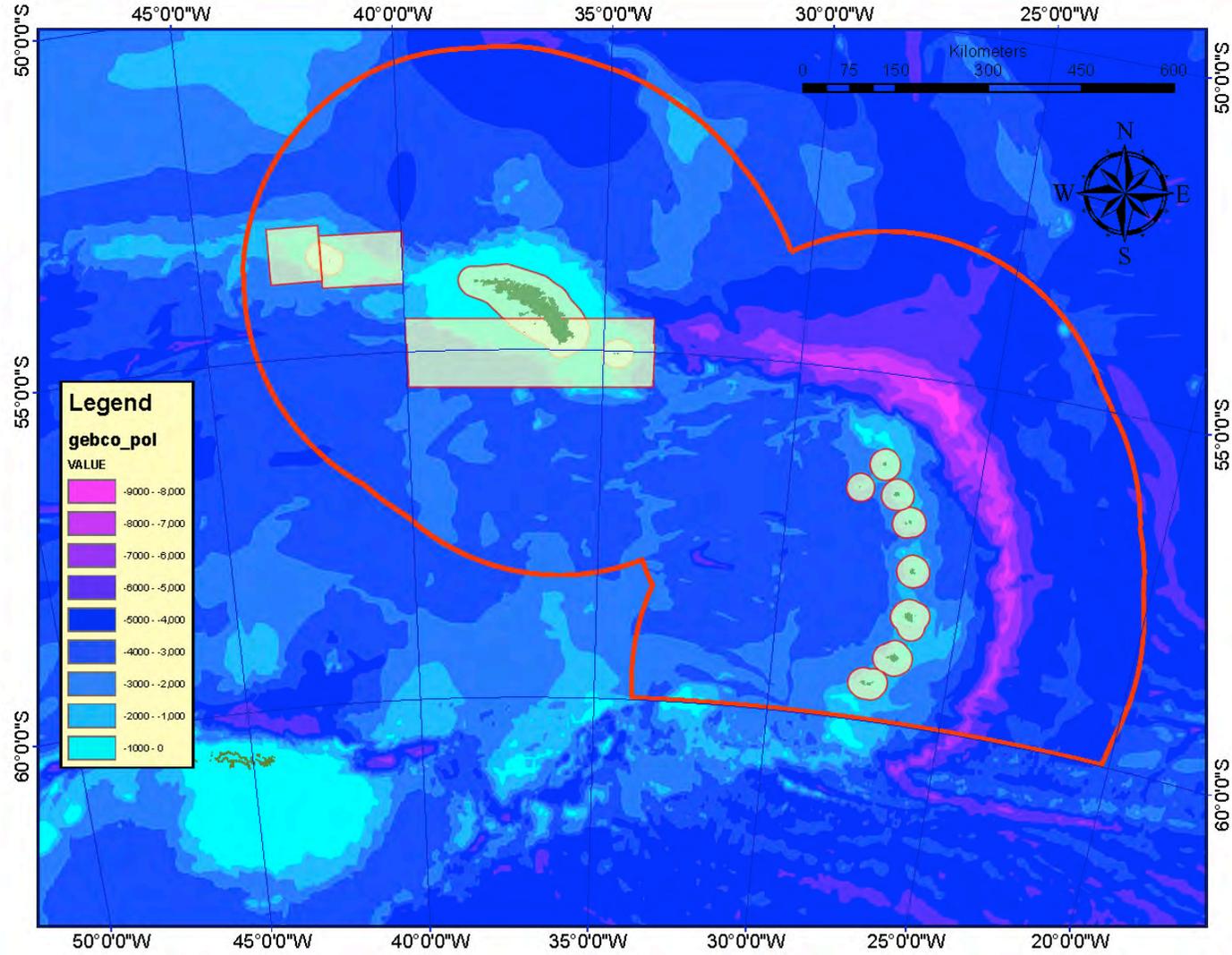
GSGSSI welcomes feedback on all of these proposals (B1 to B11, including any sub-options) and how they should be implemented into spatial and temporal protection. GSGSSI notes that implementing Options B8, B9, B10 and B11 will require careful consideration as these options will interact.

**Table 4.1 Current protection and new proposals for protection in the pelagic realm of the SGSSI MPA.**

Table 4.1		Area	Rationale	Options and considerations
Existing	E1	12 nm No-take zone around South Georgia.	Protects all predators that forage within 12 nm of South Georgia; protects juvenile/larval fish.	Maintain no-take zones.
	E2	12 nm No-take zone around Clerke Rocks.	Protects all predators that forage within 12 nm of Clerke Rocks; protects juvenile/larval fish.	Maintain no-take zones.
	E3	12 nm No-take zone around Shag and Black Rocks.	Protects all predators that forage within 12 nm of Shag Rocks; protects juvenile/larval fish, particularly juvenile Patagonian toothfish.	Maintain no-take zones.
	E4	3 nm No-take zone around South Sandwich Islands.	Protects inshore foraging grounds of marine predators and probable spawning grounds of fish species.	Maintain no-take zones.
Proposals	P1	Seasonal summer closure of the krill fishery.	Avoids competition for krill between the fishery and land-based krill predators during the time when adults are feeding their young and are constrained in their foraging range.	November-March closure would protect the critical breeding period (P1: Sub-option 1). Options to close October (P1: Sub-option 2) and April (P1: Sub-option 3) will also be considered, particularly April, which is an important period for offspring when they are first independent of their parents.
	P2	Closure of the southern shelf of South Georgia, bounded by the box 54° 30' to 55° 30' S and 40° 00' to 33° 45' W.	Protects a representative area of the pelagic habitat from any pelagic commercial fishing.	The area is currently open, but not heavily targeted by pelagic fisheries; it may become important in the future to protect the flow of krill from offshore waters onto the South Georgia shelf, ensuring a stable supply of krill to the krill fishery and predators alike.
	P3	Closure of part of, or the entire, Shag Rocks shelf from all pelagic commercial fishing.	Protects the foraging area of many predators including black-browed albatrosses, macaroni penguins, whales, fur seals, etc. Also protects	The area is used by both krill and icefish fisheries. Seasonal closure of the krill fishery (P1) would provide significant protection, but some species forage extensively in this area during the winter, so further protection may be necessary. Options include closure of

			juvenile toothfish and <i>P. guntheri</i> from by-catch in krill or icefish fisheries.	either East (P3: Sub-option A) or West (P3: Sub-option B), or all (P3: Sub-option C), of the Shag Rocks shelf. Other options include the use of move-on rules and by-catch limits in the icefish fishery to provide protection for non-target fish species (P3: Sub-option D), or move-on rules and catch limits in the krill fishery (P3: Sub-option E) to limit potential resource competition.
	P4	Closure of 12 nm area around the South Sandwich Islands to the krill fishery.	Protect near-shore foraging ranges of chinstrap penguins and whales.	The area is currently open, but very rarely fished by the krill fleet; in the longer term there may be a desire to see the krill fishery move further offshore in order to distribute effort and catches. The proposed 12 nm closure would protect near-shore foraging habitat for penguins and recovering whale stocks.
	P5	Closure of a proportion of each pelagic bioregion.	Precautionary protection that will cover representative examples of all pelagic habitat types.	Consider how representative protection is or can be achieved through existing and proposed closed areas, and identify additional areas to represent all pelagic bioregions with minimum cost to existing activities.
	P6	Limit krill catch above and beyond CCAMLR measures.	Protects all krill-dependent species by reducing potential resource competition.	Existing computer simulations show that krill harvesting in Subarea 48.1 and 48.2 may have impacts at South Georgia when the catch is close to the Total Allowable Catch. Carefully monitoring and modelling work will be required to develop better simulations across Area 48 as a whole.
	P7	Closure of the outer part of the South Georgia and South Sandwich Islands MPA to any pelagic commercial fishing.	Creates large pelagic no-take zone.	The area is currently little used by any pelagic fishery, so there are no threats in this area at the moment; therefore, probably no immediate benefits from protection. In the long term there may be a desire to see the krill fishery move further offshore into oceanic areas in order to distribute effort and catches. As climate change proceeds, it may be increasingly important to ensure krill continues to arrive at South Georgia, so some protection may be warranted.

Figure 4.1 Potential spatial closures in the pelagic realm of the South Georgia MPA. Note proposal P1 is a seasonal closure of the krill fishery throughout the MPA.

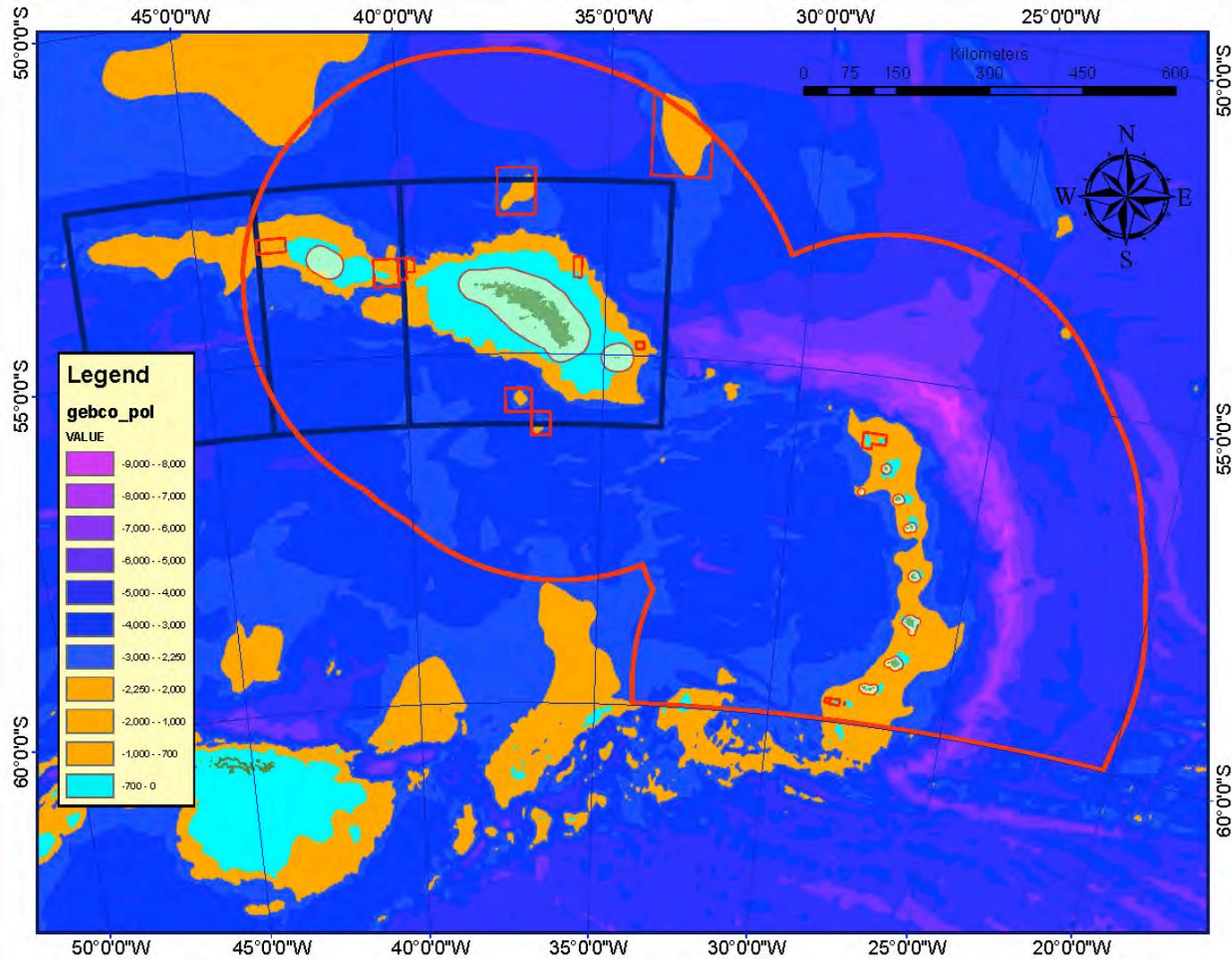


**Table 4.2 Current protection and new proposals for protection in the benthic realm of the SGSSI MPA.**

		Area	Rationale	Options and considerations
Existing	E1	12 nm No-take zone around South Georgia.	Protects the benthic fauna in inshore areas from any fishing activity.	Maintain no-take zones.
	E2	12 nm No-take zone around Clerke Rocks.	Protects the benthic fauna in inshore areas from any fishing activity.	Maintain no-take zones.
	E3	12 nm No-take zone around Shag and Black Rocks.	Protects the benthic fauna in inshore areas from any fishing activity.	Maintain no-take zones.
	E4	3 nm No-take zone around South Sandwich Islands.	Protects the benthic fauna in inshore areas from any fishing activity.	Maintain no-take zones.
	E5	Ban on bottom trawling.	Protects the benthic fauna from the destructive practices of bottom trawling.	Maintain this restriction.
	E5	700m minimum depth for long-line bottom fishing.	Protects the benthic fauna from any form of bottom fishing above 700 m and protects juvenile toothfish at these depths.	Maintain this depth limit on long-line fishing.
Proposals	B1	Establish the existing Reduced Impact Areas (RIA) as areas closed to bottom fishing including long-line fishing.	Protects vulnerable marine fauna such as corals, gorgonians and sponges in locations within the depth zone used by the toothfish long-line fishery.	The RIAs have been closed since 2008 and there is evidence that in addition to protecting the benthos these areas are also refugia for toothfish.
	B2	Closure of the seamounts to the south of South Georgia.	Protects the potentially (but largely unknown) benthic fauna of these seamounts; provides refugia for large adult toothfish.	The seamounts have been open to the toothfish fishery, but the licensed fleet has not been concentrated in this area in recent years; closed for the first time in 2012.
	B3	Closure of the East South Georgia candidate RIA bounded by the box 54° 48' to 54°54' S and 34°00' to 34°12' W.	Protects an area that is particularly rich in gorgonians.	This was one of the original candidate RIAs, but was not included in the initial selection.
	B4	Close the North East Georgia Rise within the box 51° 12' to 52° 24' S and 32° 36' to 34° 00' W.	Protects the potentially (but largely unknown) benthic fauna of this large seamount; provides refugia for large adult toothfish.	This area has been open to the toothfish fishery, but the licensed fleet has not been concentrated in this area in recent years.

B5	Close the North Georgia Rise bounded by the box 52° 19.8' to 53° 00' S and 36° 45' to 37° 39.6' W.	Protects the potentially (largely unknown) benthic fauna of this large seamount; provides refugia for large adult toothfish.	This area is currently open to the toothfish fishery, but licensed vessels only visit the area in some years.
B6	Closure of the Protector Shoals within the box 55° 49.5' to 56° 03' S and 27° 39' to 28° 15' W (exact positions awaiting confirmation).	Protects the potentially (largely unknown) benthic fauna of this large submarine plateau.	This area is currently open to the toothfish fishery.
B7	Closure of the Kemp Seamount bounded by the box 59°40' to 59°45' S and 28° 00' to 28°16' W, and the Kemp caldera 59° 40' to 59°43.8' S and 28°16' to 28°25' W, and the Adventure caldera 59°41' to 59° 43.5' S and 27°48' to 27°53' W.	Protects the potentially (largely unknown) benthic fauna of this seamount and caldera. Protects different chemosynthetic habitats, including white smoker vent fields.	These areas are currently mostly closed to the toothfish fishery.
B8	Closure of all areas deeper than 2,250 m to any form of bottom fishing.	Protects benthic fauna in deep-water areas. Represents a range of deep-water benthic habitats. Creates large benthic no-take zone.	There is little or no toothfish fishing deeper than 2,200 m so there are no threats in these depth strata at the moment.
B9	Closure of a proportion of each benthic bioregion.	Precautionary protection covering representative examples of all benthic habitat types.	Consider how representative protection is or can be achieved through existing and proposed closed areas, and identify additional areas to represent all benthic bioregions with minimum cost to existing activities.
B10	Close the volcanic geothermal zone near the South Sandwich Islands, including sites E2 and E9.	Protects the potentially unique fauna of this zone; this is a unique feature in the entire Southern Ocean, and potentially in the World Ocean.	Not an area commercially fished, so protection may be unnecessary. Would be fully protected by closure of all areas deeper than 2,250 m.
B11	Close the Scotia tectonic plate subduction zone and associated hadal communities.	Protects the potentially unique fauna of this zone; this is the deepest trench in the entire Southern Ocean, and one of the deepest in the World Ocean.	Not an area commercially fished, so protection may be unnecessary. Would be fully protected by closure of all areas deeper than 2,250 m.

**Figure 4.2 Potential spatial closures in the benthic realm of the South Georgia MPA.**



Note the proposed protection boundaries for Kemp Seamount, the Kemp caldera, the Adventure caldera and Protector Shoals may change, therefore indicative boundaries are shown. Note that the depth between 700 m and 2,250 m is shown in orange.