CCAMLR's management of the deep-water fisheries of the Southern Ocean

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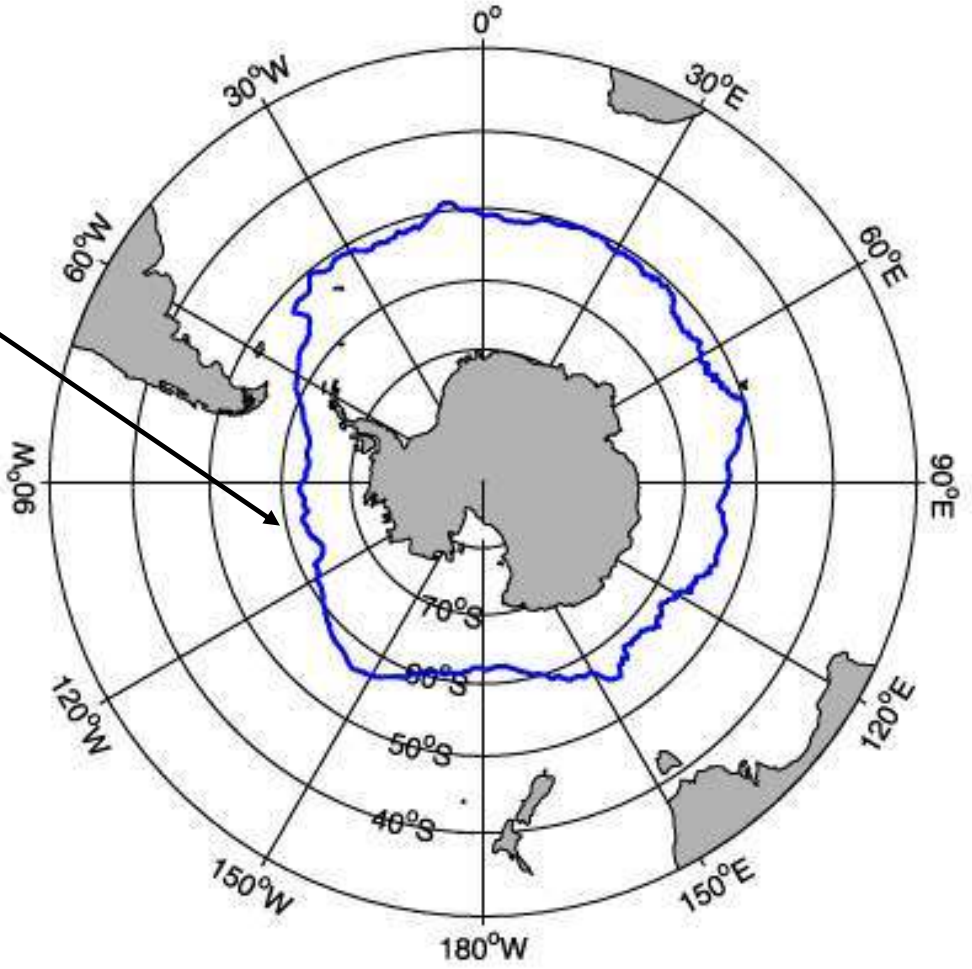
Polar front

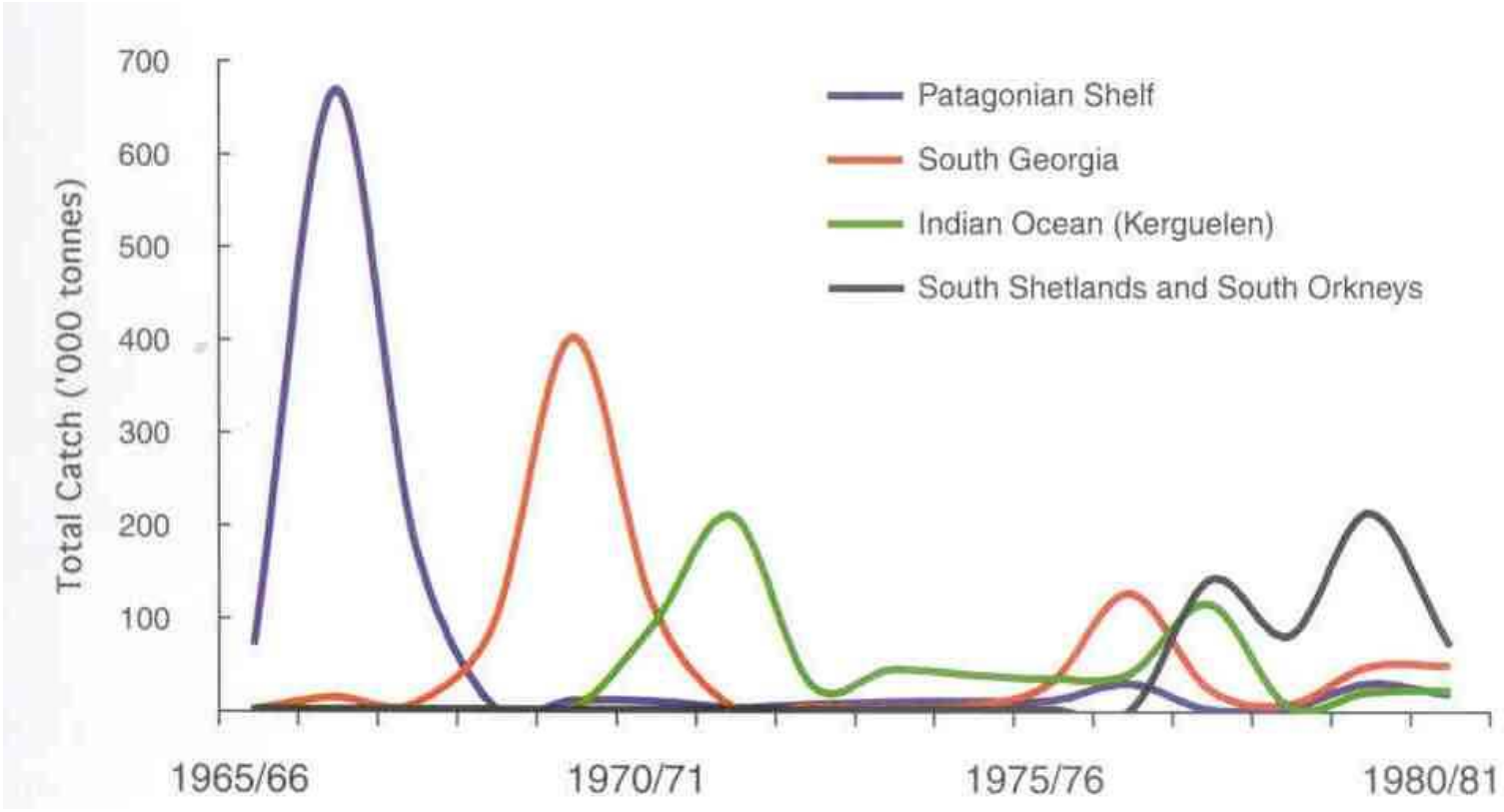
(Northern limit of ACC)



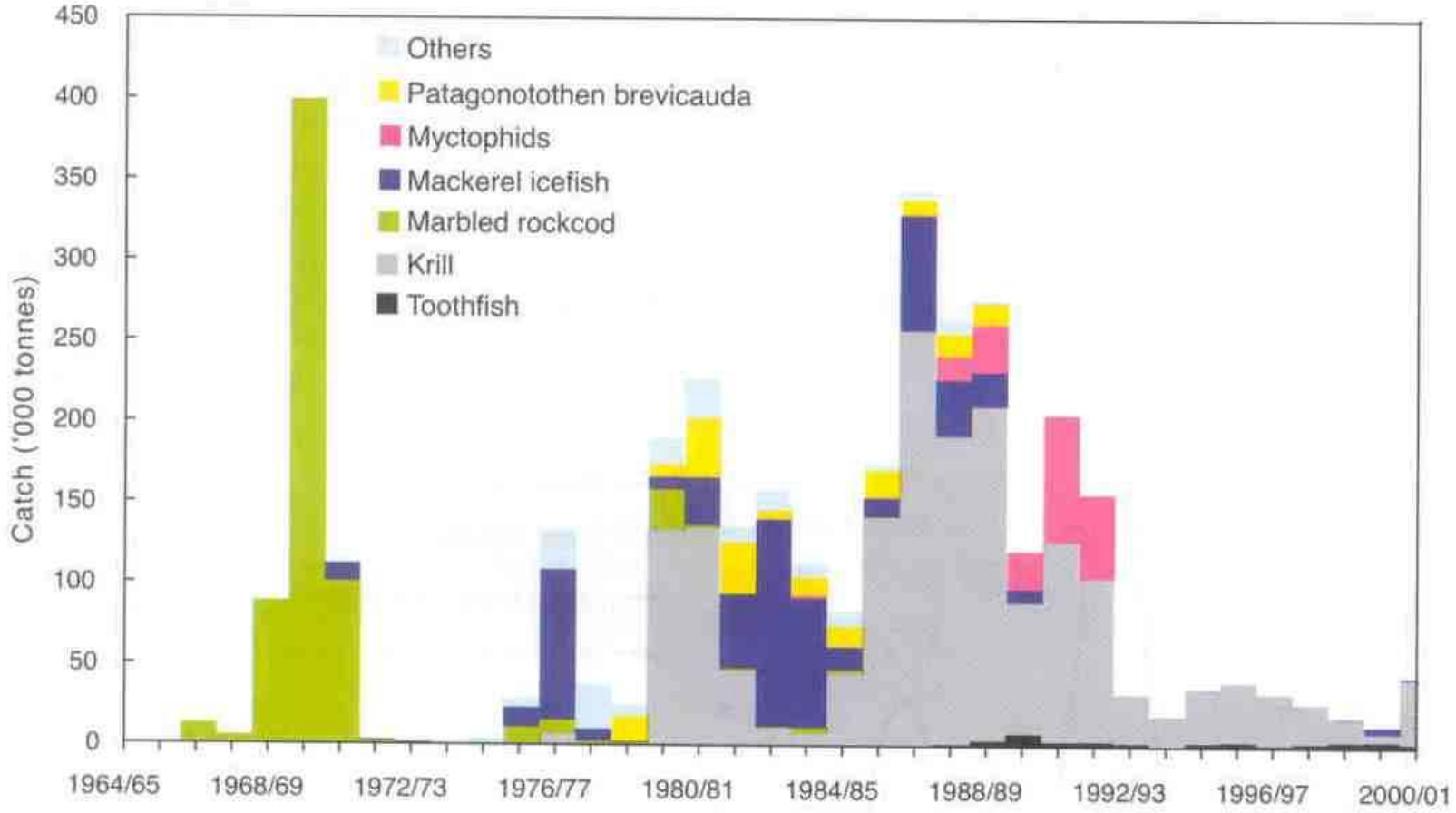
What is CCAMLR ?

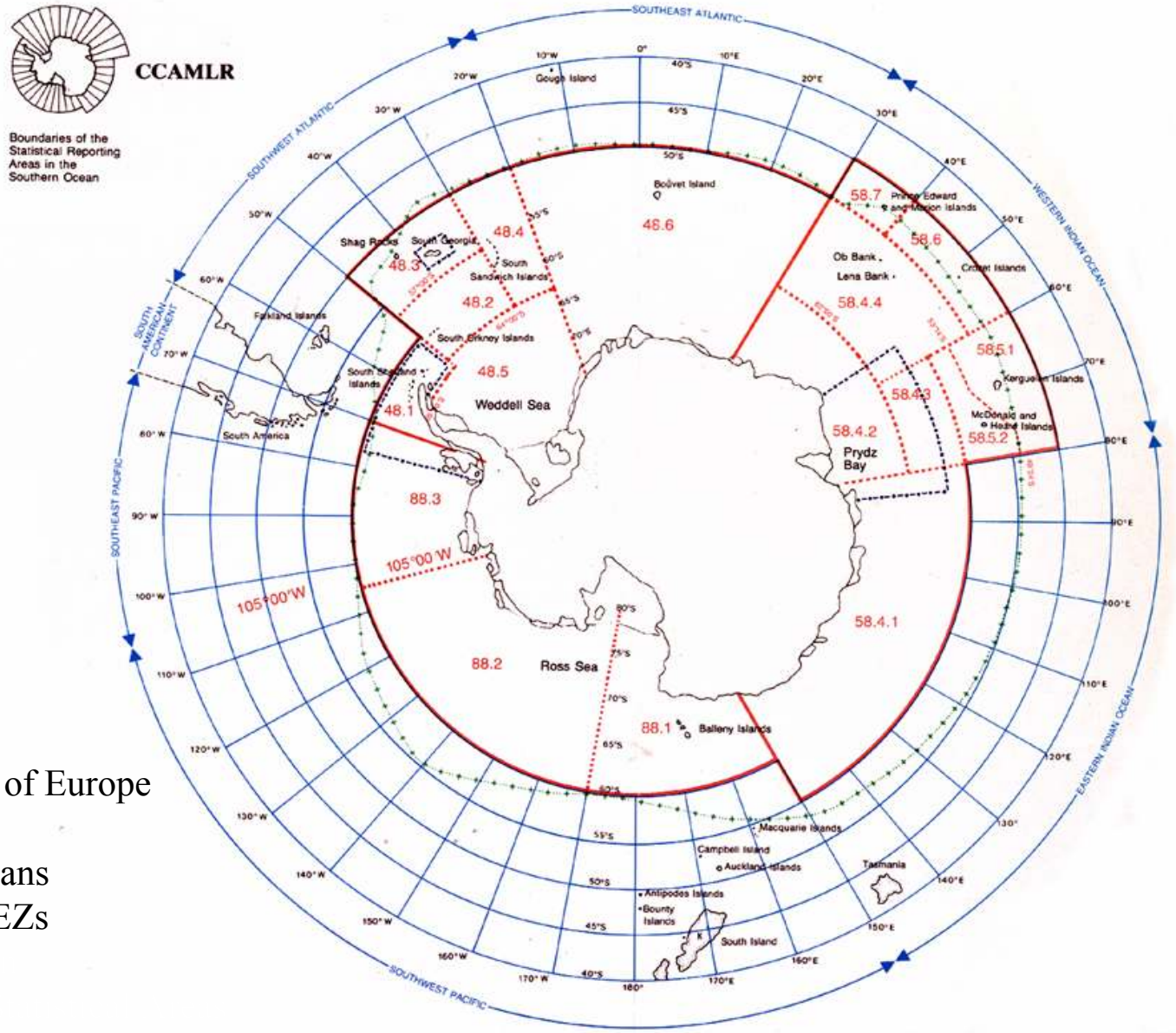
- Commision for the Conservation of Antarctic Marine Living Resources
- Part of the Antarctic Treaty System (ATS)
- 25 Signatories to the convention
- Came into force in April 1982
- Is a conservation body that acts as RFMO.

History of CCAMLR



History of CCAMLR





32 million km^2
(~ combined area of Europe and N. America)
10% or world oceans
Mostly outside EEZs

Aims of CCAMLR

- The aim of the Convention is to conserve marine life of the Southern Ocean. However this does not exclude harvesting carried out in a rational manner.
- Antarctic marine living resources means the populations of fin fish, molluscs, crustaceans and all other species of living organisms, including birds, found south of the Antarctic Convergence (Polar Front).
- It specifically does not include Seals or Whales.

The Convention (Article II)

A) prevention of a decrease in the size of any harvested population to levels below those which ensure its stable recruitment.

B) maintain the ecological relationships between harvested, dependent and related populations of Antarctic marine living resources and the restoration of depleted populations to the levels defined in sub-paragraph (a) above; and

C) prevent changes or minimization of the risk of changes in the marine ecosystem which are not potentially reversible over two or three decades

= ecosystem based management

Structure of CCAMLR

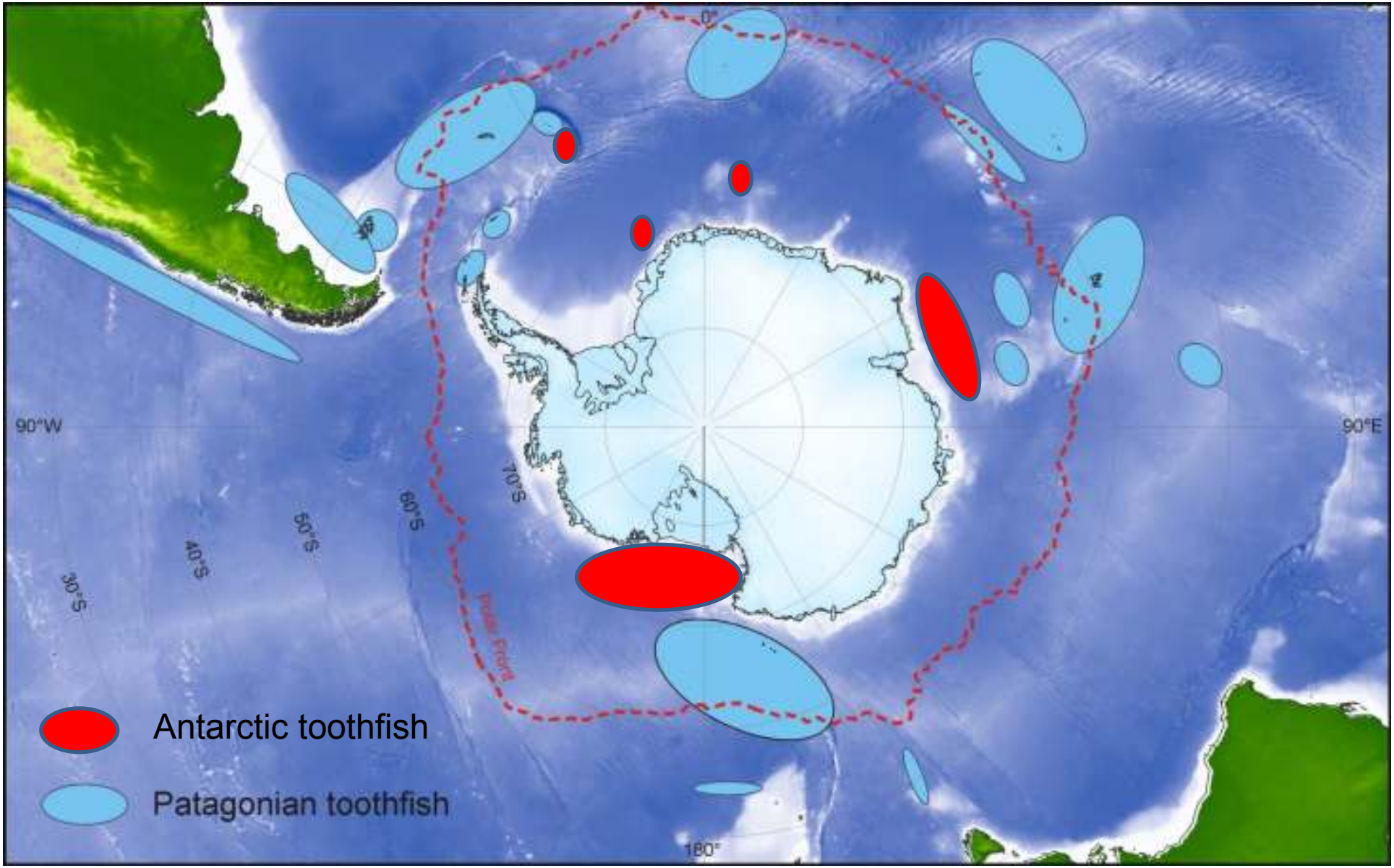
- Secretariat (based in Hobart) and led by the Executive Secretary, supports the work of the Commission.
- Scientific Committee – provides scientific advice to the Commission to implement the principles of conservation embodied in the Convention.

Scientific Committee

- Two Working Groups established to assist the SC in formulating scientific advice.
- Annual Meetings of WG-FSA and WG-EMM
- Ad-hoc meeting of other subgroups (IMAF, TASO, WG-SAM etc)

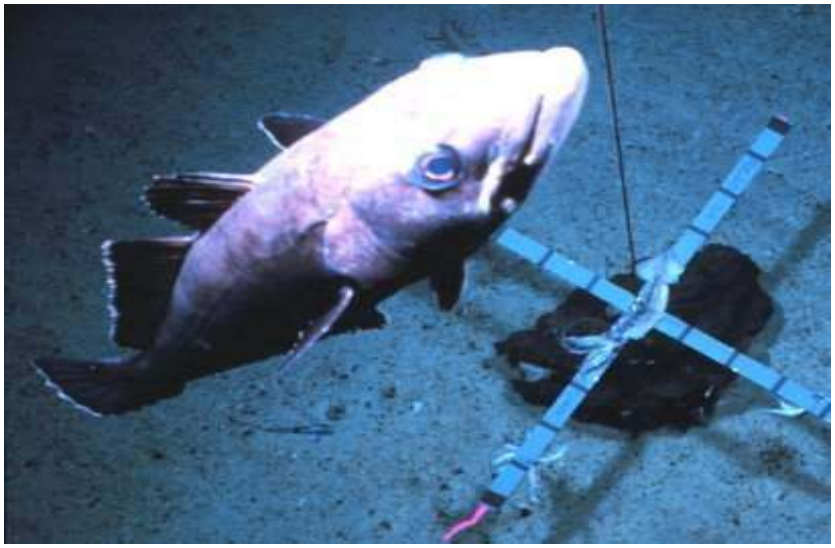
Fisheries in CCAMLR waters

- Antarctic krill (≈ 200,000t p.a., pelagic)
- Mackerel icefish (≈ 4000t p.a., semi-pelagic)
- Patagonian toothfish (≈12,000t p.a, demersal. deep-water longline)
- Antarctic toothfish (≈4000t p.a., demersal)



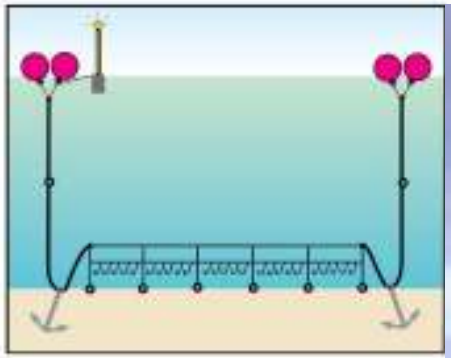
Toothfish (*Dissostichus spp.)*

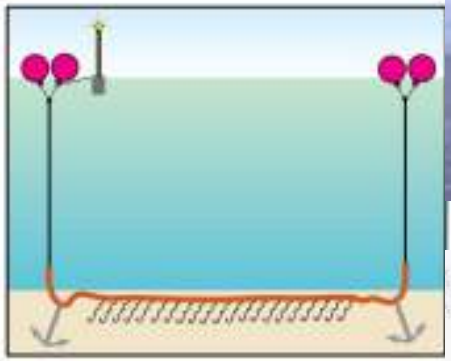
- Two species
- Max size >220cm (100kg+)
- Long-lived (>50 years)
- Scavenging
- High lipid content
- Antarctic toothfish contains ‘antifreeze’
- Very high value (>$25 kg)

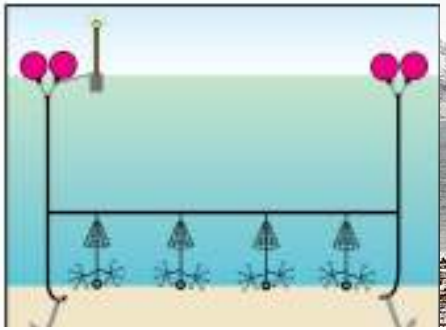


CCAMLR fisheries for Toothfish

- Three gear types used
- Deep water (average depth approx. 1000m)
- Multinational fleets
- High Seas and EEZ fisheries
- TAC (both species) 13000t
- Depth limited (>550m)

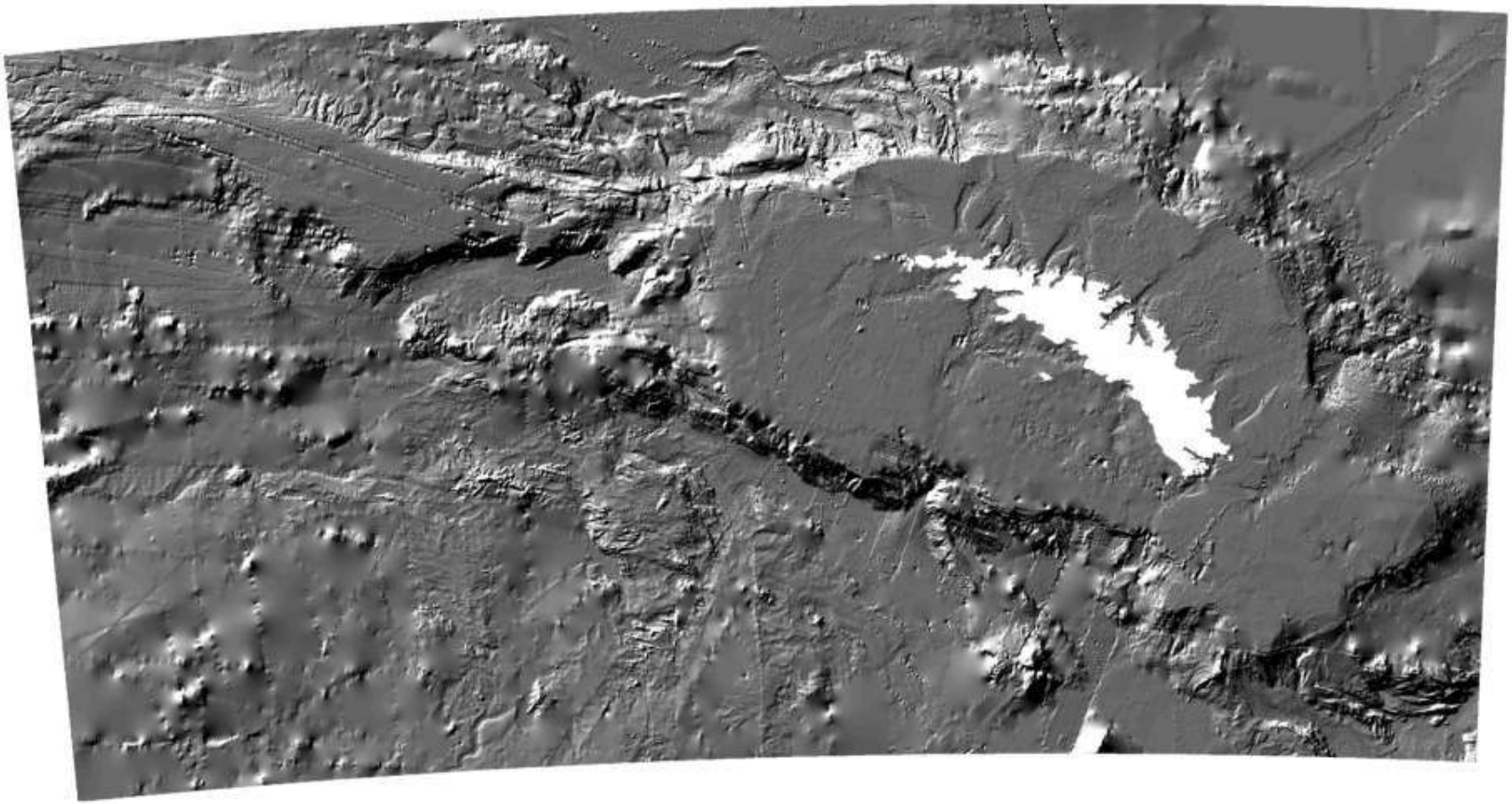






Spanish line

Autoline



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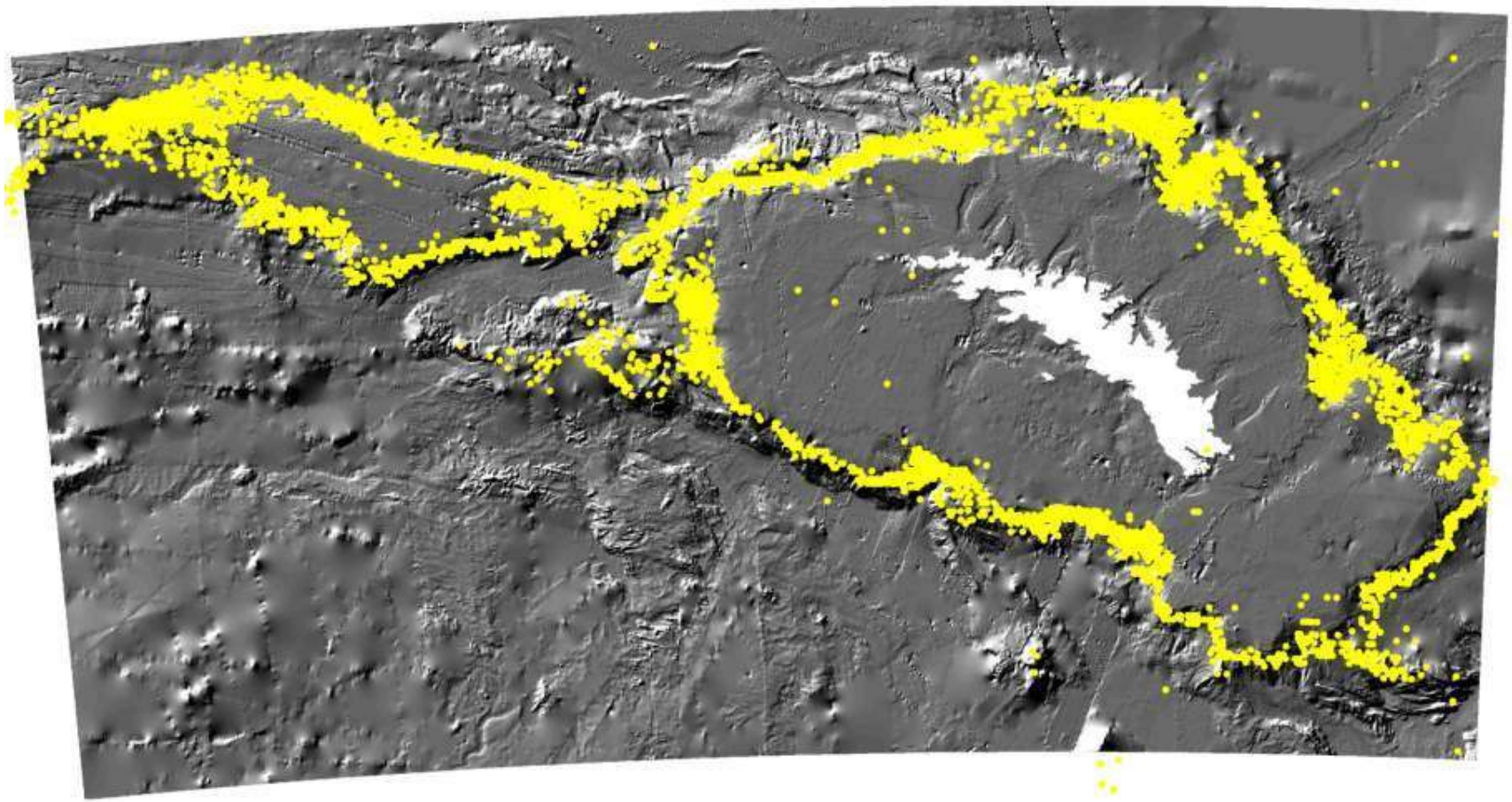

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Environmental impacts

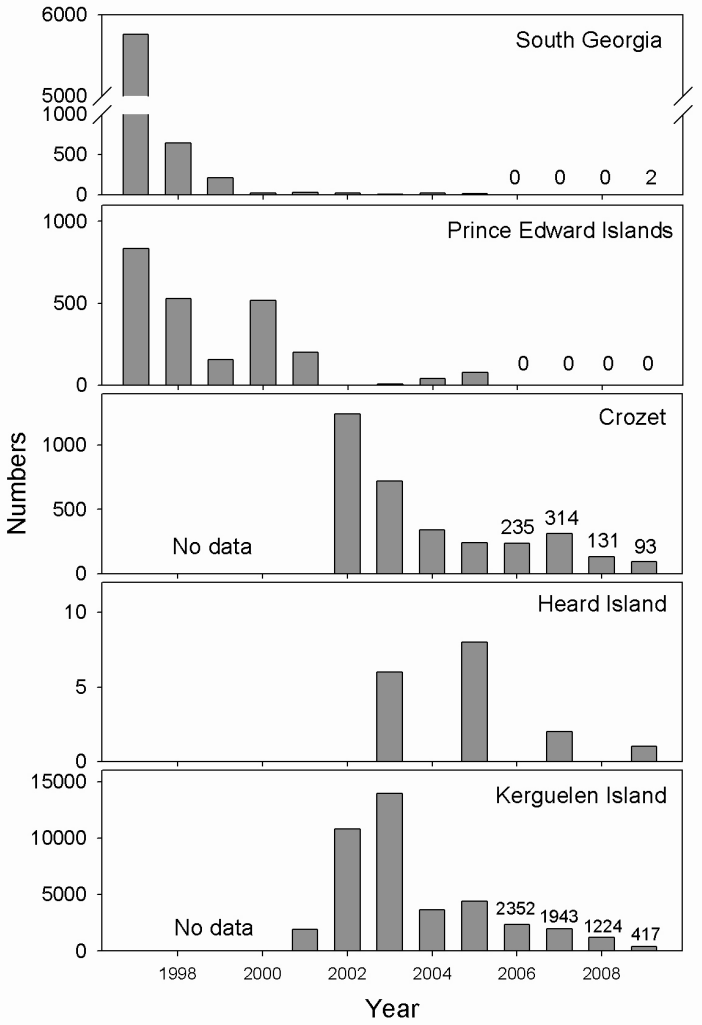
- Incidental mortality of seabirds
- Other bycatch
- Seabed disturbance by longlines
- Impact of lost gear
- Threat of IUU

Incidental mortality of seabirds

Has been a huge problem – now solved (in legal fisheries)

Mitigation (CCAMLR Conservation measures)

- Streamer lines
- Bait thawing
- Night setting
- No discarding of offal
- Line weighting
- New technology
- Seasonal closure (i.e. winter only at South Georgia)



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POLAR SCIENCE FOR PLANET EARTH

Fish and invertebrate bycatch

- Catch limits for fish bycatch species
- ‘Move-on’ rules
- Rajid (skates & rays) tagging programme
- VME recording

ote that FAO codes = CCAMLR codes

CCAMLR VME Taxa Classification Guide 2009

These groups are **not** included

Phylum	Cnidaria (CNI)										
Code	GGW					AZN	AXT	CSS	AQZ	ZOT	
Level	Gorgonacea (Order)					Anthoathecatae (Order)	Stylasteridae (Family)	Scleractinia (Order)	Antipatharia (Order)	Zoantharia (Order	
Taxon	Isididae (Bamboo)	Coralliidae (Red / precious)	Primnoidae (Bottle brush, sea fans)	Paragorgiidae (Bubblegum)	Chrysogorgiidae (Golden)	Hydroidolina (sub class) Hydroids	Stylasterids (Hydrocorals)	Stony corals	Black corals	Zoanthids	
Form, size	Solid calcified trunk with brown joints (nodes), rings in x-section, branching 2D or 3D, fine tips, tree-like branch tips	Calcified skeleton, no spines. Thick, stubby stems with fine side branches	Dark or metallic tree-like branches, flexible	Large (up to 2 m), red, thick stems, breaks when flexed	Gold, black or green metallic lustre. Semi-rigid, single, main axis with semi-soft tissue cortex. Small specimens can be feathery-like hydroids or bushy-like black coral	Entire organism small, <30 cm, flexible and plant-like, often feathery, no soft tissue covering	Calcified, no rings in x-section, often pink or white. Often uniplanar, side branches lattice from obviously thicker main stems	**Cups:** usually small (<20cm), solitary or in small clusters Branching matrix-forming stony corals have not been observed south of 56°S	Semi-rigid, woody, not very dense, dark brown or black skeleton, can be large (>2 m). Branch tips can look like hydroids or small gorgonian	Erect 'coral-like' colonies. Often grow on, or colonise, other living corals	
Detail (texture, colour, polyps)	Can scrape off surface tissue, skeleton surface smooth between nodes	Can scrape off surface tissue. Smooth (not sandpapery) with knobbly ends. No pores on skeleton	Usually no spines, some metallic lustre on skeleton, 3D bushy branches, obvious polyps	Chalky material, not hard. No spines, can scrape off surface. Bulbous ends with polyps	Can be non-branching and whip-like. Usually no spines, metallic lustre. Fine or sparse 3D branching	Indistinct polyps, feathery tips	Coarse sandpaper texture, can't scrape off surface tissue. Has minute pores. Can be white or red	Calcified, very hard or brittle **Cups:** Can be ridged **Branching:** Often smooth stems. Can form a 3D matrix. Polyp calyces well formed with ridged edges, large, hard polyps	Slimy flesh on branches. Surface with minute spines, may appear smooth. 3D, fine or bushy tips	Large roundish polyps; often bright orange.	
Commonly mistaken for other groups, such as:	Other gorgonians if in small pieces, but won't break easily	Soft corals, that have soft stems. Stylasterids, but Corallidae have nodules	Hydroids if small pieces, but have distinct polyps	Pieces of Coralliidae	Antipatharia, but tips are not slimy	Small specimens of Gorgonacea, Antipatharia, or carnivorous sponges	Small, hard bryozoans or pieces of Coralliidae	Pieces of hydrocorals and *Corallium* can be confused with branching stony corals	Hydroid if small, or small pieces of dead Gorgonacea	Large brooding gorgonian co polyps: branching soft corals	

Management measures

- CCAMLR assessments to set conservative TAC's
  - Robust 'decision rules' for long-term yield calculation
- Rigorous reporting of fishery data via flag state
- International scientific observers on all longline vessels
- Fishery protection vessels (more within EEZs)
- Catch documentation scheme (CDS)
- Development of spatial planning measures (MPAs ?)
- NO DATA-NO FISHING

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Achievements of CCAMLR

- Recognised international best practice at-sea scientific observer program
- Management decisions that take account of the impact on the ecosystem and the sustainability of fished resources
- A combination of surveillance, enforcements and market controls have significantly reduced IUU fishing that undermines the conservation measures adopted by CCAMLR
- Incidental mortality of seabirds in CCAMLR regulated fisheries reduced from thousands in the 1990s to near zero today
- Pioneering work in relation to the protection of vulnerable marine ecosystems
- Rigorous scientific processes developed to support consideration of marine protected areas in the Convention Area

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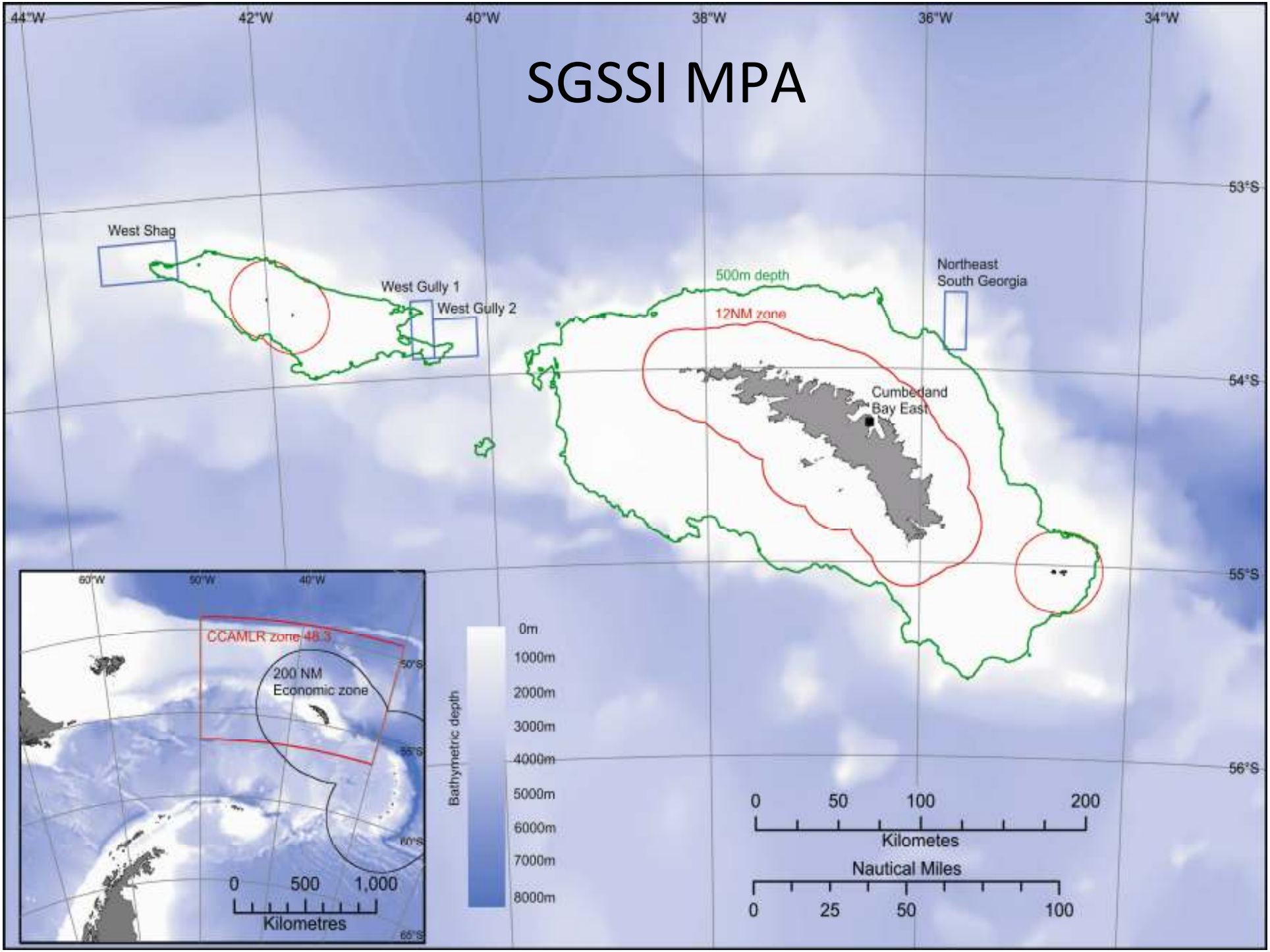
SGSSI MPA
44°W
42°W
40°W
38°W
36°W
34°W
53°S
54°S
55°S
56°S
West Shag
West Gully 1
West Gully 2
500m depth
12NM zone
Northeast
South Georgia
Cumberland
Bay East
60°W
50°W
40°W
50°S
55°S
60°S
65°S
CCAMLR zone 48.3
200 NM
Economic zone
0
500
1,000
Kilometres
Bathymetric depth
0m
1000m
2000m
3000m
4000m
5000m
6000m
7000m
8000m
0
50
100
200
Kilometes
Nautical Miles
0
25
50
100

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